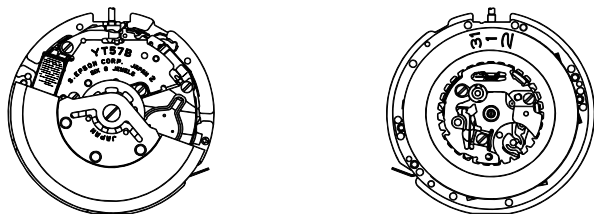


# PARTS CATALOGUE/TECHNICAL GUIDE

## Cal. YT57B

### [SPECIFICATIONS]

Item		Cal. No.	YT57B
Movement			 <div style="text-align: right;">(x 1.0)</div>
Movement size	Outside diameter		ø27.6 mm
	Casing diameter		ø27.0 mm
	Height		4.3 mm
Time indication			3 hands
Driving system			Step motor (Load compensated driving pulse type)
Additional mechanism			<ul style="list-style-type: none"> <li>• Automatic generating system</li> <li>• Energy depletion forewarning function</li> <li>• Overcharge prevention function</li> <li>• Electronic circuit reset switch</li> <li>• Train wheel setting device</li> <li>• Date calendar</li> <li>• Instant setting device for date calendar</li> </ul>
Loss/gain			Monthly rate at normal temperature range: less than 20 seconds
Regulation system			Nil
Measuring gate by quartz tester			Use 10-second gate.
Power supply	Power generator		Automatic generating system
	KINETIC E.S.U.		Titanium lithium ion rechargeable battery
Operating voltage range			0.45 V ~ 2.2 V
Duration of charge			From full charge to stoppage: Approx. 6 months
Jewels			6 jewels




# PARTS CATALOGUE

Cal. YT57B

Disassembling procedures Figs. : ① → ④⑦

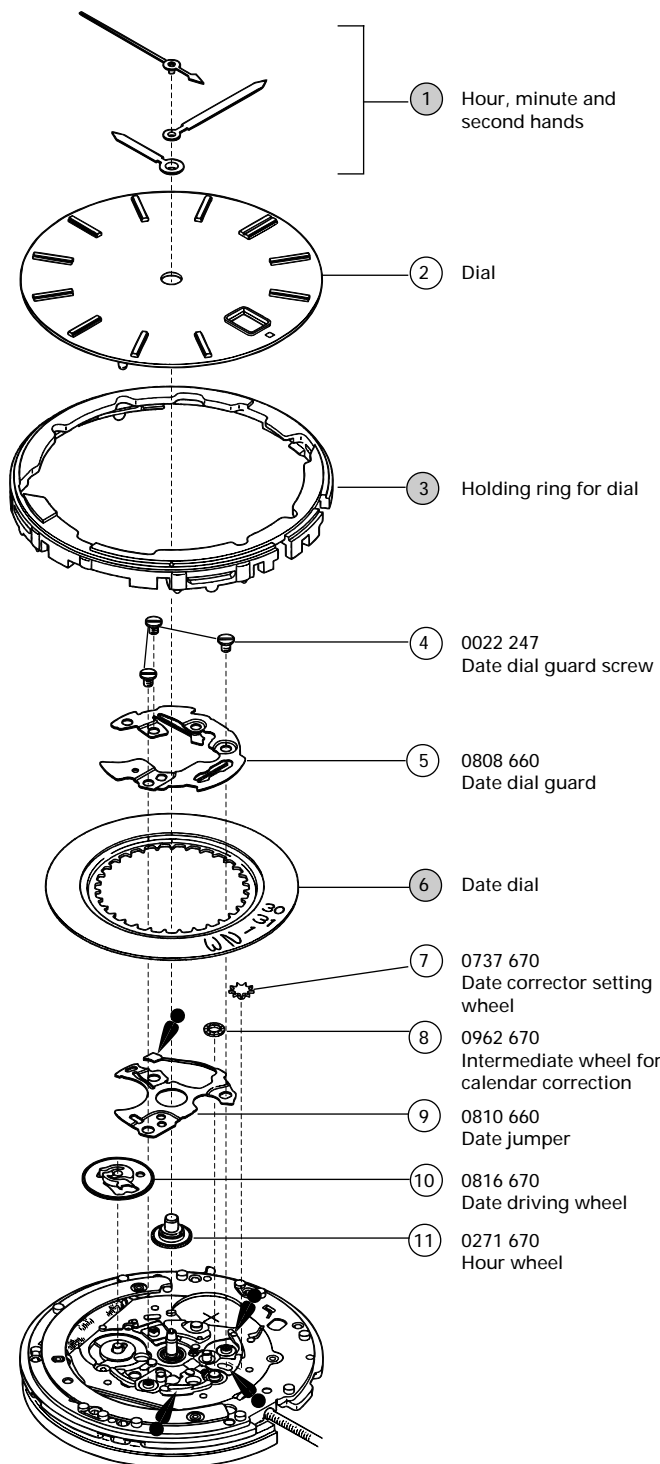
Reassembling procedures Figs. : ④⑦ → ①



**Lubricating: Types of oil**



-  Moebius A
-  Moebius F
-  SEIKO Watch Oil S-6

**Oil quantity**

-  Normal quantity

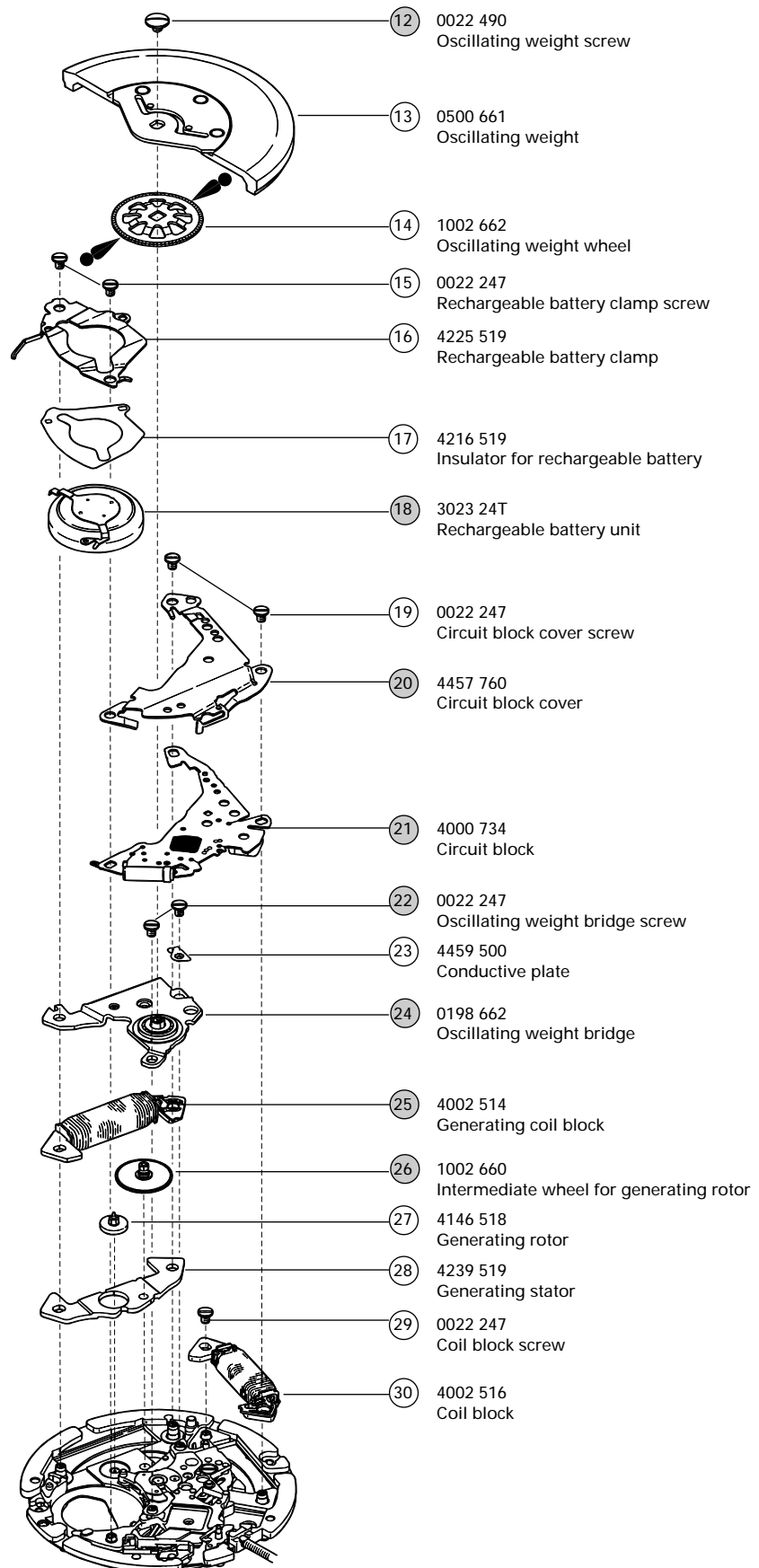


	0022 247 • Date dial guard screw (3 pcs.) • Rechargeable battery clamp screw (2 pcs.) • Circuit block cover screw (2 pcs.) • Oscillating weight bridge screw (2 pcs.) • Coil block screw (1 pc.) • Train wheel bridge screw (1 pc.)
	0022 490 • Oscillating weight screw (1 pc.)

  Please see the remarks on the following pages.  
Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING".

# PARTS CATALOGUE

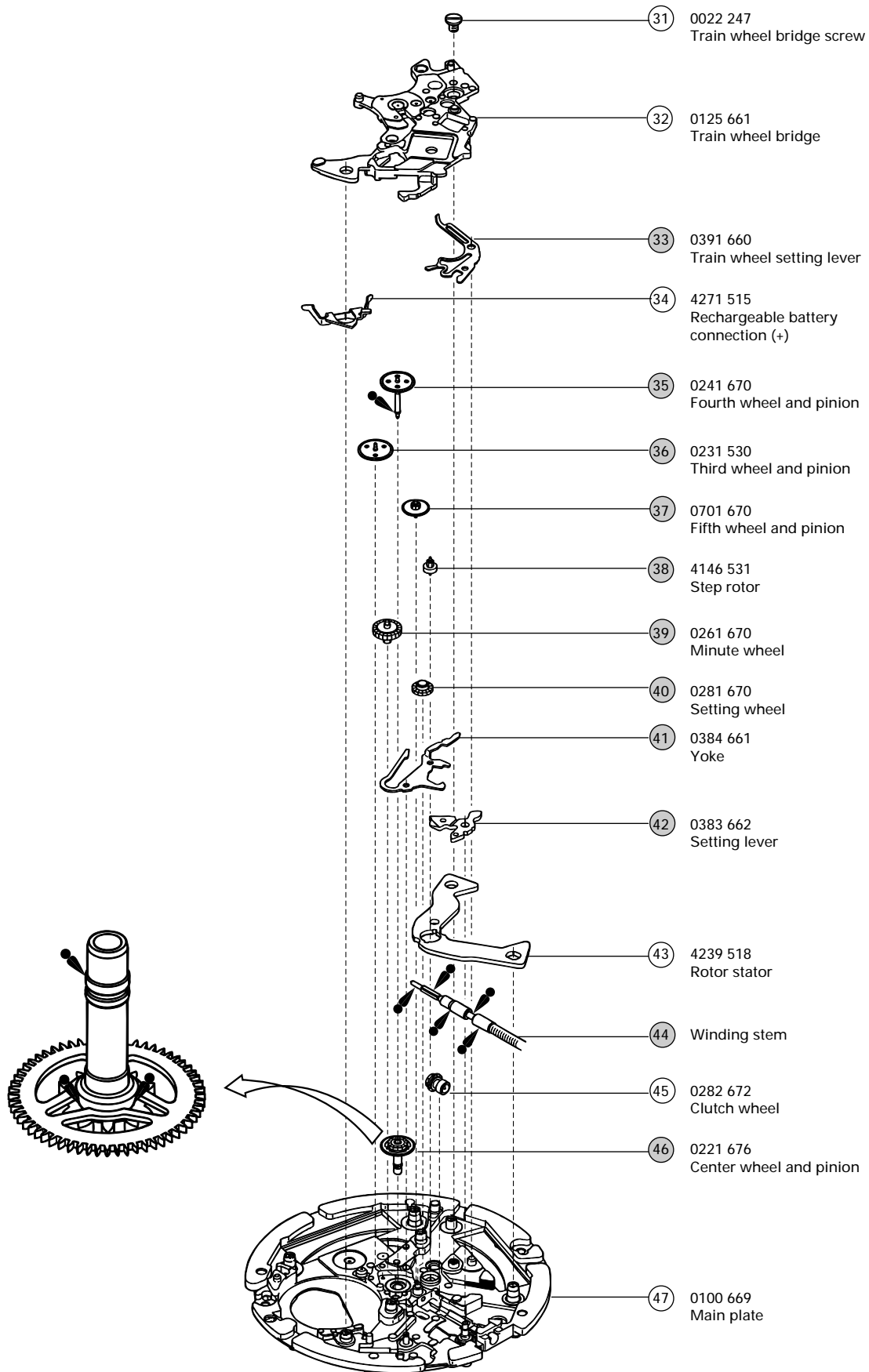
Cal. YT57B



● ➔ Please see the remarks on the following pages.  
Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING".

# PARTS CATALOGUE

Cal. YT57B



➔ Please see the remarks on the following pages.  
Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING".

**Remarks:**

- ③ Holding ring for dial 0866 636

The type of holding ring for dial is determined based on the design of cases.  
Check the case number and refer to "SEIKO Casing Parts Catalogue" to choose a corresponding holding ring for dial.

- ⑥ Date dial

Part code	Position of crown	Position of calendar frame	Color of figure	Color of background
0878 729	3 o'clock	3 o'clock	Black	White
0878 730	3 o'clock	3 o'clock	White	Black

The type of date dial is determined based on the design of cases.  
Check the case number and refer to "SEIKO Casing Parts Catalogue" to choose a corresponding date dial.

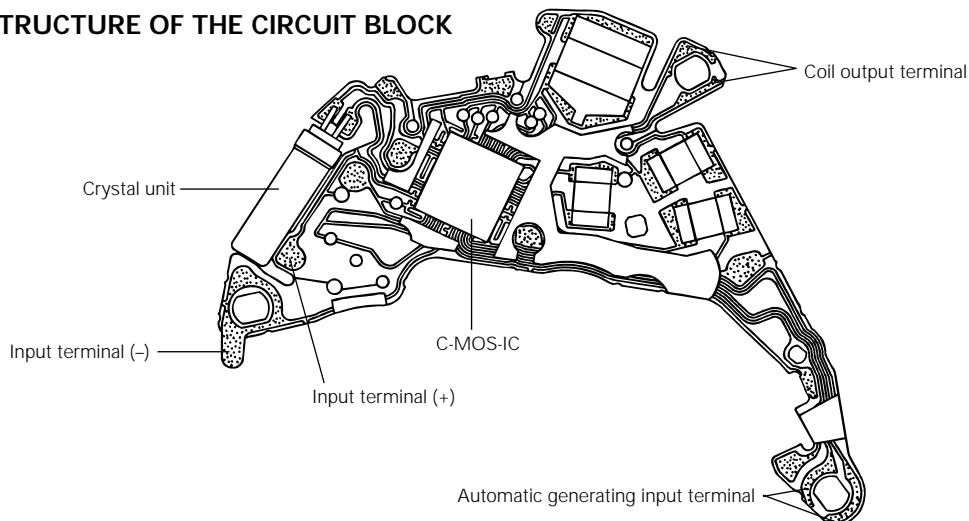
- ④④ Winding stem 0351 653

The type of winding stem is determined based on the design of cases.  
Check the case number and refer to "SEIKO Casing Parts Catalogue" to choose a corresponding winding stem.

# TECHNICAL GUIDE

- The explanation here is only for the particular points of Cal. YT57B.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

## I. STRUCTURE OF THE CIRCUIT BLOCK

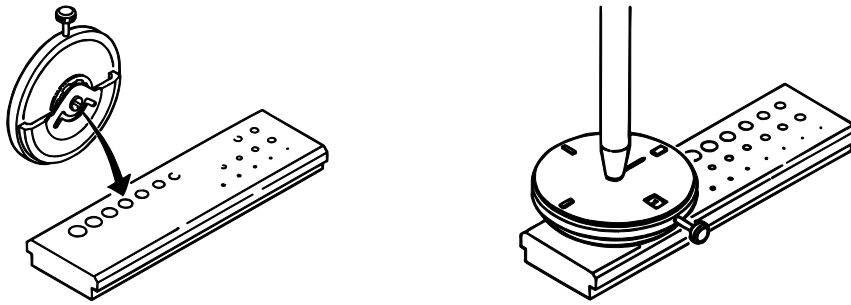


## II. REMARKS ON DISASSEMBLING AND REASSEMBLING

For disassembling and reassembling, be sure to use the universal movement holder.

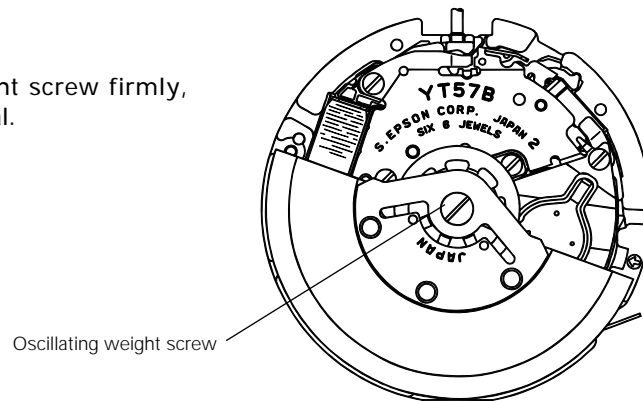
### ① Hands

Place the movement directly on the riveting plate shown in the illustration with the oscillating weight down, so that the oscillating weight screw is not damaged. Then, press in the hands.



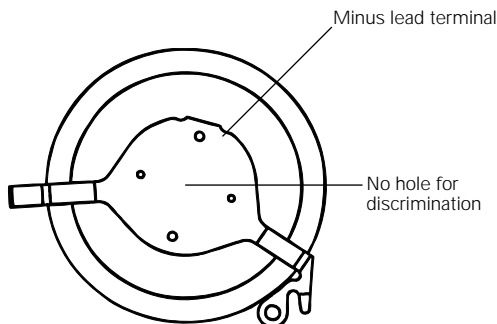
### ⑫ Oscillating weight screw

Tighten the oscillating weight screw firmly, applying more force than usual.

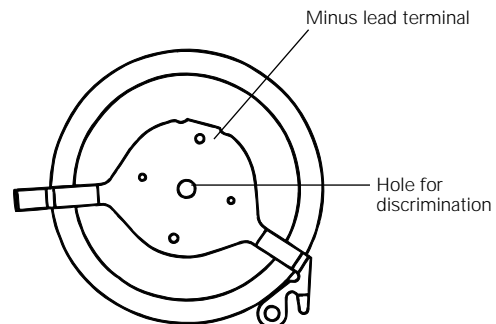


### ⑱ Rechargeable battery unit

Though they have a close resemblance in shape, the rechargeable battery unit for Cal. YT57B is of a completely different type from that for Cal. 5M6 Series. They can be discriminated in the point that the latter has a hole for discrimination on its minus lead terminal while the former doesn't as illustrated below. When repairing the rechargeable battery unit, check that it has no hole for discrimination on the minus lead terminal to make sure you are using the proper one.



[ Rechargeable battery unit for Cal. YT57B ]



[ Rechargeable battery unit for Cal. 5M6 Series ]

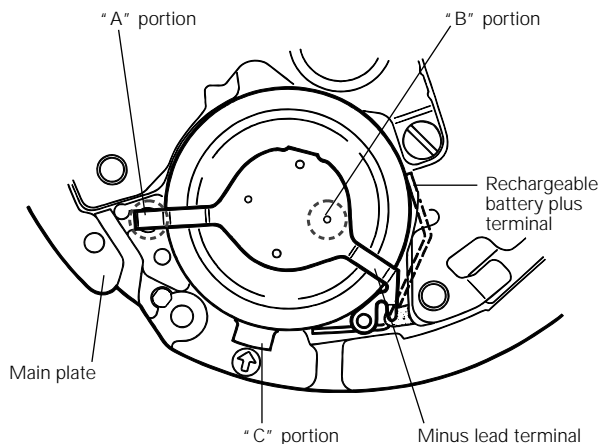
• **How to remove**

Insert the tip of tweezers into the "C" portion gap in the illustration at right, and pry up the rechargeable battery unit to remove it.

• **How to install**

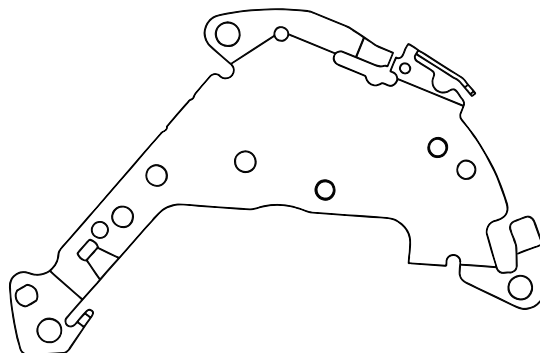
Set the "A" portion of the minus lead terminal to the hole of the main plate, and push the "B" portion down vertically so that the rechargeable battery unit is well seated in position.

**Note:** Take utmost care not to short-circuit the (+) and (-) terminals, as this will deteriorate the battery unit.



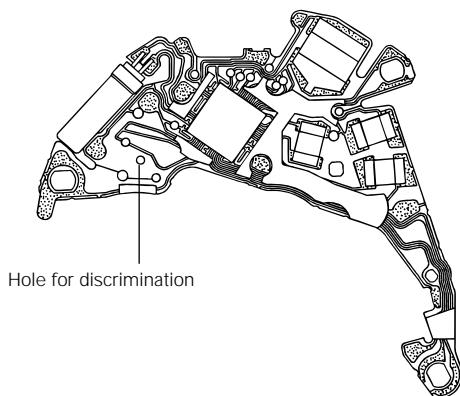
②① Circuit block cover

Circuit block cover for after-sales servicing use has no such marks printed on it as calibre number and numeral indicating hand installation height.

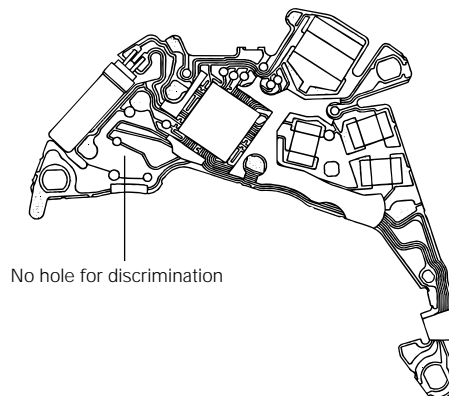


②① Circuit block

The circuit block for Cal. YT57B and that for Cal. 5M6 Series have a close resemblance in shape. They can be discriminated in the point that the former has a hole for discrimination while the latter doesn't as illustrated below. When repairing the circuit block, check the hole for discrimination to make sure you are using the proper one.



[ Circuit block for Cal. YT57B ]

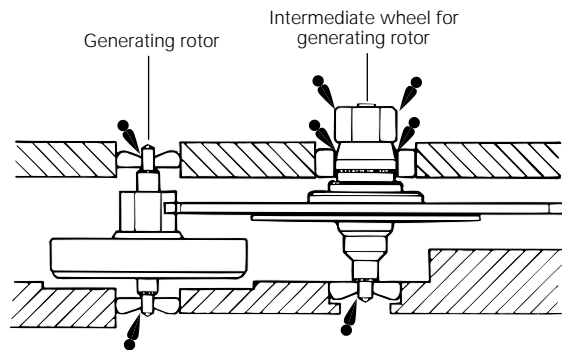


[ Circuit block for Cal. 5M6 Series ]

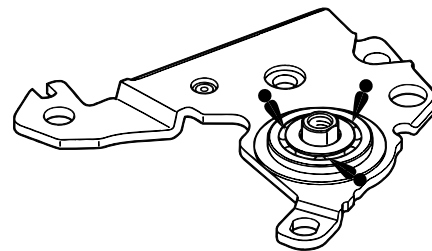
②② Oscillating weight bridge screw

②④ Oscillating weight bridge

- Before tightening the oscillating weight bridge screw, check that the upper pivot of the generating rotor is inserted properly into the pivot jewel.
- Be sure to lubricate the upper and lower pivots of generating rotor and intermediate wheel for generating rotor with the proper oil in the quantity specified in the illustration.

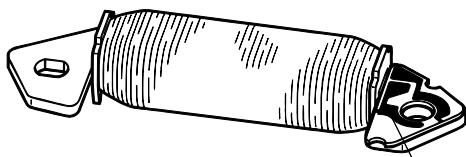


- Lubricate the ball-bearing of the oscillating weight bridge as shown in the illustration at right.



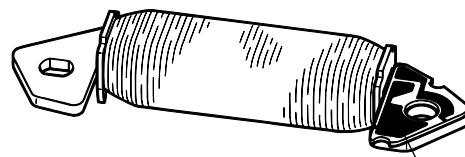
②⑤ Generating coil block

The generating coil block for Cal. YT57B and that for Cal. 5M4 Series have a close resemblance in shape. They can be discriminated by the size of the pattern on the lead terminal. If the generating coil block for Cal. 5M4 Series is assembled by mistake, no electricity will be generated. When repairing the generating coil block, check the size of the pattern on the lead terminal to make sure you are using the proper one.



Smaller pattern

[ Generating coil block for Cal. YT57B ]



Larger pattern

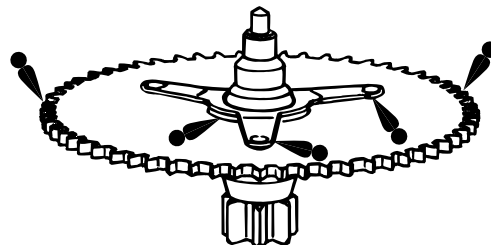
[ Generating coil block for Cal. 5M4 Series ]

②⑥ Intermediate wheel for generating rotor

• Lubricating

Refer to the illustration at right.

**Note:** Be sure to observe the position, type of oil and quantity of the lubrication specified in the illustration.

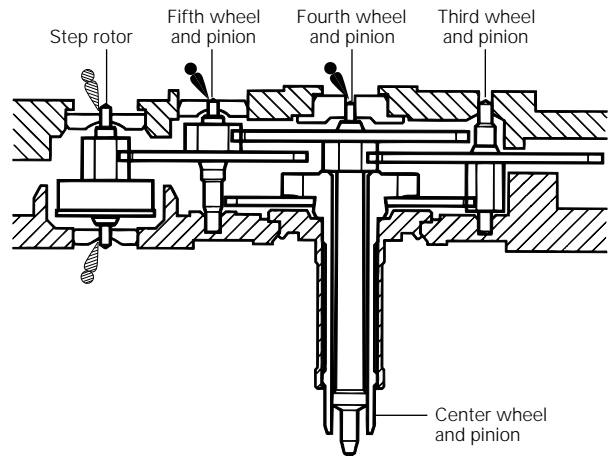
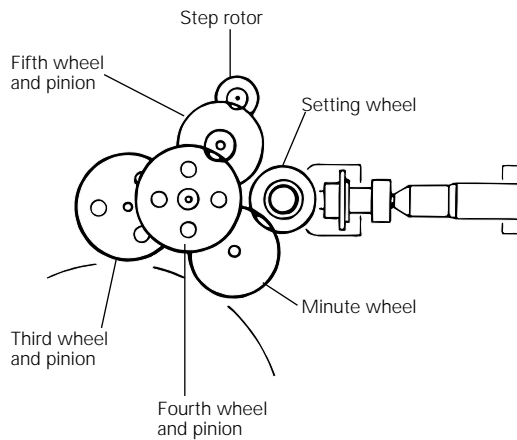




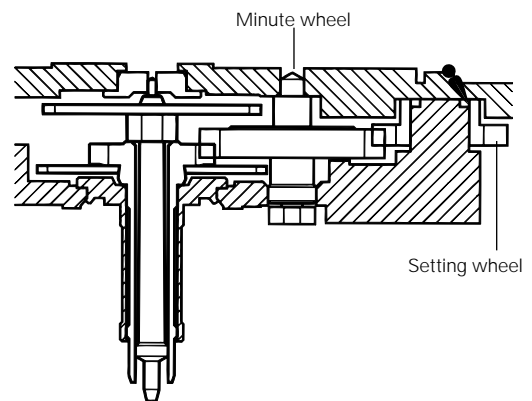
- ③⑤ Fourth wheel and pinion
- ③⑥ Third wheel and pinion
- ③⑦ Fifth wheel and pinion
- ③⑧ Step rotor
- ③⑨ Minute wheel
- ④⑩ Setting wheel
- ④⑥ Center wheel and pinion

• **Setting position and lubricating**

Refer to the illustrations below for the setting position and lubrication of the respective wheels.

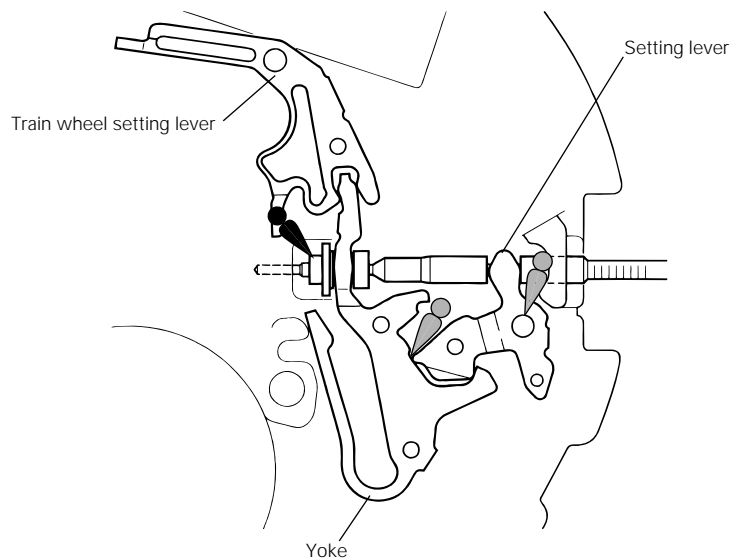


**Note:** Be sure to observe the position, type of oil and quantity of the lubrication specified in the illustration.



- ③③ Train wheel setting lever
- ④① Yoke
- ④② Setting lever

- **Setting position and lubricating**  
Refer to the illustration at right.



### III. VALUE CHECKING AND ADJUSTMENT

- **Coil block resistance**

1.7 K $\Omega$  ~ 2.1 K $\Omega$

- **Generating coil block resistance**

280  $\Omega$  ~ 380  $\Omega$

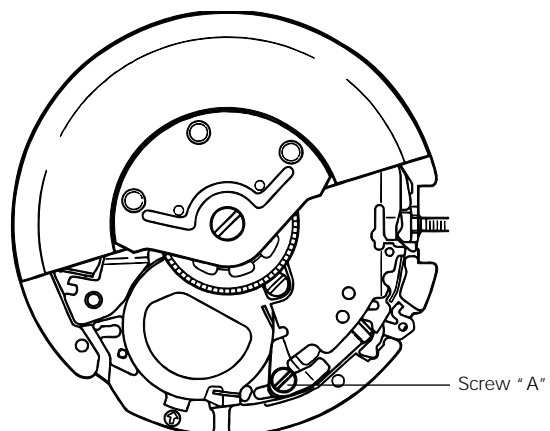
- **Current consumption**

For the whole movement : Less than 0.80  $\mu$ A (with 1.55 V supplied from a battery)

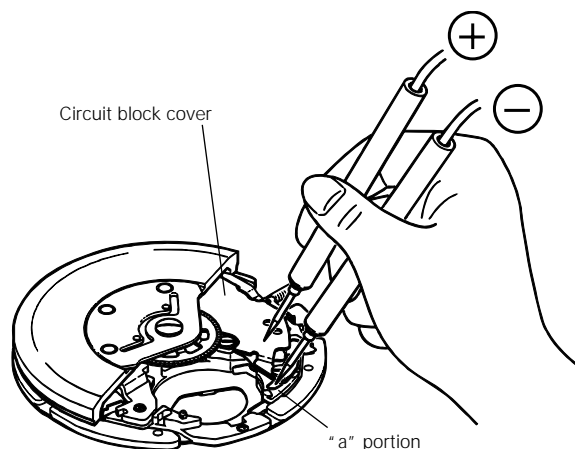
For the circuit block alone : Less than 0.20  $\mu$ A (with 1.55 V supplied from a battery)

#### How to measure the current consumption for the whole movement

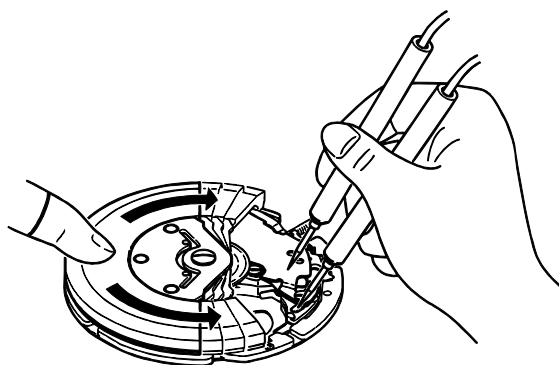
1. Make the movement ready for measurement.
  - 1) Follow the disassembling procedure illustrated in this manual until you remove the rechargeable battery unit.
  - 2) Temporarily tighten the screw "A" in the illustration, taking care not to tighten it excessively.
  - 3) Install the oscillating weight wheel and oscillating weight and then tighten the oscillating weight screw.



2. Apply the minus terminal to "a" portion of the input terminal (-) in the illustration and plus terminal to the circuit block cover, respectively.



3. For a few seconds after the probes of the tester are applied to the movement, the IC is in the quick start mode, and current consumption cannot be measured properly. To switch the IC from the quick start to the normal hand movement mode, move the oscillating weight from side to side continuously for more than three seconds with the tester connected to the movement. The IC will detect the electricity generation and will be switched to the normal hand movement mode.



**Note:** When moving the oscillating weight from side to side, take care lest the minus terminal of the tester touches the oscillating weight.

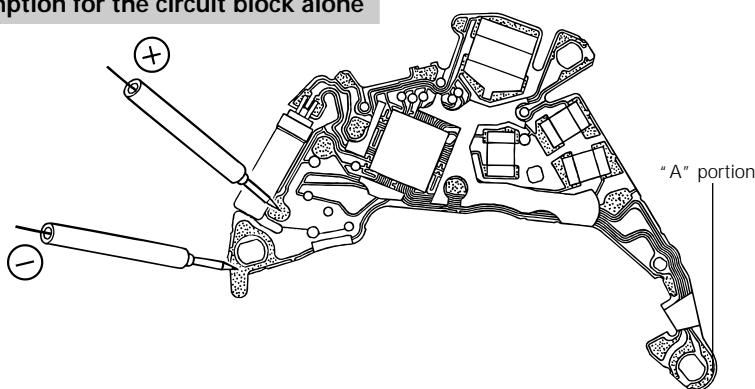
4. After checking that the IC has been switched to the normal hand movement mode and a stable measurement can be obtained, read the measurement. If the measurement value remains high or unstable, repeat step "3" above.

**Notes:**

- \* Light may increase the current consumption, resulting in an inaccurate measurement. If the current consumption exceeds the standard value, protect the movement from light with a black cloth or the like, and make a measurement again.
- \* When the current consumption for the whole movement exceeds the standard value while the current consumption for the circuit block alone is within the standard value range, a driving pulse may be generated to compensate for the heavy load applied on the gear train, etc. In that case, overhaul and clean the movement parts, and then, measure the current consumption for the whole movement again.

**How to measure the current consumption for the circuit block alone**

1. Connect the tester to the circuit block as shown in the illustration.



2. With the tester connected to the circuit block, short-circuit "A" portion in the illustration and the input terminal (-) with conductive tweezers or the like for more than 3 seconds. The IC will be switched from the quick start to the normal hand movement mode.
3. Checking that a stable measurement is obtained, read the current consumption. If the measurement value remains high or unstable, repeat step "2" above.

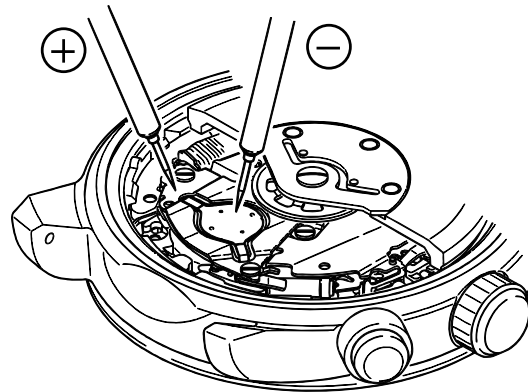
**Note:** The current consumption measurement for the circuit block alone is particularly susceptible to light, and a value higher than the actual measurement may be obtained if the circuit block is exposed to light. Protect the circuit from light with a black cloth or the like after following step "2" above, and then, measure the current consumption.

● **Checking the automatic generating system**

1. Apply the probes of the tester as shown in the illustration, and measure the voltage of the rechargeable battery. The obtained voltage is called the "initial voltage".

**Notes:**

- \* When applying the minus probe of the tester to the rechargeable battery, take care not to short-circuit the lead terminal (-) and the rechargeable battery clamp.
  - \* If a short-circuit has occurred, leave the watch untouched for more than 10 minutes, and measure the voltage again, checking that a stable measurement is obtained.
2. Close the case back tentatively, and swing the watch from side to side 200 times at a rate of 2 to 3 swings a second, making an arc of approximately 20 cm.
  3. Within 3 minutes after swinging the watch, measure the voltage of the rechargeable battery in the same manner as in step "1" above.
  4. Refer to the table below, and decide whether the automatic generating system is normal or defective.



[ Initial voltage and guidelines of normal/defective decision ]

Initial voltage	Guidelines of normal/defective decision
0.45 V ~ 1.0 V	After charging, the voltage of rechargeable battery has increased 0.2 V or more from the initial voltage.
1.01 V ~ 1.2 V	After charging, the voltage of rechargeable battery has increased 0.1 V or more from the initial voltage.

\* The guidelines specified in the above table apply only when the initial voltage is within the range between 0.45 V and 1.2 V.

\* The amount of electricity generated by swinging the watch varies depending on the manner in which you swing it, such as the rate of swinging and the size of the swinging arc. Please note, therefore, that checking through the procedure above provides only the guideline of normal/defective decision.

[ For your information ]

● **Number of swings and power reserve**

- When the power reserve in the rechargeable battery is depleted and the watch stops completely, swinging it approximately 100 times at a rate of 2 to 3 times a second will start the second hand moving at normal one-second intervals instead of two-second intervals. There will be about 12 hours of power reserve available. If the second hand still moves at two-second intervals after 100 swings, swing the watch further until it moves at one-second intervals.
- While the second hand is moving at one-second intervals, 200 to 250 swings will reserve up to one day of power.