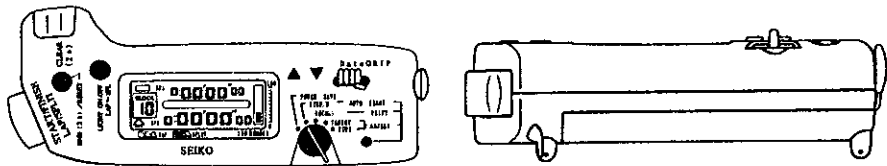


# PARTS CATALOGUE/TECHNICAL GUIDE



## Cal. S701A

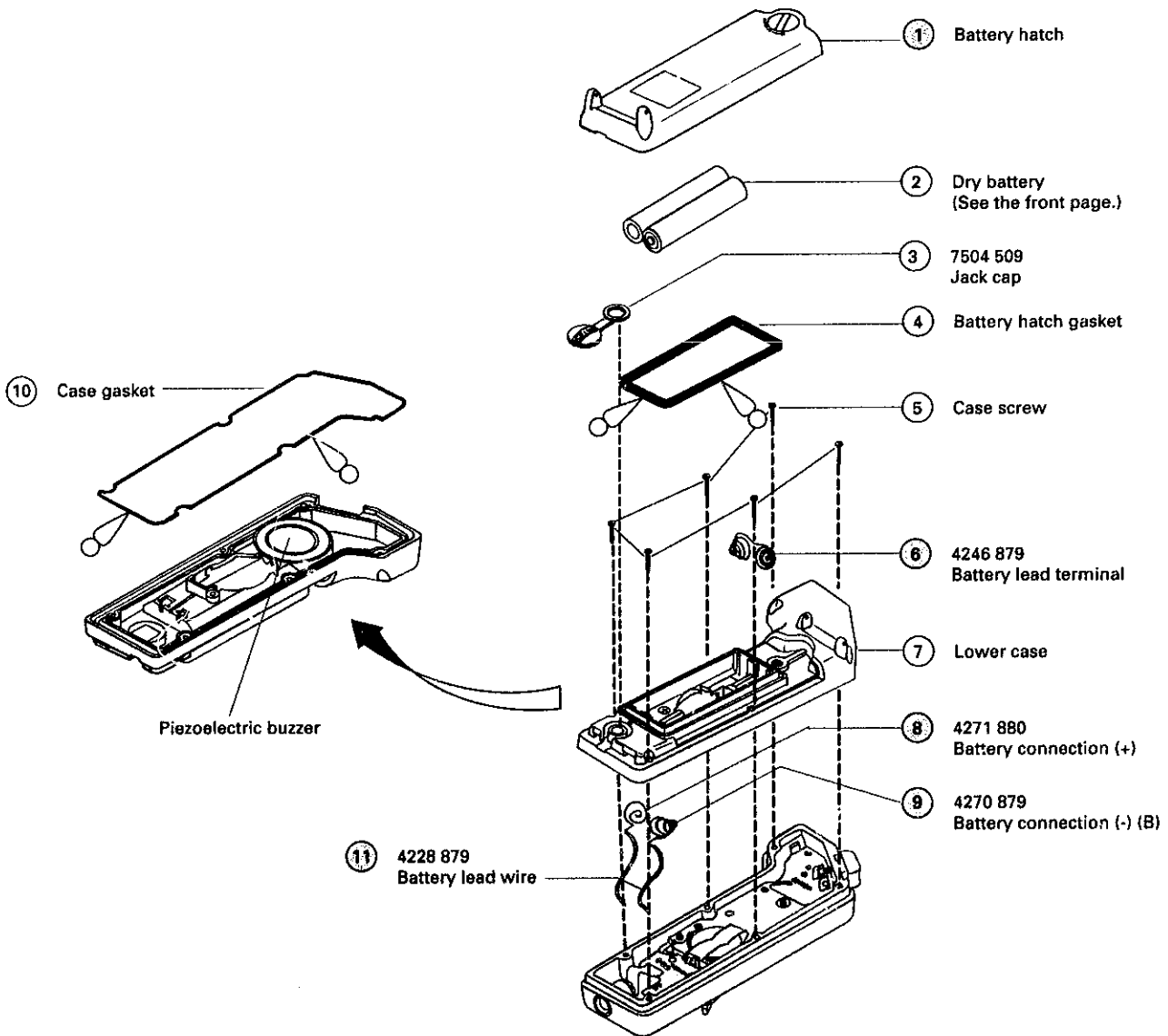
### [SPECIFICATIONS]

Item		Cal. No.	S701A
Complete			 <p style="text-align: right;">(x 0.5)</p>
Module size	Outside diameter	46.0 mm between 6 o'clock and 12 o'clock sides 107.0 mm between 3 o'clock and 9 o'clock sides	
	Casing diameter	-	
	Height	27.0 mm	
Display medium		TN type liquid crystal	
Liquid crystal driving system		1/4 multiplex driving system	
Display system		<ul style="list-style-type: none"> <li>• Time/calendar display (24-hour indication system)</li> <li>• Stopwatch display (Up to 10 hours in 1/100 second increments)                             <ul style="list-style-type: none"> <li>• Lap time/split time measurement</li> <li>• Memory function: Up to 100 measurements</li> </ul> </li> <li>• Memory recall display</li> <li>• Memory capacity indicator</li> <li>• The illuminating light mark is displayed while the illuminating light is turned on.</li> <li>• Battery life indicator</li> </ul>	
Additional mechanisms		<ul style="list-style-type: none"> <li>• Power saving function</li> <li>• Safety light</li> <li>• Target time function</li> <li>• Identification number setting function</li> <li>• Printout function using a printer</li> <li>• Illuminating light</li> <li>• All segments checking system</li> </ul>	
Loss/gain		Monthly rate at normal temperature range: less than 15 seconds	
Regulation system		Trimmer condenser	
Measuring gate by quartz tester		Any gate can be used with all the segments lit up.	
Battery for stopwatch operation		SEIKO CR2032, Maxell CR2032, Matsushita CR2032 Battery life is approximately 3 years. Voltage: 3.0 V	
Battery for lights		IEC R03/ANSI AAA manganese dry battery (2 pcs.), or IEC LR03/ANSI L40 alkaline manganese dry battery (2 pcs.) Alkaline manganese battery: Approx. 90 hours if the light is used continuously.	

Disassembling procedures Figs. : ① → ③②

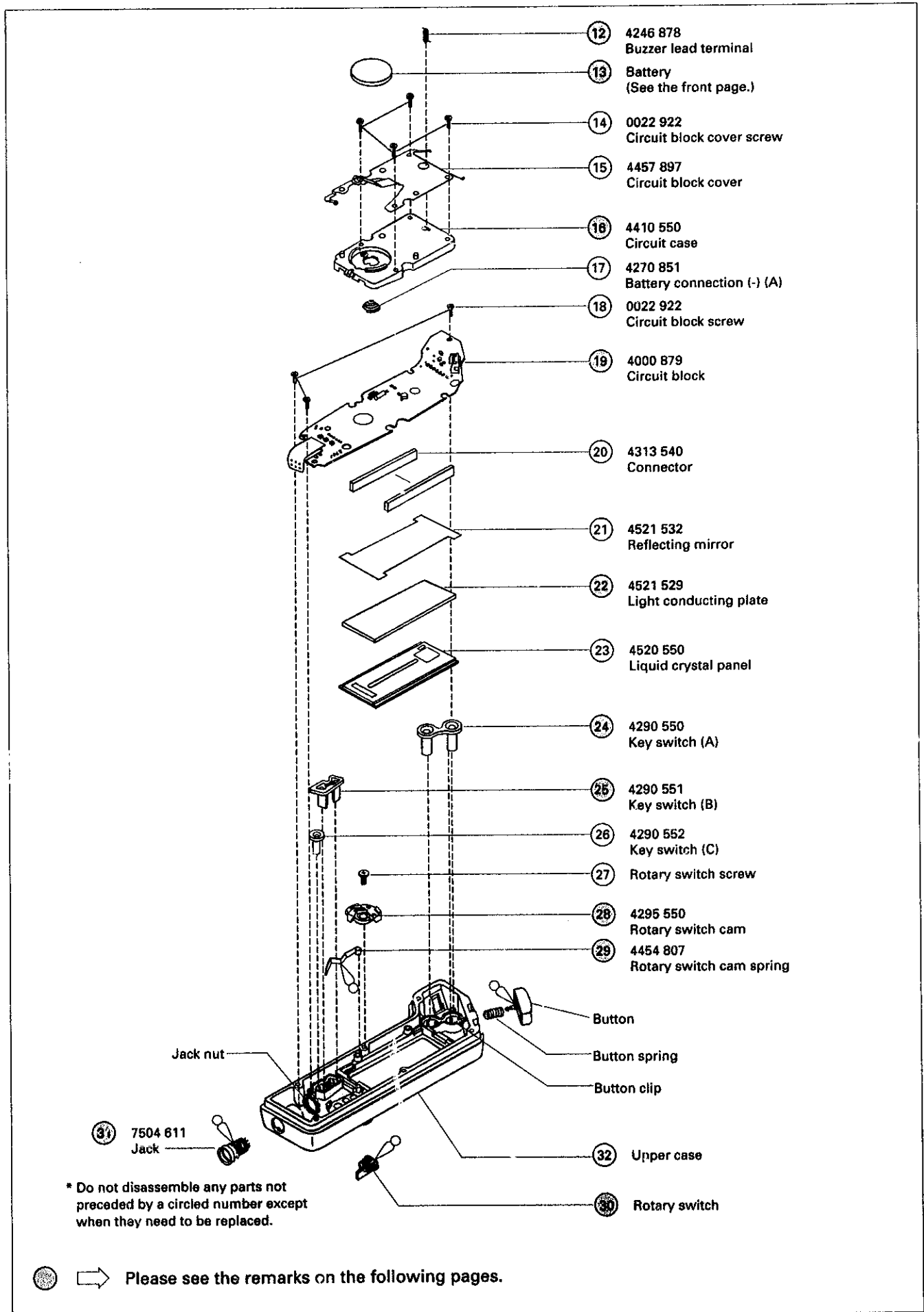
Reassembling procedures Figs. : ③② → ①

**Lubricating: Type of oil                      Oil quantity**  
 Silicone oil 500,000 c.s.     Normal quantity



\* Do not disassemble any parts not preceded by a circled number except when they need to be replaced.

 Please see the remarks on the following pages.



- 12 4246 878 Buzzer lead terminal
- 13 Battery (See the front page.)
- 14 0022 922 Circuit block cover screw
- 15 4457 897 Circuit block cover
- 16 4410 550 Circuit case
- 17 4270 851 Battery connection (-) (A)
- 18 0022 922 Circuit block screw
- 19 4000 879 Circuit block
- 20 4313 540 Connector
- 21 4521 532 Reflecting mirror
- 22 4521 529 Light conducting plate
- 23 4520 550 Liquid crystal panel
- 24 4290 550 Key switch (A)
- 25 4290 551 Key switch (B)
- 26 4290 552 Key switch (C)
- 27 Rotary switch screw
- 28 4295 550 Rotary switch cam
- 29 4454 807 Rotary switch cam spring
- Button
- Button spring
- Button clip
- 30 Rotary switch
- 31 7504 611 Jack
- 32 Upper case

\* Do not disassemble any parts not preceded by a circled number except when they need to be replaced.

➔ Please see the remarks on the following pages.

**Remarks:**

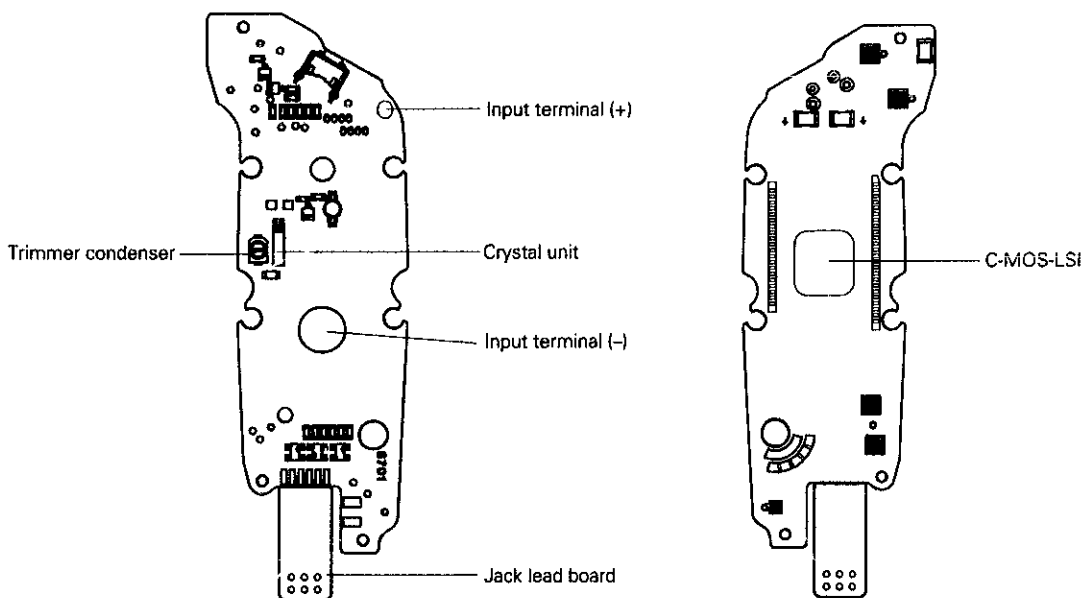
①9 Circuit block

The circuit block is only available for supply with the jack lead board, battery lead wires, battery connection (-) (B) and battery connection (+) attached to it. The battery lead wires, battery connection (-) (B) and battery connection (+), however, are available separately from the circuit block.

## TECHNICAL GUIDE

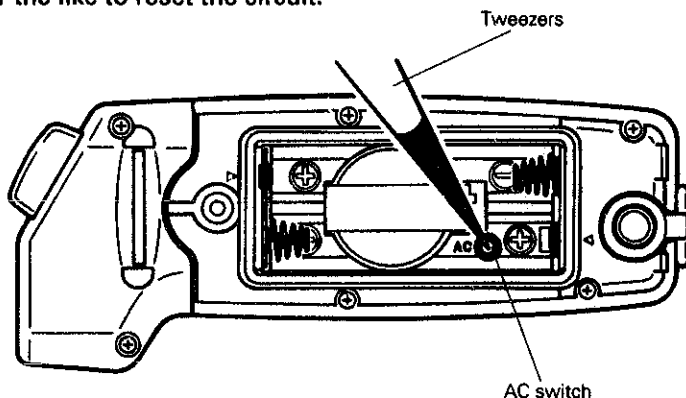
- The explanation here is only for the particular points of Cal. S701A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

### I. STRUCTURE OF THE CIRCUIT BLOCK



### II. REMARKS ON INSTALLING THE BATTERY (LITHIUM BATTERY FOR STOPWATCH OPERATION)

- After the battery for stopwatch operation is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to push the AC switch completely twice, using the tip of tweezers or the like to reset the circuit.



### III. REMARKS ON DISASSEMBLING AND REASSEMBLING

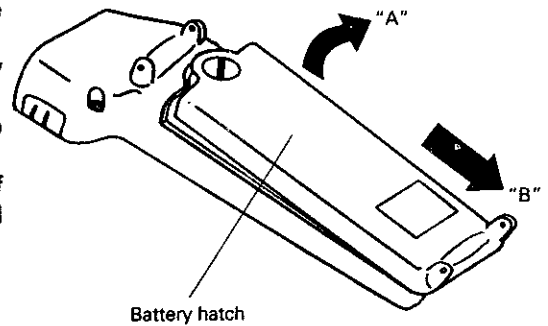
① Battery hatch

• How to remove

After loosening the battery hatch screw, follow the procedure below to remove the battery hatch.

- 1) Lift up the battery hatch slightly in the direction of arrow "A" in the illustration.
- 2) Slide the battery hatch in the direction of arrow "B" to remove it.

**Note:** When lifting up the battery hatch in the direction of arrow "A", take care not to lift it up excessively and damage the hooking portion.



• How to install

Reverse the above procedure.

⑥ Battery lead terminal

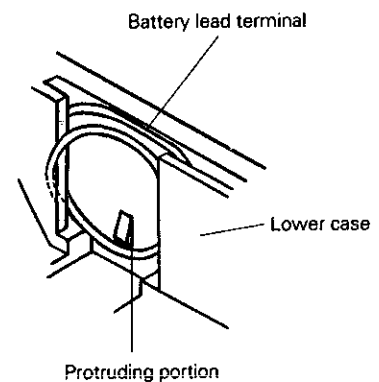
• How to remove

Pull out the battery lead terminal, being careful not to catch the spring portion on the protruding portion of the lower case.

**Note:** Do not remove the battery lead terminal except when necessary.

• How to install

Push in the battery lead terminal completely until its spring portion passes over the protruding portion of the lower case.



⑧ Battery connection (+)

⑨ Battery connection (-) (B)

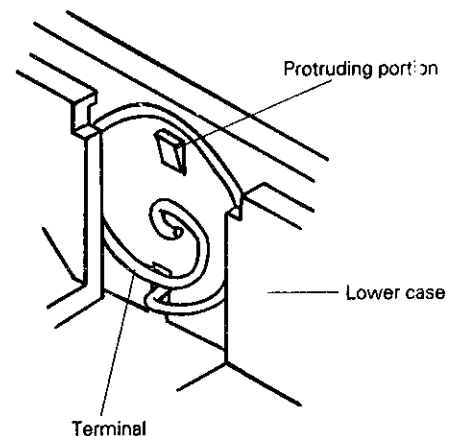
• How to remove

Pull out the battery connections (+) and (-) (B), being careful not to catch the spring portions on the protruding portions of the lower case.

• How to install

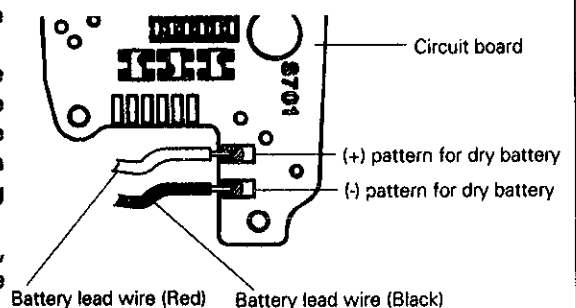
Push in the battery connections (+) and (-) (B) completely until their spring portions pass over the protruding portions of the lower case.

**Note:** When removing or installing the battery connections (+) and (-), take care not to break the battery lead wires or disconnect them at the soldered points.



⑪ Battery lead wire

- 1) To remove the battery lead wires, unsolder their ends on the circuit block side.
- 2) If it is necessary to unsolder the battery lead wires from the battery connections (+) and (-) (B) or re-solder them, be sure to finish the unsoldering or re-soldering before setting the terminals to the lower case, to prevent the lower case from being melted by the heat generated during the soldering work.
- 3) When re-soldering the battery lead wires to the circuit block, observe the correct polarity of the wires. (Refer to the illustration at right.)



4) When setting the lower case to the upper case, take care not to catch the battery lead wires between the edges of the upper and lower cases.

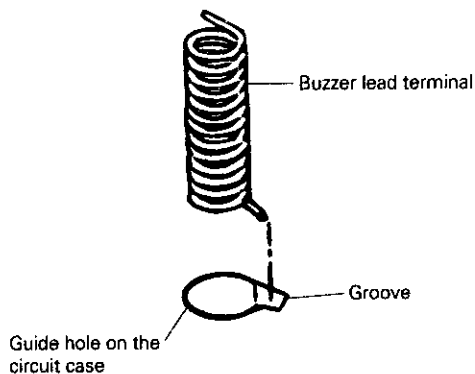
## 12) Buzzer lead terminal

### • How to remove

Turn the buzzer lead terminal to release the end portion of its coil spring from the groove of the guide hole on the circuit case, and then, remove the buzzer lead terminal.

### • How to install

Set the end portion of the coil spring of the buzzer lead terminal into the groove of the guide hole on the circuit case, and then, turn it 180° to fix it securely.



## 13) Battery (Lithium battery for stopwatch operation)

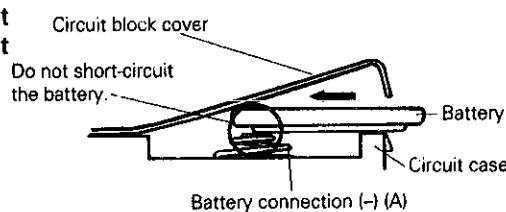
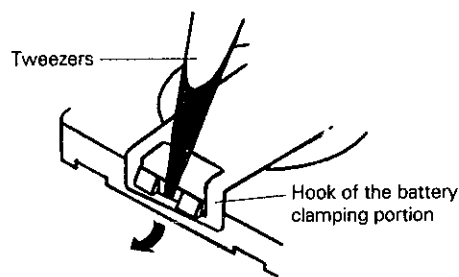
### • How to remove

Lightly pry up the hook of the battery clamping portion of the circuit block cover using tweezers, etc. to remove the battery.

### • How to install

Insert the battery parallel to the surface of the circuit case lest both the sides of the battery should touch the battery connection (-) (A) and cause a short circuit.

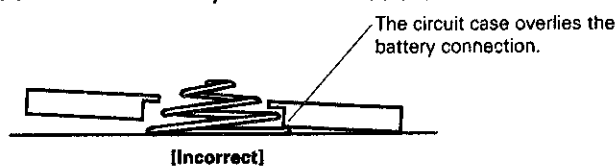
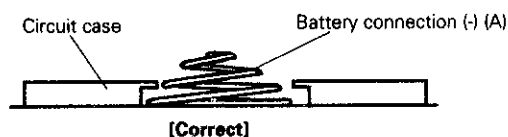
Then, have the hook of the battery clamping portion of the circuit block cover securely catch the protruding portions of the circuit case.



## 16) Circuit case

### • How to install

When installing the circuit case, check that it does not overlie the battery connection (-) (A).

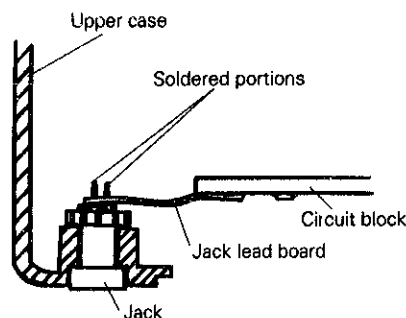


## 19) Circuit block

The jack and jack lead board are soldered together. To remove or install the circuit block, therefore, use a soldering iron to unsolder or re-solder them.

\* To remove the circuit block smoothly, soak up the melted solder.

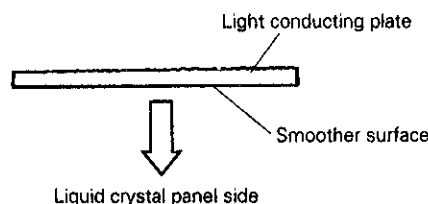
**Note:** When using the soldering iron, take utmost care not to melt the case and other parts.



## 22) Light conducting plate

### • How to install

Set the light conducting plate with its smoother surface facing the liquid crystal panel side.

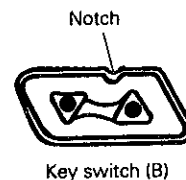
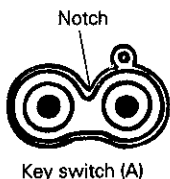


24 Key switch (A)

25 Key switch (B)

• How to install

The key switches (A) and (B) have notches as shown in the illustrations. When installing them, set those notches to the counterparts of the guide portions on the upper case.



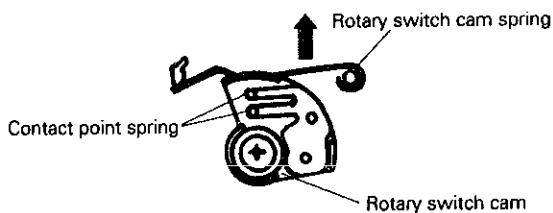
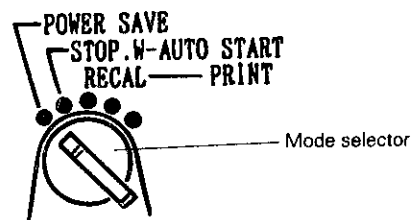
28 Rotary switch cam

• How to install

• Before installing the rotary switch cam, set the mode selector to "POWER SAVE".

• Place the rotary switch cam at the position indicated in the illustration at right, and then set the rotary switch cam in position while pulling the rotary switch cam spring in the direction of the arrow.

**Note:** When installing the rotary switch cam, do not hold down the contact point spring to bend it down.

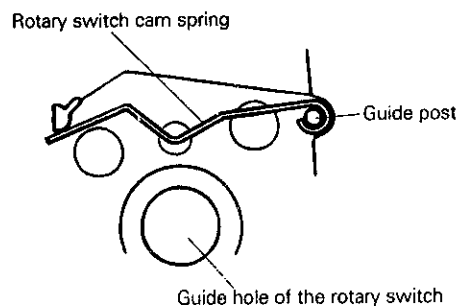


29 Rotary switch cam spring

• How to install

Set the rotary switch cam spring as shown in the illustration at right.

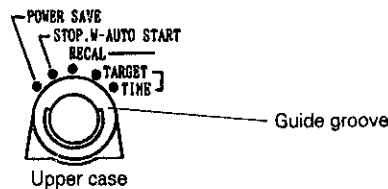
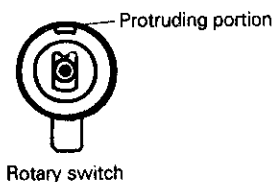
\* In doing so, take care not to set it in the wrong direction. See the illustration for guidance.



30 Rotary switch

• How to install

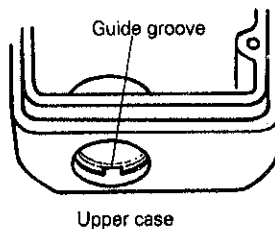
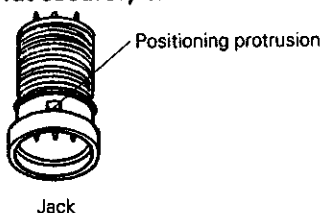
Set the protruding portion of the rotary switch to the guide groove of the upper case.



31 Jack

• How to install

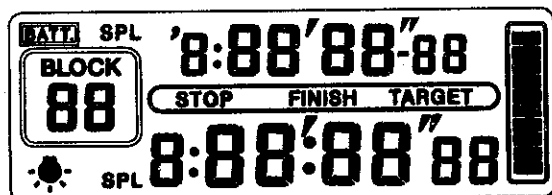
Set the positioning protruding portion of the jack to the guide groove of the upper case, press in the jack, and then, tighten the jack nut securely to fix it.



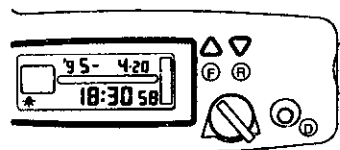
## IV. VALUE CHECKING

- All the segments lit up

In the TIME/CALENDAR mode, while pressing both buttons "F" and "R" at the same time, press button "D". All the segments of the display will light up.



All the segments lit up



Button position

- With all the segments lit up, check for defects on the display, and measure the time accuracy.
- To return to the normal display, press any one of the buttons. The display will return to the TIME/CALENDAR. If the stopwatch is left untouched with all the segments lit up, it will automatically return to the TIME/CALENDAR in 60 to 70 seconds.

- Current consumption

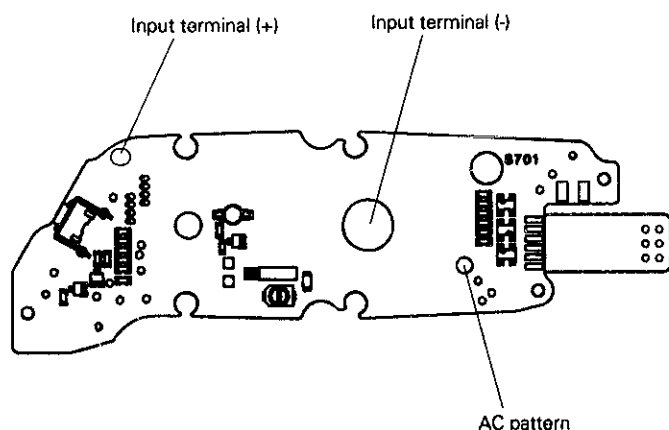
For the whole module	:	Less than 5.0 $\mu$ A
For the circuit block alone	:	Less than 4.5 $\mu$ A

### Notes:

- 1) After connecting the ammeter, reset the circuit and then start the measurement.

Circuit resetting procedure:

- For the whole module: Refer to "II. REMARKS ON INSTALLING THE BATTERY (LITHIUM BATTERY FOR STOPWATCH OPERATION)".
- For the circuit block alone: Short-circuit the AC pattern and input terminal (+) in the illustration below for a second.



- 2) If the buzzer rings, leave it untouched for more than 30 seconds, and then, measure the current consumption.