EMMYWATCH

VINTAGE RESTORATIONS

Seiko 5A50A Movement Parts (1)

Compiled by EmmyWatch - https://www.emmywatch.com

LASSALE
SEIKO

QUARTZ

Cal. 5A50A, 5A54A

PARTS CATALOGUE

Cal. 5A50A, 5A54A

☆125 881

☆221 881

231 881

241 881

261 930

☆271 930

282 881

☆354 881

383 881

384 881

388 881

491 930

494 881

494 882

494 883

839 881

4001 550

4002 550

4146 550

4216 550

4216 551

4225 550

4239 550

4270 550

4408 550

4457 550

4531 550

Maxell SR512SW

022 241

022 411

2/1

Cal. 5A50A, 5A54A

Characteristics

	Cal. 5A50A	Cal. 5A54A
Casing diameter	15.6 × 9.5 mm	19.0 × 18.0 × 16.0 mm
Maximum height	1.3 mm	
Frequency of quartz crystal oscilator	32,768 Hz (Hz = Hertz . . . . . Cycles per second)	
Driving system	Step motor (2 poles)	
Reguration system	———	
Train wheel setting	———	

PART NO.	PART NAME
☆**125 881**	Train wheel bridge
☆**221 881**	Center wheel & pinion
231 881	Third wheel & pinion
241 881	Fourth wheel & pinion
261 930	Minute wheel
☆**271 930**	Hour wheel
282 881	Clutch wheel
☆**354 881**	Winding stem (Cal. 5A50A)
☆354 882	Winding stem (Cal. 5A54A)
383 881	Setting lever
384 881	Yoke
388 881	Setting lever spring
491 930	Dial washer
494 881	Dial stopper (Cal. 5A50A)
494 882	Dial stopper (Cal. 5A54A)
494 883	Center wheel & pinion spring (Cal. 5A54A)
839 881	Spacer (Cal. 5A54A)
4001 550	Circuit block
4002 550	Coil block
4146 550	Step rotor
4216 550	Insulator for battery (A)
4216 551	Insulator for battery (B)
4225 550	Battery clamp
4239 550	Rotor stator
4270 550	Battery connection (−)
4408 550	Circuit block spacer
4457 550	Circuit block cover (Cal. 5A50A)
4457 551	Circuit block cover (Cal. 5A54A)
4531 550	IC cover
011 425	Upper hole jewel for third wheel
011 425	Upper hole jewel for fourth wheel
011 542	Lower hole jewel for third wheel
011 542	Lower hole jewel for fourth wheel
011 547	Upper hole jewel for step rotor
011 582	Lower hole jewel for step rotor
022 241	Train wheel bridge screw
022 241	Circuit block cover screw
022 241	Battery clamp screw
022 241	Setting lever spring screw
022 241	Spacer screw (Cal. 5A54A)
022 411	Coil block screw
☆027 185	Tube for train wheel bridge (A)
☆027 186	Tube for train wheel bridge (B)
027 186	Tube for setting lever spring
027 186	Tube for spacer
027 755	Setting lever spring pin
027 755	Yoke pin

PART NO.	PART NAME
027 771	Minute wheel pin
027 788	Guide pin for rotor stator
027 789	Setting lever pin
☆ Maxell SR512SW	Silver Oxide Battery
☆ SEIKO SR512SW	Silver (II) Oxide battery

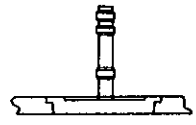
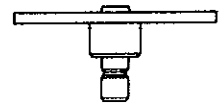
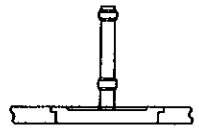
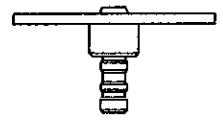
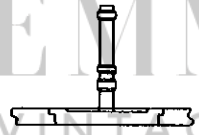
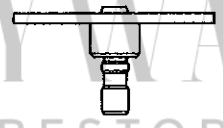
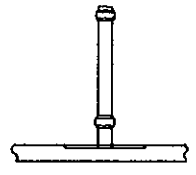
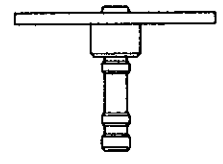
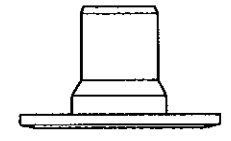
☆ ⇨ Please see remarks on the reverse page.
Part numbers in light letters are not shown in photos.

Cal. 5A50A, 5A54A

Remarks :

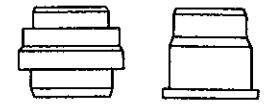
Train wheel bridge, Center wheel & pinion, Hour wheel

There are four different types as specified below.
Combination :

Type	Train wheel bridge	Center wheel & pinion	Hour wheel
a	 ☆125 882	 ☆221 882	 ☆271 882
b	 ☆125 881	 ☆221 881	 ☆271 930
c	 ☆125 880	 ☆221 883	 ☆271 883
d	 ☆125 884	 ☆221 884	 ☆271 931

Tube for train wheel bridge (A), (B)

☆027 185
☆027 186 } ·····Refer to the illustration.



Winding stem

☆354 881 (Cal. 5A50A)
☆354 882 (Cal. 5A54A) } ·····Refer to the photograph on the front page.

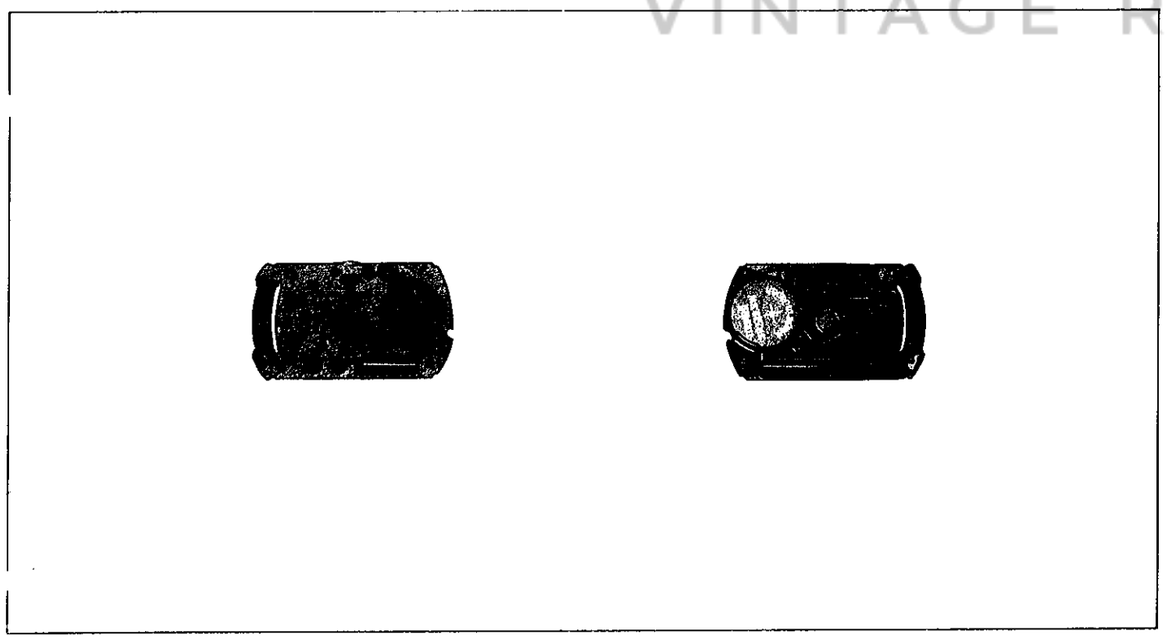
If the combination of the winding stem and case is unknown, check the case number and refer to **"SEIKO Quartz Casing Parts Catalogue"** to choose a corresponding winding stem.

TECHNICAL GUIDE

LASSALE
SEIKO

QUARTZ

CAL. 5A50A
CAL. 5A54A

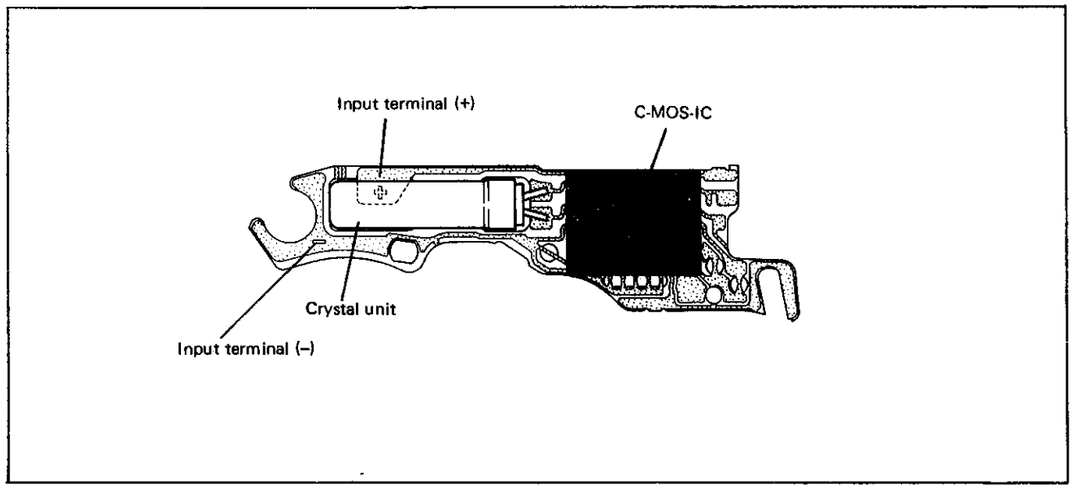


CONTENTS

I. SPECIFICATIONS

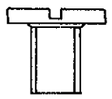
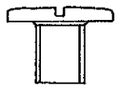
Item \ Cal. No.		5A50A	5A54A
Time indication		2 hands	
Driving system		Step motor	
Loss/gain		Monthly rate at normal temperature range: less than 15 seconds	
Additional mechanism		Electronic circuit reset switch	
Movement size	Outside diameter	ϕ16.0 mm 9.5 mm between 3 o'clock and 9 o'clock sides	ϕ20.0 mm 18.0 mm between 6 o'clock and 12 o'clock sides 16.0 mm between 3 o'clock and 9 o'clock sides
	Casing diameter	ϕ15.6 mm 9.5 mm between 3 o'clock and 9 o'clock sides	ϕ19.0 mm 18.0 mm between 6 o'clock and 12 o'clock sides 16.0 mm between 3 o'clock and 9 o'clock sides
	Height	1.3 mm	
Regulation system		Regulating switch lever (Pattern cutting system)	
Measuring gate by quartz tester		Use the 10-second gate.	
Battery		SEIKO (SEIZAIKEN) SR512SW, Maxell SR512SW Battery life is approximately 2 years. Voltage: 1.55V	
Jewels		6 jewels	

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISASSEMBLING, REASSEMBLING, AND LUBRICATING

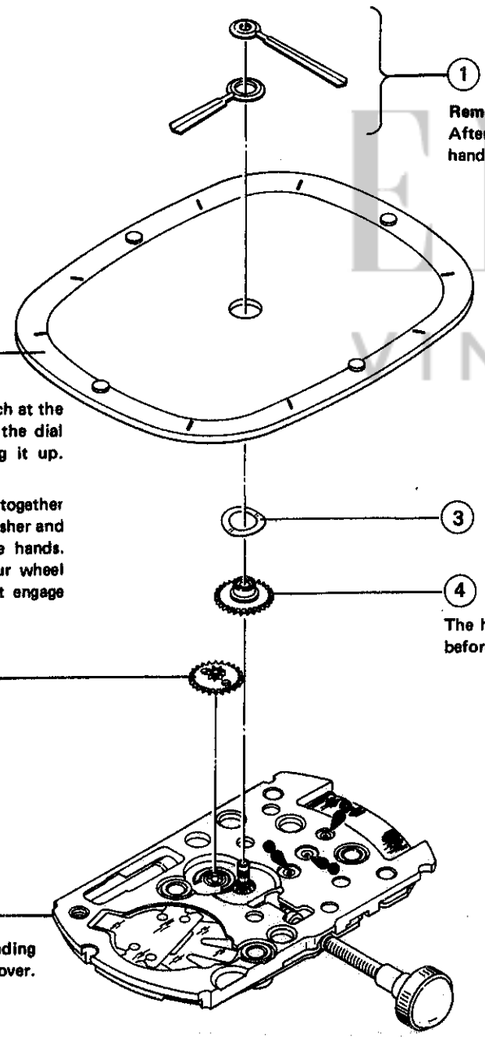
List of the screws used

Shape	Part No.	Name	Shape	Part No.	Name
	022 241	Train wheel bridge screw Circuit block cover screw Spacer screw Battery clamp screw Setting lever spring screw		022 411	Coil block screw

Disassembling procedures Figs. : (1) → (5)
Reassembling procedures Figs. : (5) → (1)

Lubricating: Moebius A
Normal quantity

1. Hour and minute hands ~ Minute wheel



(1) Hour and minute hands

Remarks on reassembling
After reassembling the hands, turn the hands.

(2) Dial

Reamrks on disassembling
Insert a screwdriver into the notch at the 4 o'clock position and remove the dial from the main plate by prying it up.

Caution:
Do not disassemble the dial together with the hands, since the dial washer and the hour wheel come with the hands. Otherwise, the cogs of the hour wheel and the minute wheel may not engage each other and may break.

(3) Dial washer

(4) Hour wheel

The hour wheel does not turn smoothly before the dial is set on it.

(5) Minute wheel

Movement

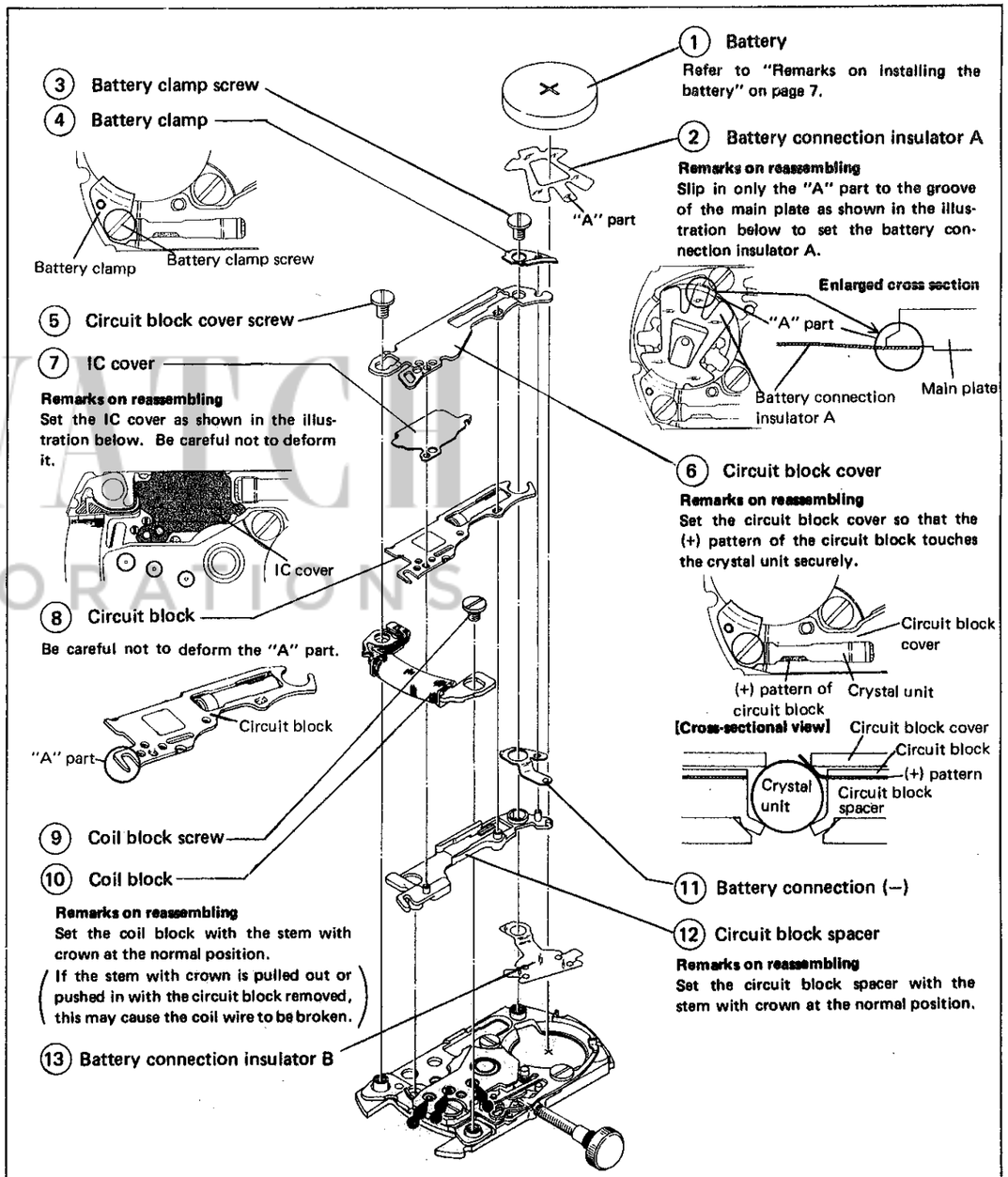
Do not turn the crown with winding stem with the module turned over.

Cal. 5A50A

Disassembling procedures Figs. : (1) → (28)
Reassembling procedures Figs. : (28) → (1)

Lubricating: Moebius A
Normal quantity

2. Battery ~ Battery connection insulator B



(1) Battery

Refer to "Remarks on installing the battery" on page 7.

(3) Battery clamp screw
(4) Battery clamp

Battery clamp
Battery clamp screw

(2) Battery connection insulator A

Remarks on reassembling
Slip in only the "A" part to the groove of the main plate as shown in the illustration below to set the battery connection insulator A.

"A" part

Enlarged cross section
"A" part
Main plate
Battery connection insulator A

(5) Circuit block cover screw
(7) IC cover

Remarks on reassembling
Set the IC cover as shown in the illustration below. Be careful not to deform it.

IC cover

(6) Circuit block cover

Remarks on reassembling
Set the circuit block cover so that the (+) pattern of the circuit block touches the crystal unit securely.

Circuit block cover
(+) pattern of circuit block
Crystal unit

[Cross-sectional view]
Circuit block cover
Circuit block
(+) pattern
Crystal unit
Circuit block spacer

(8) Circuit block

Be careful not to deform the "A" part.

"A" part
Circuit block

(9) Coil block screw
(10) Coil block

Remarks on reassembling
Set the coil block with the stem with crown at the normal position.
If the stem with crown is pulled out or pushed in with the circuit block removed, this may cause the coil wire to be broken.

(13) Battery connection insulator B

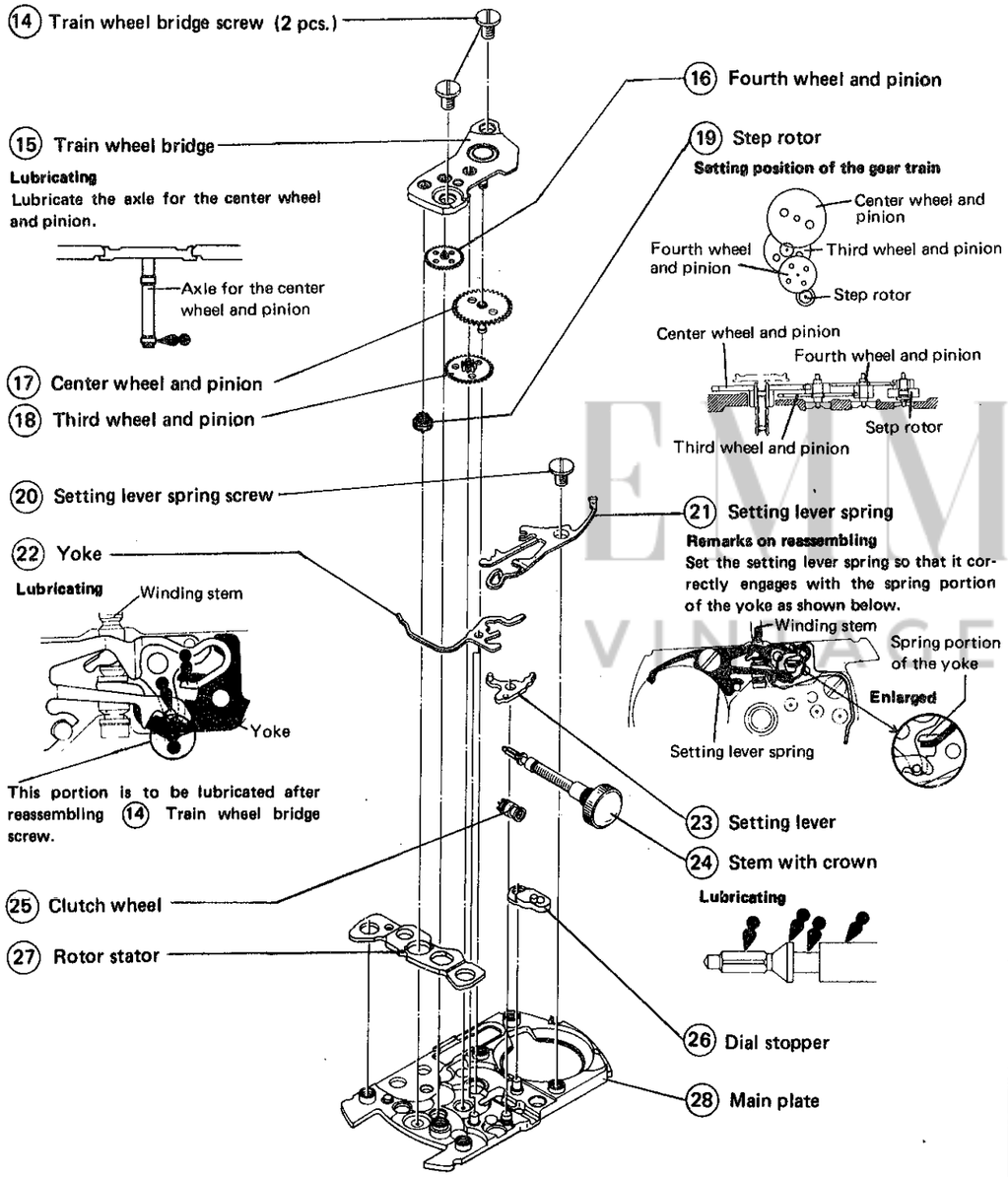
(11) Battery connection (–)

(12) Circuit block spacer

Remarks on reassembling
Set the circuit block spacer with the stem with crown at the normal position.

3. Train wheel bridge screw ~ Main plate

Lubricating: Moebius A
Normal quantity

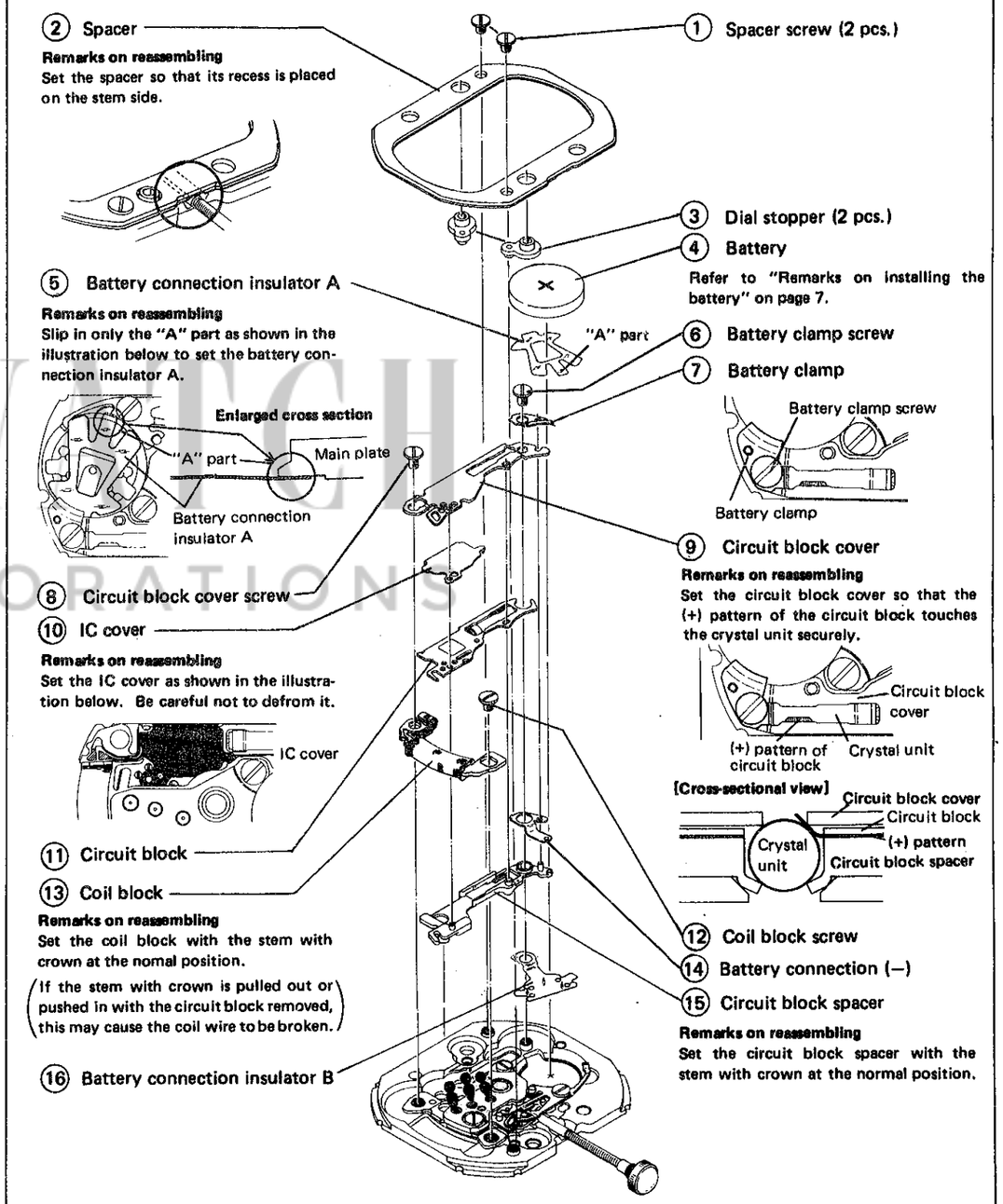


Cal. 5A54A

Disassembling procedures Figs. : (1) → (31)
Reassembling procedures Figs. : (31) → (1)

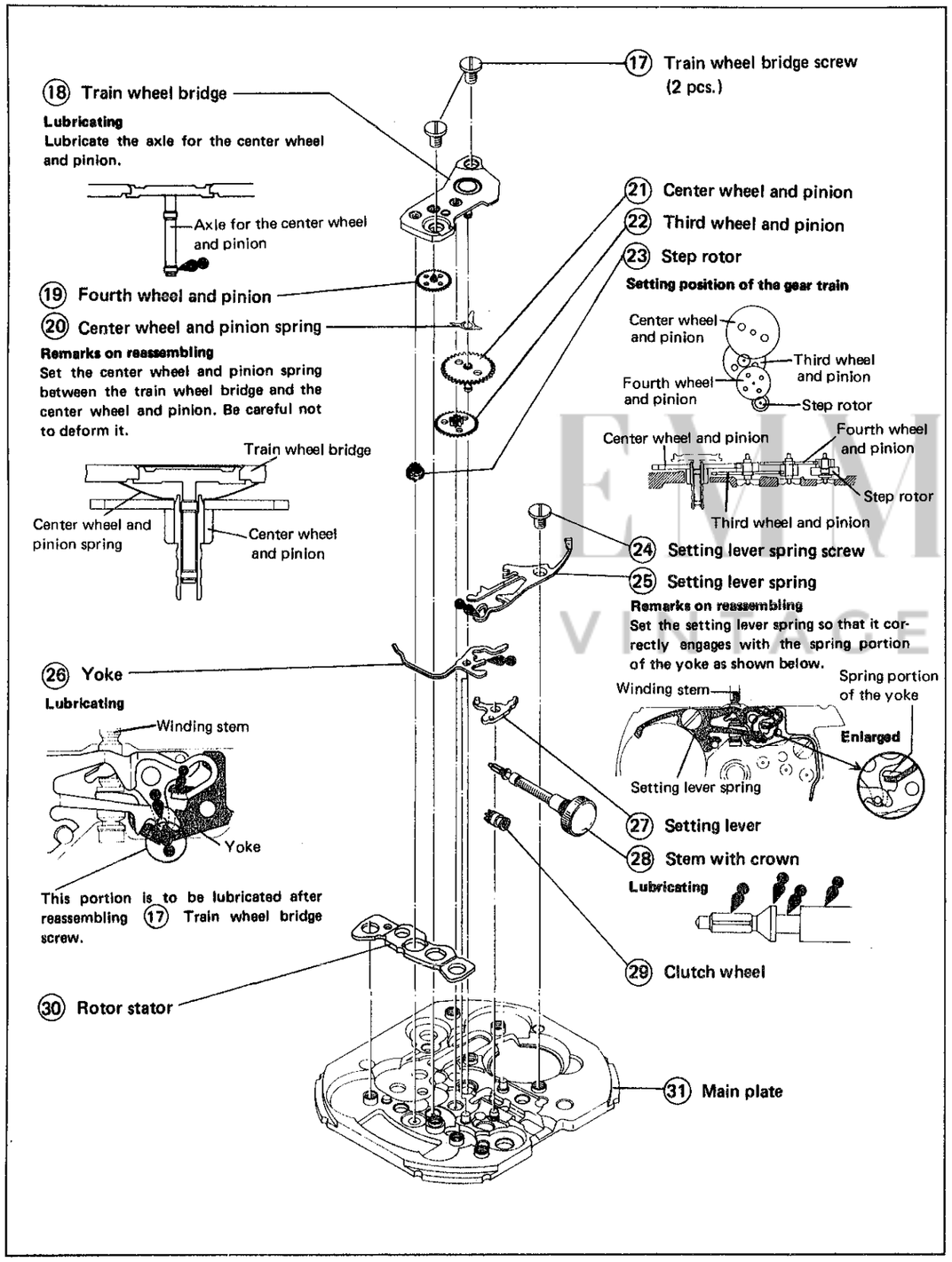
Lubricating: Moebius A
Normal quantity

2. Spacer screw ~ Battery connection insulator B



3. Train wheel bridge screw ~ Main plate

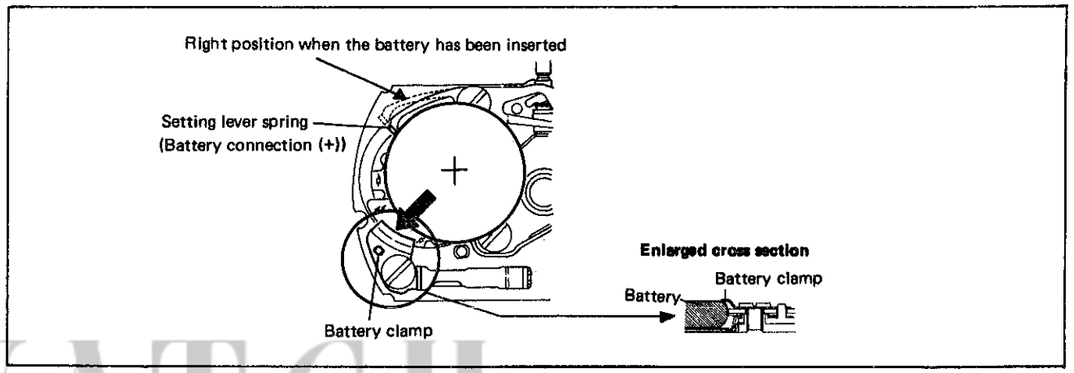
Lubricating: ●► Moebius A
Normal quantity



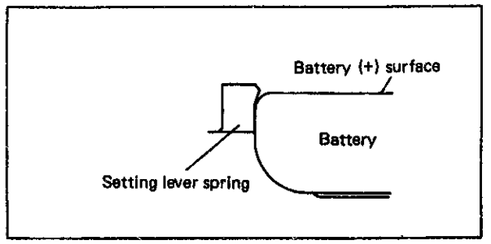
● **Remarks on installing the battery**

Notes:
1. Before installing the battery, be sure to check that the battery connection insulator A is set correctly.
2. It is not necessary to remove the battery clamp when replacing the battery.

● Install the battery under the battery clamp.



● Set the setting lever spring (battery connection (+)) so that it touches the battery surface as shown in the illustration on the right.



IV. CHECKING AND ADJUSTMENT

- The explanation here is only for the particular points of Cals. 5A50A and 5A54A.
  Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Analogue Quartz for details.

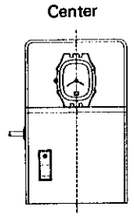
Procedure

CHECK OUTPUT SIGNAL

Use the quartz tester.
Range to be used: 10-second gate

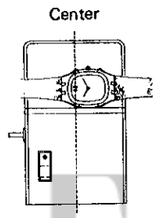
Place the watch on the microphone in either way as shown in the illustrations below so that the quartz tester can measure output signal correctly.

— Watch complete —



Set the watch with the 12 o'clock side down.

— Watch with bracelet —



Place the watch with the crown side up and set it rightward.

CHECK BATTERY VOLTAGE

Use the Digital Multi-Tester.
Range to be used: DC V

Result:
Normal : More than 1.57V
Defective : Less than 1.57V

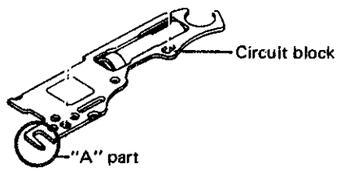
CHECK COIL BLOCK

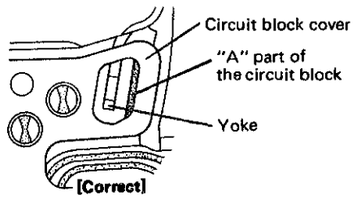
Use the Digital Multi-Tester.
Range to be used: Ω

Result:
Normal : 1.8KΩ ~ 2.6KΩ
Defective — More than 2.6KΩ
Defective — Less than 1.8KΩ

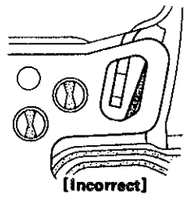
CHECK RESET CONDITION

1. Pull the crown out completely, and release your hand. Then, check to see that the minute hand moves 20 seconds after the crown is pushed in.
2. Push in the crown to the normal position.
   - Check to see that the "A" part of the circuit block is set parallel to the circuit block cover.
   - Check to see that there is some clearance between the yoke and the "A" part of the circuit block.





The "A" part of the circuit block is set parallel to the circuit block cover.



Not parallel

Procedure

3. Pull out the crown completely.
   Check to see that the yoke touches the "A" part of the circuit block.

CHECK ACCURACY

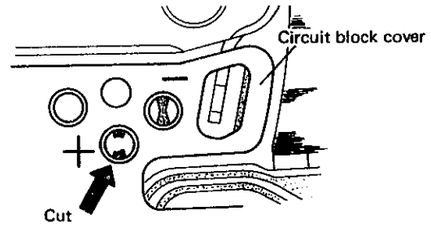
Measuring time accuracy

- Use the 10-second gate of the quartz tester.
- Place the watch on the microphone in such a way as described in "CHECK OUTPUT SIGNAL" on page 8.
  Do not measure accuracy under an incandescent lamp, since strong light adversely affects time accuracy.
  Be sure to protect the movement from light with case back or black paper.

Adjusting time accuracy

1. Confirm the appropriate pattern to be cut over the circuit block cover.
   (−) pattern : to lose approximately 0.26 sec./day
   (+) pattern : to gain approximately 0.26 sec./day
2. Take off the circuit block cover.
3. Cut the pattern.
4. Remove the sludge completely.

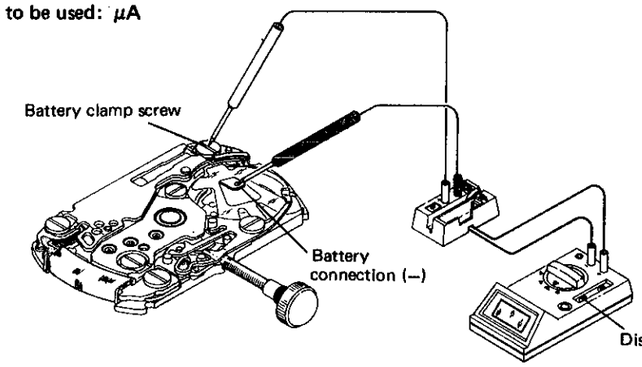
Ex.: The illustration below shows that the (+) pattern is cut to gain time.



CHECK CURRENT CONSUMPTION

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

Use the Digital Multi-Tester.
Range to be used: μA



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

Measuring current consumption

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. 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 motor flows once every 20 seconds.
4. After approximately one minute, read a maximum value which is displayed stably.

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