

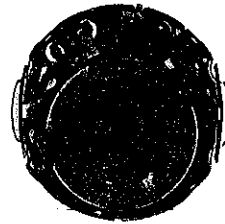
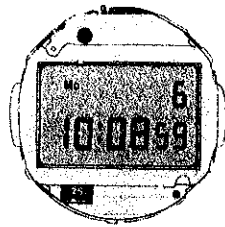
**SEIKO**

**DIGITAL QUARTZ**

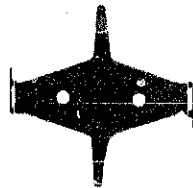
**Cal. A914A**

**PARTS  
CATALOGUE**

# Cal. A914A



4001 785



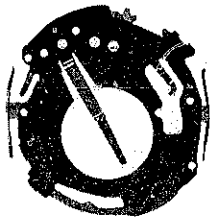
4225 771



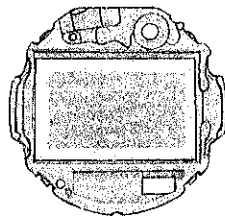
4246 795



4313 795



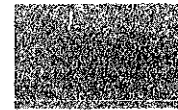
4398 785



4410 785



☆ 4510 779



4521 840



4530 230



☆ Matsushita BR2016

# Cal. A914A

## Characteristics

Casing diameter :  $\phi$  28.1 mm  
 Maximum height : 5.0 mm without battery  
 Frequency of quartz crystal oscillator : 32,768 Hz (Hz= Hertz . . . . . Cycles per second)  
 Display medium : Nematic liquid crystal, FE-Mode  
 Regulation system : Trimmer condenser  
 Time and calendar display  
 Alarm display  
 Stopwatch display  
 Time signal  
 Illuminating light

PART NO.	PART NAME	PART NO.	PART NAME
4001 785	Circuit block		
4225 771	Battery clamp		
4246 795	Buzer lead terminal		
4313 795	Connector		
4398 785	Liquid crystal panel frame		
4410 785	Circuit cover		
☆4510 769	Liquid crystal panel frame (Gold)		
☆4510 779	Liquid crystal panel frame (Silver)		
4521 840	Reflecting mirror		
4530 230	Bulb		
4589 650	Piezoelectric element		
☆Matsushita BR2016 ☆Maxell CR2016 ☆Sanyo CR2016 ☆SEIKO CR2016	Lithium battery		

### Remarks :

#### Liquid crystal panel

☆4510 769 } Be sure that combination between the color of panel cover and liquid crystal  
 ☆4510 779 } .....panel should be matched according to the "SEIKO Quartz Casing Parts  
 Catalogue".

#### Battery

☆Matsushita BR2016 } The substitutive battery might be added to the applied battery in the future.  
 ☆Maxell CR2016 } .....In that case, please refer to separate "BATTERY LIST FOR SEIKO  
 ☆Sanyo CR2016 } QUARTZ WATCHES".  
 ☆SEIKO CR2016 } Note that SEIKO battery is marked with "SEIZAIKEN" on its (+) side.

☆ ⇨ Please see remarks.

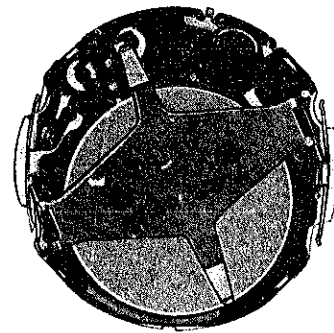
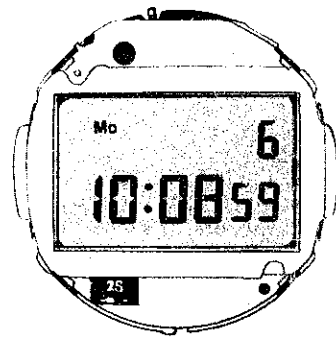
Part numbers in light letters are not shown in photos.

# TECHNICAL GUIDE

## SEIKO

## DIGITAL QUARTZ

CAL. A914A



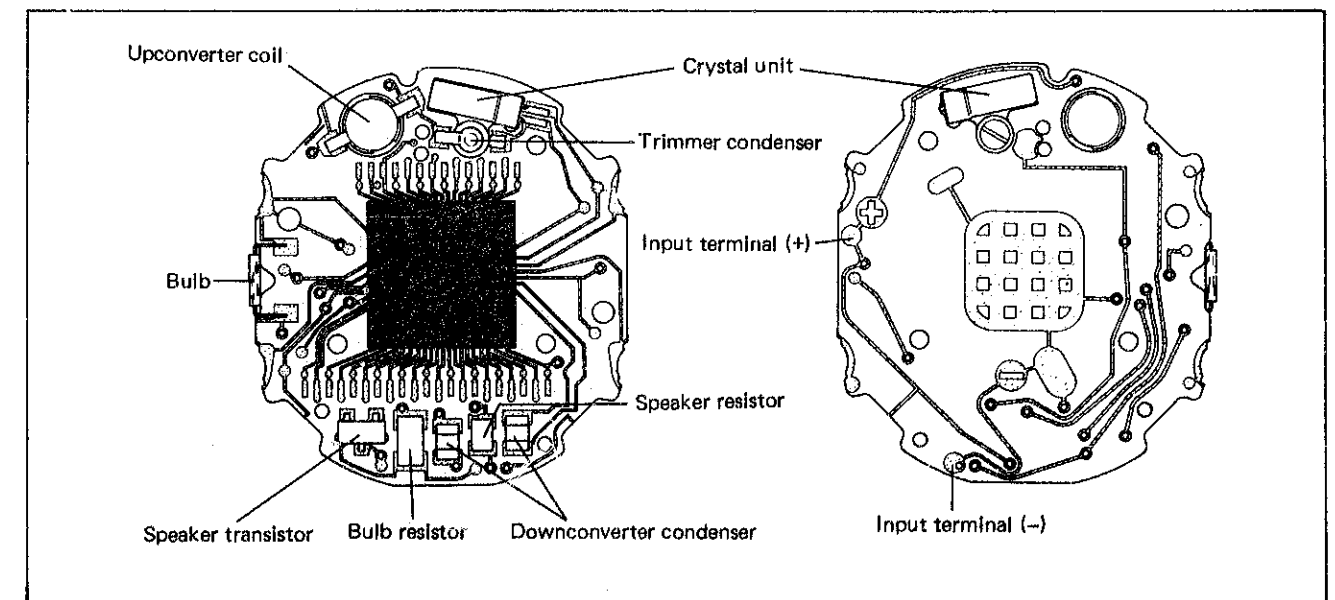
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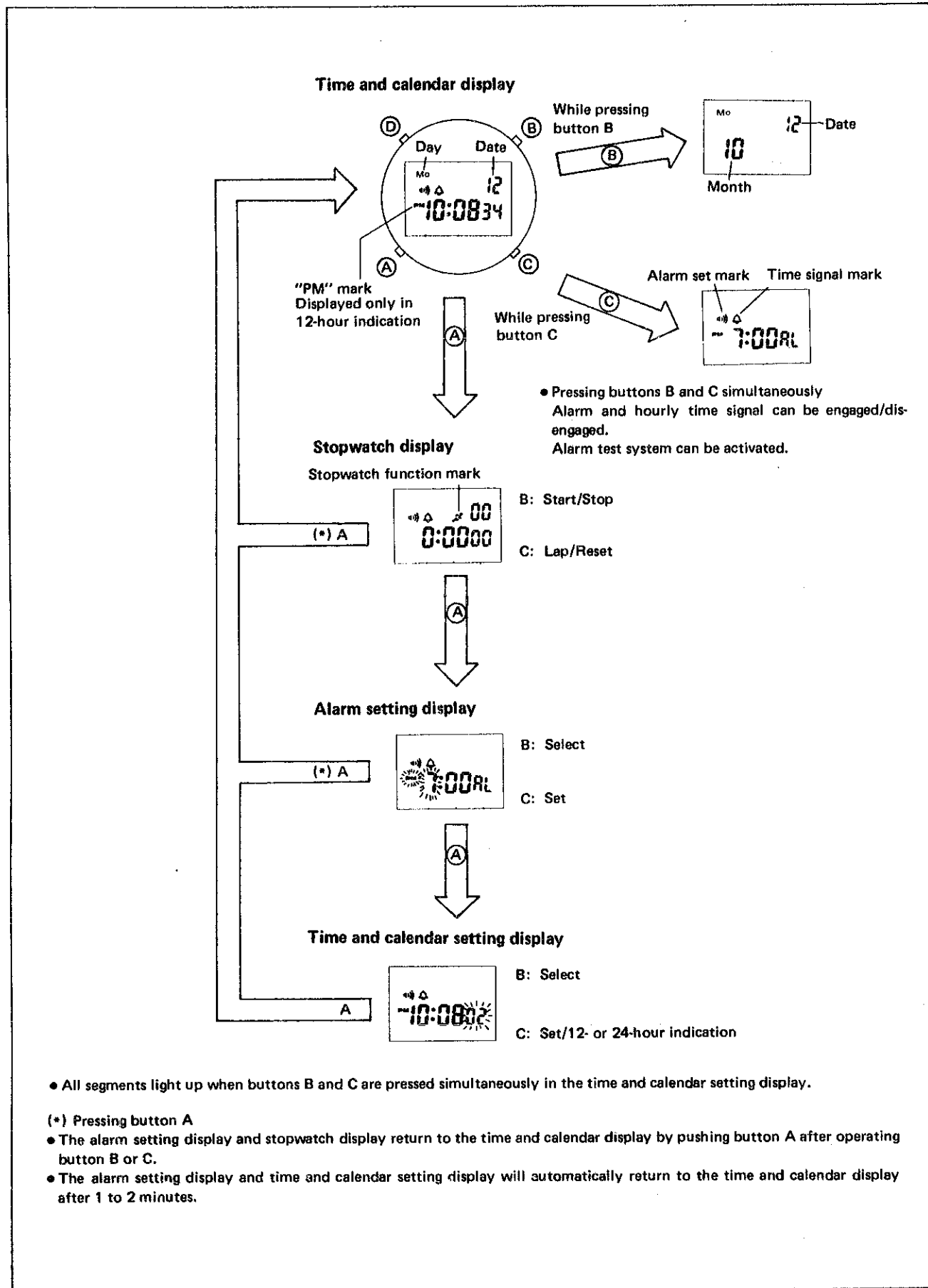
## I. SPECIFICATIONS

Cal. No.		A914A
Item		
Display medium	Nematic Liquid Crystal, FEM (Field Effect Mode)	
Display system	<ul style="list-style-type: none"> <li>• Time and calendar display (12- or 24-hour indication)</li> <li>• Time and calendar setting display</li> <li>• Stopwatch display</li> <li>• Alarm setting display</li> </ul>	
Additional mechanism	<ul style="list-style-type: none"> <li>• All segments light up system</li> <li>• Illuminating light</li> <li>• Auto-return system</li> <li>• Alarm test system</li> </ul>	
Loss/gain	Monthly rate at normal temperature range: less than 20 seconds	
Movement size	Casing diameter	φ28.1 mm
	Height	4.9 mm
Liquid crystal driving system	1/2 multiplex driving system	
Regulation system	Trimmer condenser	
Measuring gate by quartz tester	Any gate can be used.	
Battery	Lithium battery SEIKO (SEIZAIKEN) CR2016, Maxell CR2016, Sanyo CR2016 and Matsushita BR2016 Battery life is approximately 5 years. Voltage: 3.0 V	

## II. STRUCTURE OF THE CIRCUIT BLOCK



### III. DISPLAY FUNCTION

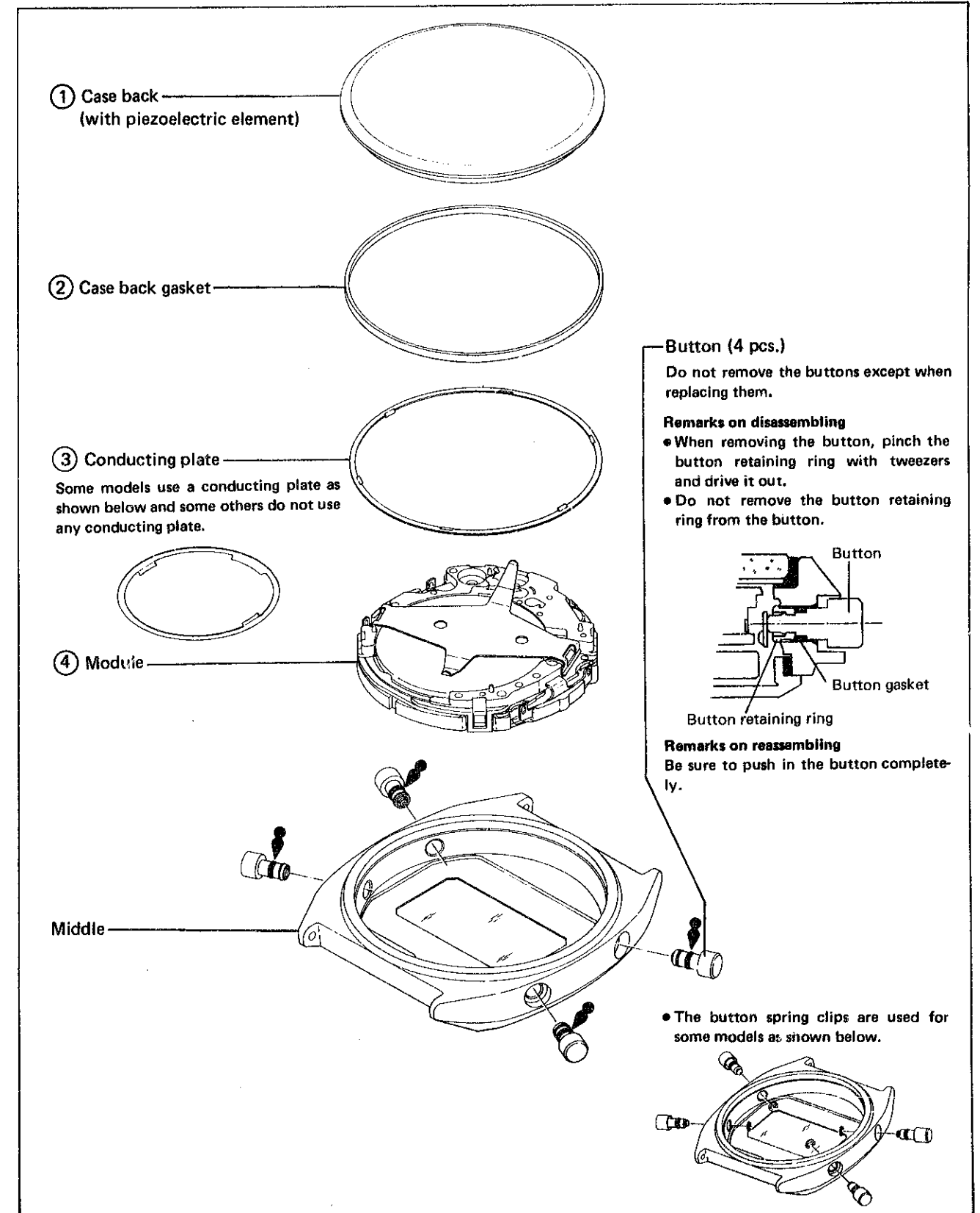


### IV. DISASSEMBLING AND REASSEMBLING

#### 1. Disassembling and reassembling of the case

Disassembling procedures Figs.: ① → ④  
Reassembling procedures Figs.: ④ → ①

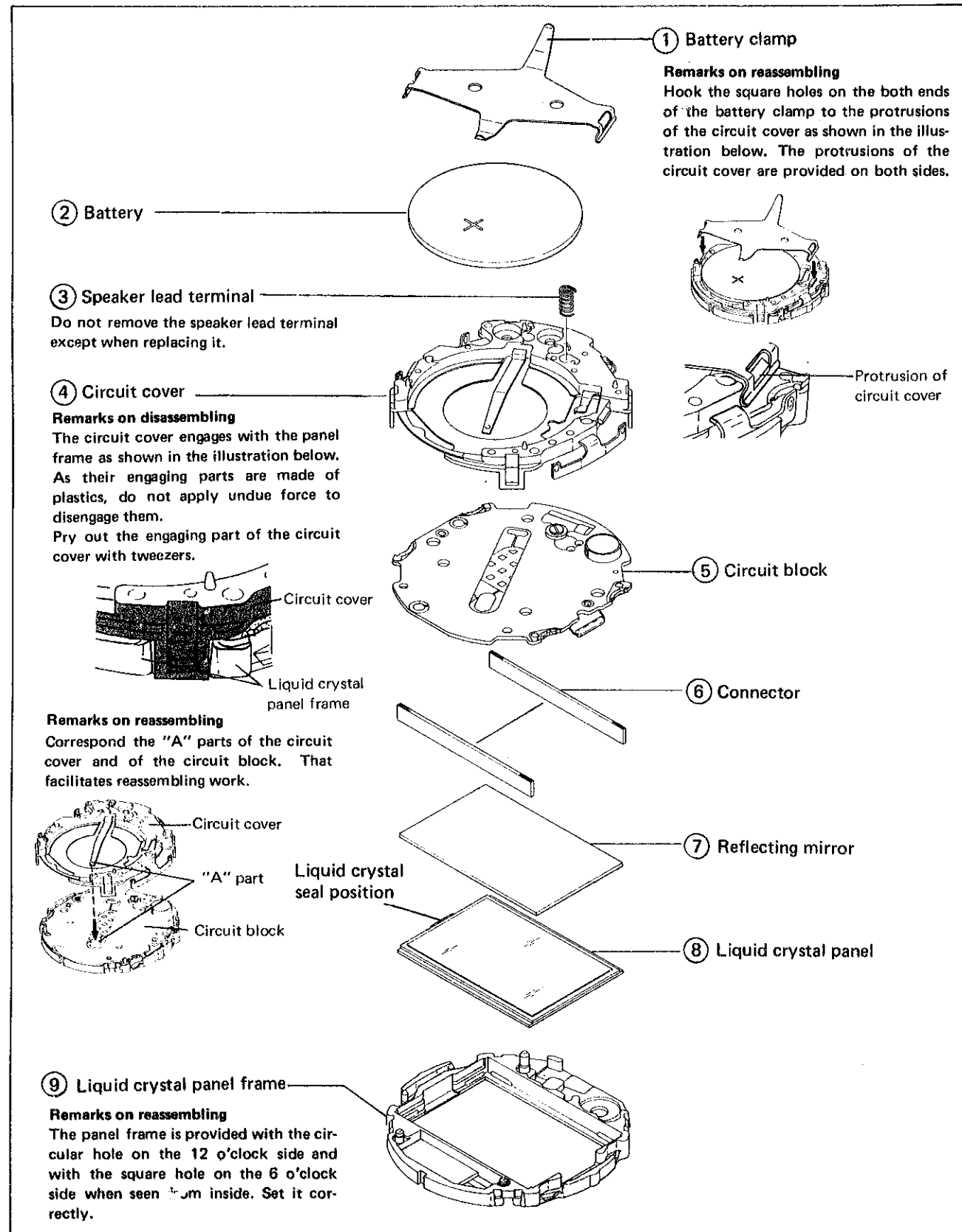
Lubricating: ● Silicone grease 500,000 c.s.  
Normal quantity



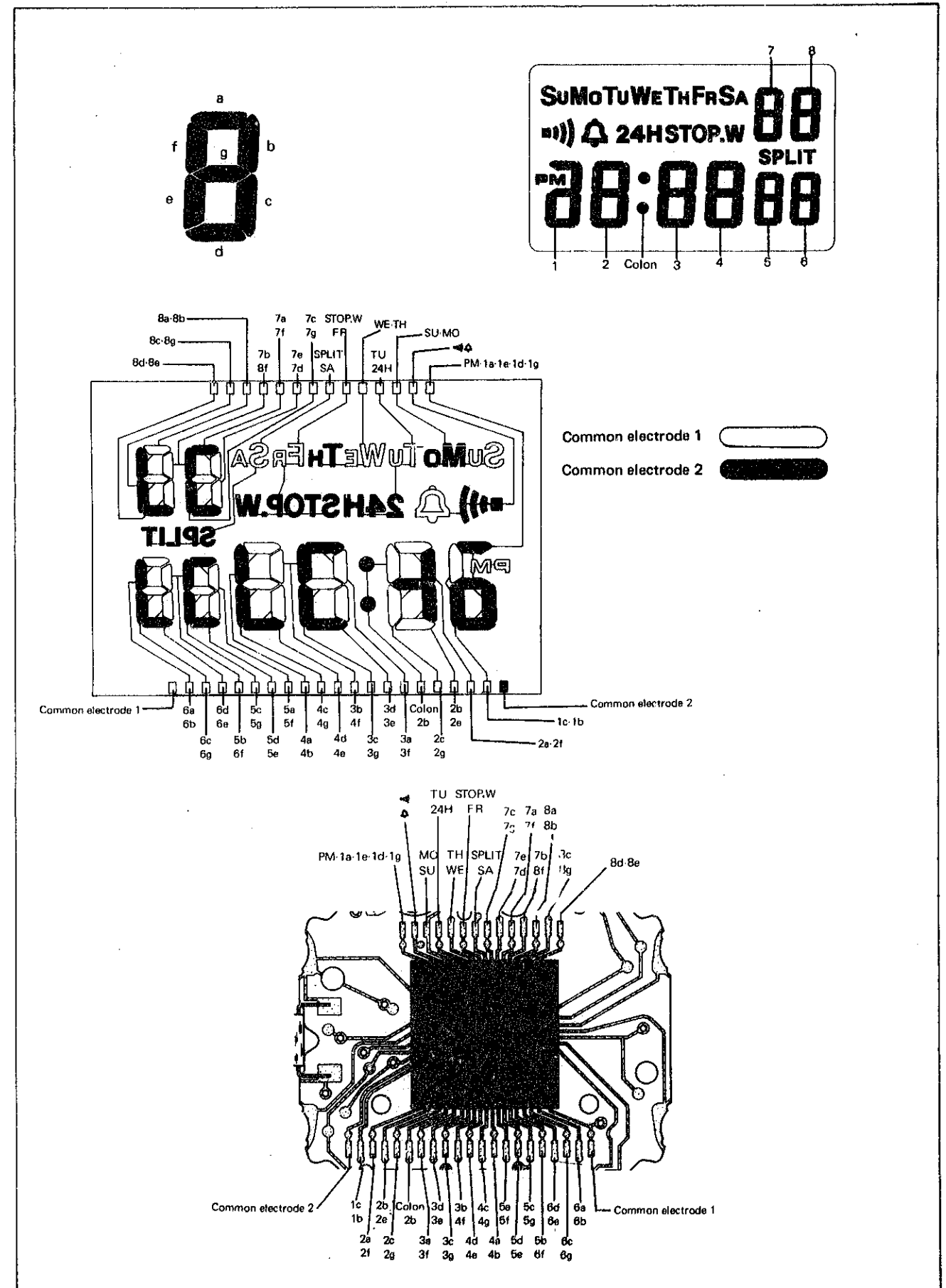
## 2. Disassembling and reassembling of the module

Disassembling procedures Figs.: ① → ⑨

Reassembling procedures Figs.: ⑨ → ①

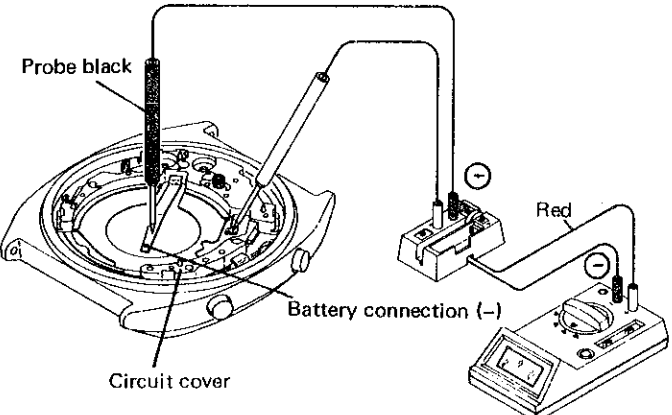
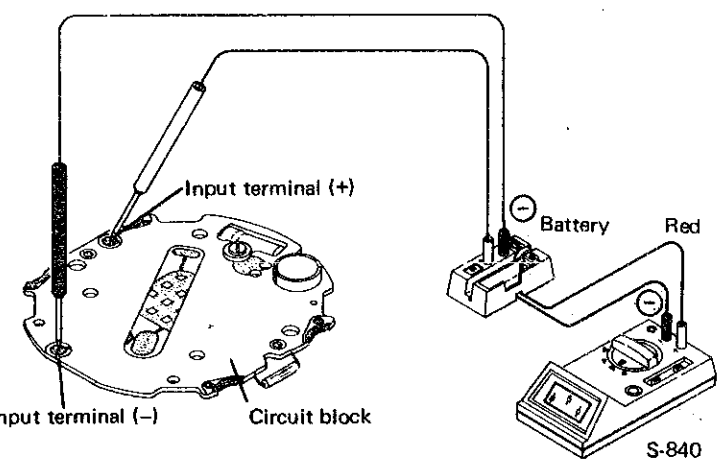


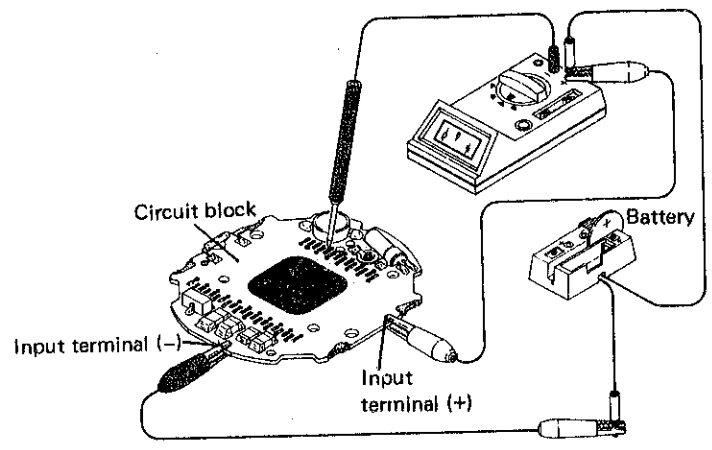
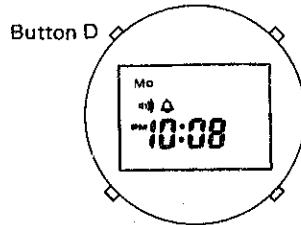
## V. RELATIONSHIP BETWEEN THE SEGMENT (LIQUID CRYSTAL PANEL ELECTRODE) AND THE C-MOS-LSI OUTPUT TERMINAL



## VI. CHECKING AND ADJUSTMENT

- The explanation here is only for the particular points of Cal. A914A.  
Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Digital Quartz for details.

Procedure	
<b>CHECK BATTERY VOLTAGE</b>	
Use the Digital Multi-Tester S-840. Mode to be used: DC V	<b>Result:</b> Normal : More than 2.8 V Defective: Less than 2.8 V
<b>CHECK CURRENT CONSUMPTION</b>	
Use the Digital Multi-Tester S-840. Mode to be used: $\mu A$	
(1) Current consumption for the whole of the module	
	<b>Result:</b> Normal : Less than $1.7\mu A$ Defective: More than $1.7\mu A$
(2) Current consumption for the circuit block alone	
	<b>Result:</b> Normal : Less than $1.5\mu A$ Defective: More than $1.5\mu A$

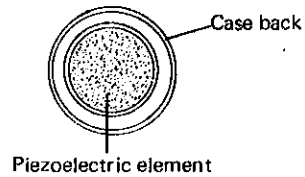
Procedure	
<b>CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK</b>	
Use the Digital Multi-Tester S-840. Mode to be used: V	
	<b>Result:</b> Normal : More than 0.8 V Defective: Less than 0.8 V
<b>CHECK ACCURACY</b>	
<ul style="list-style-type: none"> <li>Measure the daily rate in a function where the display does not change. (The daily rate can be measured easily when all the segments are lit up.)</li> <li>Any gate can be used.</li> </ul>	
<b>CHECK ALARM TEST SYSTEM</b>	
In the time and calendar display, check to see if the alarm rings by pressing buttons B and C at the same time.	
<b>CHECK BULB CONDITION</b>	
Press button D to see if the bulb lights up.	
	



Procedure

CHECK ALARM CONDITION

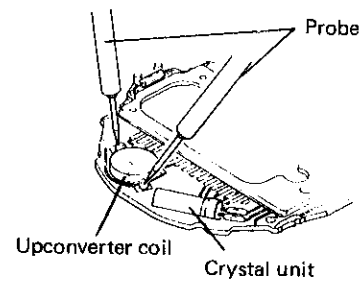
- (1) Check to see if there is any contamination on the piezoelectric element on the inside surface of the case back and on the connecting portion of the buzzer lead terminal and if there is any deformation of the buzzer lead terminal.



**Result:**  
Normal: Neither contamination nor deformation  
Defective: Contaminated  
Wipe off contamination.  
Deformed  
Rectify the shape with tweezers or replace the buzzer lead terminal with a new one.

- (2) Measure the resistance for the upconverter coil of the circuit block and check it for broken wire and short circuit.

Use the Digital Multi-Tester S-840.  
Mode to be used:  $\Omega$



**Result:**  
Normal:  $50\Omega \sim 90\Omega$   
Defective: Less than  $50\Omega$   
(Short circuit)  
More than  $90\Omega$   
(Broken wire)

Either black or red probe may be applied.