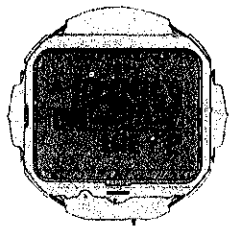
SEIKO

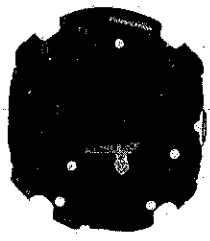
DIGITAL QUARTZ

Cal. A708A, A718A

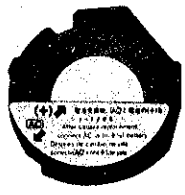
PARTS CATALOGUE

Cal. A708A, A718A





4001 764

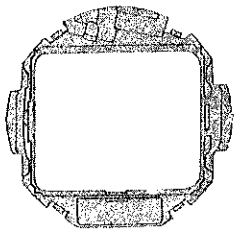


4225 766

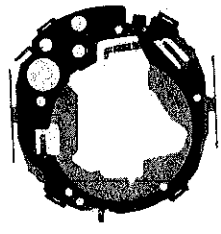
4246 762

4270 795

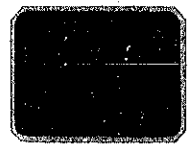
4313 762



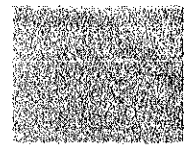
4398 762



4410 764



☆4510 546



4521 902

4530 230

☆Matsushita BR2016

Cal. A708A, A718A

Characteristics

Casing diameter : ϕ 29.1 mm
Maximum height : 5.2 mm
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 (Cal. A718A)
World-time display
Illuminating light

PART NO.	PART NAME	PART NO.	PART NAME
4001 764	Circuit block (Cal. A718)		
4001 774	Circuit block (Cal. A708)		
4225 766	Battery clamp (Cal. A718)		
4225 767	Battery clamp (Cal. A708)		
4246 762	Buzzer lead terminal		
4270 795	Battery connection (−)		
4313 762	Connector		
4398 762	Liquid crystal panel frame		
4410 764	Circuit cover		
☆**4510 546**	Liquid crystal panel (Cal. A718)		
☆4510 547			
☆4510 548	Liquid crystal panel (Cal. A708)		
☆4510 549			
4521 902	Reflecting mirror (Silver)		
4530 230	Bulb		
4589 650	Piezoelectric element		
☆Matsushita BR2016	Lithium battery		
☆Maxell CR2016			
☆Sanyo CR2016			
☆SEIKO CR2016			

Remarks :

Liquid crystal panel

☆4510 546
☆4510 547
☆4510 548
☆4510 549
……Be sure that combination between the color of panel cover and liquid crystal panel should be matched according to the **"SEIKO Quartz Casing Parts Catalogue"**.

Battery

☆Matsushita BR2016
☆Maxell CR2016
☆Sanyo CR2016
☆SEIKO CR2016
……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"**.
Note that SEIKO battery is marked with "SEIZAIKEN" on its (+) side.

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

84. 6 Printed in Japan

TECHNICAL GUIDE

SEIKO

DIGITAL QUARTZ

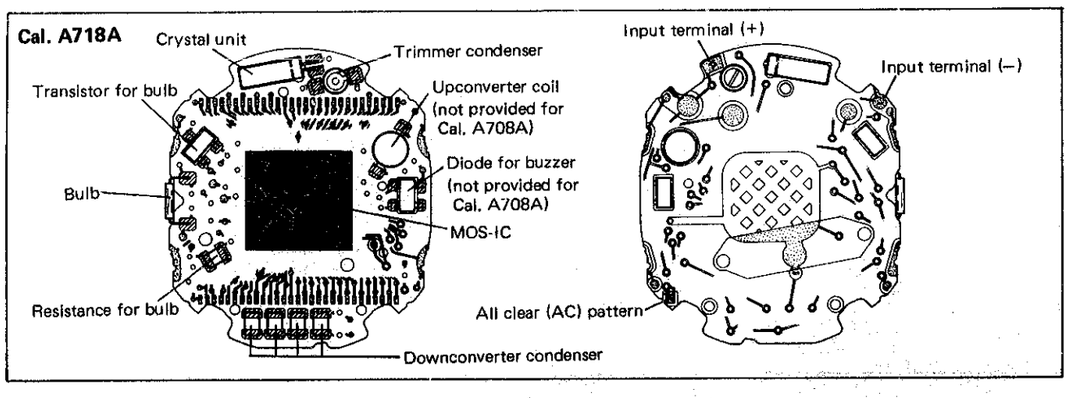
CAL. A708A
CAL. A718A

CONTENTS

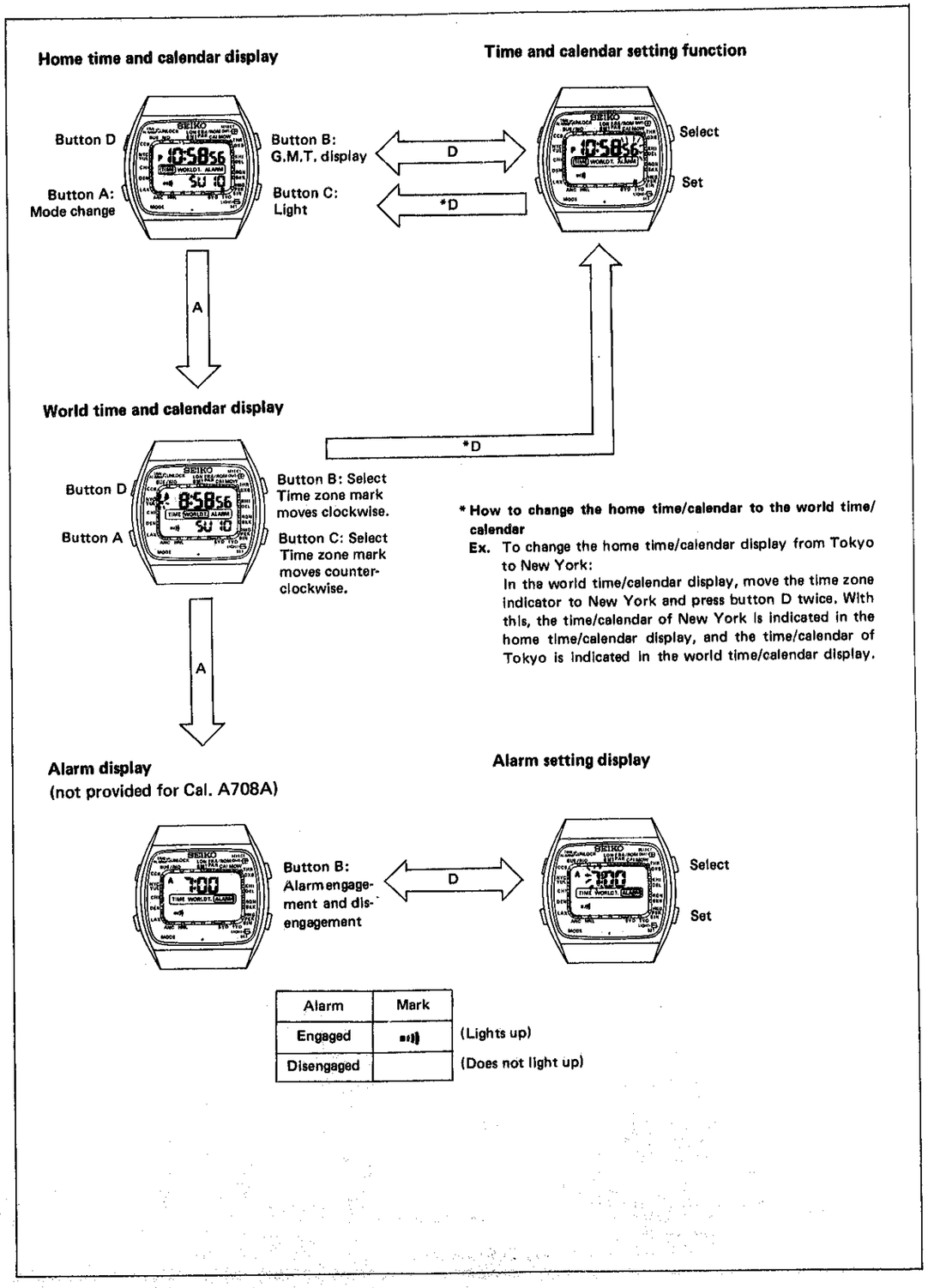
I. SPECIFICATIONS

Item \ Cal. No.		A718A	A708A
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)	
Liquid crystal driving system		1/2 Multiplex driving system	
Display system		• Home time and calendar display (12- or 24-hour indication)	
		• World time and calendar display (12- or 24-hour indication)	
		• Time and calendar setting display	
		• Alarm display	–
Additional mechanism		• Illuminating light	
		• Automatic return system	
		• Alarm function	–
		• Alarm test system	–
		• All segments light up system (Time accuracy measuring mode)	
		• Full-automatic calendar display system (1980 ~ 2099)	
Loss/gain		Monthly rate at normal temperature range: less than 15 seconds	
Module size	Outside diameter	ϕ29.0 mm	
	Height	5.1 mm	
Regulation system		Trimmer condenser	
Measuring gate by quartz tester		Any gate can be used.	
Battery		Lithium battery SEIKO (SEIZAIKEN) CR2016, Sanyo CR2016, Maxell CR2016, Matsushita BR2016 Battery life is approximately 3 years. Voltage: 3.0V	

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISPLAY FUNCTION



*** How to change the home time/calendar to the world time/calendar**

Ex. To change the home time/calendar display from Tokyo to New York:
In the world time/calendar display, move the time zone indicator to New York and press button D twice. With this, the time/calendar of New York is indicated in the home time/calendar display, and the time/calendar of Tokyo is indicated in the world time/calendar display.

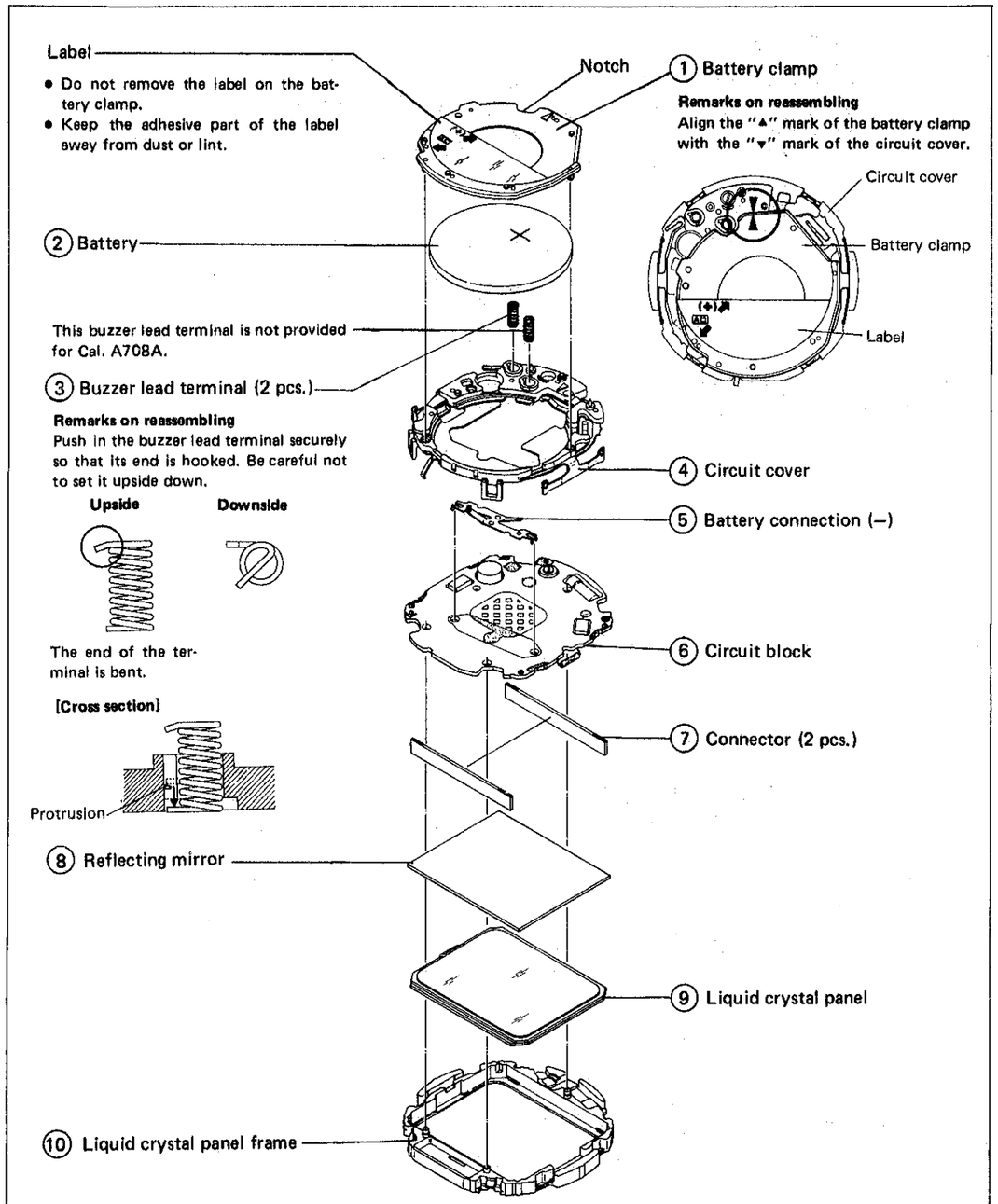
Alarm	Mark	
Engaged	▪ıl)	(Lights up)
Disengaged		(Does not light up)

IV. DISASSEMBLING, REASSEMBLING, AND LUBRICATING

Ex. : Cal. A718A

Disassembling procedures Figs. : (1) → (10)

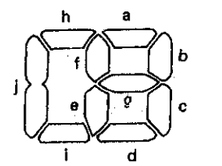
Reassembling procedures Figs. : (10) → (1)

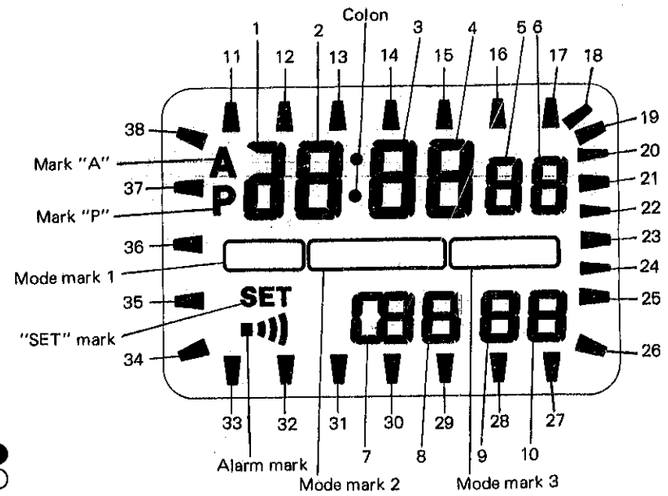


V. RELATIONSHIP BETWEEN THE SEGMENT (LIQUID CRYSTAL PANEL ELECTRODE) AND THE C-MOS-LSI OUTPUT TERMINAL

1. Cal. A718A

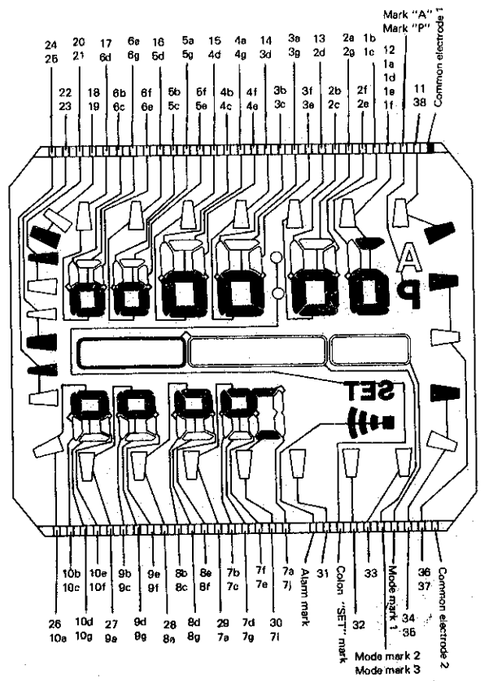
• **Designation of segment**

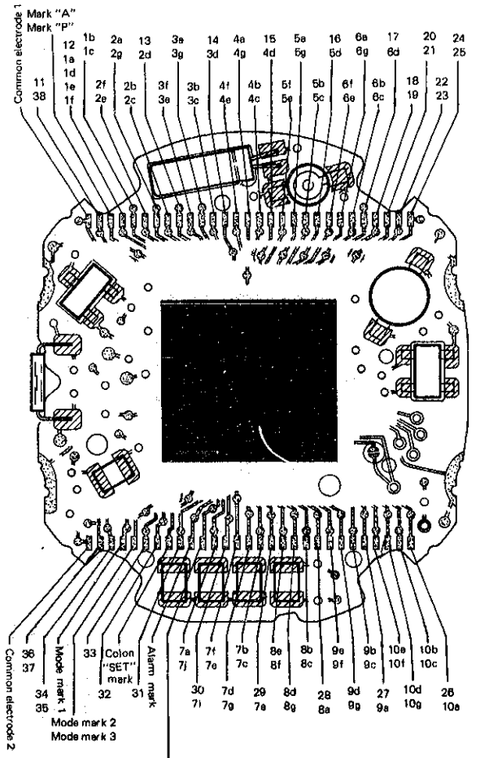




Common electrode 1

Common electrode 2

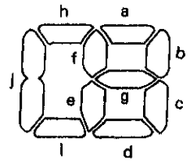


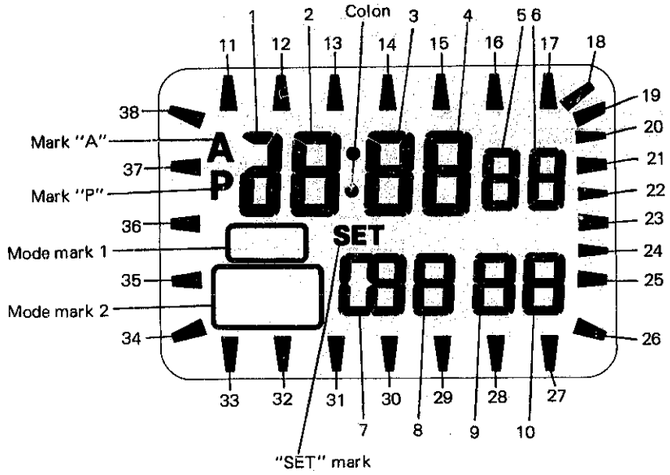


This electrode is not conductive to the electrode of liquid crystal panel.

2. Cal. A708A

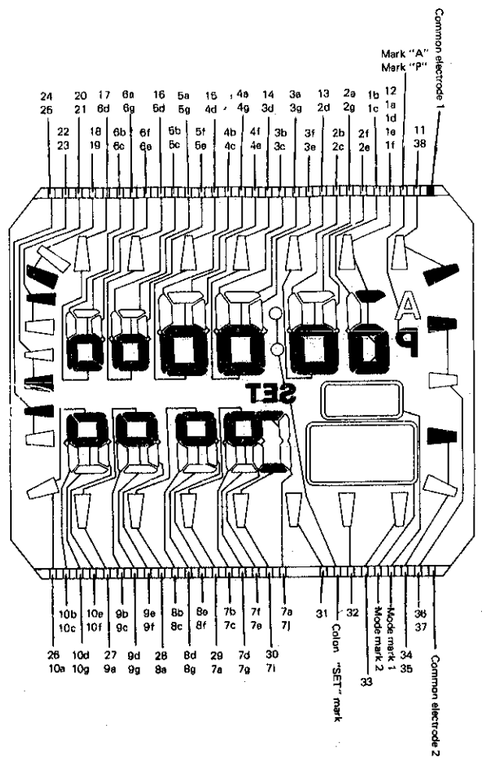
● **Designation of segment**

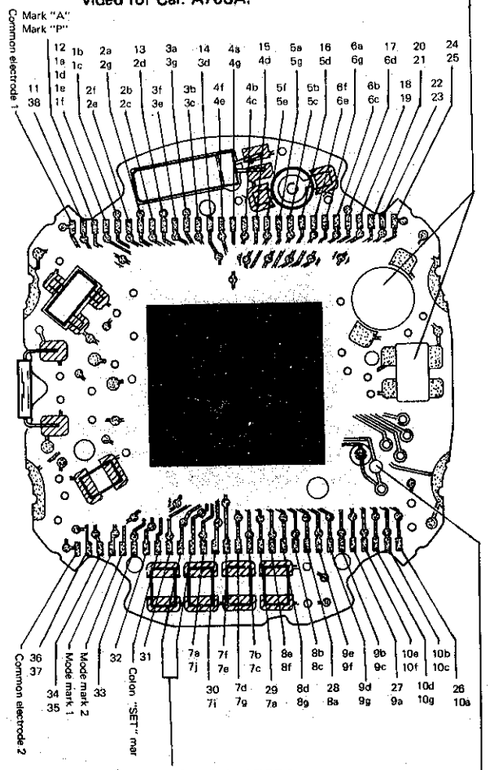




Common electrode 1
Common electrode 2

The piezoelectric coil and transistor are not provided for Cal. A708A.





Not used for Cal. A708A.

The pattern here is cut for Cal. A708A.

VI. CHECKING AND ADJUSTMENT

● The explanation here is only for the particular points of Cals. A708A and A718A.
Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Digital Quartz for details.

Procedure

CHECK BATTERY VOLTAGE

Use the Digital Multi-Tester.
Mode to be used: DC V

Result:

[When SEIKO (SEIZAIKEN) CR2016, Sanyo CR2016, or Maxell CR2016 is used]

Normal : More than 2.9V
Defective : Less than 2.9V

[When Matsushita BR2016 is used]

Normal : More than 2.8V
Defective : Less than 2.8V

CHECK CURRENT CONSUMPTION

Use the Digital Multi-Tester.
Mode to be used: μA

1. Current consumption for the whole of the module
After setting as shown in Fig. 1, reset the circuit by applying metal tweezers to the circuit block and then release them as shown in Fig. 2.
(When the circuit is reset, the time display starts from 0:00, January 1, 1980.)

Fig. 1

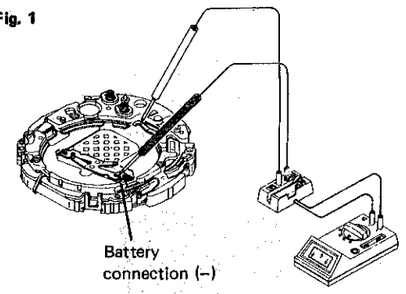
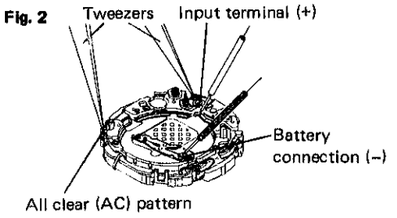


Fig. 2



Result:
Normal : Less than 2.0μA
Defective: More than 2.0μA

2. Current consumption for the circuit block alone
After setting as shown in Fig. 1, reset the circuit by applying metal tweezers to the circuit block and then release them as shown in Fig. 2.

Fig. 1

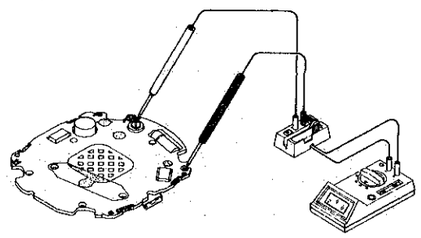
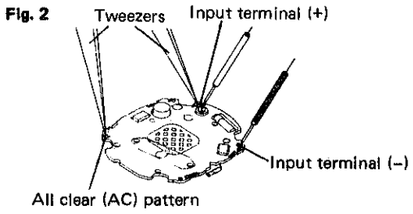


Fig. 2

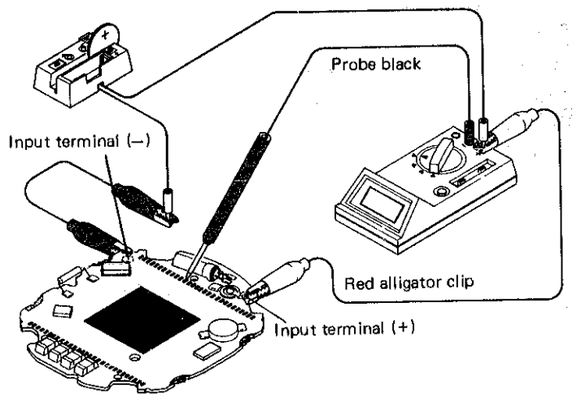


Result:
Normal : Less than 1.5μA
Defective: More than 1.5μA

CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK

Use the Digital Multi-Tester.
Mode to be used: DC V

- Check the output voltage of the circuit block.

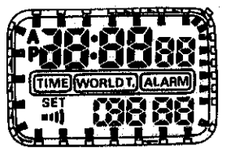


Result:
Normal : More than 0.8V
Defective : Less than 0.8V
Replace the circuit block with a new one.

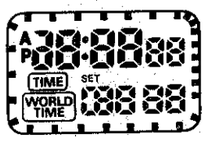
CHECK ACCURACY

The daily rate can be measured easily when all the segments are lit up.
Press buttons B and C at the same time in the time/calendar setting function, and all the segments light up.

Cal. A718A



Cal. A708A



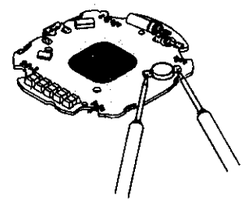
CHECK ALARM TEST SYSTEM (Only for Cal. A718A)

In the home time/calendar display, check to see if the alarm rings by pressing buttons B and C at the same time. There are two kinds of alarm sounds: "beep, beep" (2 beeps per second) and "beep, beep, beep, beep" (4 beeps per second). These two alarm sounds alternately ring with each press of buttons B and C at the same time.

CHECK ALARM CONDITION

1. Check to see if there is any contamination on the connecting portion of the piezoelectric element on the inside surface of the case back and on that of the buzzer lead terminal.
   Also, check to see if there is any deformation on the buzzer lead terminal.
2. Measure the resistance for the upconverter coil of the circuit block and check it for any broken wire and short circuit.

   Use the Digital Multi-Tester.
   Mode to be used: Ω



Result:
Normal : 40Ω ~ 80Ω
Defective — Less than 40Ω
Defective — More than 80Ω

CHECK BULB CONDITION

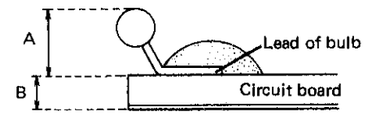
Check to see if the bulb lights up by pressing button C.

[Replacing the bulb]

Refer to "TECHNICAL INFORMATION NO. 18" for how to replace the bulb.
After replacing the bulb, bend the leads of the bulb as shown below.

Be sure to bend the leads of the bulb so that the bulb rests at a height twice that of the circuit board.

A : B = 2 : 1



Cross section

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