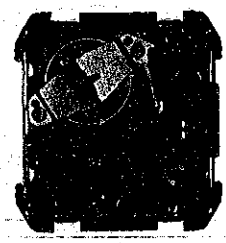
# SEIKO

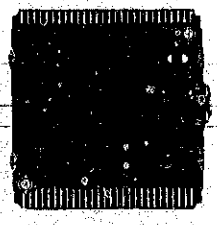
## DIGITAL QUARTZ

### Cal. G757A

# PARTS LIST

# Cal. G757A





4001 775

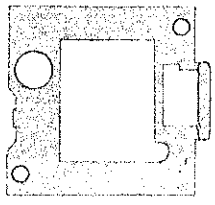
4225 775



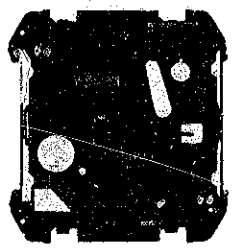
4246 775

4270 775

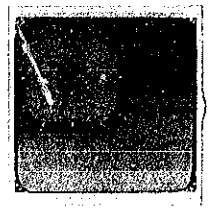
4313 775



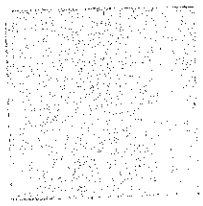
4408 775



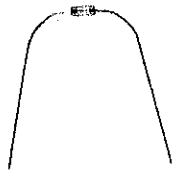
4410 775



☆4510 670



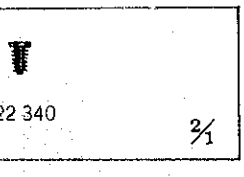
4521 810



4530 649

4540 775

☆ Toshiba SR1120W




☆ ⇨ Please see remarks on the next page.

# Cal. G757A

## Characteristics

Casing diameter : 27.0 × 28.5 mm
Maximum height : 5.9 mm without battery
Frequency of quartz crystal oscillator : 32,768 Hz (Hz = Hertz . . . . . Cycles per second)
Digital time and calendar display : Hour (24-hour indication or 12-hour indication), minute, second, date, "A.M." "P.M." mark (displayed only in the 12-hour indication), and day of the week. (The month is displayed only when the calendar is adjusted.)
In a graphic display, the second indicator is seen accumulating the elapsed time.
Dual time display : In addition to the digital time and calanda, display ("A.M." "P.M." mark is also displayed.), hour, minute and second in the graphic display.
Timer display : Can be set to count down any number of minute from 1 to 60 in the graphic display.
Alarm display : Can be set to operate at any desired hour and minute in the graphic display.
Stopwatch display : Hour, minute, second and 1/100 second up to 12 hours in the digital display.
Time signal : It can be set to ring every hour on the hour.
Display medium : Nematic Liquid Crystal, FE-Mode.
Regulator system : Trimmer condenser
Illuminating light : Illuminates the display in the dark by depressing the light button.
Battery life indicator : All the digits in the display begin flashing.

| PART NO. | PART NAME | PART NO. | PART NAME |
|---|---|---|---|
| **4001 775** | Circuit block | | |
| **4225 775** | Battery clamp | | |
| **4246 775** | Buzzer lead terminal | | |
| **4270 775** | Battery connection (−) | | |
| **4313 775** | Connector | | |
| **4408 775** | Reflecting mirror spacer | | |
| **4410 775** | Circuit cover | | |
| ☆**4510 670** | Liquid crystal panel | | |
| ☆4510 672 | | | |
| ☆4510 674 | | | |
| **4521 310** | Reflecting mirror | | |
| **4530 649** | Bulb | | |
| **4540 775** | Liquid crystal panel holder | | |
| **022 340** | Circuit block screw | | |
| **022 340** | Battery clamp screw | | |
| ☆ Toshiba SR1120W | Silver oxide battery | | |
| ☆U.C.C.391 | | | |
| ☆Maxell SR1120W | | | |

**Remarks :**

Liquid crystal panel

☆4510 670
☆4510 672
☆4510 674
……Be sure that combination between the color of panel cover and liquid crystal panel should be matched according to the **"SEIKO Quartz Casing Parts List"**.

Battery

☆ Toshiba SR1120W
☆U.C.C. 391
☆Maxell SR1120W
……The substitutive battery might be added to the applied battery in the future. In that case, please refer to separate **"BATTERY LIST FOR SEIKO QUARTZ WATCHES"**.

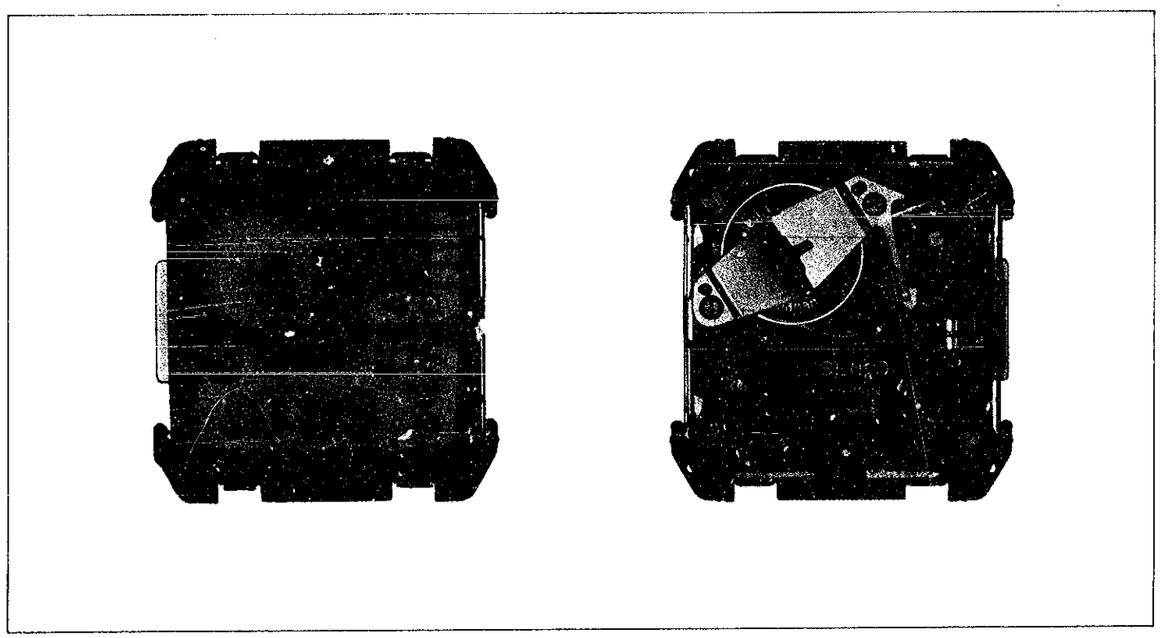
☆ ⇨ Please see remarks.
Part numbers in light letters are not shown in photos.

# TECHNICAL GUIDE

SEIKO

QUARTZ

## CAL. G757A

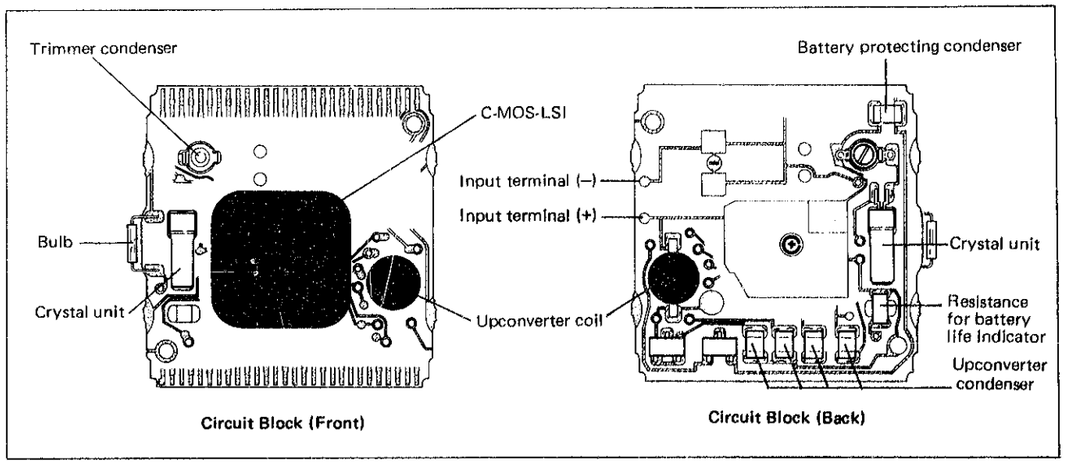


CONTENTS

## I. SPECIFICATIONS

| Item \ Cal. No. | G757A |
|---|---|
| Display medium | Nematic Liquid Crystal, FEM (Field Effect Mode) |
| Liquid crystal driving system | Multiplex driving system |
| Display system | • Time function (12 or 24 hour indication)<br>• Timer function<br>• Alarm function<br>• Dual-time function<br>• Stopwatch function |
| Additional mechanism | • Battery life indicator<br>• Pattern segment checking system<br>• Illuminating light |
| Loss/gain | Loss/gain at normal temperature range<br>Monthly rate: less than 15 seconds<br>(Annual rate: less than 3 minutes) |
| Outside diameter | 27.0mm (between 3 o'clock and 9 o'clock sides)<br>28.5mm (between 6 o'clock and 12 o'clock sides) |
| Height | 5.9mm |
| Regulation system | Trimmer condenser |
| Measuring gate | Any gate is available. |
| Battery | U.C.C.391, Maxell SR1120W, Toshiba SR1120W.<br>Battery life is approximately 2 years.<br>Voltage: 1.55V |

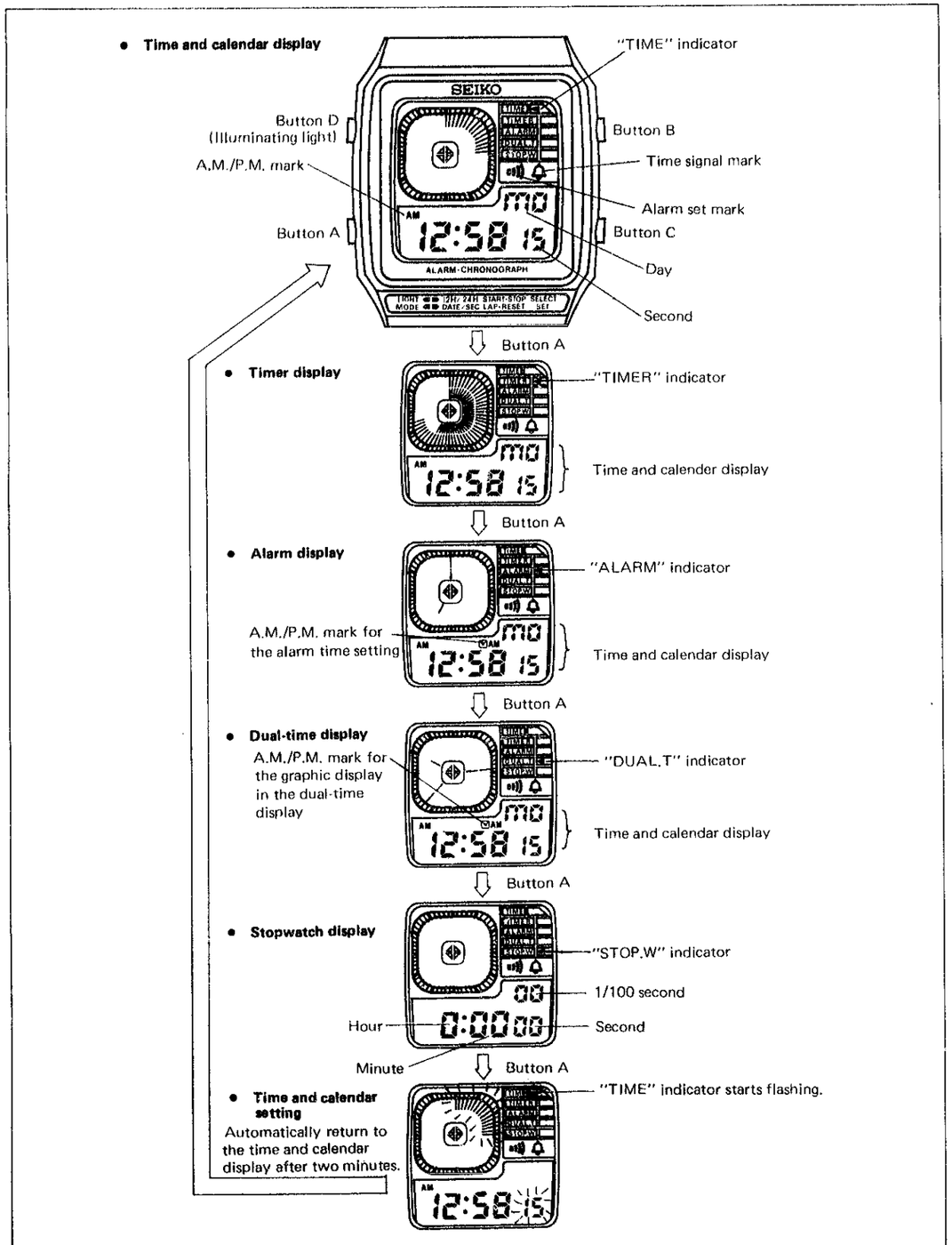
## II. STRUCTURE OF CIRCUIT BLOCK




Circuit Block (Front)

Circuit Block (Back)

## III. DISPLAY FUNCTION

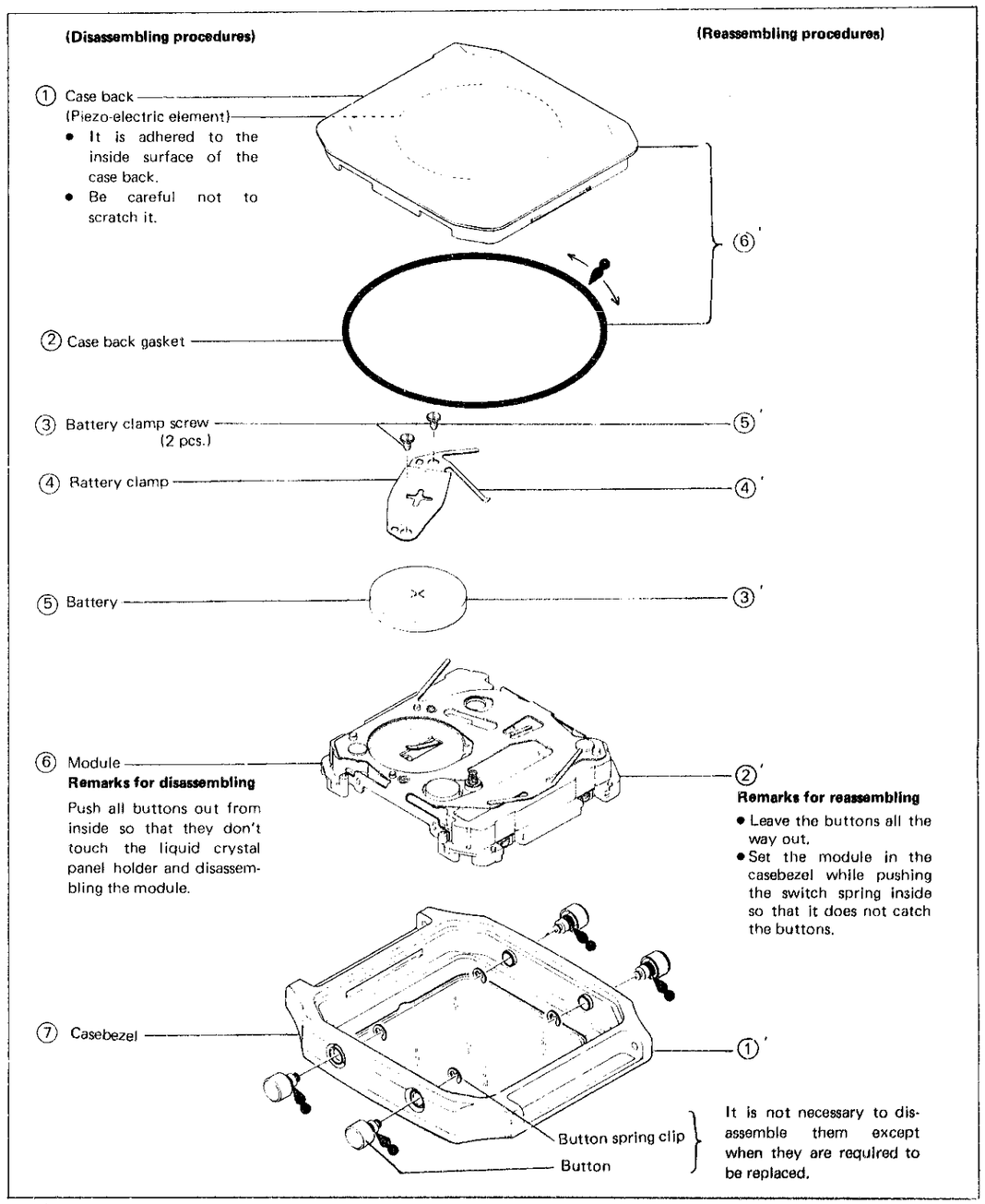





## IV. DISASSEMBLING, REASSEMBLING AND LUBRICATING

**1. Disassembling, reassembling and the lubricating of the case**

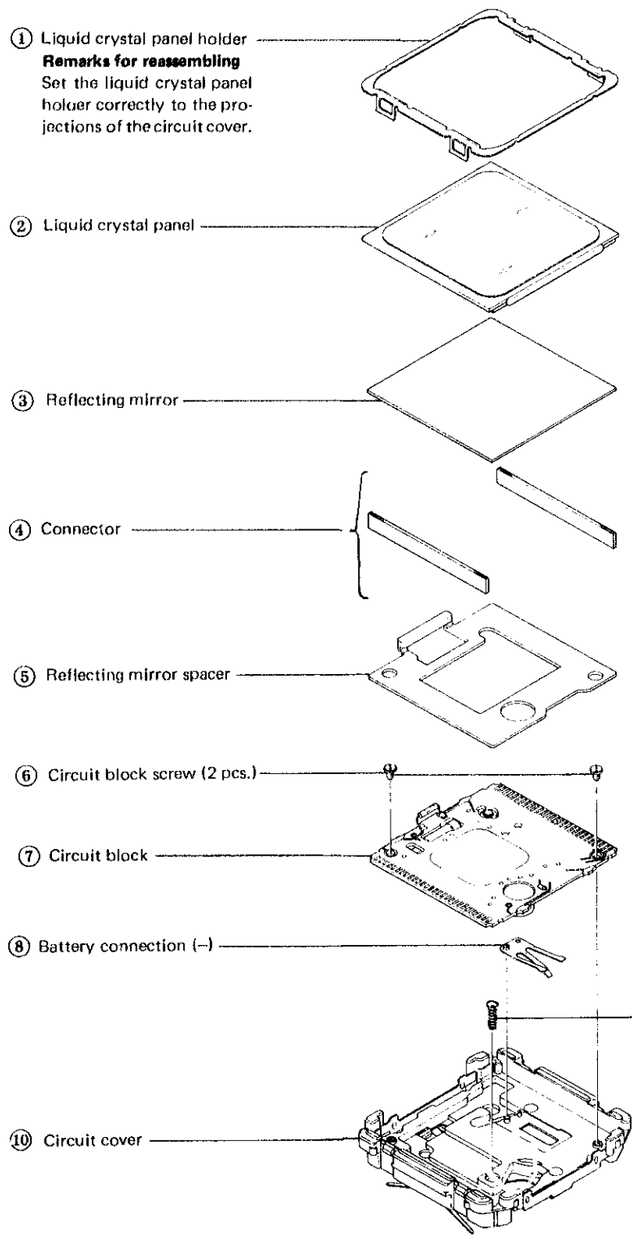
- Disassembling procedures Figs. : ① – ⑦
- Reassembling procedures Figs. : ①' – ⑥'
- **Lubricating: Silicon grease 500,000 c.s.**
  **Normal quantity** ●●●



## 2. Disassembling and reassembling of the module

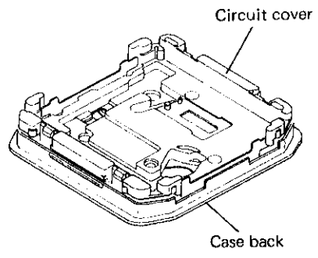
Disassembling procedures Figs. : ① – ⑩

Reassembling procedures Figs. : ⑩ – ①




**Remarks for reassembling**
Set the liquid crystal panel holder correctly to the projections of the circuit cover.

**Remarks for reassembling**
When reassembling the module, be careful not to place the circuit cover on the level surface as the switch spring may be bent. Use the case back as a module holder so as not to deform the switch spring.



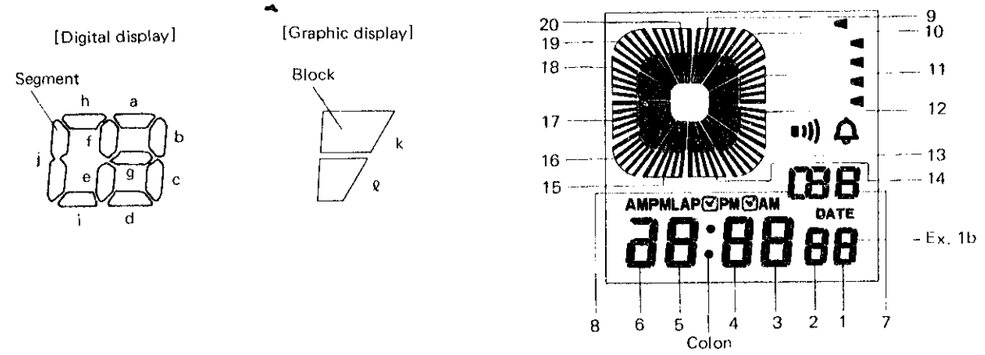

**Remarks for reassembling**
Be sure to set the buzzer lead terminal to the correct position of a hole on the circuit cover.



## 3. 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 segments**




- **Relationship between the segment and C-MOS-LSI output terminal**

Common electrode 1 connected electrically with segment

Common electrode 2 connected electrically with segment

Common electrode 3 connected electrically with segment

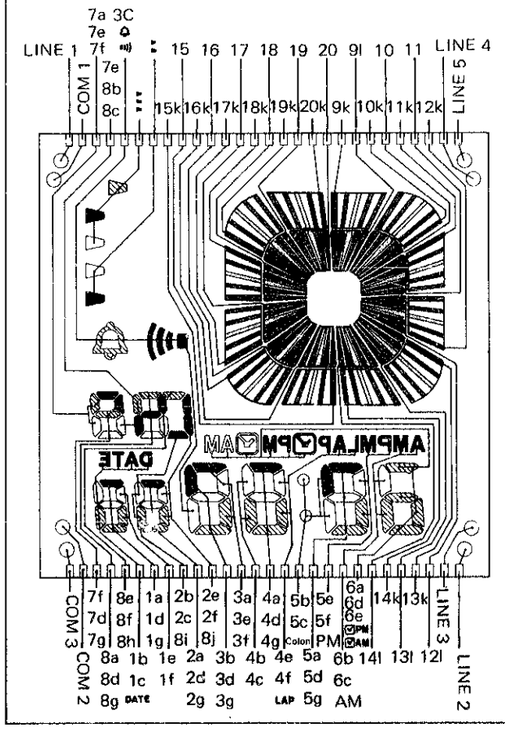
Line electrode 1 connected electrically with segment

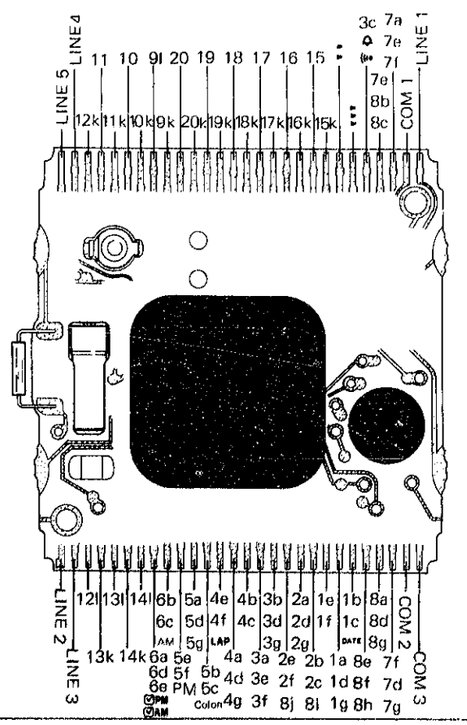
Line electrode 2 connected electrically with segment

Line electrode 3 connected electrically with segment

Line electrode 4 connected electrically with segment

Line electrode 5 connected electrically with segment



## V. CHECKING AND ADJUSTMENT

Refer to the "SEIKO QUARTZ TECHNICAL GUIDE GENERAL INSTRUCTION" for Digital watches for details.

**Procedures**

### CHECK BATTERY VOLTAGE

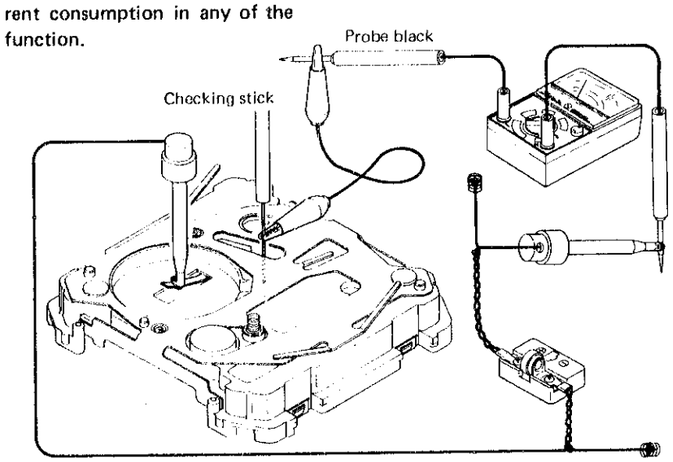
More than 1.5V : Normal
Less than 1.5V : Defective

### CHECK BATTERY CONDUCTIVITY

### CHECK CURRENT CONSUMPTION

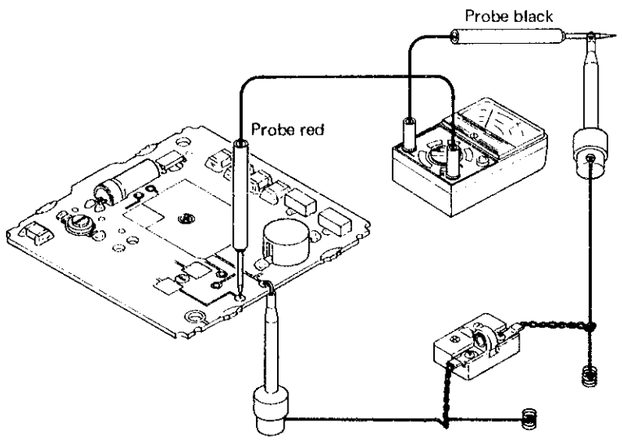
1. Current consumption for the whole of the module.

- It is possible to check the current consumption in any of the function.




**Result:**
Less than 2.5μA: Normal
More than 2.5μA: Defective

2. Current consumption for the circuit block alone.




**Result:**
Less than 2.5μA: Normal
More than 2.5μA: Defective

* When measuring the current consumption of the circuit block alone, be sure to cover the C-MOS-LSI by a reflecting mirror or black paper so that it is not exposed to the light such as fluorescent light.



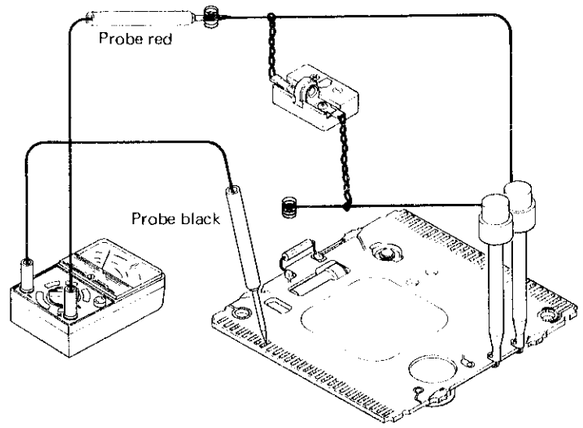
**Procedures**

### CHECK WATER RESISTANCE

### CHECK CONTACT BETWEEN C-MOS-LSI AND LIQUID CRYSTAL PANEL

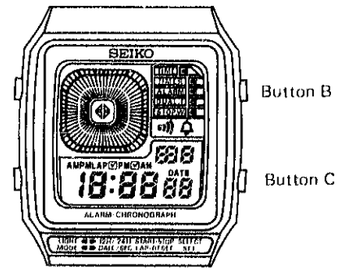
### CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK

- Check the liquid crystal panel
- Check the circuit block output voltage




### CHECK ACCURACY

Check the watch for accuracy in the daily rate measuring function with all the segments displayed. (Set the mode for the time and calendar setting function, then depress button "B" and "C" at the same time, and all the segments light up.)




### CHECK FUNCTIONING AND ADJUSTMENT

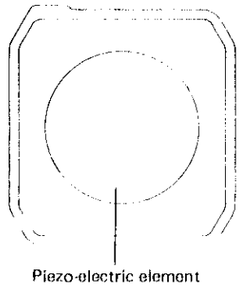
### CHECK ALARM TEST SYSTEM

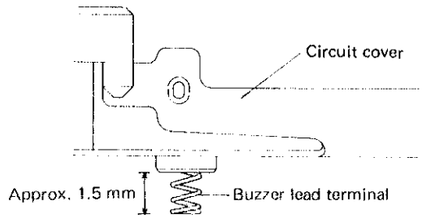
Check to see if the alarm will ring when the button "B" and "C" are depressed at the same time in the time and calendar function.

### CHECK CONDUCTIVITY OF SWITCH COMPONENTS

## CHECK ALARM CONDITION

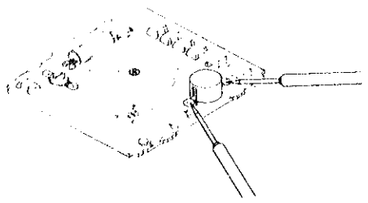
(1) Check to see if there is any contamination on the connecting portion of the piezo-electric element on the case back and the buzzer lead terminal. Also, check to see if there is a bent on the buzzer lead terminal.




(2) Measure the resistance for the upconverter coil of the circuit block and check if there is a broken wire or a short circuit.

The range to be used for volt-ohm-meter: OHMS R x 1



Apply the probe to the soldered portion of the upconverter coil terminal.

**Result:**
Less than 10Ω : Normal
More than 10Ω: Defective

## CHECK BULB CONDITION

* How to replace the bulb

Be sure to use the soldering iron of low heat capacity with as fine a tip as possible.

Thickness of the tip: Approx. $\phi$1mm
Heat capacity: 5W - 20W of power consumption

(1) Remove the defective bulb.
Hold the defective bulb gently with tweezers, apply the soldering iron to bulb lead terminal and lift the lead of the bulb to remove it.

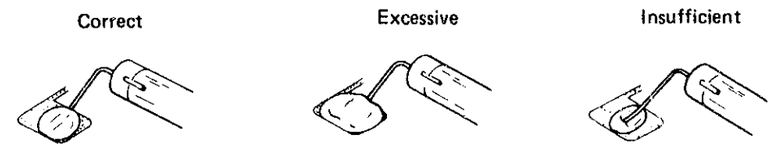
(2) The lead of the bulb is made somewhat longer. Cut it off properly with nippers.





(3) Solder the new bulb.

**Note:**
If the soldering iron is applied too long, the circuit block may be damaged.
Be sure to apply the soldering iron to such an extent that the solder is melted uniformly at the connection (for approx. 1 second).




(4) Finally check the bulb condition again.

## CHECK FUNCTIONING

All procedures of Disassembling Reassembling Checking and Adjustment are completed.