TECHNICAL GUIDE

SEIKO

QUARTZ

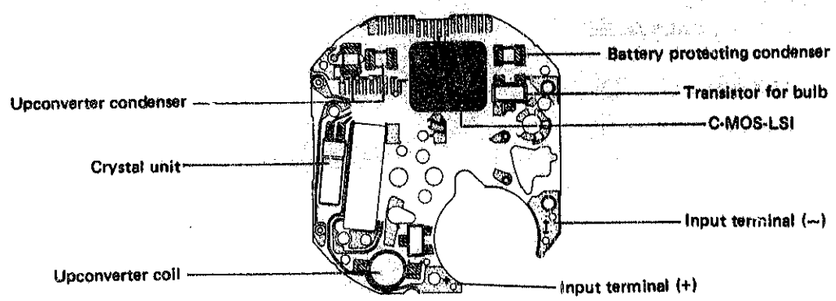
CAL. H556A
CAL. H557A

CONTENTS

I. SPECIFICATIONS

Item	Cal. No.	H556A and H557A
Analogue Function	Time indication	Three hand
	Additional mechanism	• Electronic circuit reset switch • Train wheel setting device (Stops at every second)
Digital Function	Display medium	Nematic Liquid Crystal, FEM (Field Effect Mode)
	Liquid crystal driving system	Multiplex driving system
	Display system	• Home time function • Calendar function • Alarm function • Local time function • Stopwatch function
	Additional mechanism	• Battery life indicator • Alarm test system • Time signal • Pattern segment checking system • Illuminating light
Loss/gain		Loss/gain at normal temperature range Monthly rate : less than 10 seconds (Annual rate : less than 2 minutes)
Outside diameter		23.6 mm between 3 o'clock and 9 o'clock 26.0 mm between 6 o'clock and 12 o'clock
Height		2.9 mm without battery
Regulation system		Rotary step switch
Measuring gate by Quartz Tester		Use the gate of 10 seconds.
Battery		Silver oxide battery: Maxell SR920W Battery life is approximately 2 years. Voltage: 1.55V
Jewels		3 jewels

II. STRUCTURE OF THE CIRCUIT BLOCK



- All parts for Cal. H556A and H557A are the same except for the following:

Parts Name	Cal. H556A	Cal. H557A
Battery clamp	4225 657	4225 655
Circuit block spacer	4408 664	4408 655
Liquid crystal panel	4510 535 4510 536	4510 525 4510 526
Reflecting mirror	4521 860	4521 850

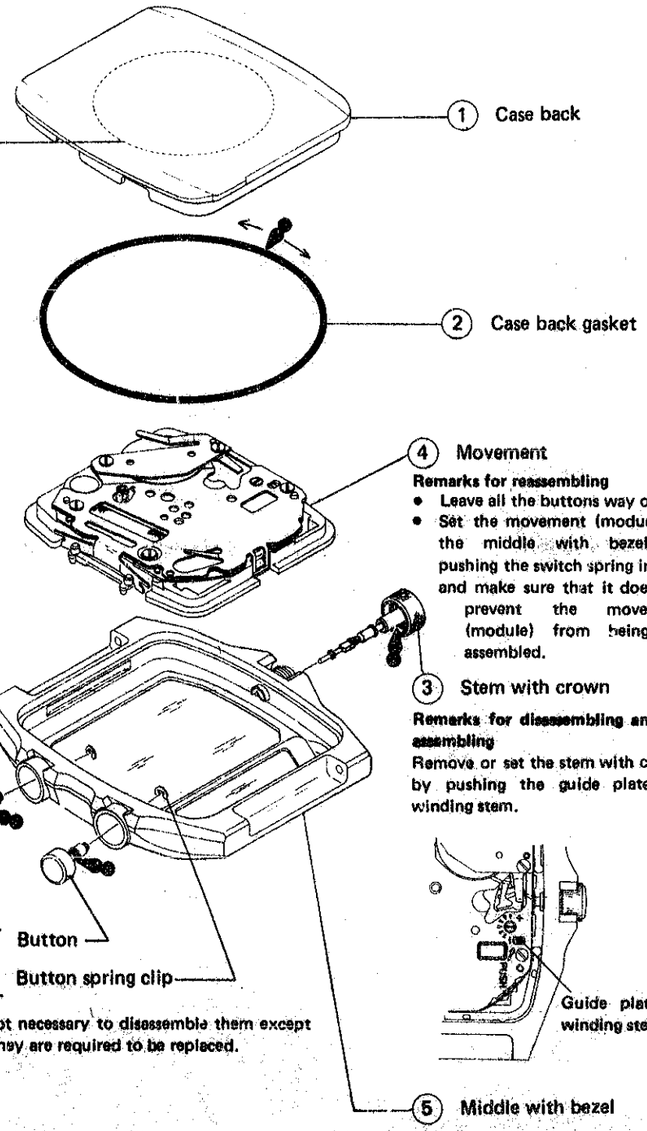
III. DISASSEMBLING, REASSEMBLING AND LUBRICATING

1. Disassembling, reassembling and lubricating of the case

	Type of oil	Oil quantity
Lubricating:	Silicone grease 500,000 c.s. Moebius A SEIKO Watch Oil S-6	Normal quantity

Disassembling procedures Figs. : ① ~ ⑤

Reassembling procedures Figs. : ⑤ ~ ①



2. Disassembling, reassembling and lubricating of the movement (module)

List of the screws used

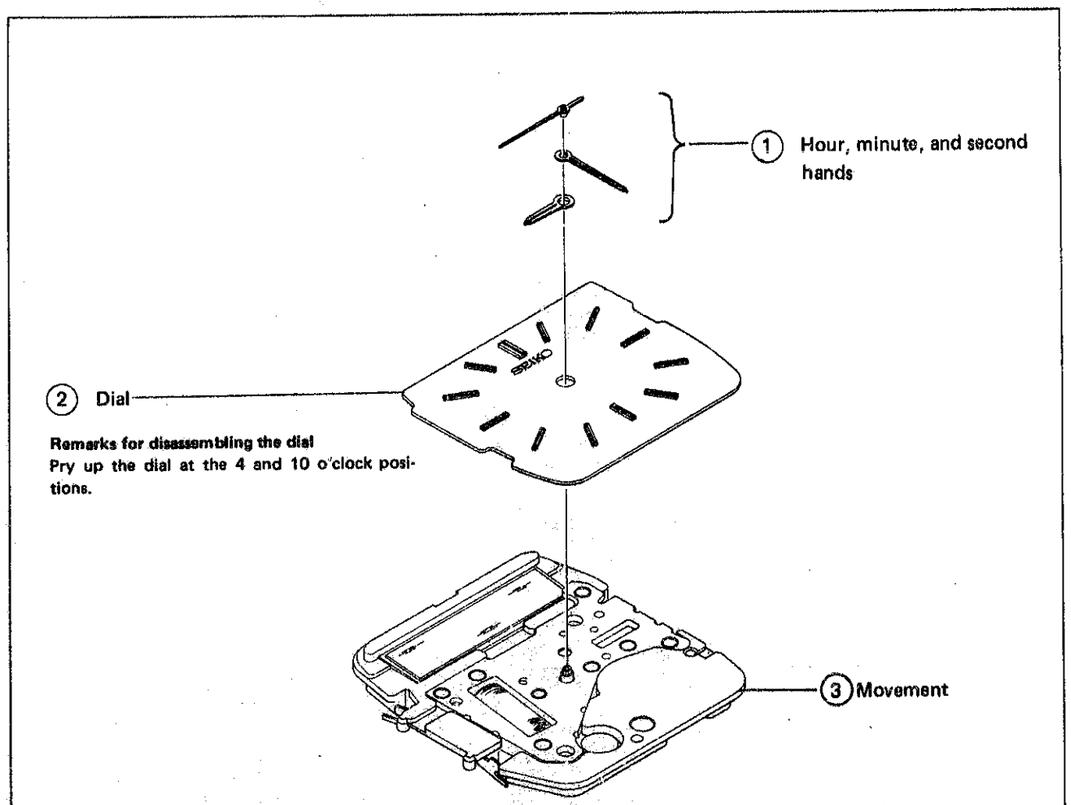
Shape	Part No.	Name	Shape	Part No.	Name
	022 424	Train wheel bridge screw (2 pcs.) Coil block screw Setting wheel rest screw		022 493	Circuit block screw (3 pcs.)

Disassembling procedures Figs.: ① → ㊻

Reassembling procedures Figs.: ㊻ → ①

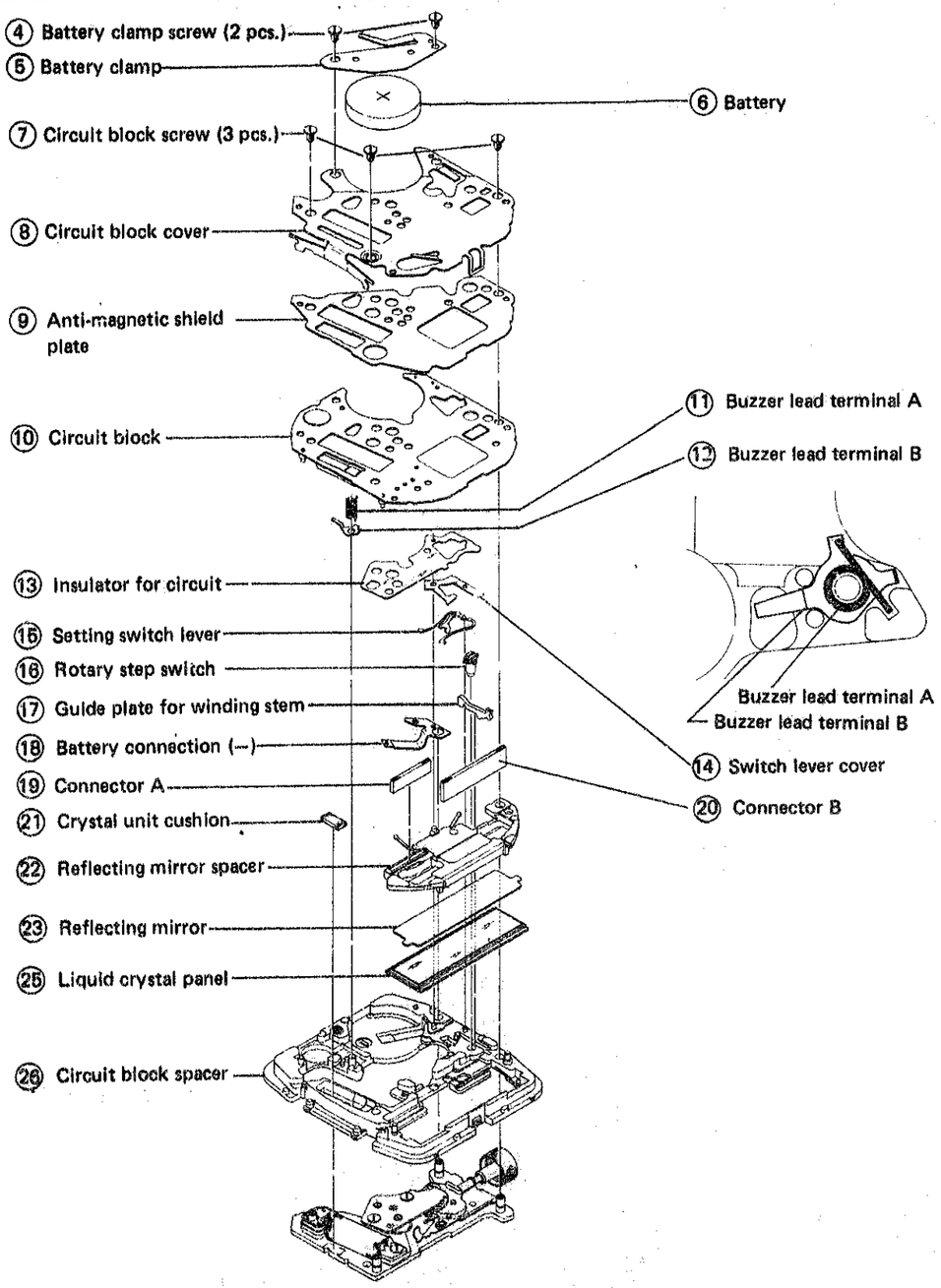
- Use the universal movement holder for disassembling and reassembling.

(1) Disassembling and reassembling of the hour, minute and second hands and dial

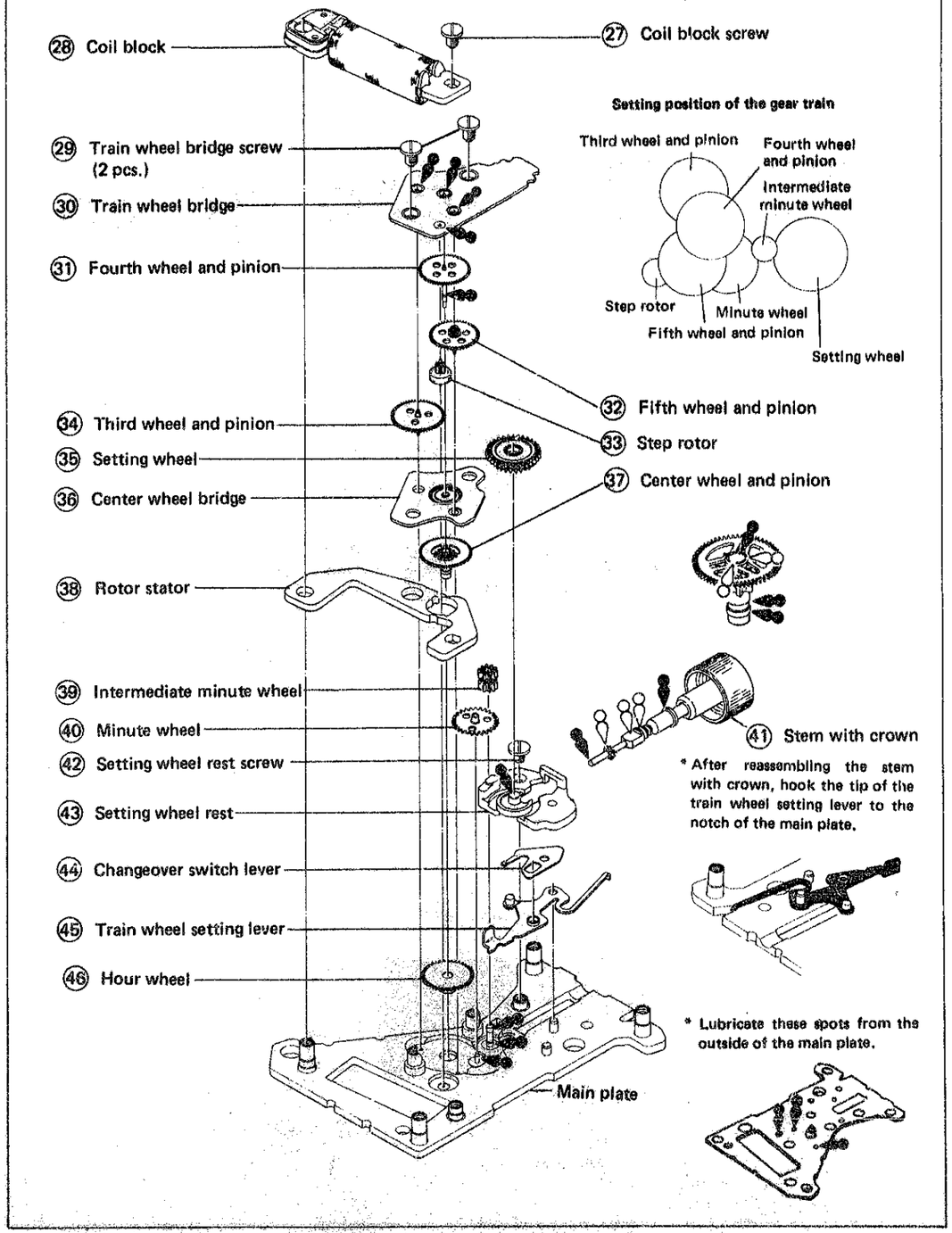


(2) Battery clamp screw ~ circuit block spacer

* Be sure to check the daily rate by using the Quartz Tester and adjust the time accuracy by the rotary step switch after disassembling and reassembling.



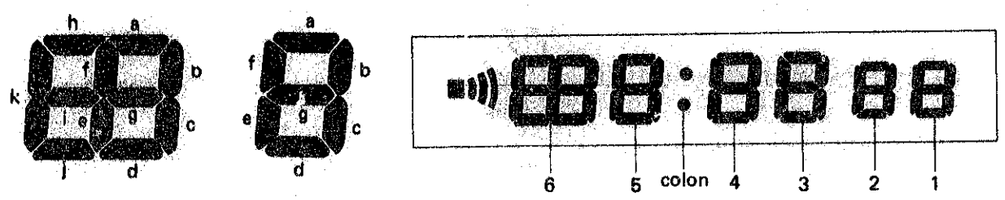
(3) Coil block screw ~ hour wheel



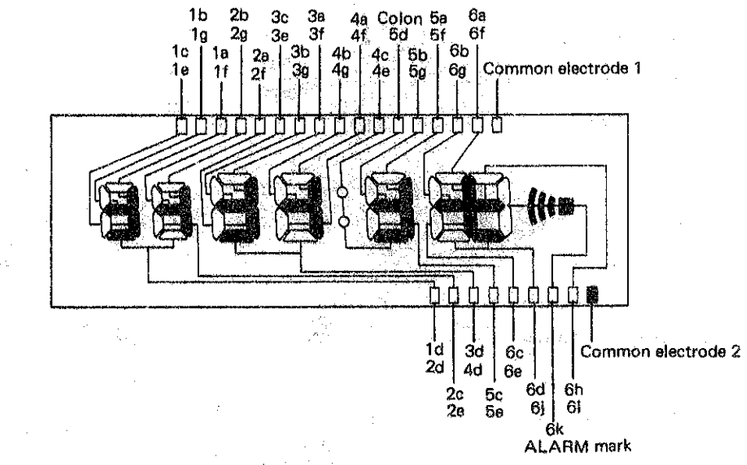
3. Relationship between the segment (Liquid Crystal Panel Electrode) and the C-MOS-LSI output terminal

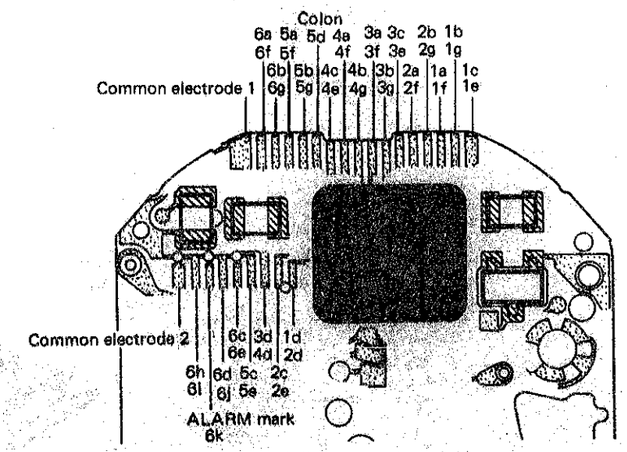
A complete knowledge of how the segment (Liquid Crystal Panel Electrode) works with the C-MOS-LSI output terminal will ensure the proper procadures for checking and adjustment.

- **Designation of the segment**



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





IV. CHECKING AND ADJUSTMENT

- Refer to the "SEIKO QUARTZ TECHNICAL GUIDE, GENERAL INSTRUCTION" for digital watches and for analogue watches for details.

Procedures

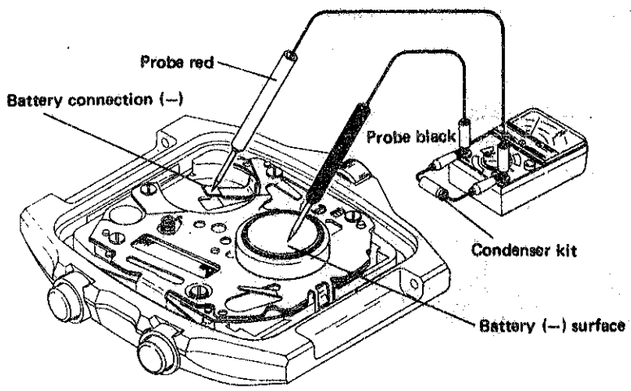
CHECK BATTERY VOLTAGE

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

CHECK BATTERY CONDUCTIVITY

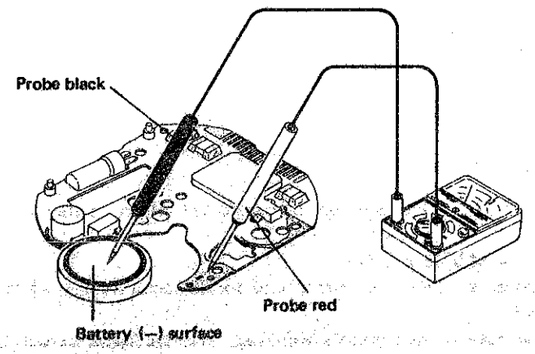
CHECK CURRENT CONSUMPTION

1. Current consumption for the whole of the movement (module)



Result:
Less than 2.0μA : Normal
More than 2.0μA: Defective
Check the current consumption for the circuit block alone.

2. Current consumption for the circuit block alone



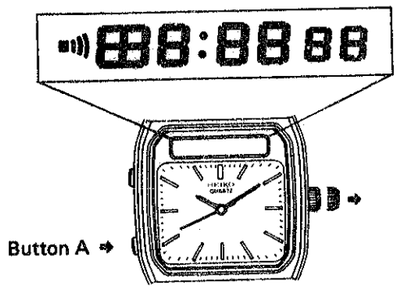
Result:
Less than 1.0μA : Normal
Replace the liquid crystal panel with a new one if there is no short circuit in checking the coil block.
More than 1.0μA : Defective
Replace the circuit block with a new one.

Procedures

CHECK WATER RESISTANCE

CHECK PATTERN SEGMENT CHECKING SYSTEM

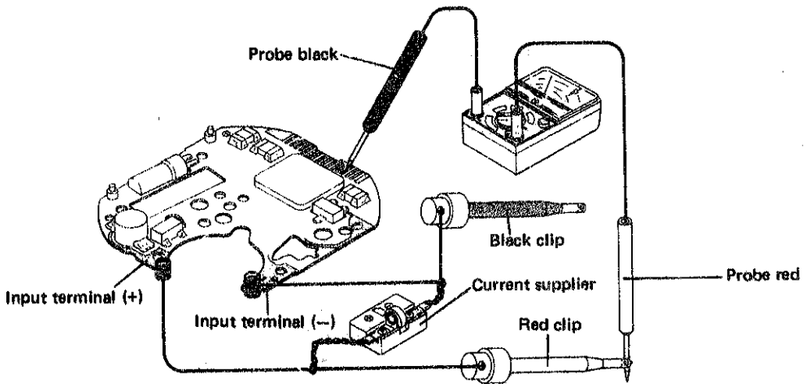
- Pull out the crown while depressing button A.



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

CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK

- How to check the circuit block output voltage



CHECK ACCURACY

- First check the daily rate by the Quartz Tester and adjust time accuracy by setting the groove of the rotary step switch to a corresponding scale.
- Every 1 step of the rotary step switch makes a change of 0.26 sec./day.
- Check the accuracy by using either the electromegnetic detection microphone for analogue watches or the electric-field detection microphone for digital watches.
- When using the electric-field detection microphone, have all the segments displayed. That facilitates measuring the daily rate.

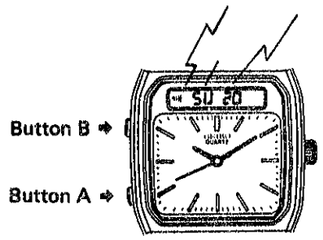
Procedures

CHECK FUNCTIONING AND ADJUSTMENT

Refer to the instructions booklet and check to see whether it functions correctly.

CHECK ALARM TEST SYSTEM

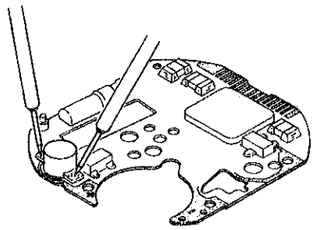
- Depress buttons A and B at the same time for more than 2 seconds.



CHECK CONDUCTIVITY OF SWITCH COMPONENTS

CHECK ALARM CONDITIONS

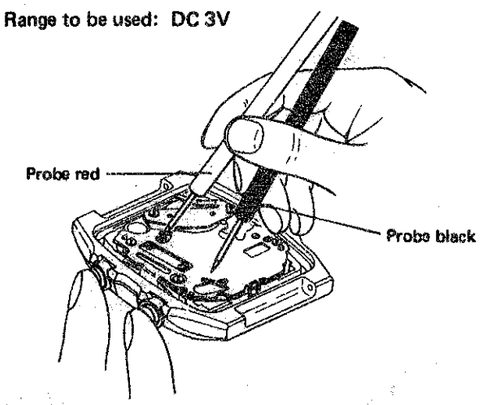
- Measure the resistance for the upconverter coil and check it for broken wire or short circuit.
  Range to be used: OHMS R x 1



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

- Depress buttons A and B at the same time for more than 2 seconds and check the output voltage for the alarm.

Range to be used: DC 3V



The pointer swings regularly: Normal
The pointer does not swing regularly: Defective

Procedures

CHECK OUTPUT SIGNAL

Input indicator blinks every second: Normal
Input indicator does not blink severy second: Defective

CHECK HAND SETTING CONDITION

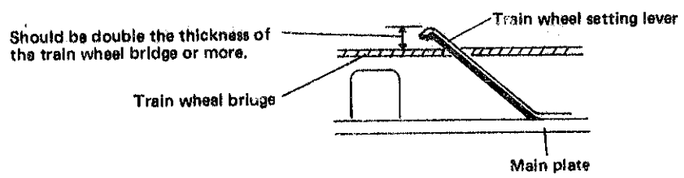
CHECK CIRCUIT BLOCK CONDUCTIVITY

CHECK COIL BLOCK

Result:
3.5 KΩ – 4.5 KΩ: Normal
Less than 3.5 KΩ, More than 4.5 KΩ: Defective

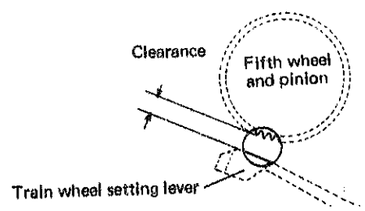
CHECK TRAIN WHEEL SETTING AND RESET CONDITIONS

(1) Check to see if the second hand stops immediately when the crown is pulled out completely and if it starts moving promptly one second after the crown is pushed in to the first click or the normal position.
(2) Remove the circuit block and check the height of the tip of the changeover switch lever as shown in the illustration below.

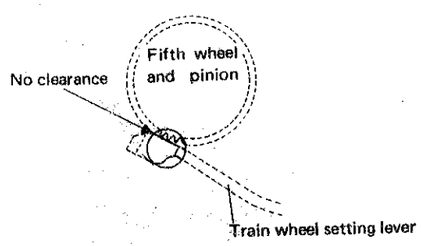


(3) Check for the clearance between the train wheel setting lever and the fifth wheel and pinion through the hole of the circuit block cover.

- **Crown at the normal or the first click position**



- **Crown at the second click position**



CHECK GEAR TRAIN MECHANISM

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