

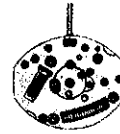
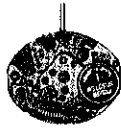
**SEIKO**

**QUARTZ**

**Cal. 5421A**

**PARTS  
CATALOGUE**

# Cal. 5421A



125 715



☆ 221 716



231 715



☆ 241 715



238 715



261 705



☆ 271 715



☆ 354 705



391 716



491 589



701 715



711 715



4001 706



4002 715



4146 715



4239 715



4270 715



4271 717



4408 716



4450 715



4457 719



4457 715



☆ Maxel SR527SW



022 241

3/1

# Cal. 5421A

## Characteristics

Casing diameter : 13.0 × 15.1 mm  
 Maximum height : 2.5 mm without battery  
 Jewels : 5 j  
 Frequency of quartz crystal oscillator : 32,768 Hz (Hz=Hertz . . . . Cycles per second)  
 Driving system : Step motor (2 poles)  
 Regulation system : Regulating switch lever  
 Train wheel setting  
 Battery life indicator : The second hand moves in two-second interval.

PART NO.	PART NAME	PART NO.	PART NAME
125 715	Train wheel bridge	027 723	Banking pin for train wheel setting lever
☆221 716	Center wheel & pinion	027 724	Reset pin
☆221 717			
231 715	Third wheel & pinion	☆ Maxell SR527SW	Silver oxide battery
☆241 715	Fourth wheel & pinion		
☆241 717			
238 715	Guide pipe for winding stem		
261 705	Minute wheel		
☆271 715	Hour wheel		
☆271 717			
☆354 705	Winding stem		
☆354 706			
☆354 707			
391 716	Train wheel setting lever		
491 589	Dial washer		
701 715	Fifth wheel & pinion		
711 715	Guide plate for winding stem		
4001 706	Circuit block		
4002 715	Coil block		
4146 715	Step rotor		
4239 715	Rotor stator		
4270 715	Battery connection (-)		
4271 717	Battery connection (+)		
4408 716	Circuit block spacer		
4450 715	Regulating switch lever		
4457 715	Circuit block cover A		
4457 719	Circuit block cover B		
011 325	Upper hole jewel for fourth wheel		
011 542	Upper hole jewel for third wheel		
011 542	Upper hole jewel for fifth wheel		
011 547	Lower hole jewel for step rotor		
011 568	Upper hole jewel for step rotor		
022 241	Train wheel bridge screw		
022 241	Battery connection (+) screw		
022 241	Circuit block cover screw		
022 241	Regulating switch lever screw		
023 330	Guide pipe for circuit block cover A		
027 122	Tube for train wheel bridge		
027 122	Tube for circuit block cover screw A		
027 123	Tube for circuit block cover screw B		
027 124	Tube for regulating switch lever screw		
027 125	Tube for battery connection (+) screw		
027 721	Train wheel setting lever adjusting pin		
027 722	Hooking pin for train wheel setting lever		

☆ ⇨ Please see remarks on the reverse page.

Part numbers in light letters are not shown in photos.

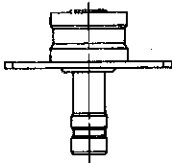
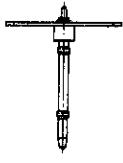
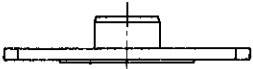
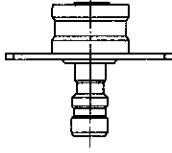
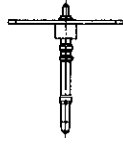

# Cal. 5421A

## Remarks :

### Center wheel & pinion, Fourth wheel & pinion, Hour wheel

There are two different types as specified below.

Combination :

Type	Center wheel & pinion	Fourth wheel & pinion	Hour wheel
a	 ☆221 716	 ☆241 715	 ☆271 715
b*	 ☆221 717	 ☆241 717	 ☆271 717

\* As of this printing the Type b. combination is not used.  
 However, it may be employed in the future with certain case designs.

### Winding stem.....There are two types of winding stem.

Select a suitable one by referring to the design of the case.

- ☆354 705.....The gasket is fixed to the crown.
- ☆354 706.....The gasket is fixed to the winding stem.
- ☆354 707.....The gasket is fixed to the crown.

If the combination of the case and winding stem is unknown, check the case number and refer to "SEIKO Quartz Casing Parts Catalogue" to choose a corresponding winding stem.

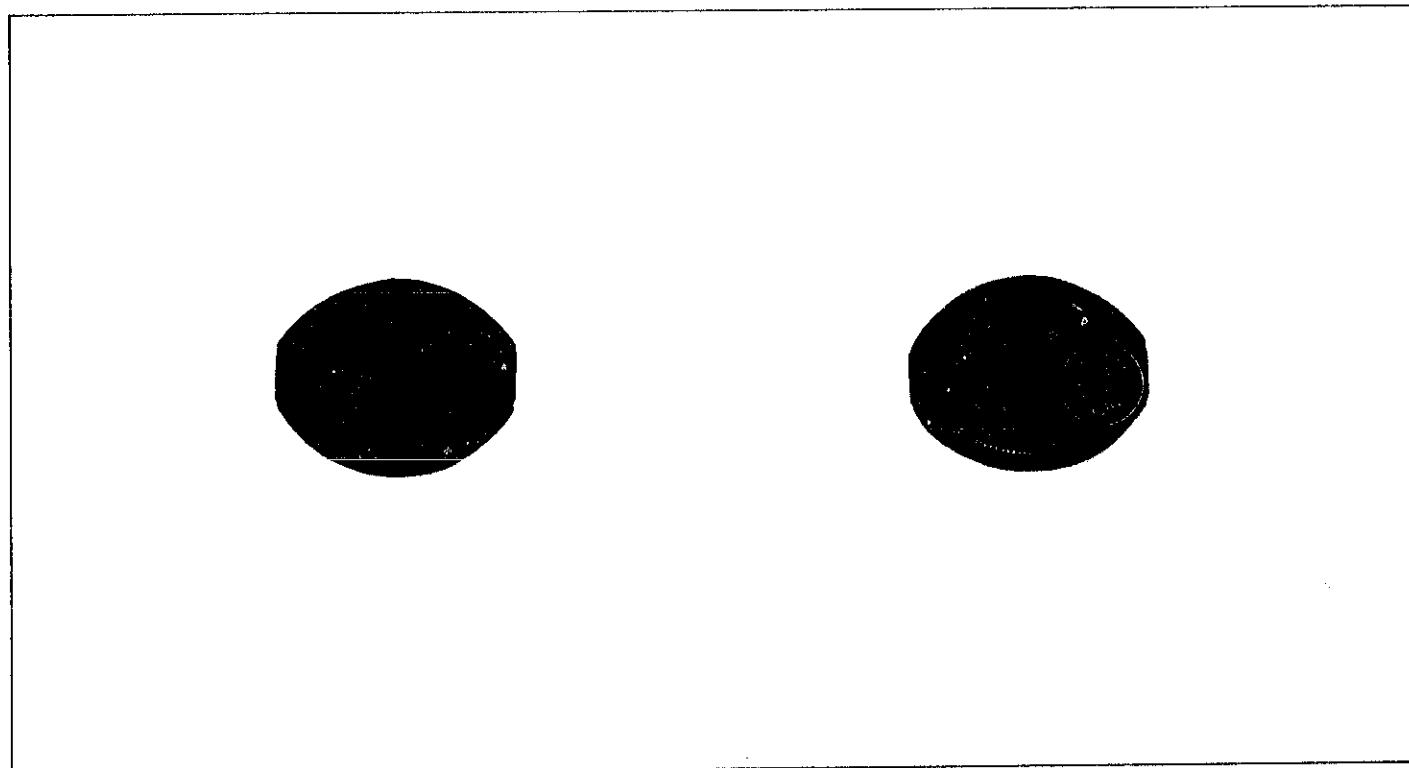
### Battery

- ☆ Maxell SR527SW.....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".

# TECHNICAL GUIDE

**SEIKO**  
QUARTZ

CAL. 5421 A



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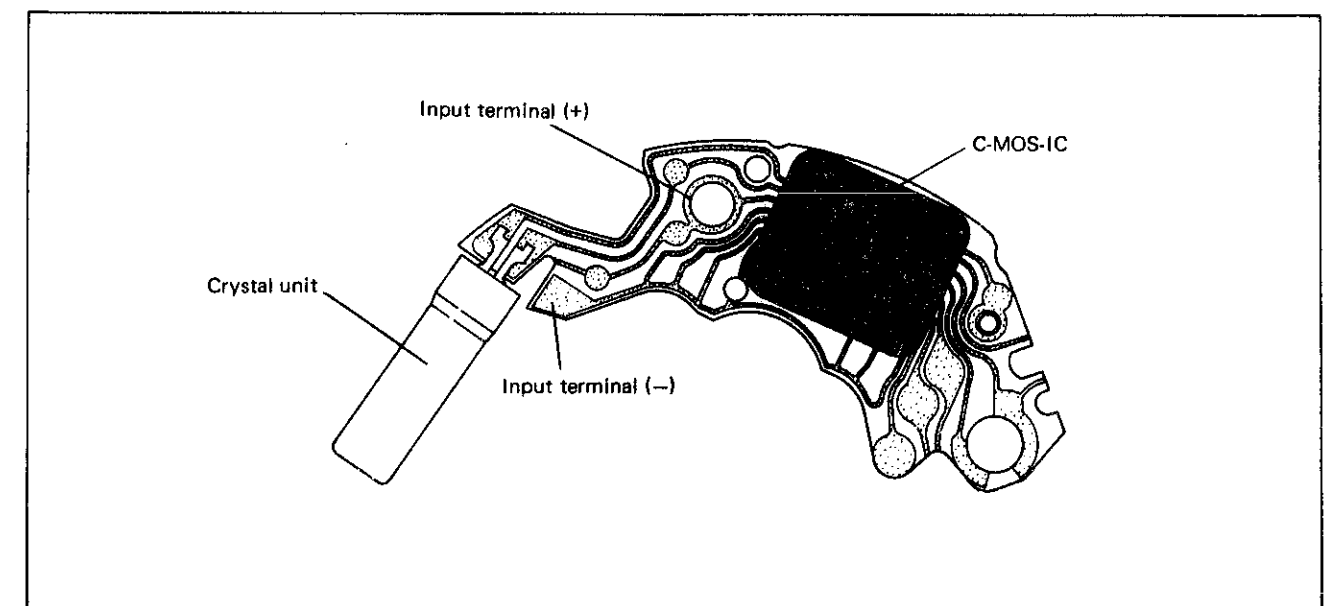
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## I. SPECIFICATIONS


Item		Cal. No.	5421A
Time indication			3 hands
Additional mechanism			<ul style="list-style-type: none"> <li>● Electronic circuit reset switch</li> <li>● Train wheel setting device</li> <li>● Battery life indicator</li> </ul>
Loss/gain			Loss/gain at normal temperature range Monthly rate: less than 15 seconds
Movement size	Outside diameter		15.5 mm between 6 o'clock and 12 o'clock 13.0 mm between 3 o'clock and 9 o'clock
	Casing diameter		15.1 mm between 6 o'clock and 12 o'clock 13.0 mm between 3 o'clock and 9 o'clock
	Height		2.5 mm without battery
Regulation system			Regulating switch lever
Measuring gate by quartz tester			Use the gate of 10 seconds.
Battery			Maxell SR527SW Battery life is approximately 2 years. Voltage: 1.55V
Jewels			5 jewels

## II. STRUCTURE OF THE CIRCUIT BLOCK



### III. DISASSEMBLING, REASSEMBLING AND LUBRICATING

#### List of screws used

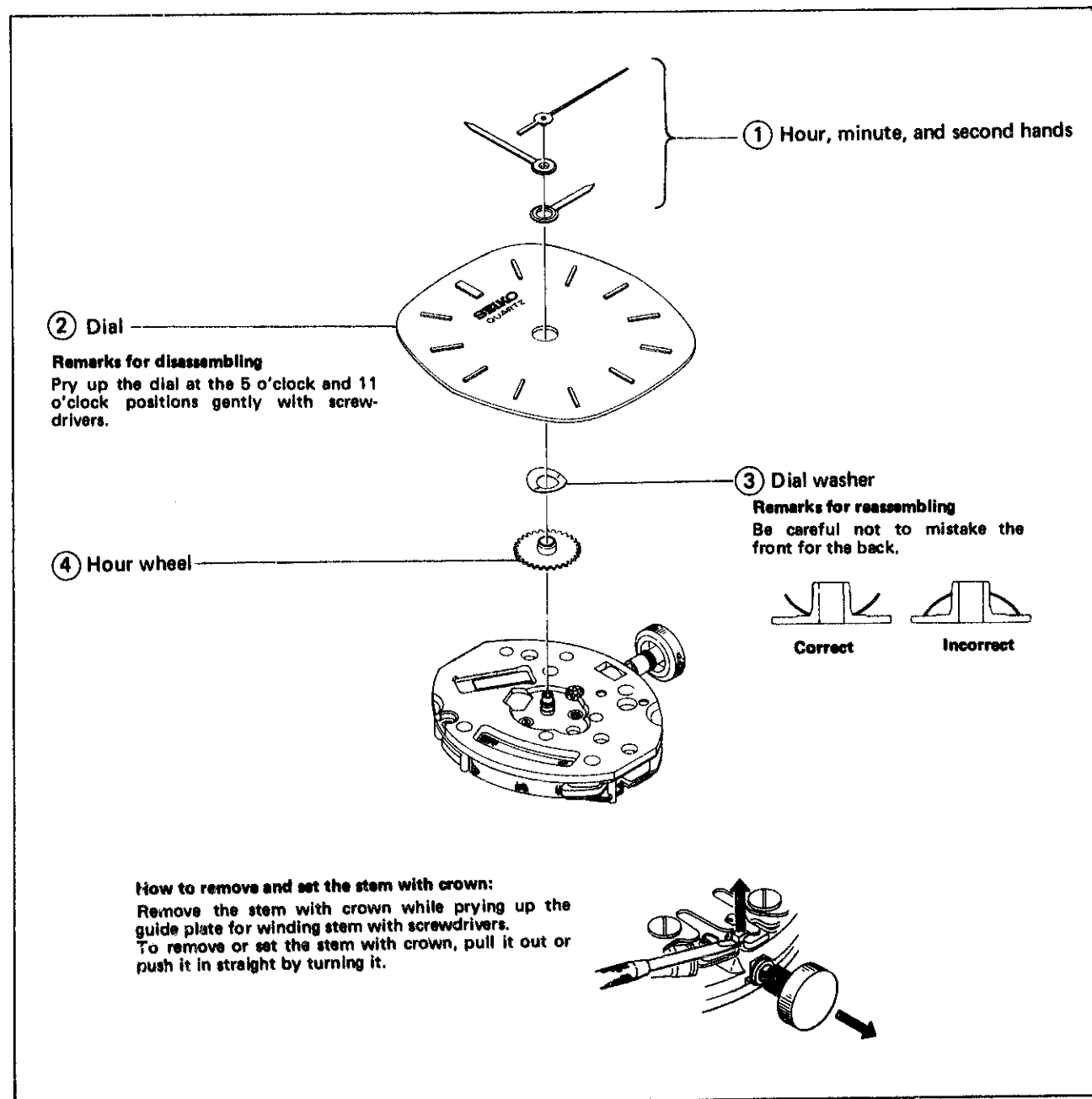
Shape	Part No.	Part Name
	022 241	Train wheel bridge screw 1 pc. Regulating switch lever screw 1 pc. Battery connection (+) screw 1 pc. Circuit block cover screw 2 pcs.

Disassembling procedures Figs. : ① → ⑳

Reassembling procedures Figs. : ㉘ → ①

● Use the universal movement holder for disassembling and reassembling.

#### 1. Hour, minute, and second hands ~ hour wheel

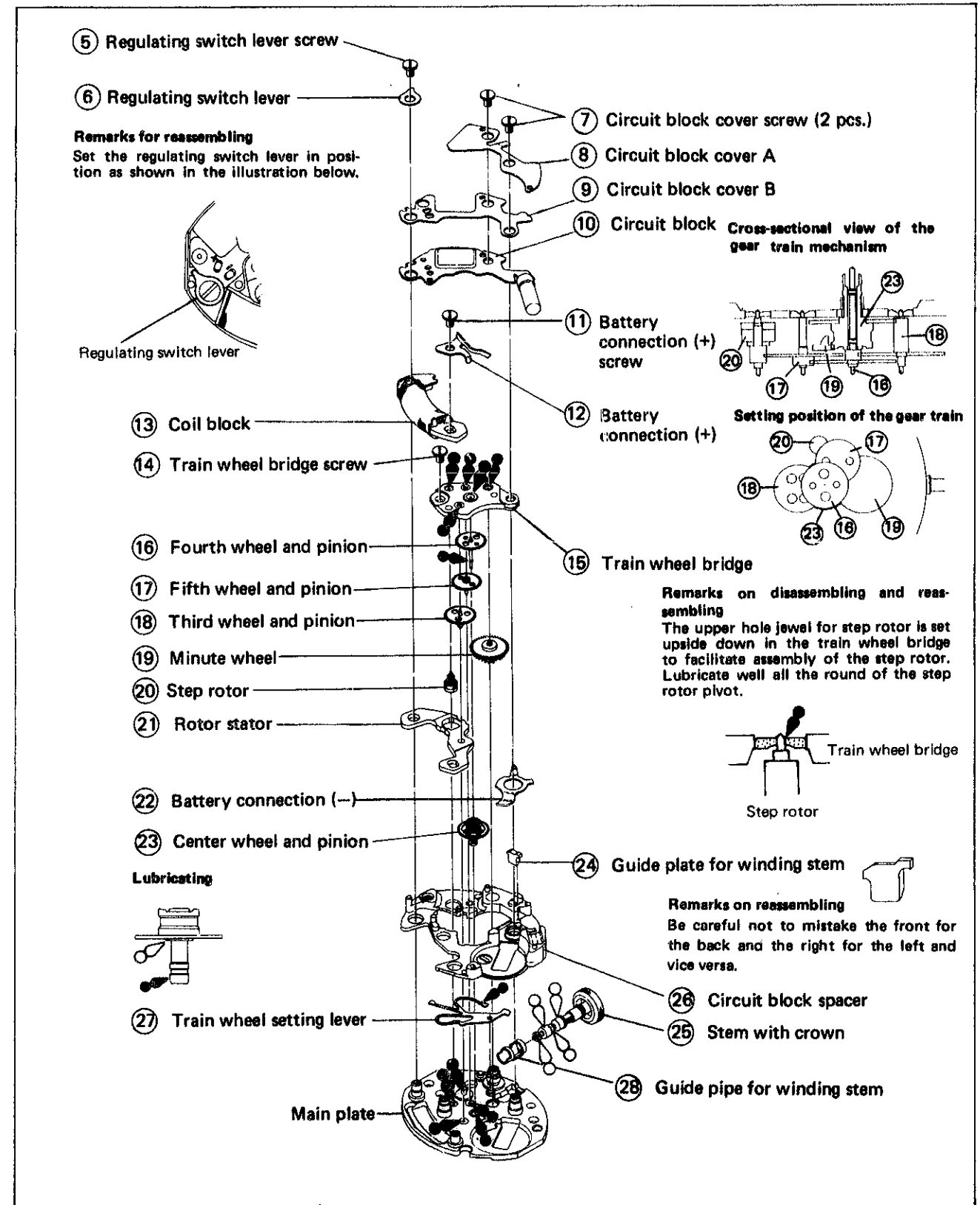


#### 2. Regulating switch lever screw ~ guide pipe for winding stem

##### Types of oil

● Moebius A

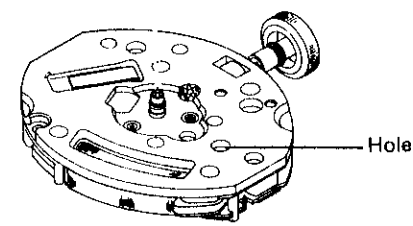


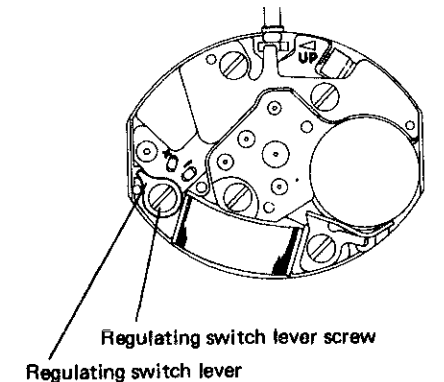
○ Seiko Watch Oil S-6



#### IV. CHECKING AND ADJUSTMENT

- The explanation here is only for the particular points of Cal. 5421A.  
Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Analogue Quartz for details.

Procedure	
<p><b>CHECK OUTPUT SIGNAL</b></p> <p>Use the quartz tester. Range to be used: 10-second gate</p>	<p><b>Result:</b> Normal: Input indicator blinks every second. Defective: Input indicator does not blink every second.</p>
<p><b>CHECK HAND SETTING CONDITION</b></p>	
<p><b>CHECK BATTERY VOLTAGE</b></p> <p>Use the volt-ohm-meter. Range to be used: DC 3V</p>	<p><b>Result:</b> Normal: More than 1.5V Defective: Less than 1.5V</p>
<p><b>CHECK BATTERY CONDUCTIVITY</b></p>	
<p><b>CHECK CIRCUIT BLOCK CONDUCTIVITY</b></p>	
<p><b>CHECK COIL BLOCK</b></p> <p>Use the volt-ohm-meter. Range to be used: OHMS x 100</p>	<p><b>Result:</b> Normal: <math>2.8K\Omega - 3.4K\Omega</math> Defective: <math>\left\{ \begin{array}{l} \text{Less than } 2.8K\Omega \\ \text{(Short circuit)} \\ \text{More than } 3.4K\Omega \\ \text{(Broken wire)} \end{array} \right.</math></p>

Procedure	
<p><b>CHECK RESET AND TRAIN WHEEL SETTING CONDITIONS</b></p> <ol style="list-style-type: none"> <li>Check to see if the second hand stops promptly when the crown is pulled out to the second click position and if it starts promptly one second after the crown is pushed in back to the first click or the normal position.</li> <li>Look into the train wheel setting lever through the hole of the main plate to check if it functions correctly. (See the illustration below.)</li> </ol>	
 <p>Back surface of the main plate</p>	<ul style="list-style-type: none"> <li>With the crown at the first click position</li> </ul>  <p>Train wheel setting lever</p> <ul style="list-style-type: none"> <li>With the crown at the second click position</li> </ul>  <p>Train wheel setting lever</p>
<p><b>CHECK GEAR TRAIN MECHANISM</b></p>	
<p><b>CHECK ACCURACY</b></p> <p><b>Measuring time accuracy</b></p> <ul style="list-style-type: none"> <li>Use the 10-second gate of the quartz tester.</li> <li>Be sure to intercept the MOS-IC from light with black paper, etc. while measuring.</li> </ul>	
 <p>Regulating switch lever screw Regulating switch lever</p>	<p><b>Adjusting time accuracy</b></p> <ol style="list-style-type: none"> <li>Unscrew the regulating switch lever screw.</li> <li>Remove the regulating switch lever.</li> <li>To gain time, turn the regulating switch lever to engage its tip with the hole marked with "+", and, to lose time, turn the regulating switch lever to engage its tip with the hole marked with "-".</li> <li>Tighten the regulating switch lever screw.</li> </ol> <ul style="list-style-type: none"> <li>The range to be regulated by the regulating switch lever is approximately <math>\pm 0.5</math> sec./day.</li> </ul>



**Procedure**

**CHECK CURRENT CONSUMPTION**

Use the volt-ohm-meter.

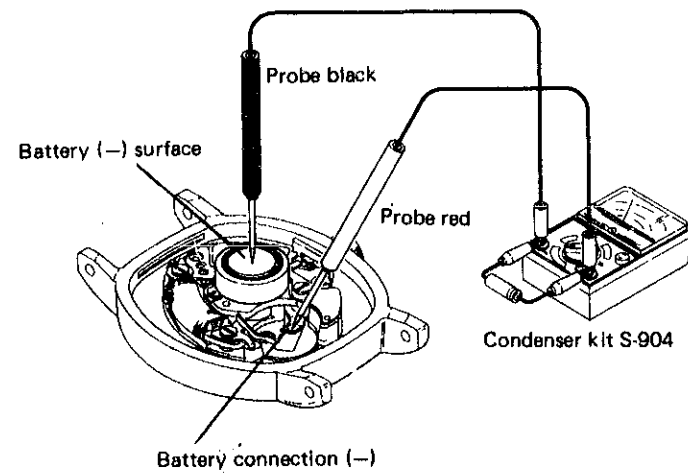
Range to be used: DC  $12\mu\text{A}$

**Result:**

Normal: Less than  $0.9\mu\text{A}$

Defective: More than  $0.9\mu\text{A}$

Replace the circuit block with a new one.



- Be sure to intercept the MOS-IC from light with black paper, etc. while measuring.
- Since the load-compensated driving pulse type step rotor is used in this calibre, keep the probes applied to the battery for several seconds until the driving pulses become stable, and then check current consumption.

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