



Seiko 2F50A Movement Parts (1)

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**LASSALE
SEIKO**

QUARTZ

EMMYWATCH
Cal. 2F50A
VINTAGE RESTORATIONS

**PARTS
CATALOGUE**

Cal. 2F50A



125 356



231 356



241 335



261 356



☆270 335



☆271 335



281 356



282 356



☆351 356



383 356



384 356



388 356



391 356



491 271



701 356



4000 356



4002 356



4146 356



4239 356



4270 356



4271 356



4408 356



4408 357



4457 334



☆SEIKO SR512SW



012.056



012.830



012.831



032.026



032.027



032.028

Cal. 2F50A

Characteristics

Casing diameter : 15.1 mm
 Maximum height : 1.3 mm
 Jewels : 12 j
 Frequency of quartz crystal oscillator : 32,768 Hz (Hz=Hertz..... Cycles per second)
 Driving system : Step Motor (2 poles)
 Regulation system : Chip condenser
 Train wheel setting

| PART NO. | PART NAME | PART NO. | PART NAME |
|------------------|-----------------------------------|------------------|-----------------------------|
| 125 356 | Train wheel bridge | 012 830 | Circuit block screw |
| 231 356 | Third wheel & pinion | 012 830 | Setting lever spring screw |
| 241 335 | Fourth wheel & pinion | 012 831 | Dial screw |
| 261 356 | Minute wheel | 032 026 | Tube for train wheel bridge |
| ☆270 334 | Center minute wheel | 032 027 | Tube for coil block |
| ☆ 270 335 | | 032 028 | Tube for circuit block |
| ☆270 336 | | ☆ SEIKO SR512SW | Silver (II) oxide battery |
| ☆270 337 | | ☆ Maxell SR512SW | |
| ☆271 334 | | Hour wheel | |
| ☆ 271 335 | Setting wheel | | |
| ☆271 336 | | | |
| ☆271 337 | Clutch wheel | | |
| 281 356 | Winding stem (7.7 mm) | | |
| 282 356 | Winding stem (10.0 mm) | | |
| ☆ 351 356 | Winding stem (12.4 mm) | | |
| ☆351 357 | Winding stem with gasket (7.0 mm) | | |
| ☆351 358 | Winding stem (15.4 mm) | | |
| ☆351 359 | Setting lever | | |
| ☆351 360 | Yoke | | |
| 383 356 | Setting lever spring | | |
| 384 356 | Train wheel setting lever | | |
| 388 356 | Dial washer | | |
| 391 356 | Fifth wheel & pinion | | |
| 491 271 | Circuit block | | |
| 701 356 | Coil block | | |
| 4000 356 | Step rotor | | |
| 4002 356 | Rotor stator | | |
| 4146 356 | Battery connection (-) | | |
| 4239 356 | Battery connection (+) | | |
| 4270 356 | Setting lever spring spacer | | |
| 4271 356 | Circuit block spacer | | |
| 4408 356 | Circuit block cover | | |
| 4408 357 | Upper hole jewel for center wheel | | |
| 4457 334 | Upper hole jewel for step rotor | | |
| 011 561 | Lower hole jewel for step rotor | | |
| 011 562 | Upper hole jewel for third wheel | | |
| 011 562 | Lower hole jewel for third wheel | | |
| 011 562 | Upper hole jewel for fourth wheel | | |
| 011 562 | Lower hole jewel for fourth wheel | | |
| 011 562 | Upper hole jewel for fifth wheel | | |
| 011 562 | Lower hole jewel for fifth wheel | | |
| 011 562 | Upper hole jewel for minute wheel | | |
| 011 562 | Lower hole jewel for minute wheel | | |
| 011 563 | Lower hole jewel for center wheel | | |
| 011 567 | Train wheel bridge screw | | |
| 011 737 | | | |
| 012 056 | | | |

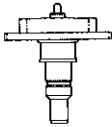

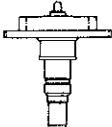

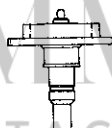

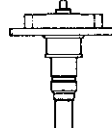

☆ □ Please see remarks on the reverse page.
 Part numbers in light letters are not shown in photos.

Cal. 2F50A

Remarks :

Center minute wheel, Hour wheel

There are four different types as specified below.
Combination :

| Type | Center minute wheel | Hour wheel |
|------|---|---|
| a |  ☆270 334 |  ☆271 334 |
| b |  ☆270 335 |  ☆271 335 |
| c |  ☆270 336 |  ☆271 336 |
| d |  ☆270 337 |  ☆271 337 |

Winding stem

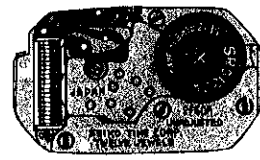
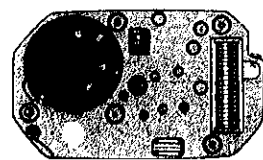
- | | |
|----------|--|
| ☆351 356 | Refer to the photograph on the front page. If the combination of the winding stem and case is unknown, check the case number and refer to "SEIKO Quartz Casing Parts Catalogue" to choose a corresponding winding stem. |
| ☆351 357 | |
| ☆351 358 | |
| ☆351 359 | |
| ☆351 360 | |

TECHNICAL GUIDE

LASSALE SEIKO

QUARTZ

CAL. 2F50A



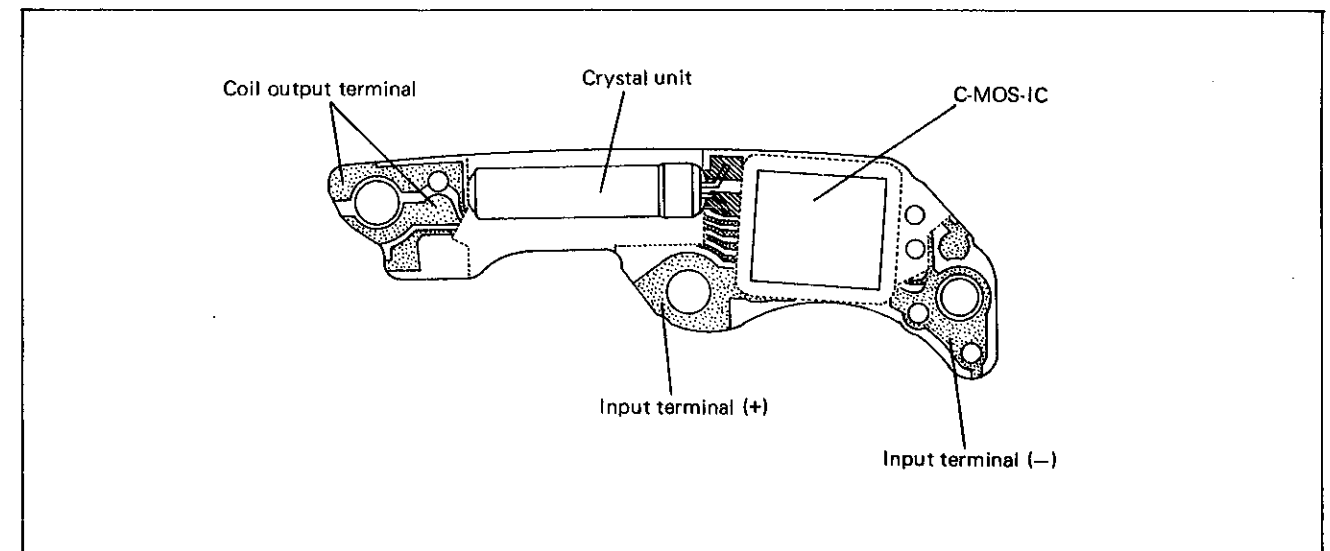
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I. SPECIFICATIONS

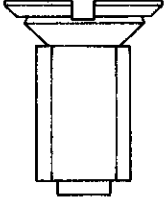
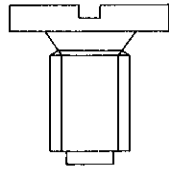
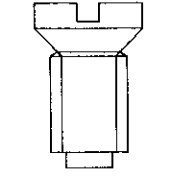
| Cal. No. | | 2F50A |
|---------------------------------|------------------|---|
| Item | | |
| Time indication | | 2 hands (Moves at every 20 seconds) |
| Driving system | | Step motor (Fixed-width pulse system) |
| Additional mechanism | | <ul style="list-style-type: none"> • Electronic circuit reset switch • Train wheel setting device |
| Loss/gain | | Monthly rate at normal temperature range: less than 15 seconds |
| Movement size | Outside diameter | 15.5 mm between 6 o'clock and 12 o'clock sides 9.5 mm between 3 o'clock and 9 o'clock sides |
| | Casing diameter | φ15.1 mm |
| | Height | 1.3 mm |
| Regulation system | | - |
| Measuring gate by quartz tester | | Use the 10-second gate |
| Battery | | Miniature battery, SEIKO (SEIZAIKEN) SR512SW, Maxell SR512SW Battery life is approximately 2 years. Voltage: 1.55V |
| Jewels | | 12 jewels |

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISASSEMBLING, REASSEMBLING, AND LUBRICATING

List of the screws used

| Shape | Part No. | Name | Shape | Part No. | Name |
|---|----------|--|---|----------|-----------------------------------|
|  | 012 830 | Circuit block screw (3 pcs.) Setting lever spring screw (1 pc.) |  | 012 056 | Train wheel bridge screw (2 pcs.) |
| | | |  | 012 831 | Dial screw (1 pc.) |

Disassembling procedures Figs. : ① → ③①

Reassembling procedures Figs. : ③① → ①

Lubricating

Types of oil:

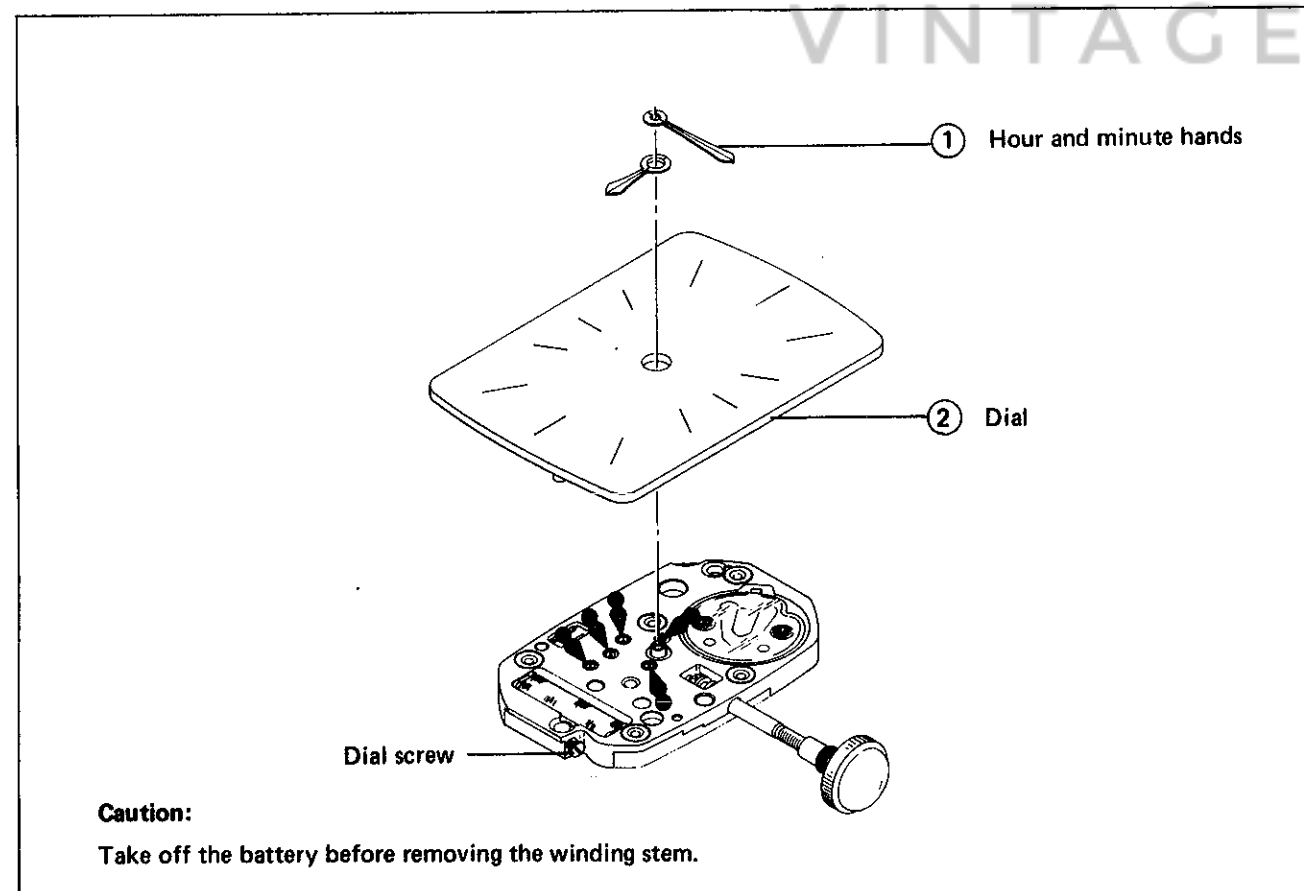
- Moebius A
- SEIKO Watch Oil S-6

Oil quantity:

- Normal quantity
- Extremely small

- Use the movement holder S-681 for disassembling and reassembling.

1. Hour and minute hands ~ Dial



Remarks on disassembling and reassembling

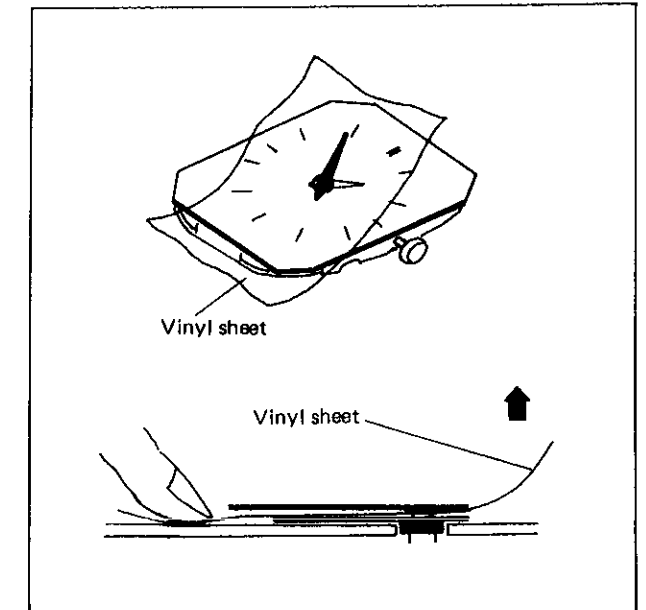
① Hour and minute hands

● How to disassemble the hour and minute hands

As this watch has only a little clearance between the dial and the hands, the bow-type hand remover cannot be used. Disassemble the hands by following the instructions below.

1. Prepare a vinyl sheet and make a small hole in the center of it. (Ex.: Use a vinyl bag for spare parts container.)
2. Set the vinyl sheet so that the minute hand comes out through the hole of the vinyl sheet.
3. Hold the one end of the vinyl sheet with finger and pull the other side up to disassemble the minute hand. When holding the vinyl sheet with finger, be careful not to scratch the dial surface with nail.

Disassemble the hour hand, following the same procedures.



● How to reassemble the hour and minute hands

Use the movement holder S-681.

Place a vinyl sheet on the dial so as not to scratch it.

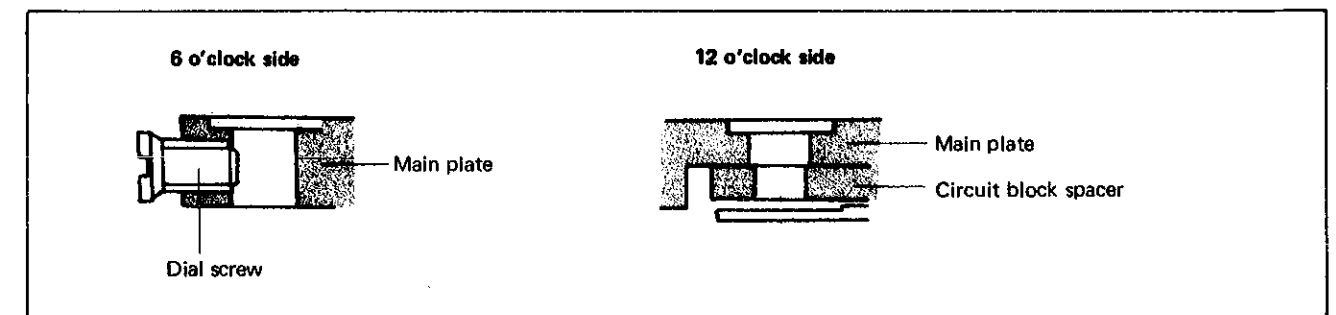
When pushing in the hands, be careful not to apply undue force on the dial and the movement to prevent them from being deformed.

After having pushed in the hands, their setting condition cannot be adjusted. Be sure to push them in one by one so that they are set horizontally.

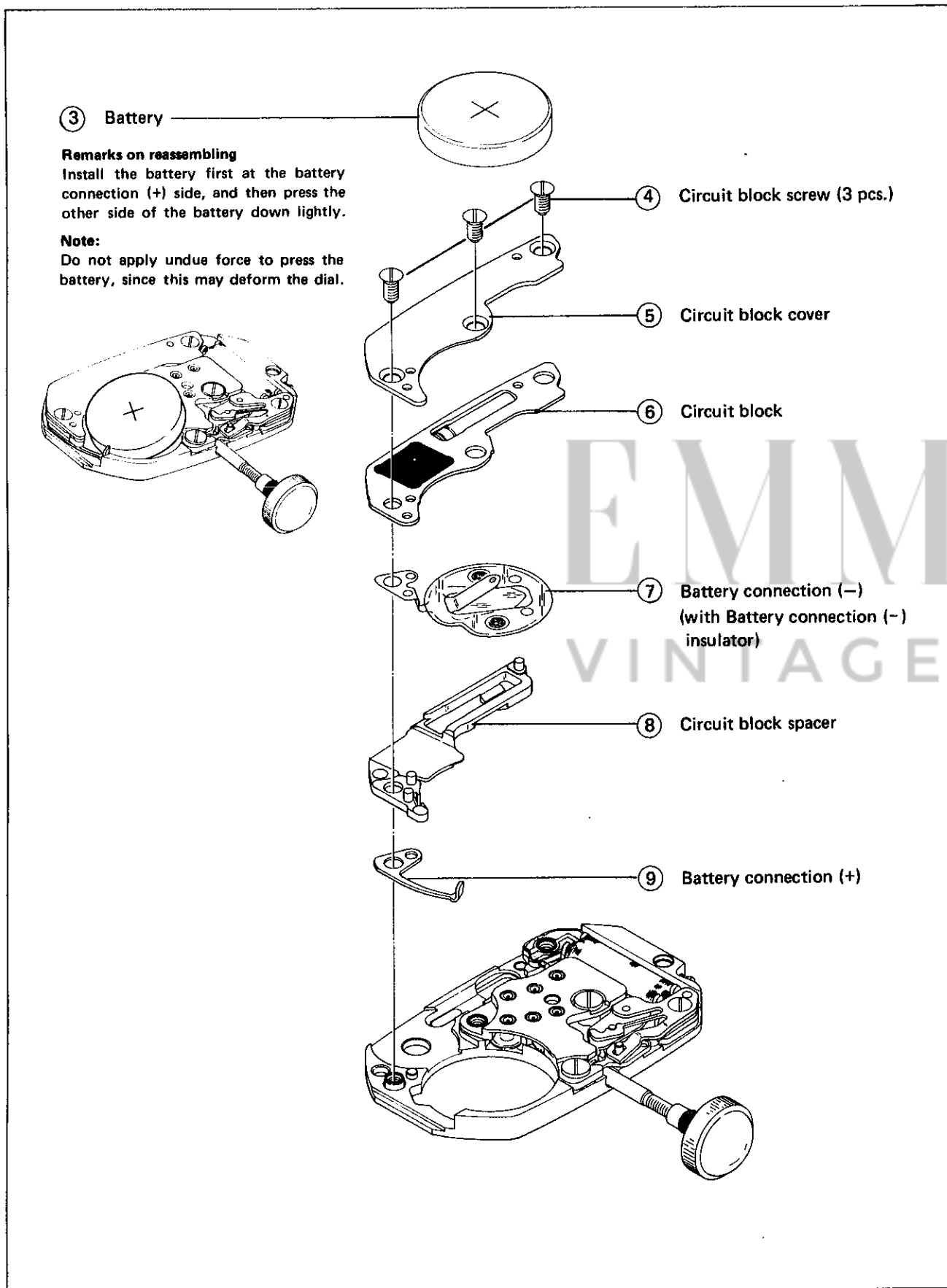
② Dial

The dial is fixed with the dial screw on the 6 o'clock side, but the dial screw is not used on the 12 o'clock side because it is held with the circuit block spacer.

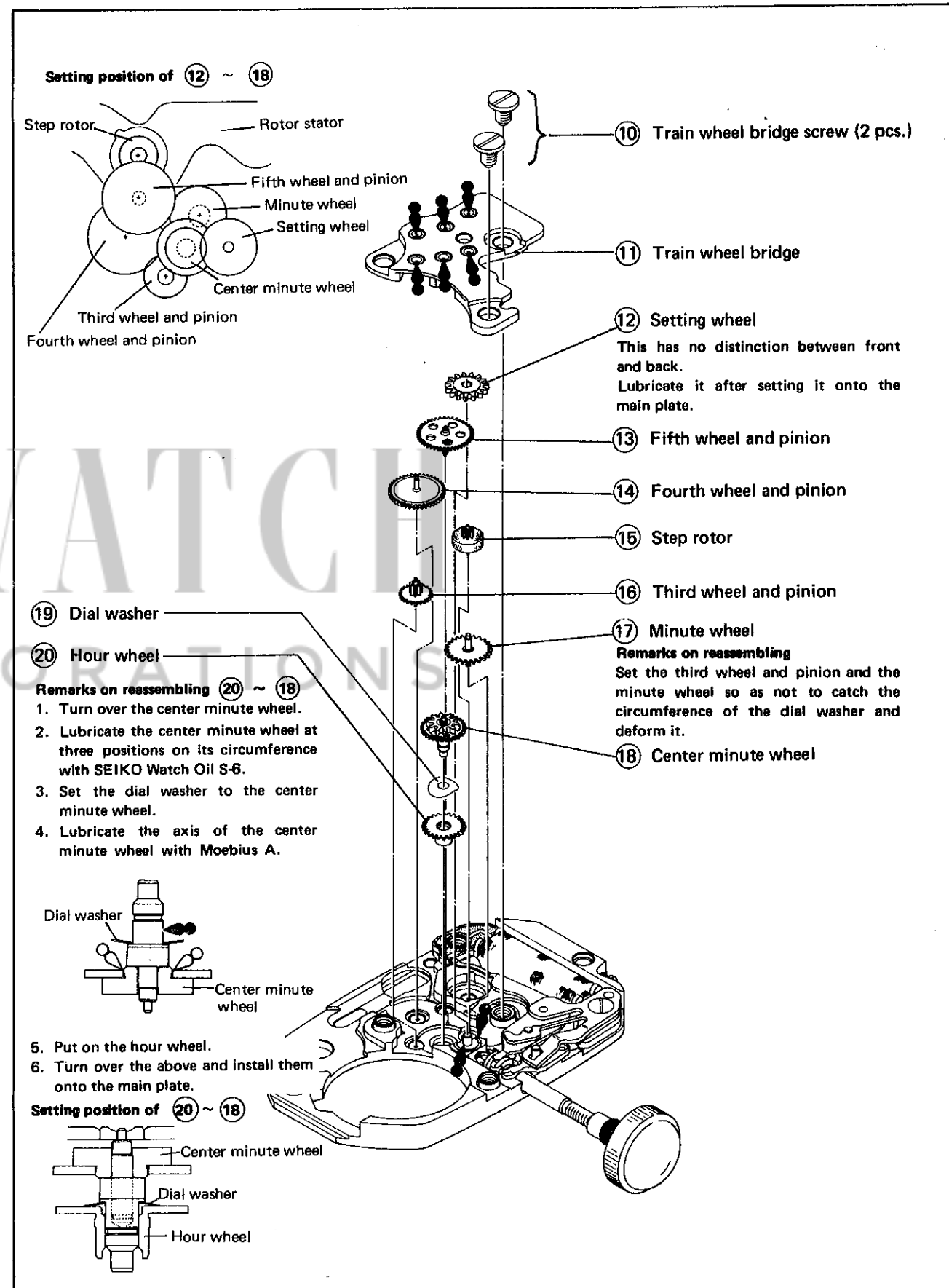
After setting the dial, check to see if it is correctly set level.



2. Battery ~ Battery connection (+)



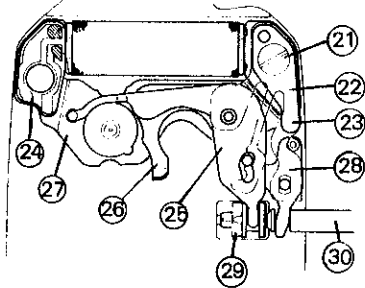
3. Train wheel bridge screw ~ Hour wheel



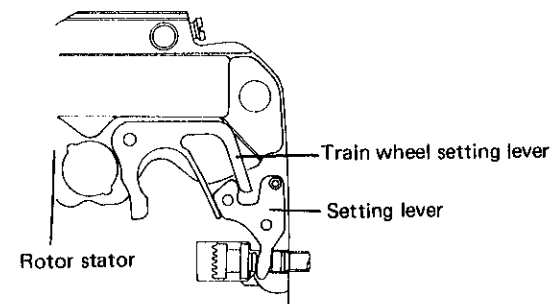
4. Setting lever spring screw ~ Stem with crown

Setting position of ⑳ ~ ㉓

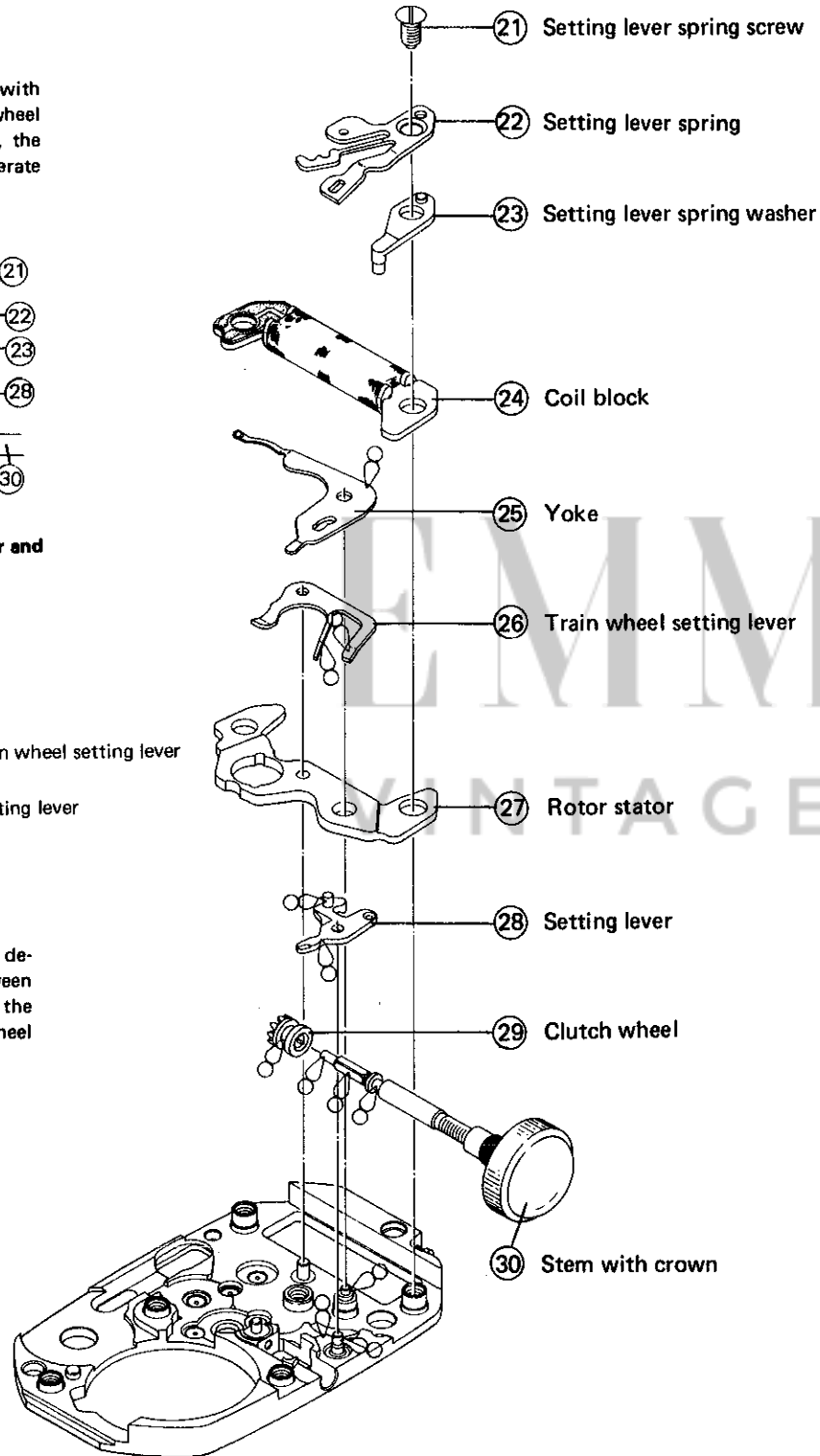
Caution:
Do not pull out or push in the stem with crown before tightening the train wheel bridge screws (2 pcs.). Otherwise, the train wheel setting lever does not operate normally.



Setting position of ㉔ setting lever and ㉖ train wheel setting lever



Note:
If the train wheel setting lever gets deformed and causes a clearance between the train wheel setting lever and the setting lever, replace the train wheel setting lever with a new one.



IV. CHECKING AND ADJUSTMENT

- The explanation here is only for the particular points of Cal. 2F50A.
Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Analogue Quartz for details.

| Procedure | |
|--|--|
| CHECK OUTPUT SIGNAL | |
| <p>Use the quartz tester. Range to be used: 10-second gate (The minute hand moves at 20-second intervals, but the pulse is generated every 10 seconds for measuring the daily rate.)</p> | <p>Result: Normal : Input indicator blinks every 10 seconds. Defective : Input indicator does not blink every 10 seconds.</p> |
| CHECK HANDS SETTING CONDITION | |
| CHECK BATTERY VOLTAGE | |
| <p>Use the Digital Multi-Tester S-840. Mode to be used: DC V</p> | <p>Result: Normal : More than 1.57V Defective : Less than 1.57V</p> |
| <ul style="list-style-type: none"> Before starting measurement, short-circuit the probes to see that the Digital Multi-Tester displays "AUTO 00.0mV" or "AUTO 00.1mV". | |
| CHECK BATTERY CONDUCTIVITY | |
| CHECK CONDUCTIVITY OF CIRCUIT BLOCK | |
| CHECK COIL BLOCK | |
| <p>Use the Digital Multi-Tester S-840. Mode to be used: Ω</p> | <p>Result: Normal : $2.0K\Omega \sim 2.4K\Omega$ Defective — $\left\{ \begin{array}{l} \text{Less than } 2.0K\Omega \\ \text{(Short circuit)} \\ \text{More than } 2.4K\Omega \\ \text{(Broken wire)} \end{array} \right.$ Replace the coil block with a new one.</p> |
| <ul style="list-style-type: none"> Before starting measurement, short-circuit the probes to see that the Digital Multi-Tester displays "AUTO 00.2 ~ 00.4Ω" with the buzzer beeping. | |

Procedure

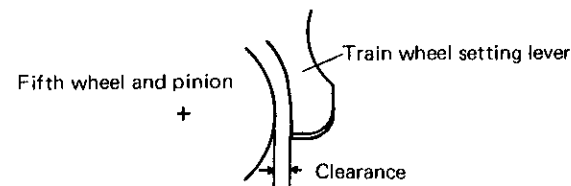
CHECK GEAR TRAIN MECHANISM

CHECK RESET AND TRAIN WHEEL SETTING CONDITION

(1) Check to see if the step rotor stops promptly when the crown is pulled out completely and if it starts exactly 20 seconds after the crown is pushed in back to the normal position.

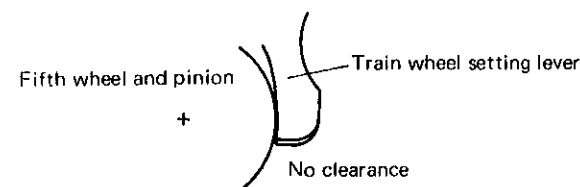
(2) Check train wheel setting condition. Check the clearance between the train wheel setting lever and the fifth wheel and pinion by looking through the hole of the train wheel bridge.

• With the crown at the normal position



Result:
Normal : Clearance
Defective : No clearance
Replace the train wheel setting lever with a new one.

• With the crown at the first click position



Result:
Normal : No clearance
Defective : Clearance
Replace the train wheel setting lever with a new one.

(3) Check reset condition. Check output signal of the circuit block with the coil block and battery installed.

• With the crown at the normal position

Result:
Normal : Input indicator blinks every second.
Defective : Input indicator does not blink every second.
Replace the yoke with a new one.

• With the crown at the first click position

Result:
Normal : Input indicator does not blink every second.
Defective : Input indicator blinks every second.
Replace the yoke with a new one.

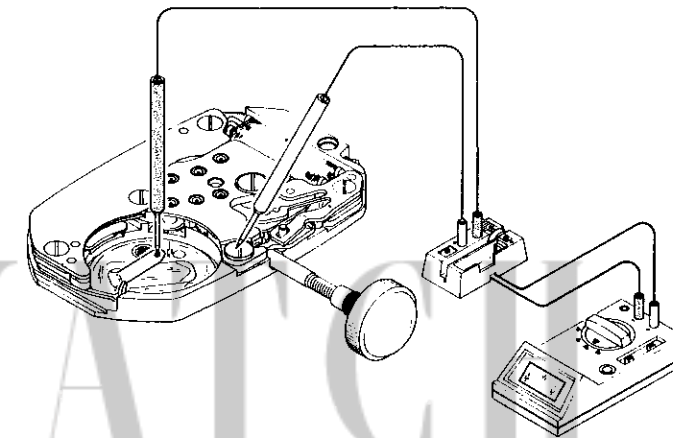
Procedure

CHECK CURRENT CONSUMPTION

Caution:

- Do not check current consumption under an incandescent lamp since strong light may cause a watch to consume excess current.
Be sure to protect the MOS-IC unit from light with a black paper while measuring.

Use the Digital Multi-Tester S-840.
Mode to be used: uA



Probe red Circuit block cover
Probe black Battery connection (-)

Result:
Normal : Less than 0.3uA
Defective : More than 0.3uA

- (1) Set the display stabilizing switch of the tester to the "B" position.
(2) Apply the (+) and (-) probes of the tester as shown in the illustration above, and the tester displays a value, indicating that electric current is flowing in the IC.
(3) The value displayed is increased, since the current for driving the step rotor flows once every 20 seconds.
(4) After approximately one minute, read a maximum value which is displayed stably.

CHECK ACCURACY

- Use the 10-second gate of the quartz tester. The minute hand moves at 20-second intervals, but the pulse is generated every 10 seconds for measuring the daily rate.
If there is time loss/gain, replace the circuit block with a new one.

CHECK APPEARANCE AND FUNCTIONING

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