

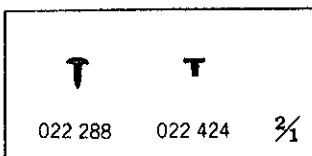
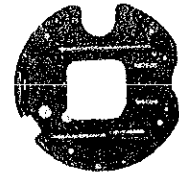
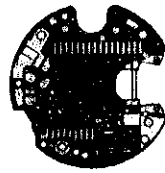
SEIKO

DIGITAL QUARTZ

Cal. B122A

PARTS LIST

Cal. B122A



Cal. B122A

Characteristics

Casing diameter : \varnothing 22.0 mm
 Maximum height : 5.3 mm without battery
 Frequency of quartz crystal oscillator : 32,768 Hz (Hz - Hertz Cycles per second)
 Time display : Digital Display System showing hour, minute, second and A.M. P.M.
 Calendar display : Digital Display System showing month and date.
 Alarm display : Can be set to operate at any desired hour and minute.
 Time signal : It can be set to ring every hour on the hour.
 Display medium : Nematic Liquid Crystal, FE-Mode
 Regulation system : Trimmer condenser
 Illuminating light : Illuminates the display in the dark.
 Battery life indicator : All the digits in the display begin flashing.

PART NO.	PART NAME	PART NO.	PART NAME
357 769	Winding stem		
782 741	Setting lever spring		
4001 741	Circuit block		
4216 740	Insulator for speaker block		
4242 740	Speaker block lead terminal		
4245 740	Switch spring		
4270 740	Battery connection (-)		
4313 740	Connector A		
4313 741	Connector B		
4398 740	Liquid crystal panel frame		
4398 741	Speaker block frame		
4410 742	Circuit cover		
4450 740	Switch lever		
☆4510 740	Liquid crystal panel		
☆4510 741			
☆4510 742			
☆4510 743			
4521 730	Reflecting mirror		
4530 649	Bulb		
4540 740	Liquid crystal panel holder A		
4540 741	Liquid crystal panel holder B		
4580 590	Speaker block		
4991 590	Speaker gasket		
4991 740	Gasket for speaker block frame		
022 288	Switch spring screw		
022 424	Liquid crystal panel holder screw		
022 424	Screw for liquid crystal panel frame		
☆Maxell SR926W	Silver oxide battery		
☆U.C.C. 399			

Remarks :

Liquid crystal panel

- ☆4510 740 (Gray)
- ☆4510 741 (Blue)
- ☆4510 742 (Gold)
- ☆4510 743 (Brown)

Be sure that the combination between the color of panel cover and liquid crystal panel should be matched according to the "SEIKO Quartz Casing Parts List".

Battery

- ☆Maxell SR926W
- ☆U.C.C. 399

The applied battery for this calibre might be added the substitutive in the future. In that case, please refer to separate "BATTERIES FOR SEIKO QUARTZ WATCHES".

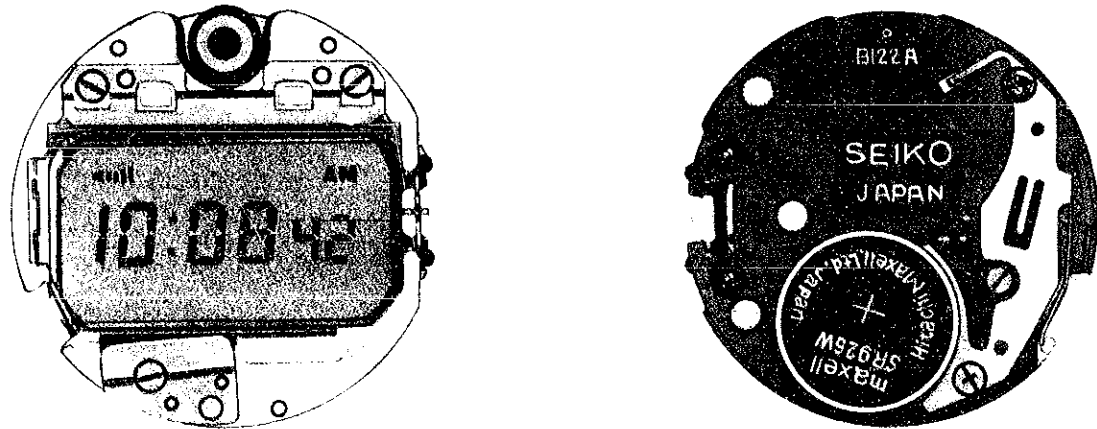
☆⇒ Please see remarks.

Part numbers in light letters are not shown in photos.

TECHNICAL GUIDE

SEIKO DIGITAL QUARTZ

CAL. B122A



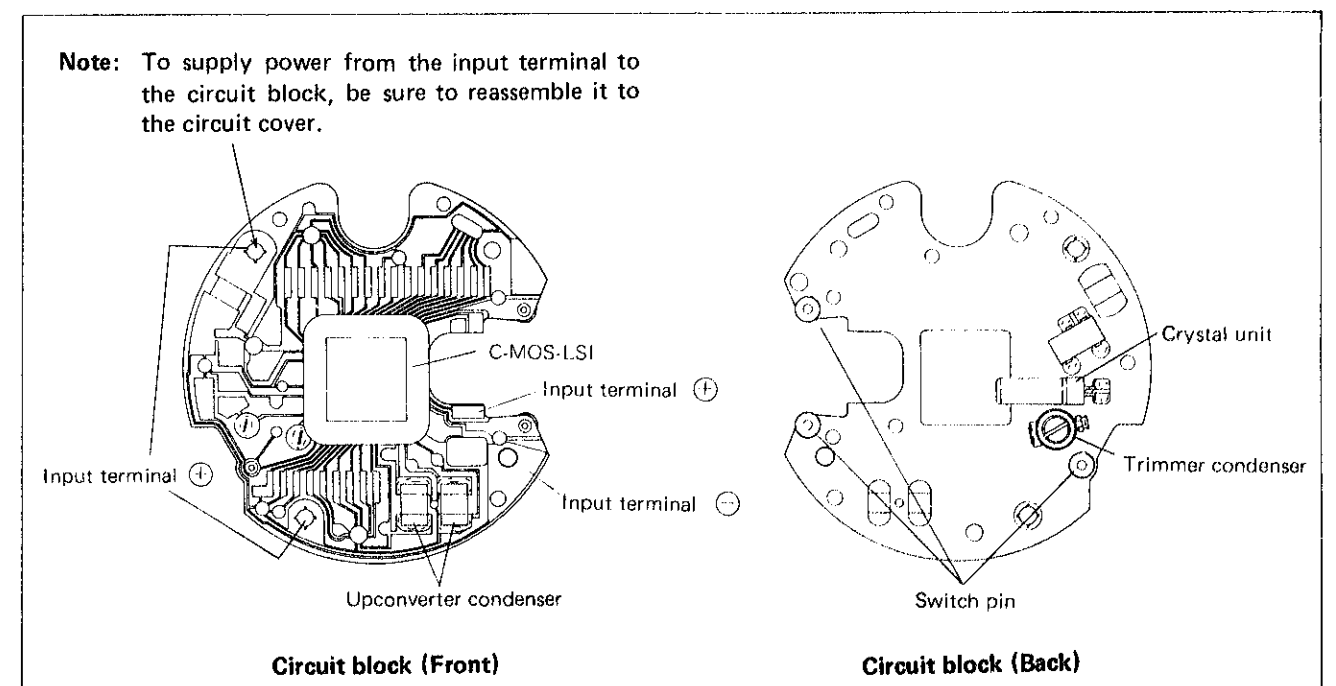
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I. SPECIFICATIONS

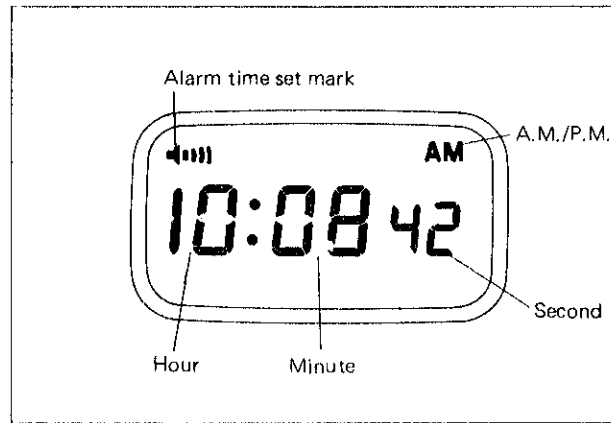
Item	Cal. No.	B122
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)
Display system		<ul style="list-style-type: none"> • Time function • Calendar function • Alarm function
Additional mechanism		<ul style="list-style-type: none"> • Battery life indicator • Pattern segment checking system • Illuminating light
Loss/gain		Loss/gain at normal temperature range Monthly rate: less than 15 seconds (Annual rate: less than 3 minutes)
Outside diameter		φ22.0mm
Height		5.3mm
Liquid crystal driving system		1/2 multiplex driving system
Regulation system		Trimmer condenser
Measuring gate by Quartz Tester		Any gate is available.
Battery power		U.C.C. 399, Maxell SR 926W or SEIKO TR 926W Battery life is approximately 2 years. Voltage: 1.55V

II. STRUCTURE OF THE CIRCUIT BLOCK

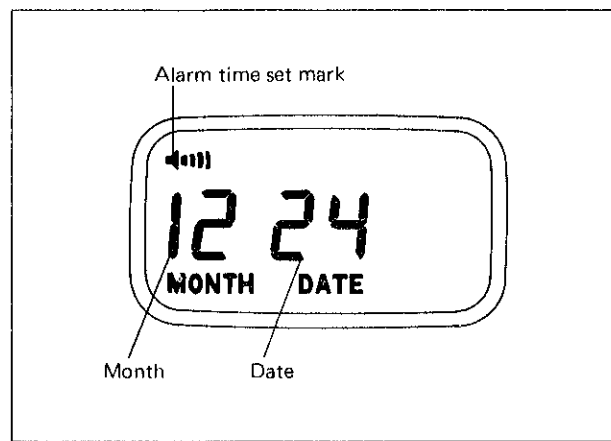


III. DISPLAY SYSTEM

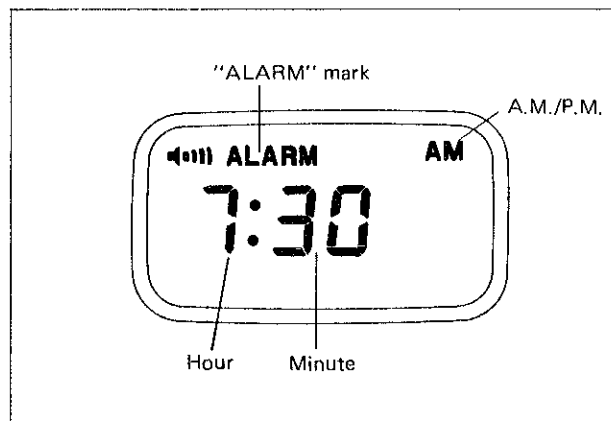
• Time function



• Calendar function



• Alarm function



IV. DISASSEMBLING, REASSEMBLING AND LUBRICATING

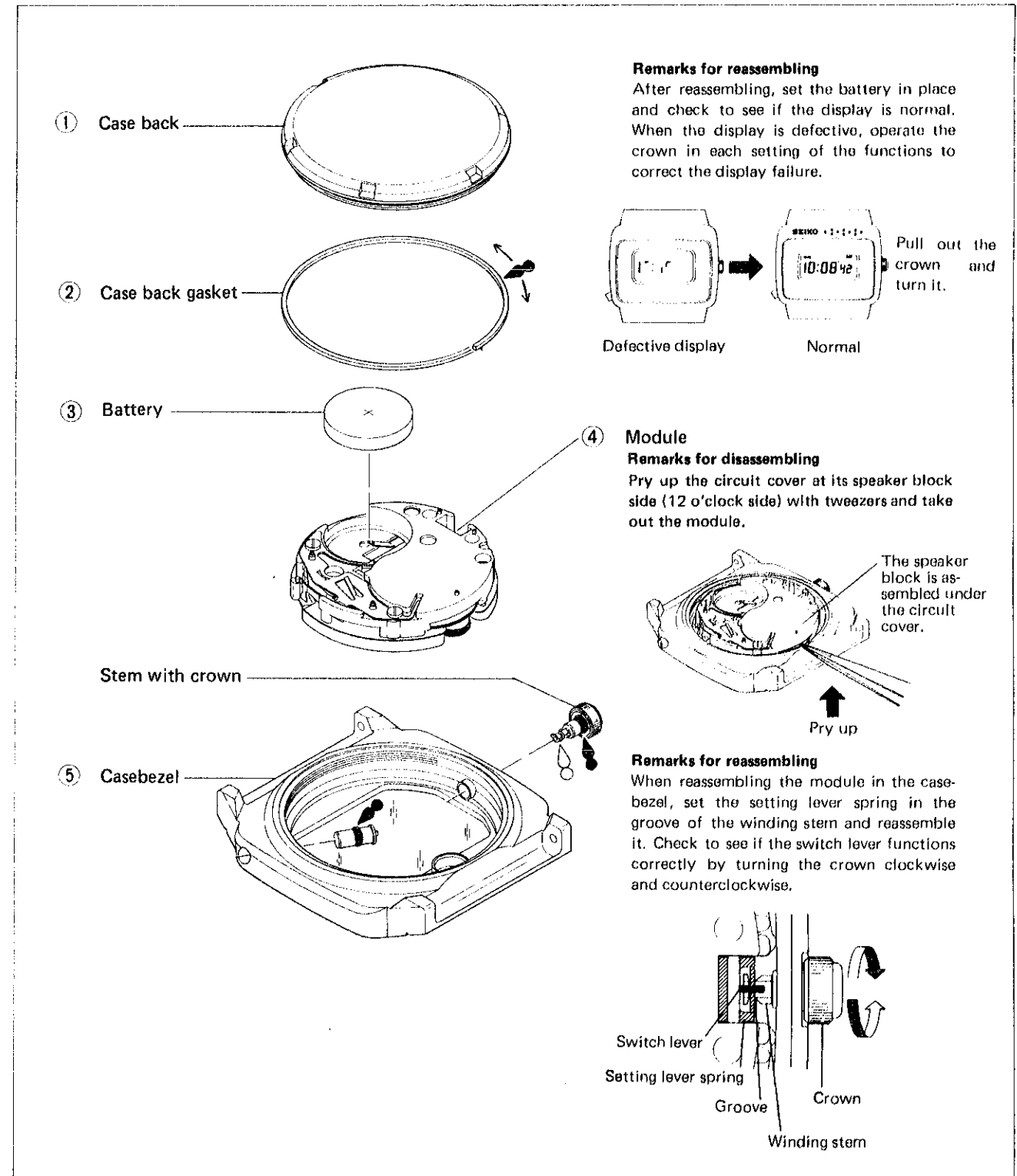
1. Disassembling, reassembling and lubricating of the case

Disassembling procedures Figs.: ① → ⑤

Reassembling procedures Figs.: ⑤ → ①

Lubricating : Silicone grease 500,000 c.s.

: SEIKO Watch Oil S-6

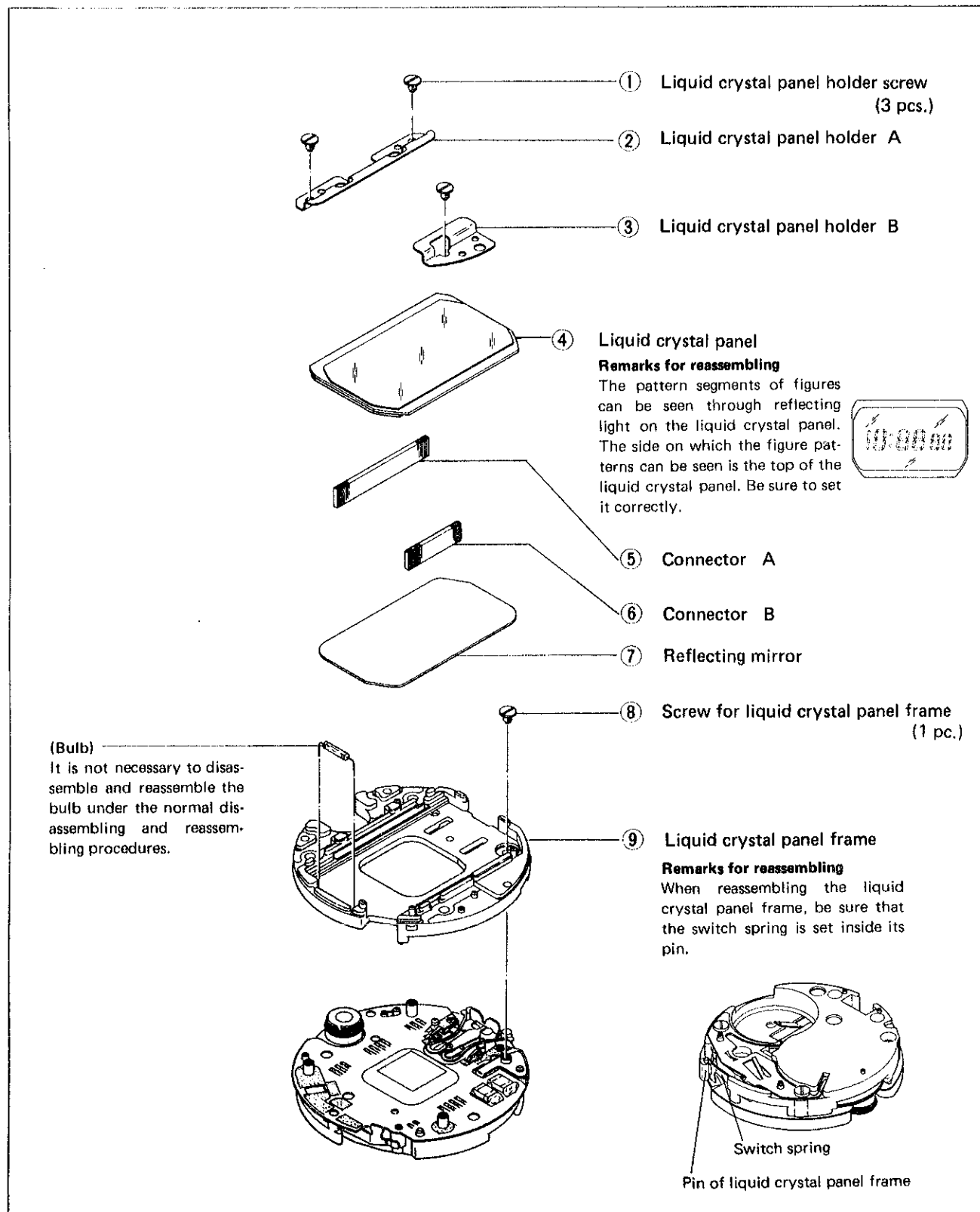


2. Disassembling, reassembling and lubricating of the module

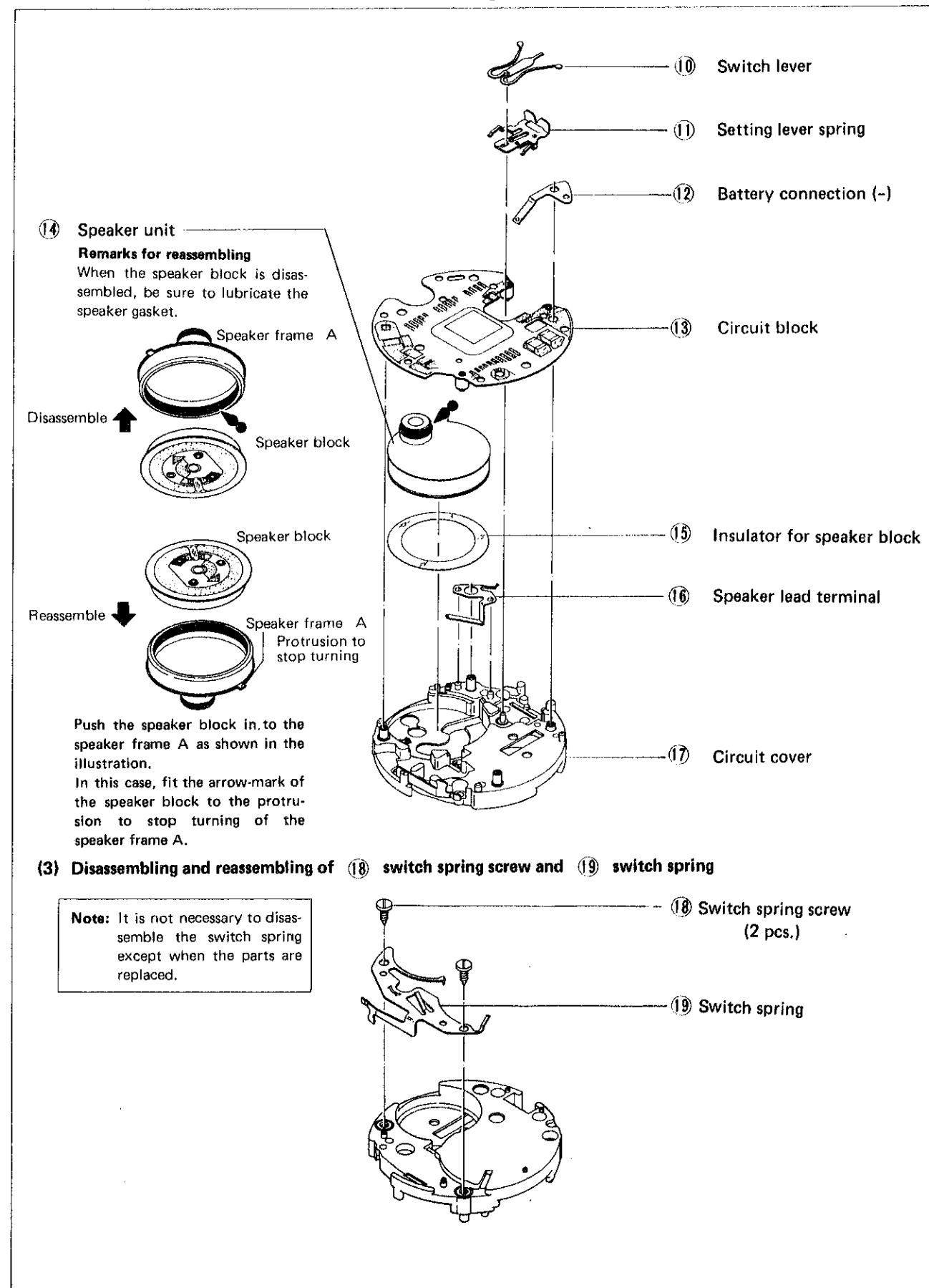
Disassembling procedures Figs.: ① → ⑱

Reassembling procedures Figs.: ⑱ → ①

(1) Disassembling and reassembling of ① liquid crystal panel holder screw ~ ⑨ liquid crystal panel frame



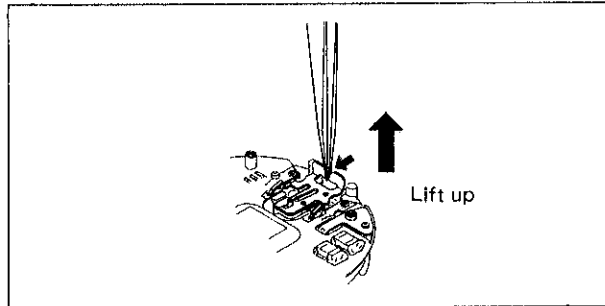
(2) Disassembling and reassembling of ⑩ switch lever ~ ⑱ circuit cover



Remarks for disassembling

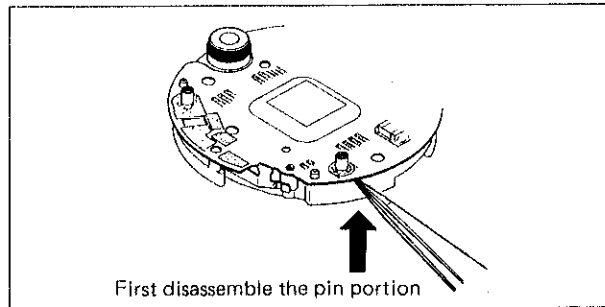
⑪ Setting lever spring

- Hold the setting lever spring at its arrow-marked portion with tweezers and lift it up for disassembling.
- Be sure to hold it at its arrow-marked portion, but not at its spring portion. (Be careful not to deform the spring portion.)



⑬ Circuit block

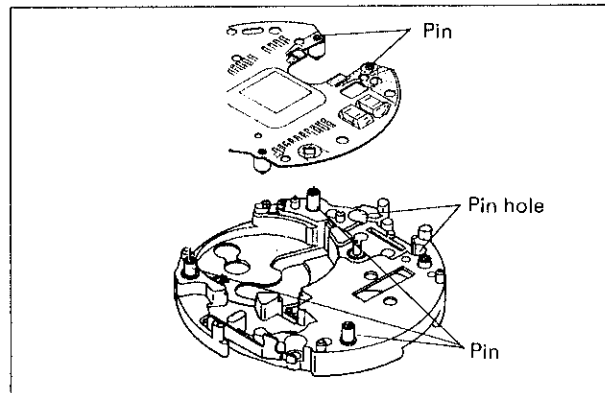
- Disassemble the pin portion first so as not to deform the circuit board.



Remarks for reassembling

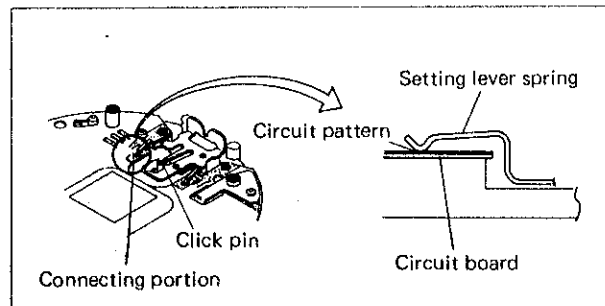
⑬ Circuit block

- Place the circuit cover on a bench with its pins turned up and reassemble the circuit block so that the pins of the circuit cover are set in the holes of the circuit block and the switch pins of the circuit block are set in the holes of the circuit cover.



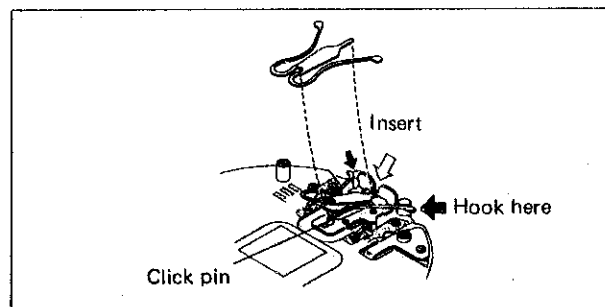
⑪ Setting lever spring

- Push in the setting lever spring with its hole set to the click pin. (Be careful not to deform the spring portion.)
- Check for conductivity of the contact points between the setting lever spring and the circuit pattern.



⑩ Switch lever

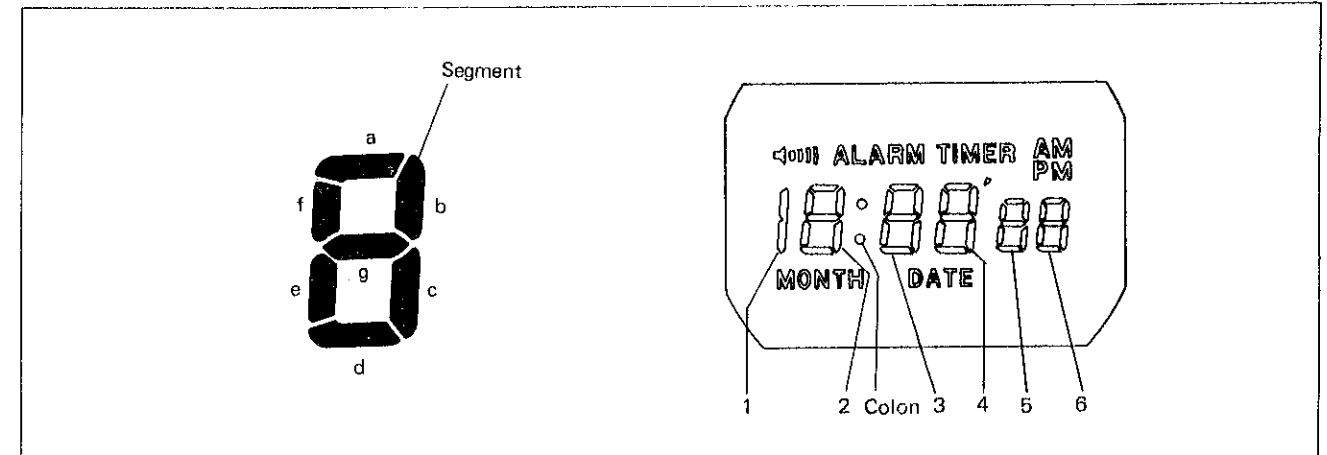
- Insert the middle tip of the switch lever into the arrow-marked portion (⇨).
- Put the click pin into the hole of the switch lever.
- Hook the right and left tips of the switch lever on the arrow-marked portion (⇨) of the circuit cover.
- The switch lever has no difference in the top and bottom.



Relationship between the segment (Liquid Crystal Panel Electrode) and the C-MOS-LSI output terminal

A complete knowledge of how the segment (Liquid Crystal Panel Electrode) works with the C-MOS-LSI output terminal will provide the proper procedures for checking and adjustment.

• Designation of segment

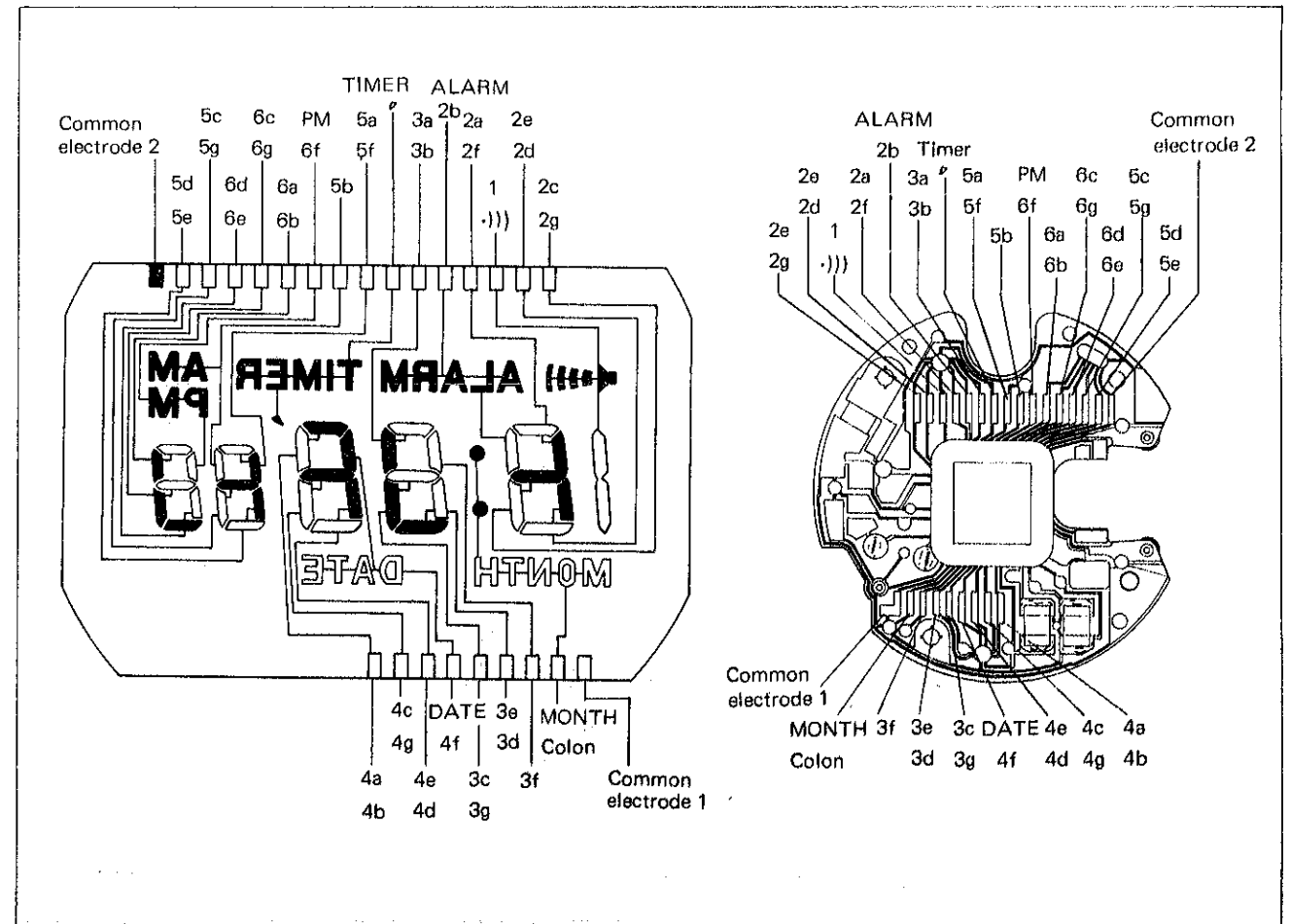


• Relationship between the segment (Liquid crystal panel electrode) and the C-MOS-LSI output terminal

Common electrode 1 corresponds to the segment .

Common electrode 2 corresponds to the segment .

Note: This calibre does not use timer segments. Checking them is not required.

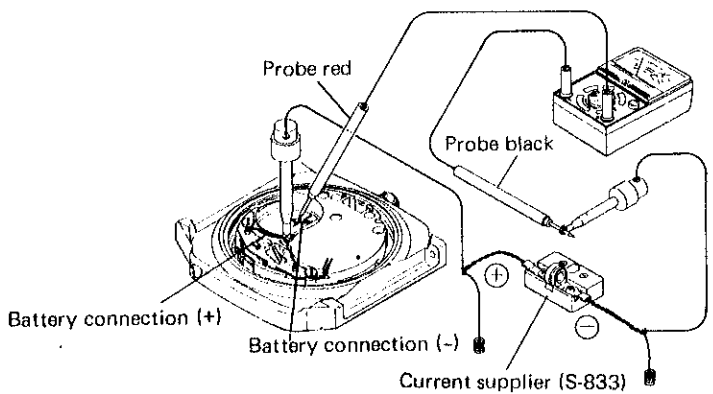


V. CHECKING AND ADJUSTMENT

- Refer to the "SEIKO QUARTZ TECHNICAL GUIDE, GENERAL INSTRUCTION FOR DIGITAL WATCHES" for details.

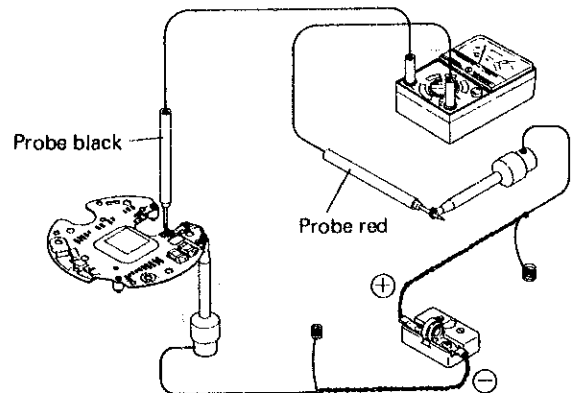
Procedures	
CHECK BATTERY VOLTAGE	Standard Value: More than 1.5V . . . Normal Less than 1.5V . . . Defective
CHECK BATTERY CONDUCTIVITY	
CHECK CURRENT CONSUMPTION	

- Check the current consumption for the whole of the module.
 - It is possible to check the current consumption in any of the function.
 - Apply the probes of the Volt-ohm-meter as shown in the illustration below.



- Standard value
Less than $2.0\mu\text{A}$: Normal
More than $2.0\mu\text{A}$: Defective

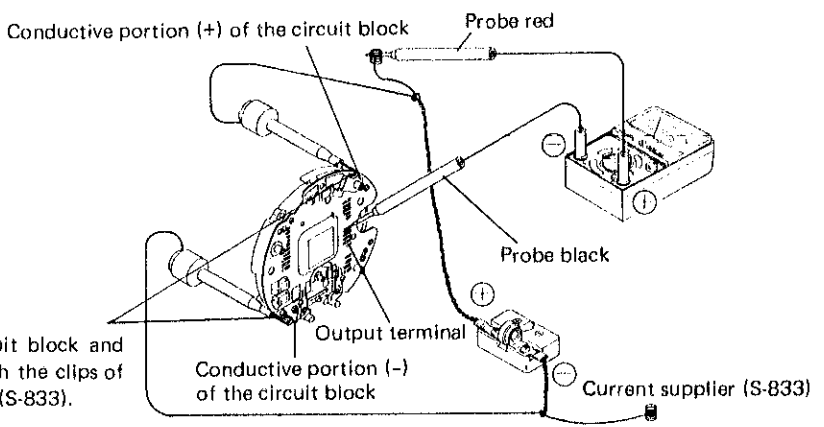
- Check the current consumption for the circuit block.
 - Apply the probes of the Volt-ohm-meter as shown in the illustration below.



- Standard value
Less than $2.0\mu\text{A}$: Normal
More than $2.0\mu\text{A}$: Defective

Procedures	
CHECK WATER RESISTANCE	
CHECK CONTACT OF C-MOS-LSI ~ LIQUID CRYSTAL PANEL	
CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK	

- How to check the liquid crystal panel
- How to check the circuit block output voltage
- Apply the probes of the Volt-ohm-meter as shown in the illustration below.



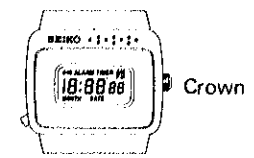
Hold both the circuit block and the circuit cover with the clips of the Current supplier (S-833).

Note: To hold the circuit block stable, reassemble it to the circuit cover and check the circuit block.

Procedures	
CHECK ACCURACY	

Check the watch for accuracy in the daily rate measuring function with all the segments displayed. To light up all the segments and set to the daily rate measuring function, operate the crown as follows within 1 to 2 seconds.

With the crown pushed in to the normal position, turn it clockwise more than one turn and turn it counterclockwise as much and pull out the crown.



Note: The "TIMER" mark is displayed when all the segments are lit. But this is not a malfunction.

Procedures	
CHECK FUNCTIONING AND ADJUSTMENT	
CHECK ALARM	

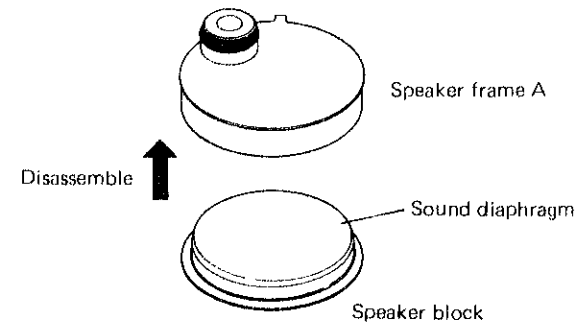
Check to see if the alarm rings in the daily rate measuring function with all the segments displayed.

Procedures

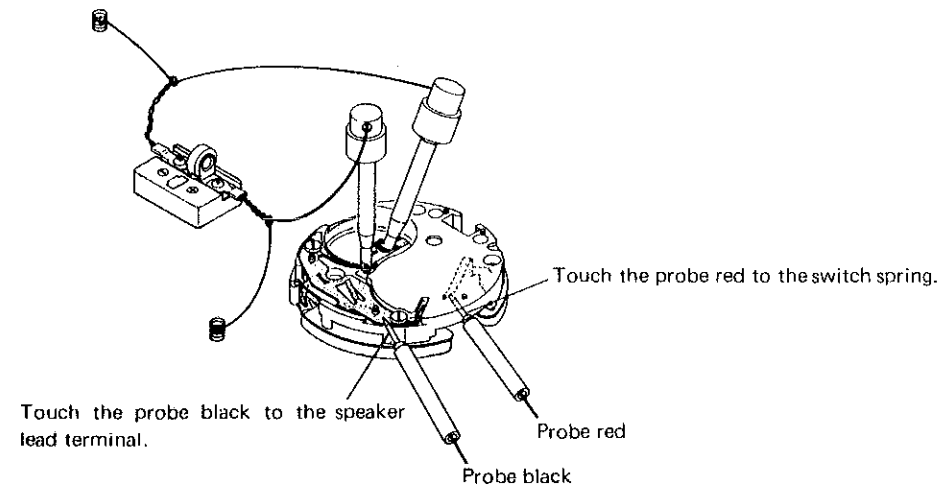
CHECK CONDUCTIVITY OF SWITCH COMPONENTS

CHECK SPEAKER BLOCK

- Check the sound diaphragm of the speaker block.
Disassemble the speaker frame A and check to see if there are any dust and scratches on the sound diaphragm of the speaker block.



- Check the conductivity of the speaker coil.
- Check the output signal from the circuit block.
Check to see if the output signal is transmitted from the circuit block to the speaker block.
Use the Current supplier (S-833) and connect it as shown in the illustration below.



CHECK BULB CONDITION

CHECK FUNCTIONING

All procedures of Disassembling, Reassembling, Checking and Adjustment are completed.