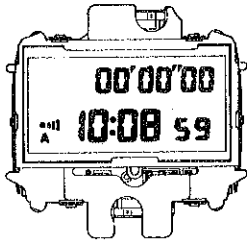
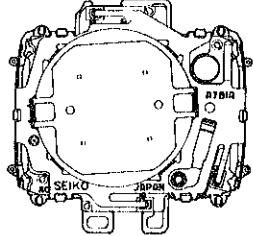


# PARTS CATALOGUE / TECHNICAL GUIDE

## Cal. A781A

### [SPECIFICATIONS]

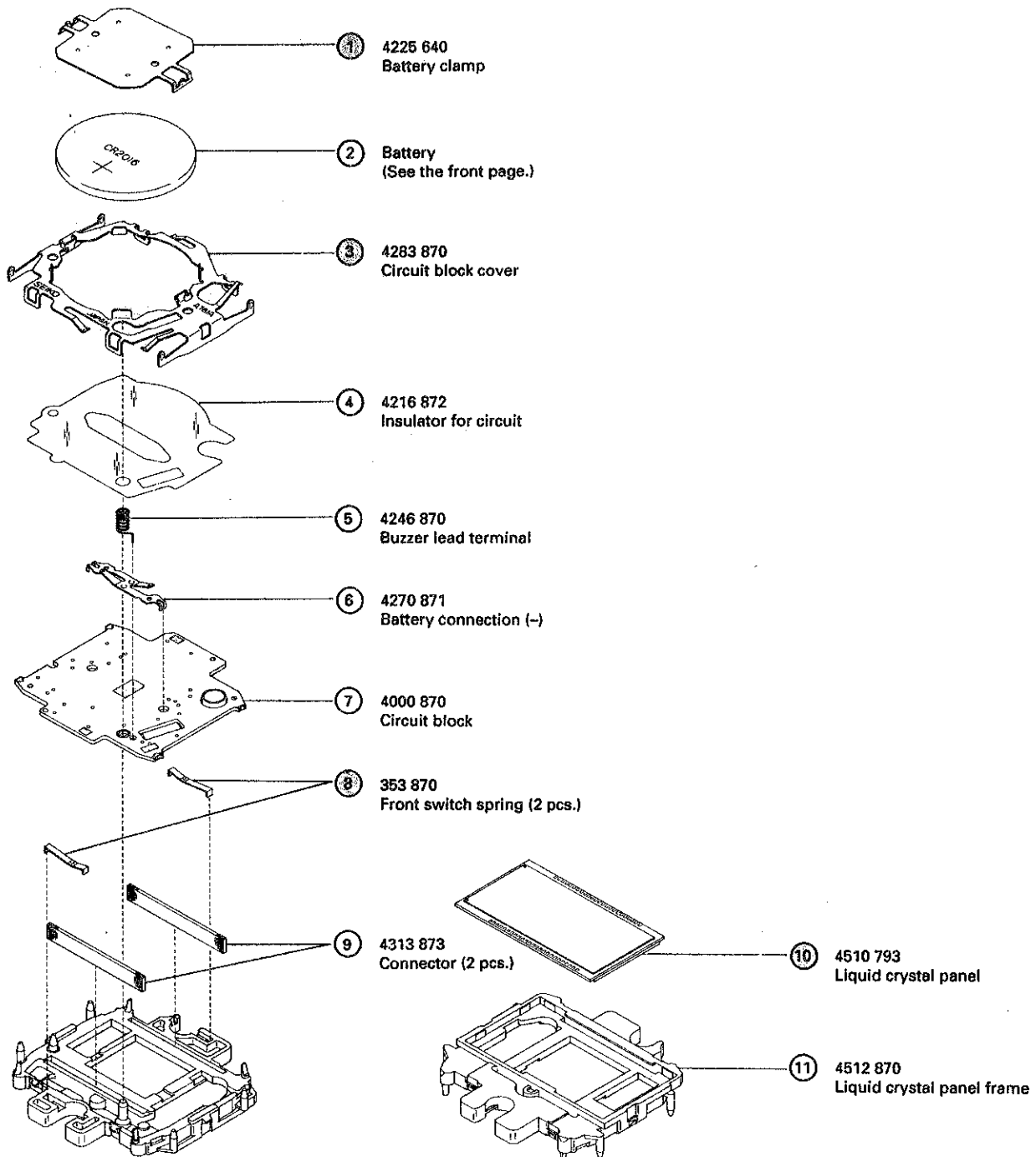
Item		Cal. No.	A781A
Module		  <p style="text-align: center;">(x 1.0)</p>	
Module size	Outside diameter	29.4mm between 6 o'clock and 12 o'clock sides 30.5mm between 3 o'clock and 9 o'clock sides	
	Casing diameter	-	
	Height	5.3mm including the battery portion	
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)	
Liquid crystal driving system		1/3 multiplex driving system	
Display system		<ul style="list-style-type: none"> <li>• Time/calendar display (12- or 24-hour indication)</li> <li>• Stopwatch display</li> <li>• Lap time display                             <ul style="list-style-type: none"> <li>• Lap time measurement</li> <li>• Fastest lap time</li> <li>• Lap time difference</li> <li>• Average speed</li> </ul> </li> <li>• Alarm display</li> <li>• Distance setting display</li> </ul>	
Additional mechanism		Alarm test system	
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 CR2016, Maxell CR2016, Sanyo CR2016, Matsushita CR2016, EVEREADY CR2016 Battery life is approximately 3 years. Voltage: 3.0V	

# PARTS CATALOGUE

Cal. A781A

Disassembling procedures Figs. : ① → ⑪

Reassembling procedures Figs. : ⑪ → ①



● → Please see the remarks on the following pages.

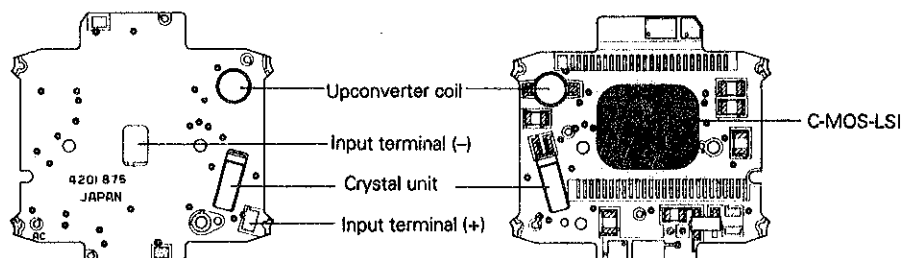
**Remarks:**

- Other parts
  - Insulator for buzzer 4216 534
  - Piezoelectric element 4589 650

## TECHNICAL GUIDE

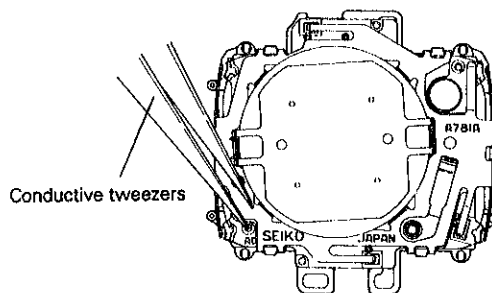
- The explanation here is only for the particular points of Cal. A781A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

### I. STRUCTURE OF THE CIRCUIT BLOCK



### II. REMARKS ON INSTALLING THE BATTERY

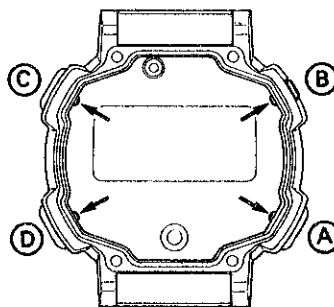
After the battery is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to short-circuit the AC terminal of the circuit block and the circuit block cover with conductive tweezers as illustrated at right to reset the circuit.



### III. REMARKS ON DISASSEMBLING AND REASSEMBLING

Use the universal movement holder for disassembling and reassembling.

- **Note on installing the module to the case**  
Before installing the module to the case, be sure to push out the buttons "A", "B", "C" and "D" toward outside the case as shown in the illustration.



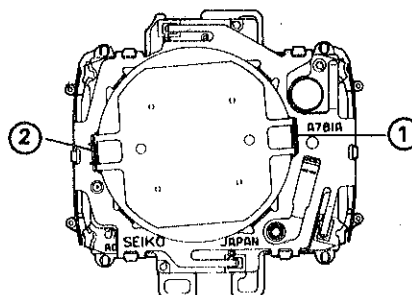
## ① Battery clamp

### • How to remove

Remove the battery clamp in the order of portions ① and ② in the illustration.

### • How to install

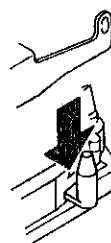
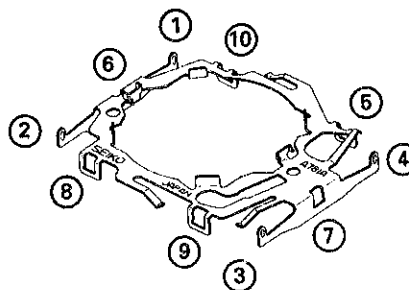
Reverse the procedure above.



## ③ Circuit block cover

### • How to install

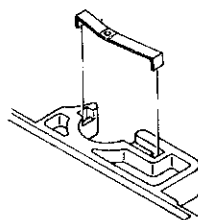
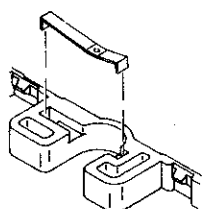
- 1) Set the hooking portions of the circuit block cover (①~④ in the illustration) to the liquid crystal panel frame as shown in the illustration at right in the order of ① to ④.
- 2) Hook portion ⑤ to the protrusion of the liquid crystal panel, and then set portions ⑥ to ⑩ in position.
- 3) Check if all the hooking portions are securely set.



## ⑧ Front switch spring

### • How to install

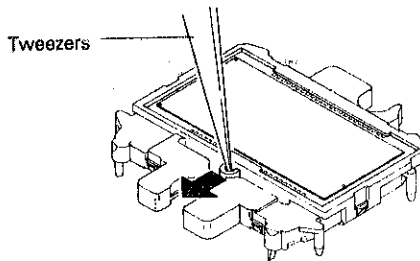
Set the two front switch springs as shown in the illustration, checking that they are placed in opposite directions.



## ⑩ Liquid crystal panel

### • How to install

- Set the liquid crystal panel in the direction shown in the illustration. (The direction can be identified by the pattern on the panel.)
- Release the clamping portion of the liquid crystal panel frame by moving it in the direction of the arrow in the illustration with tweezers, and set the liquid crystal panel.



## IV. VALUE CHECKING

### • Upconverter coil resistance

90Ω ~ 105Ω

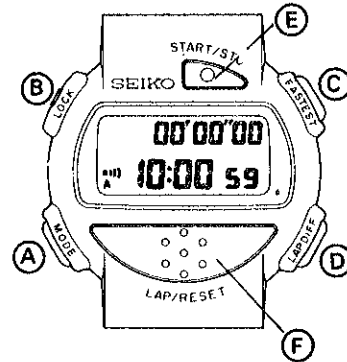
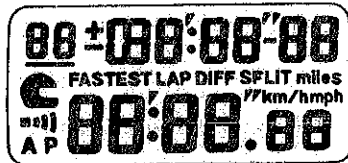
### • Current consumption

For the whole of the module: less than 3.0μA  
 For the circuit block alone : less than 2.5μA

### • Time accuracy

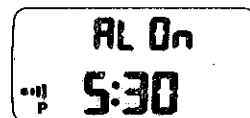
To measure accuracy, light up all the segments of the display.  
 Note that the time accuracy cannot be adjusted even if it is found defective.

- (1) Press button "B" to show the TIME SETTING display.
- (2) Press buttons "A", "C" and "D" at the same time.
- (3) Check that all the segments light up as shown in the illustration below.
- (4) To return to the TIME/STOPWATCH display, press button "B".



### • Alarm test

- (1) Press button "A" to show the ALARM display.
- (2) The alarm rings while button "C" is kept pressed.

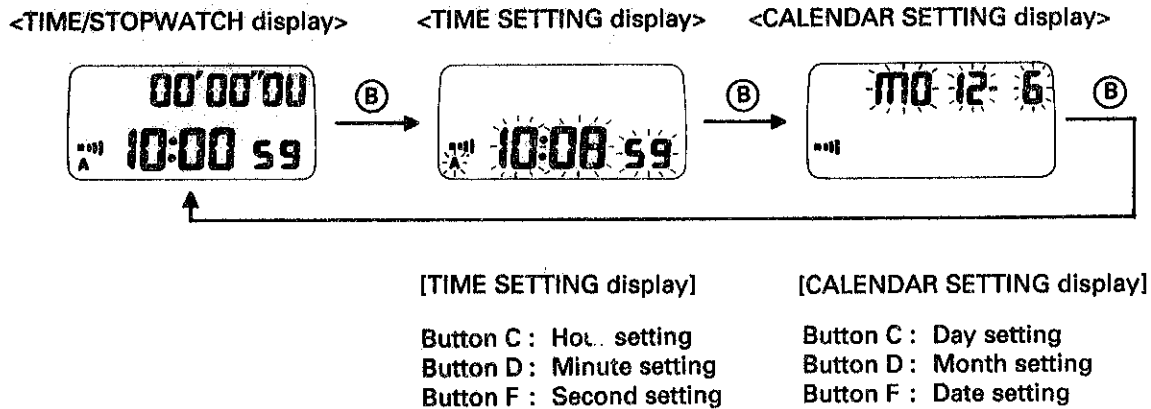


# TECHNICAL GUIDE

Cal. A781A

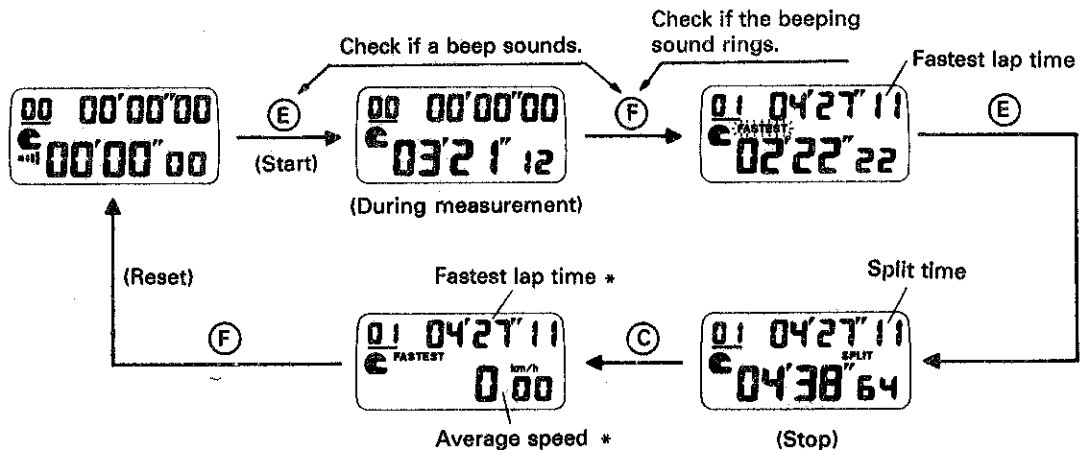
## • Display change in the TIME/STOPWATCH display

- (1) Press "A" to show the TIME/STOPWATCH display.
- (2) Check if the display changes as follows with each press of button "B".



## • Display change in the LAP TIME display

- (1) Press button "A" to show the LAP TIME display.
- (2) Check if the display changes as follows by pressing the buttons in the order of "E", "F", "E", "C" and "F".



\*The fastest lap time and average speed are shown only while the button "C" is kept pressed.

## • Alarm time setting and alarm engagement/disengagement

- (1) Press button "A" to show the ALARM display.
- (2) Check that "AL ON" (alarm engaged) and "AL OFF" (alarm disengaged) marks appear alternately with each press of button "C".
- (3) Press "B" in the ALARM display to check that the digits start flashing.
- (4) Check that the HOUR digits advance with each press of button "C".
- (5) Check that the MINUTE digits advance with each press of button "D".