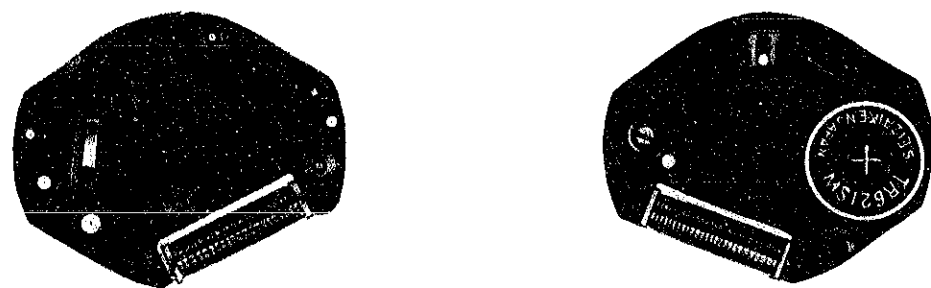


TECHNICAL GUIDE

SEIKO
QUARTZ

CAL. 8621 A/8620A



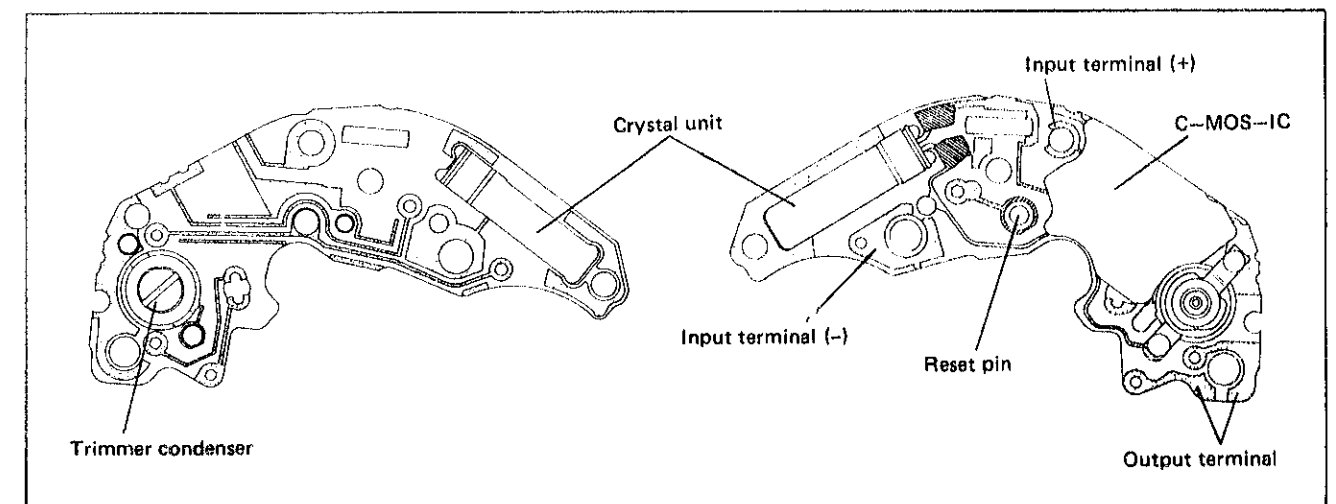
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I. SPECIFICATIONS

Cal. No.	8621A	8620A
Item		
Time indication	3 hands	2 hands (Moves at every 10 seconds)
Additional mechanism	Electronic circuit reset switch	
	Train wheel setting device	
	Battery life indicator	-----
Loss/gain	Loss/gain at normal temperature range Monthly rate: less than 15 seconds (Annual rate: less than 3 minutes)	
Outside diameter	φ 18.4 mm	
Casing diameter	φ 17.8 mm (18.4 mm between 6 o'clock and 12 o'clock sides.) (15.3 mm between 3 o'clock and 9 o'clock sides.)	
Height	2.7 mm without battery	
Regulation system	Trimmer condenser	
Measuring gate by Quartz Tester	Any gate is available.	Use the gate of 10 seconds.
Battery	SEIKO (SEIZAIKEN) TR621SW or SB-DG. Toshiba SR621SW, Maxell SR621SW Voltage: 1.55 V	
Battery life	Approximately 2 years	Approximately 3 years
Jewels	2 jewels	

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISASSEMBLING, REASSEMBLING AND LUBRICATING

- Disassembling and reassembling

Disassembling procedures Figs. : ① ~ ③①

Reassembling procedures Figs. : ③① ~ ①

- Movement holder

Use the movement holder set S-680.

- Lubricating

Type of oil	Oil quantity
● Moebius A	∞ Normal
○ SEIKO Watch Oil S-6	∞ Liberal

1) Indicating mechanism

① Hour, minute and second hands

② Dial

- How to disassemble**
Pry up the dial at the dial legs (12 and 6 o'clock positions) alternately with a screwdriver and remove it.
- How to reassemble**
Put the dial leg into the hole for the dial leg on the main plate.

(Hole for dial leg)

③ Stem with crown

How to disassemble and reassemble

- When disassembling, widen the tips of the winding stem holder with screwdriver.
- When reassembling, push the winding stem in while turning it.

Screwdriver

Be careful not to widen the tip portion of the winding stem holder too much.

2) Electronic circuit and gear train mechanism

④ Circuit block cover screw A. (2 pcs.)

⑤ Circuit block cover screw B

⑥ Circuit block cover

⑦ Coil block screw

⑧ Battery connection (+) (Battery clamp)

* Battery connections and battery clamps differ on certain models.

⑨ Circuit block screw

⑩ Winding stem holder

⑪ Circuit block

⑫ Battery connection (-)

⑬ Coil block

⑭ Reset lever

⑮ Screw for train wheel setting lever cover

⑯ Train wheel setting lever cover

⑰ Train wheel setting lever

⑱ Train wheel bridge screw (2 pcs.)

⑲ Train wheel bridge

⑳ Fourth wheel and pinion

㉑ Fifth wheel and pinion

㉒ Third wheel and pinion

㉓ Center wheel and pinion (with cannon pinion)

㉔ Minute wheel

㉕ Hour wheel

㉖ Step rotor

㉗ Train wheel bridge support

㉘ Crystal unit cushion

㉙ Auxiliary plate

㉚ Rotor stator

㉛ Intermediate setting wheel

Setting wheel
Since it is fixed to the main plate, it can not be disassembled.

How to disassemble the cannon pinion

Disassemble the cannon pinion with tweezers while holding the center wheel and pinion with hand remover of tongs style.

Cannon pinion

Tweezers

Center wheel and pinion

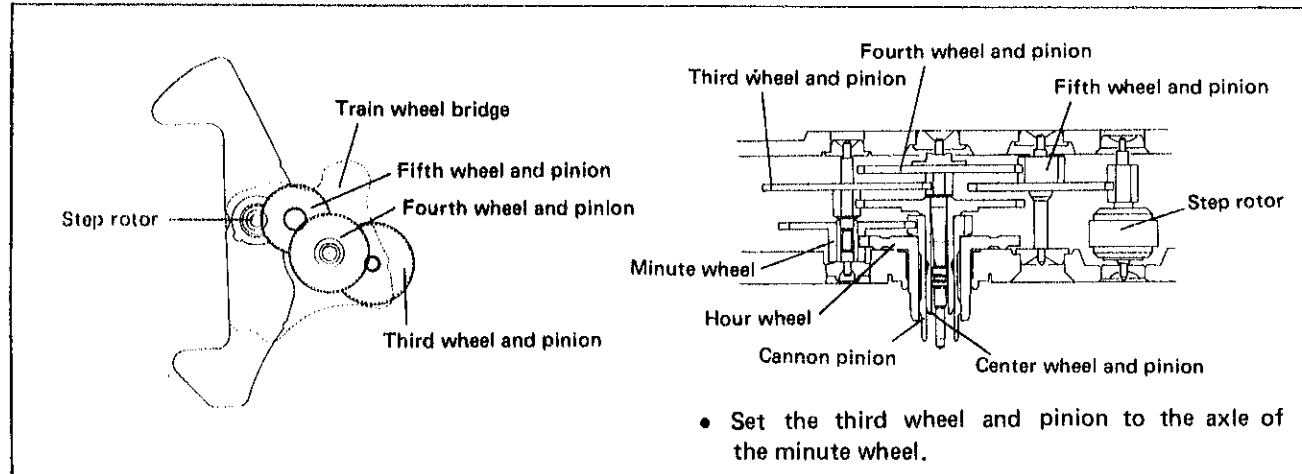
Hand remover of tongs style

- Lubricating for center wheel and pinion**

Dial washer
(It is used for only Cal.8620A watches.)

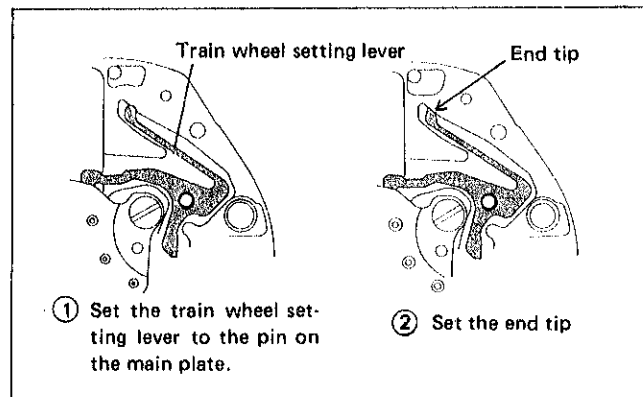
Remarks for disassembling and reassembling

⑳ ~ ㉓ Setting position of gear train



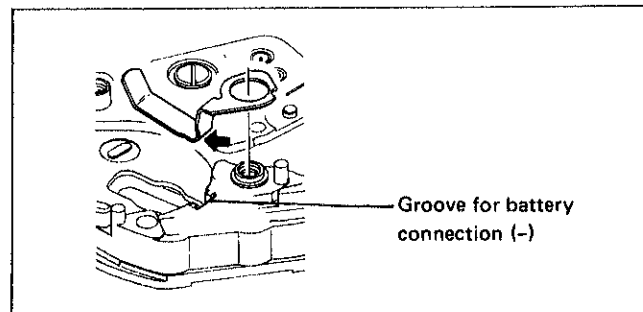
㉑ Train wheel setting lever

When reassembling, after setting the hole of the train wheel setting lever to the pin on the main plate, set the auxiliary plate and the main plate as shown in the illustration on the right.



㉒ Battery connection (-)

When reassembling, set the arrow marked (←) portion of the battery connection (-) to the groove of the auxiliary plate from the above.



LIST OF SCREWS USED

Circuit block cover screw A	Circuit block cover screw B	Circuit block screw	Coil block screw	Screw for train wheel setting lever cover
4 pcs.	1 pc.	1 pc.	1 pc.	1 pc.

IV. CHECKING AND ADJUSTMENT

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

Procedure	
CHECK OUTPUT SIGNAL	<p>Result:</p> <p>Cal. 8621A 1-second blinking: Normal No 1-second blinking: Defective</p> <p>Cal. 8620A Blinking at 10-second intervals: Normal No blinking at 10-second intervals: Defective</p>
CHECK BATTERY VOLTAGE	<p>Result:</p> <p>More than 1.5V: Normal Less than 1.5V: Defective</p> <p>Replace the battery with a new one.</p>
CHECK BATTERY CONDUCTIVITY	
CHECK CIRCUIT BLOCK CONDUCTIVITY	
CHECK COIL BLOCK	<p>Result:</p> <p>2.0 ~ 4.0 KΩ: Normal Less than 2.0 KΩ (Short circuit) — Defective More than 4.0 KΩ (Broken wire) — Defective</p> <p>Replace the coil block with a new one.</p>
CHECK RESET AND TRAIN WHEEL SETTING CONDITION	<p>Result:</p> <p>Cal. 8621A The second hand stops completely and starts moving after 1 second: Normal</p> <p>The second hand does not stop or moves irregularly: Defective</p>

Procedure

Cal. 8620A

The second hand stops completely and starts moving after 10 seconds: Normal

The second hand does not stop or moves irregularly: Defective

1. Reset condition

Check to see if the output signal blinks with the watch complete.

- Crown at the normal position

Result:

Cal. 8621A

1-second blinking: Normal

No 1-second blinking: Defective

Replace the reset lever with a new one.

Cal. 8620A

Blinking at 10-second intervals: Normal

No blinking at 10-second intervals: Defective

Replace the reset lever with a new one.

- Crown pulled out

Cal. 8621A

1-second blinking: Normal

No 1-second blinking: Defective

Replace the reset lever with a new one.

Cal. 8620A

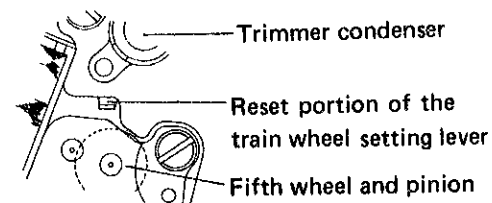
Blinking at 10-second intervals: Normal

No blinking at 10-second intervals: Defective

Replace the reset lever with a new one.

2. Train wheel setting condition

Check the clearance between the reset portion of the train wheel setting lever and the fifth wheel and pinion.



- Crown at the normal position

Result:

Clearance: Normal

No clearance: Defective

Replace the train wheel setting lever with a new one.

- Crown pulled out

Clearance: Normal

No clearance: Defective

Replace the train wheel setting lever with a new one.

Procedure

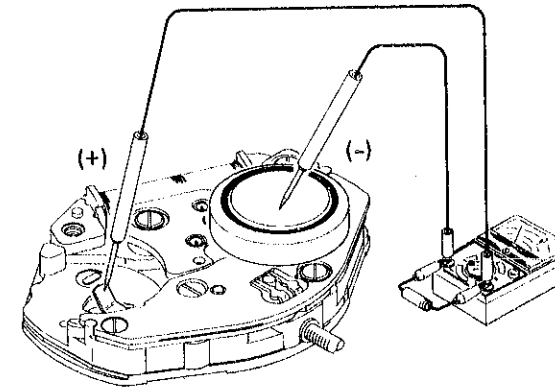
CHECK ACCURACY

- Measuring gate

In case of Cal. 8621A: Use any gate of the Quartz Tester for measuring time accuracy.

In case of Cal. 8620A: Use the 10-second gate of the Quartz Tester for measuring time accuracy.

CHECK CURRENT CONSUMPTION



Result:

Cal. 8621A

Less than 0.9 μ A: Normal

More than 0.9 μ A: Defective

Check the circuit block.

Cal. 8620A

Less than 0.5 μ A: Normal

More than 0.5 μ A: Defective

Check the circuit block.

Remarks for measuring the current consumption of Cal. 8620A

- As Cal. 8620A watches move at 10-second intervals, the pointer of the Volt-ohm-meter swings every 10 seconds when measuring the current consumption.
- When the (+) and (-) probes of the Volt-ohm-meter are applied to the watch as shown in the illustration above, the pointer swings slightly, indicating the current is flowing through the IC. After this, a larger swing of the pointer continues at 10-second intervals. This is the indication that the motor driving current flows besides the current flowing through the IC.
- The current consumption is calculated as follows.

[Example]

Assume the IC Current = 0.3 μ A and IC current + motor driving current = 2.0 μ A, and the current necessary for driving the motor alone is 1.7 μ A. This value, however, shows the one when the watch moves at 10-second intervals. Therefore, to obtain the current consumption, it must be converted into the value measured at one-second intervals. Reduce the value (1.7 μ A) to 1/10, and the current consumption necessary only for the step motor is 0.17 μ A.

Accordingly the value of current consumption by this watch is: 0.3 μ A + 0.17 μ A = 0.47 μ A.

All procedures of disassembling, reassembling, checking and adjustment are completed.