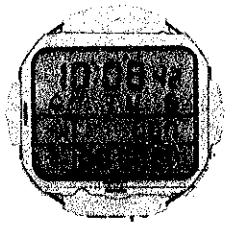
SEIKO

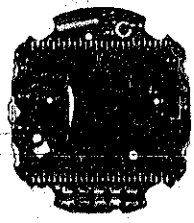
DIGITAL QUARTZ

Cal. A714A

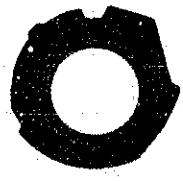
PARTS CATALOGUE

Cal. A714A





4001 762

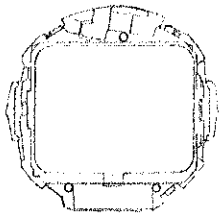


4225 762

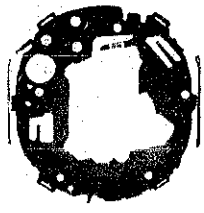
4246 762

4270 795

4313 762



4398 762



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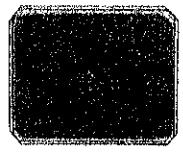
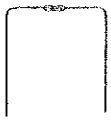


☆4510 515

4521 900



4530 230

☆Matsushita BR2016

Cal. A714A

Characteristics

Casing diameter : φ 29.1 mm
Maximum height : 5.1 mm without battery
Frequency of quartz crystal oscillator : 32,768 Hz (Hz = Hertz . . . . . Cycles per second)
All functions in one display : The time and calendar display is shown in the upper row, the alarm function in the center row and the stopwatch function in the lower row.
Time and calendar display : Hour (12-hour indication or 24-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.)
Alarm display : Can be set to operate at any desired hour and minute every day.
Stopwatch display : Digital display system showing minute, second and 1/100 second up to 20 minutes.
And after 20 minutes, hour, minute and second up to 12 hours.
Time signal : Can be set to ring every hour on the hour.
Display medium : Nematic liquid crystal, FE-Mode.
Regulation system : Trimmer condenser.
Illuminating light : Illuminates all the digital displays in the dark by depressing the light button.

PART NO.	PART NAME	PAPT NO.	PART NAME PART
4001 762	Circuit block		
4225 762	Battery clamp		
4246 762	Buzzer lead terminal		
4270 795	Battery connection (−)		
4313 762	Connector		
4398 762	Liquid crystal panel frame		
4410 764	Circuit bridge plate		
☆**4510 515**	Liquid crystal panel		
☆4510 516			
☆4510 517			
4521 900	Reflecting mirror (Silver)		
4521 901	Reflecting mirror (Gold)		
4530 230	Bulb		
☆ Matsushita BR2016	Lithium battery		
☆ Maxell CR2016			
☆ Sanyo CR2016			

Remarks :

Liquid crystal panel

☆4510 515
☆4510 516
☆4510 517
……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
……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

DIGITAL QUARTZ

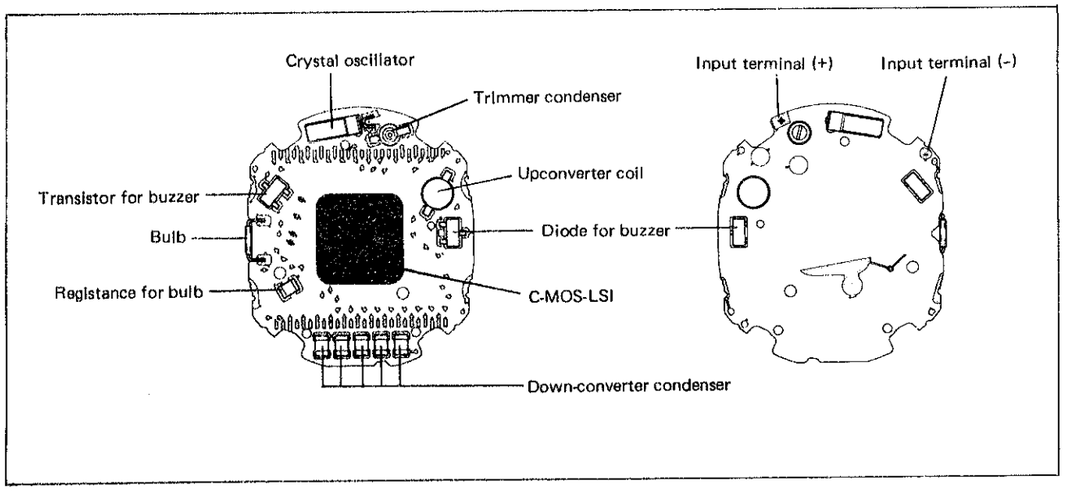
CAL. A714A

CONTENTS

I. SPECIFICATIONS

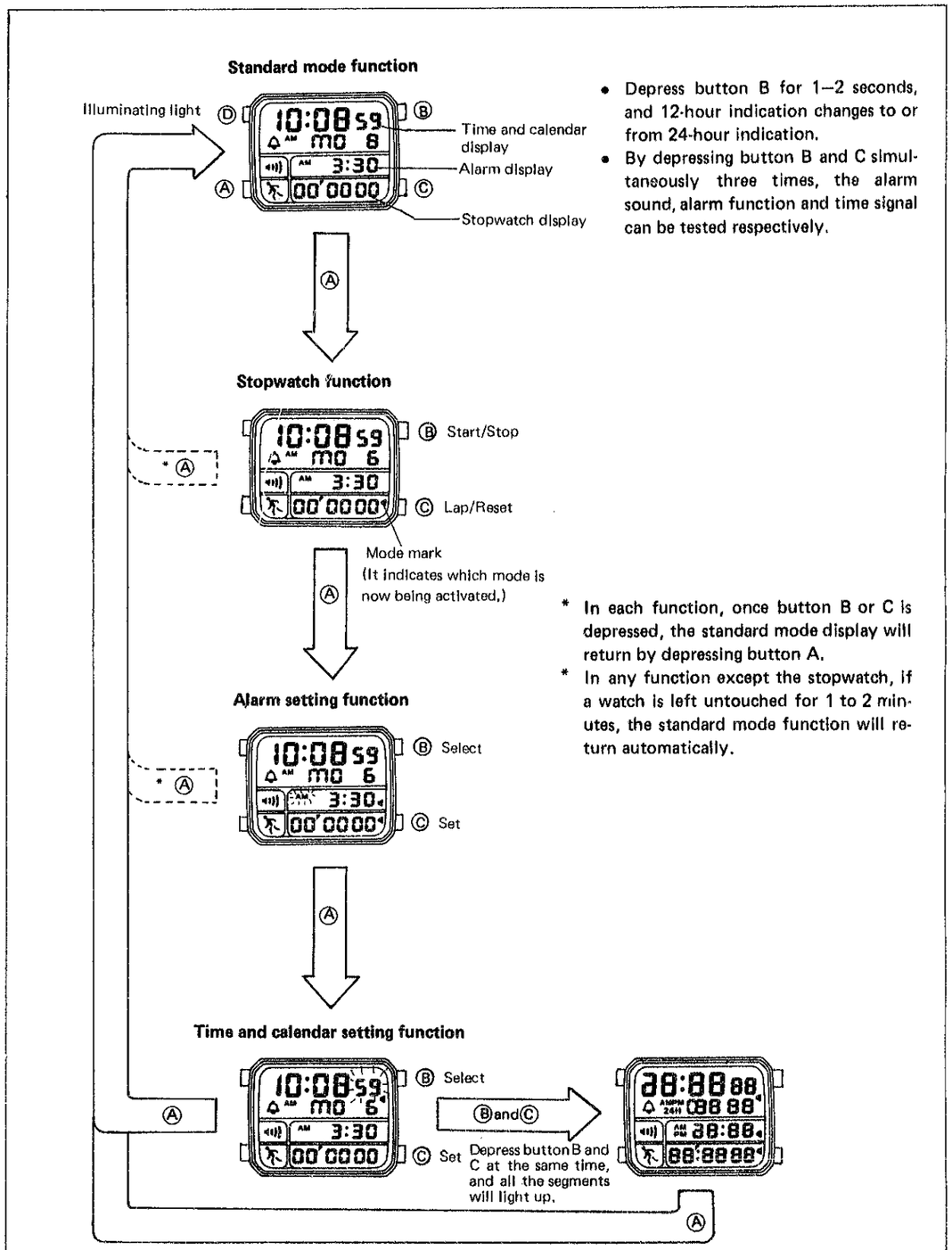
Item \ Cal. No.		A714A
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)
Driving system		Multiplex driving system
Display system		All functions in one display • Time and calendar display (12- or 24-hour indication) • Stopwatch display • Alarm time display
Additional mechanism		• Alarm test system • Hourly time signal • Pattern segment checking system • Illuminating light
Loss/gain		Loss/gain at normal temperature range Monthly rate: less than ±15 seconds
Module size	Outside diameter	ϕ 29.1 mm
	Height	5.1 mm without battery
Regulation system		Trimmer condenser
Measuring gate by quartz tester		Any gate is available.
Battery		Lithium battery Matsushita BR2016, Maxell CR2016, Sanyo CR2016 Battery life: approx. 5 years Voltage: 3.0V

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISPLAY FUNCTION

- Check to see if the mode changes as shown below by depressing button A.



- Depress button B for 1–2 seconds, and 12-hour indication changes to or from 24-hour indication.
- By depressing button B and C simultaneously three times, the alarm sound, alarm function and time signal can be tested respectively.

* In each function, once button B or C is depressed, the standard mode display will return by depressing button A.

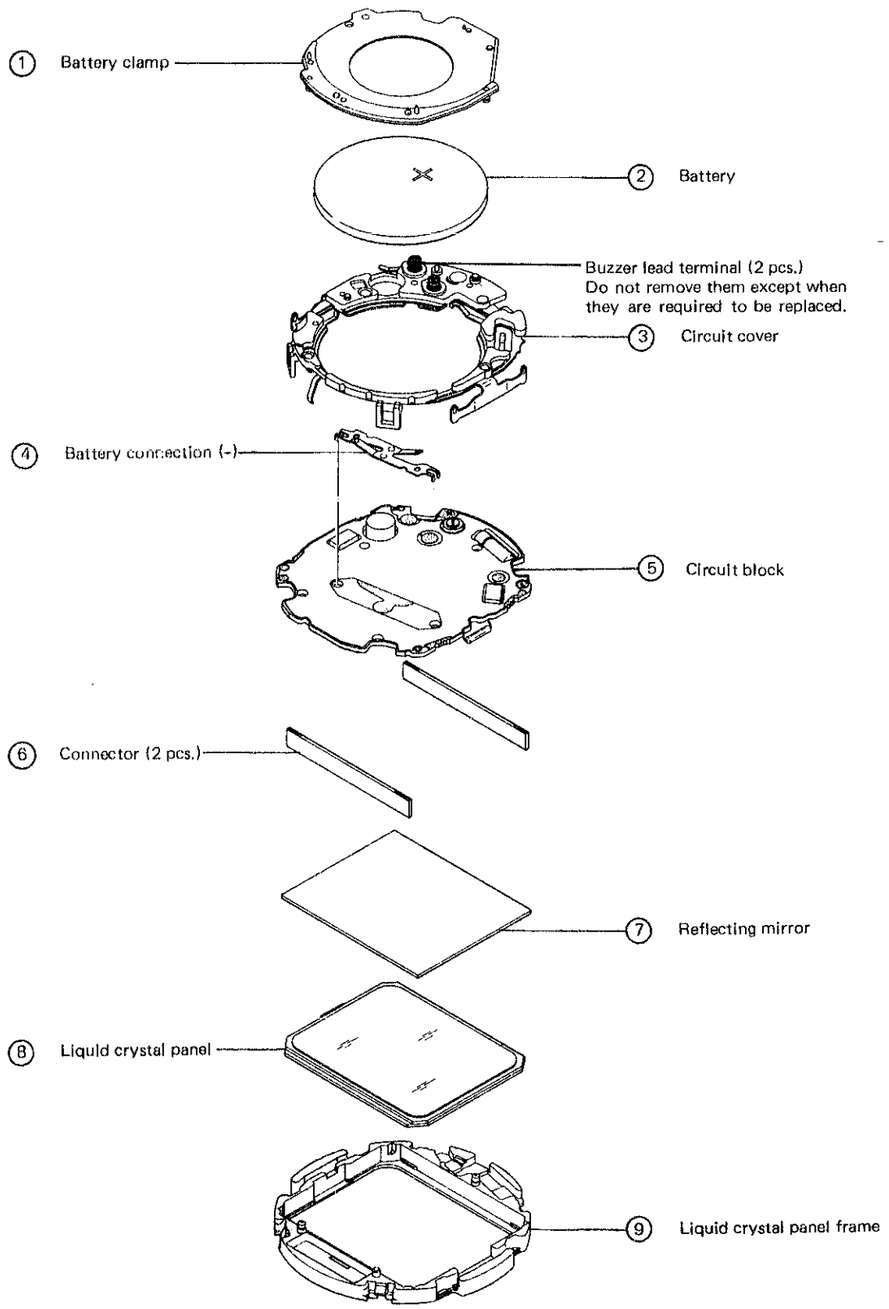
* In any function except the stopwatch, if a watch is left untouched for 1 to 2 minutes, the standard mode function will return automatically.

IV. DISASSEMBLING AND REASSEMBLING

1. Disassembling and reassembling of the module

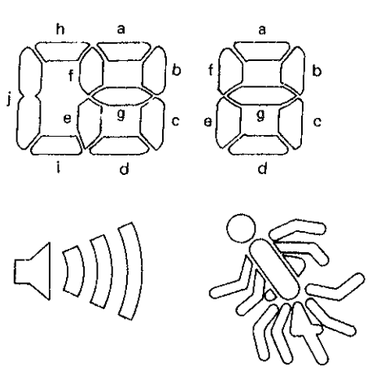
Disassembling procedures: ① → ⑨

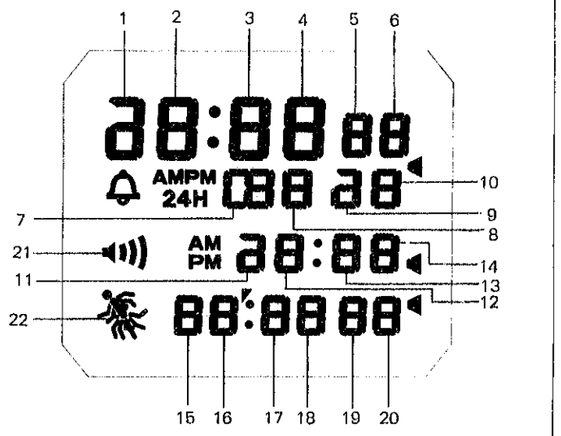
Reassembling procedures: ⑨ → ①

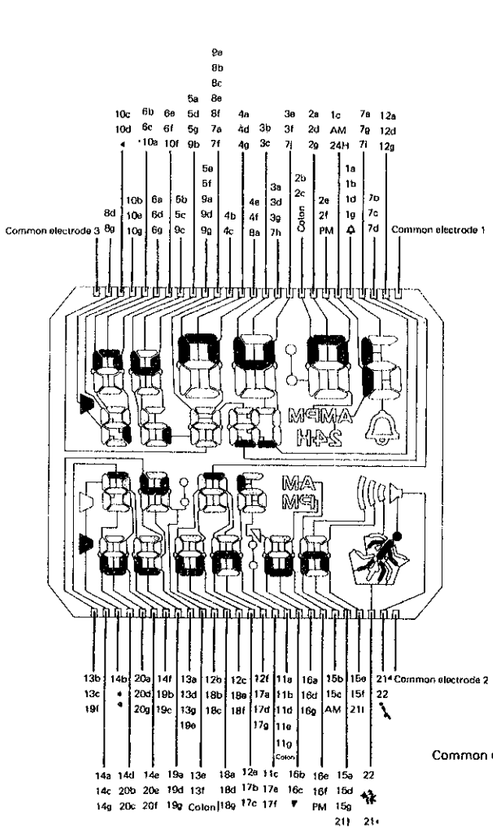


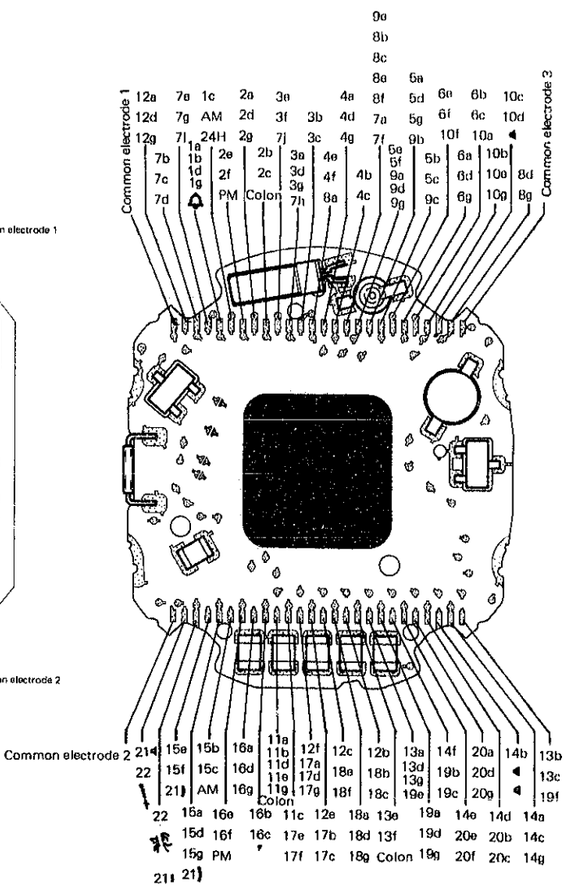
2. Relationship between the segment (Liquid crystal panel electrode) and the C-MOS-LSI output terminal

- Designation of segment









V. CHECKING AND ADJUSTMENT

- Refer to the "TECHNICAL GUIDE GENERAL INSTRUCTION" for SEIKO Digital Quartz for details.

Procedure

CHECK BATTERY VOLTAGE

Set up the Volt-ohm meter.
Range to be used: DC 6V

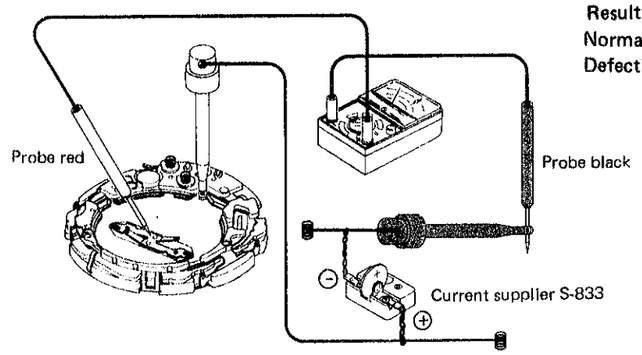
Result:
Normal : More than 2.8V
Defective: Less than 2.8V

CHECK BATTERY CONDUCTIVITY

CHECK CURRENT CONSUMPTION

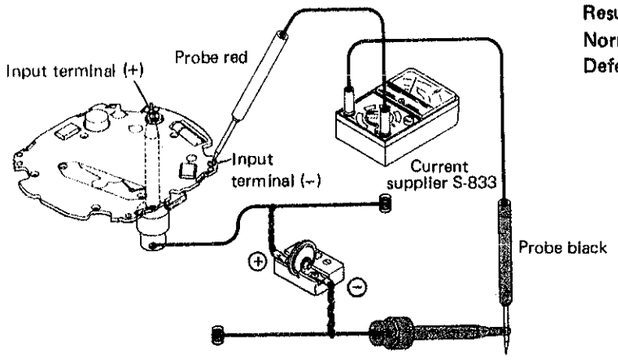
Set up the Volt-ohm meter.
Range to be used: DC 12μA

- Current consumption for the whole of the module



Result:
Normal : Less than 1.6μA
Defective: More than 1.6μA

- Current consumption of the circuit block alone



Result:
Normal : Less than 1.0μA
Defective: More than 1.0μA

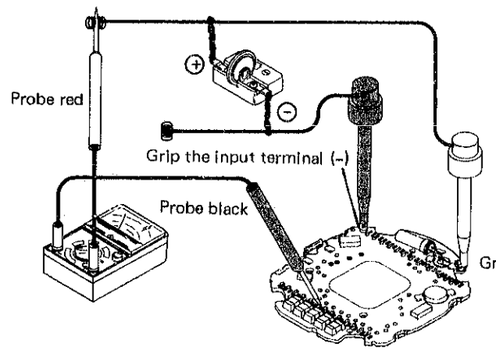
Procedure

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 for broken wire and short circuit.
- Check the circuit block output voltage.



CHECK ACCURACY

Check the watch for accuracy with all segments displayed.
(In time and calendar setting function, depress the button "B" and "C" at the same time, and all the segments light up.

CHECK ALARM TEST SYSTEM

In the standard mode display, depress buttons "B" and "C" at the same time to check to see if the alarm rings.

CHECK CONDUCTIVITY OF SWITCH COMPONENTS

Procedure

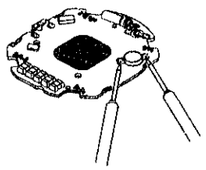
CHECK ALARM CONDITION

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

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

Volt-ohm meter
Range to be used: OHMS R x 1

Result:
Normal: 40Ω – 80Ω
Defective: Less than 40Ω / More than 80Ω



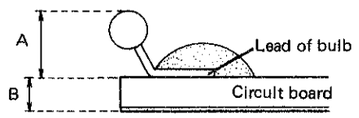
Apply the probes to the upconverter coil as shown above.

CHECK BULB CONDITION

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

CHECK FUNCTIONING

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