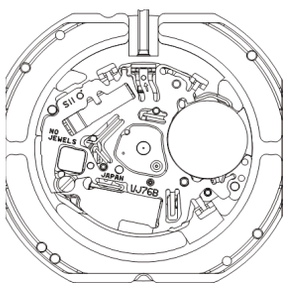
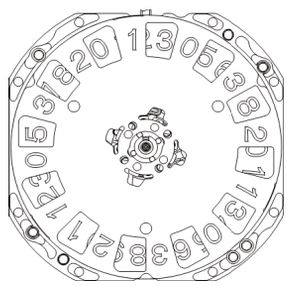
PARTS CATALOGUE/TECHNICAL GUIDE

Cal. 6N76A

[SPECIFICATIONS]

Item \ Cal. No.		6N76A
		 
• 3 hands (hour, minute, and small second hand) • Big date calendar		• Diameter Outside: Ø 26.4 mm • Height: 3.4 mm Casing: Ø 25.6 mm
Interval of hands movement		1 second
Driving system		Stepping motor, 1 piece
Additional function		• Electronic circuit reset switch • Second setting device • Date setting
Crown operation	Normal position	Free
	1st click position	Date setting(clockwise)
	2nd click position	Time setting, hand position adjustment / resetting the circuit
Loss/gain		Monthly rate: Less than 20 seconds (worn on the wrist at the temperature between 5 and 35)
Regulation system		Nil
Gate time for rate measurement		Use 10-second gate.
Current consumption		Movement: Less than 0.83 µA Circuit block: Less than 0.27 µA
Coil resistance		4004274 (CIRCUIT BLOCK WITH COIL BLOCK) 2.1 - 2.3 KΩ
Power supply	Battery No.	SEIKO SR621SW
	Battery voltage	1.55 V
	Battery life	Approx. 3 years
Number of jewels		0 jewel

SEIKO WATCH CORPORATION

SPECIFICATIONS

Cal. 6N76A is an analogue quartz movement with three hands (hour, minute and second), employing a Big Date calendar. The date frame has been enlarged compared to those from existing calibers, increasing the legibility and practicality.

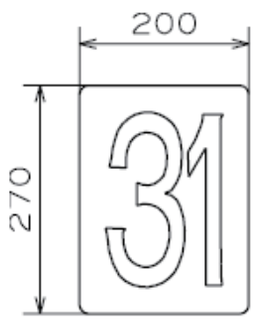
FEATURES

Cal. 6N76A

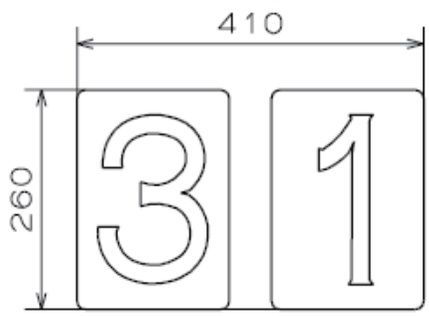
This is an analogue quartz watch featuring Big Date calendar.

- The units digits and the tens digits are displayed in two separate indicator windows.
- Compared to date frame of the existing calibers, it is enlarged by about twice the original.

※1=1/100mm



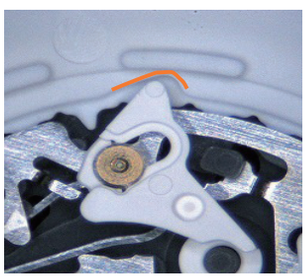
Basic calibers



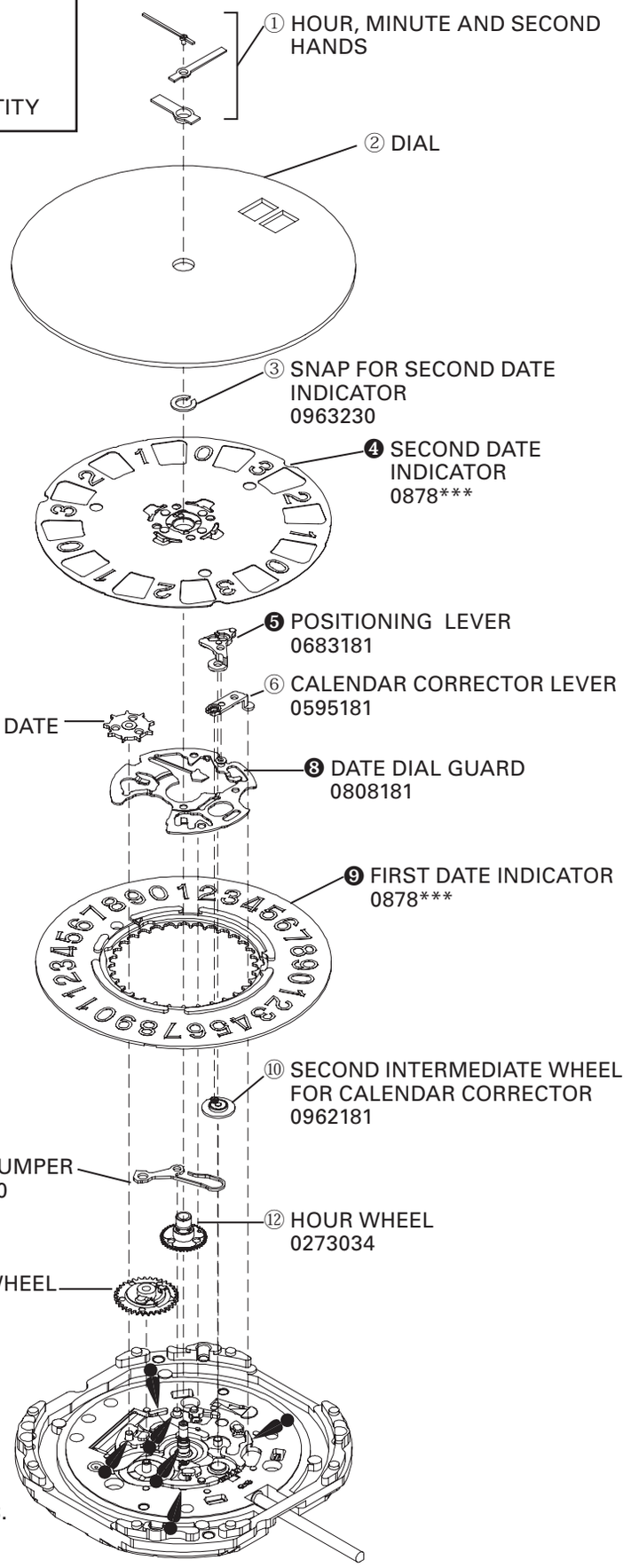
Cal. 6N76A

PARTS LIST

Disassembling procedures Figs. : ①→㉞
Reassembling procedures Figs. : ㉞← ①
Types of oil AO-3
AO-2
Oil quantity NORMAL QUANTITY



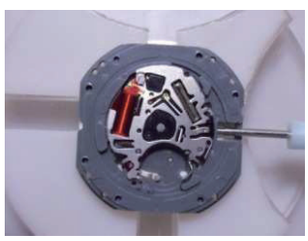
❺ POSITIONING LEVER can be dissassembled and reassembled only at notch on the first date indicator. Please refer to page 12.



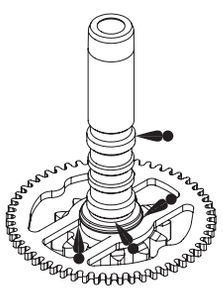
For parts ❹ and ❾ , please refer to page 6 and 13.
For parts ❺ , please refer to page 12.
For parts ❽ , please refer to page 7 and 8.

PARTS LIST

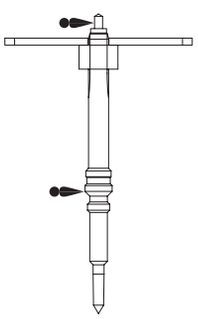
Cal. 6N76A



Picture after ⓱ BATTERY CONNECTION (+) is installed.



*1 Oiling position



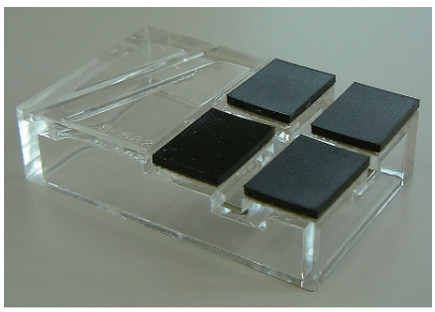
*2 Oiling position

For parts ⓮ , please refer to page 8.
For parts ⓱ and ⓲ , please refer to page 9.
For parts , ⓴ and ㉙ , please refer to page 10.
For parts ㉚ , please refer to page 11.

PARTS LIST

● Tools and consumables required for disassembling/reassembling

- **MOVEMENT HOLDER**
  UNIVERSAL MOVEMENT HOLDER (S-682)



- **WATCH OILS**
  SEIKO WATCH OIL AO-3 (OR MOEBIUS A) AND AO-2 (OR MOEBIUS F)

AO-3

AO-2

● How to find the correct parts, if not determined by 4 digit caliber number

Following parts are determined based on the design of cases. Please refer to the SEIKO WATCH PARTS CATALOGUE in order to choose corresponding parts.

⑨ FIRST DATE INDITATOR 0878***

④ SECOND DATE INDICATOR 0878***

Please refer to the following table in order to find the correct part number of each date indicator according to the position of date frame.

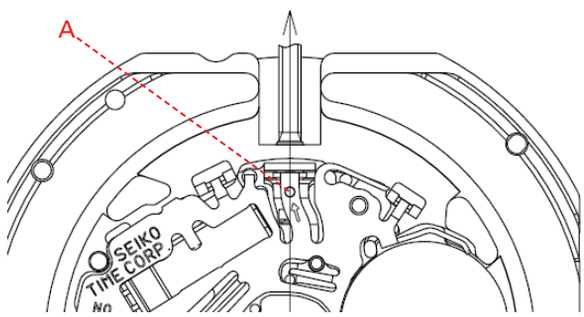
	Parts Code	
Position of Date Frame	⑨ FIRST DATE INDITATOR	④ SECOND DATE INDICATOR
6H	0878123	0878127
12H	0878125	0878178

REMARKS ON DISASSEMBLING AND REASSEMBLING THE MOVEMENT

● How to remove the SETTING STEM before dismantling the movement

Crown position: normal (=0) position.

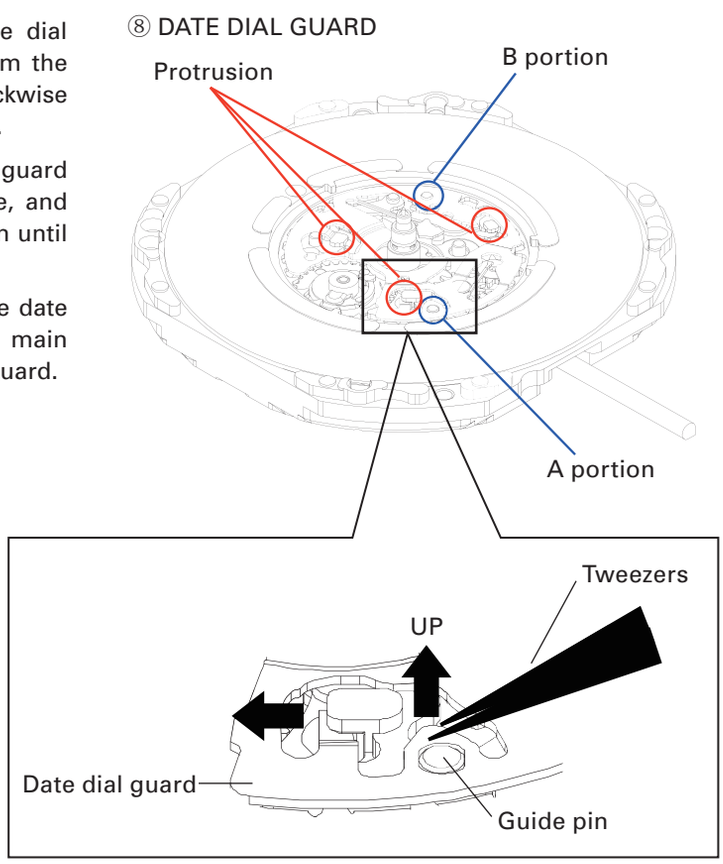
Push the "A" on the SETTING LEVER gently (refer to the picture on the right) in order to disengage it from the SETTING STEM. Then pull out the crown with the stem completely.



● How to remove the DATE DIAL GUARD

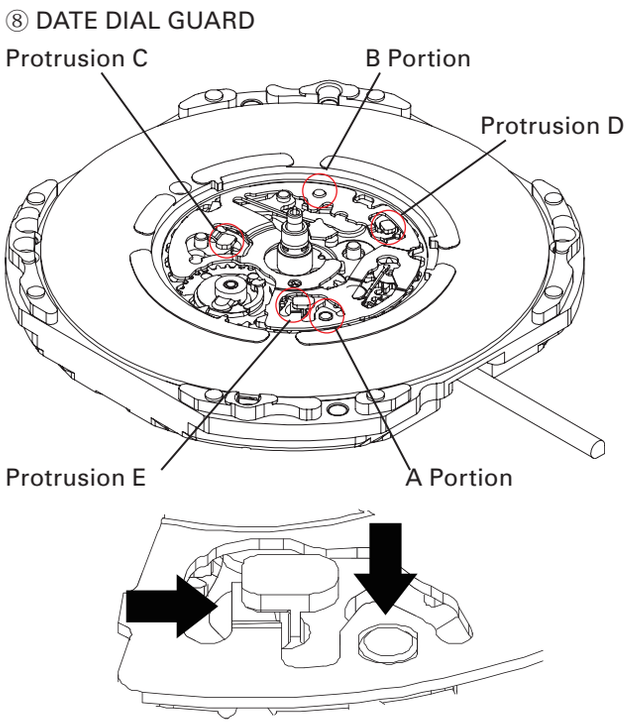
The date dial guard has three protrusions to be caught under the main plate, and it is also fixed by two guide pins.

1) Lightly lift the A portion of the date dial guard with tweezers to release it from the guide pin, and then move it in the clockwise direction until it gets off the guide pin.
2) Release the B portion of the date dial guard in the same way as described above, and then move it in the clockwise direction until it gets off the guide pin.
3) Check that all three protrusions of the date dial guard have come off from the main plate, and then remove the date dial guard.



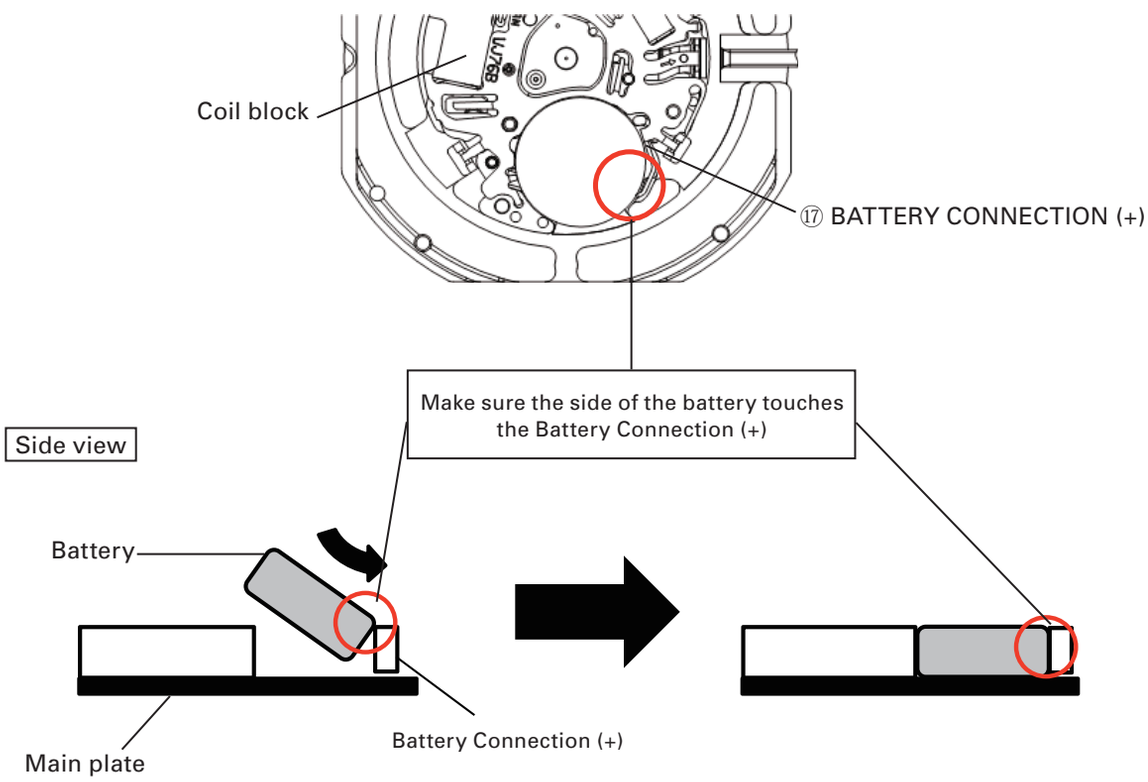
● How to install the DATE DIAL GUARD

1) Put the date dial guard on the main plate so that the A and B portions are over the guide pins, as shown in the illustrations at right.
2) Move the protrusion D of the date dial guard in the counterclockwise direction so that it is caught under the main plate.
3) Slightly move the protrusions C and E in the counterclockwise direction alternately to set them under the main plate. Then, set the A and B portions of the date dial guard to the guide pins.
4) Check that the date dial guard is fixed securely to the main plate.



● How to install the BATTERY

Insert the battery aslant in the direction shown by the arrow. Check that the battery connection (+) securely touches the side face of the battery.



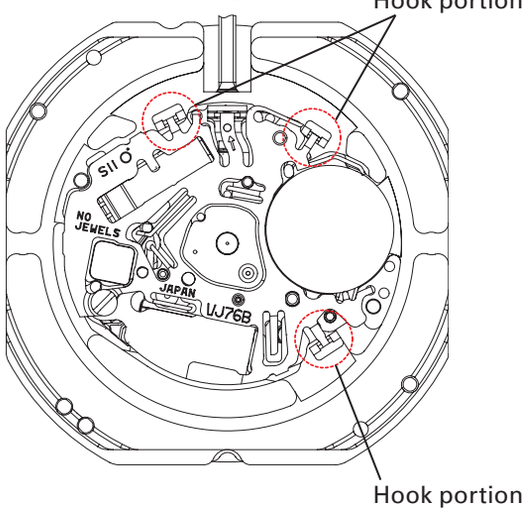
● Remarks for installing the BATTERY CONNECTION (+)

Set it so that the hook portions (3 places) catch the main plate (Fig.1&2).

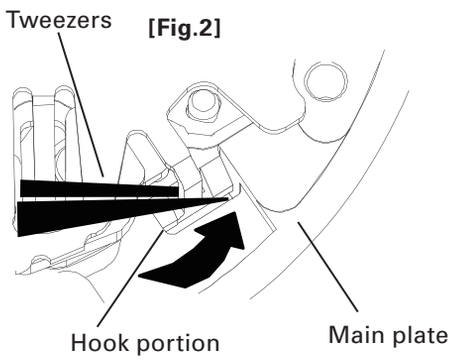
In disassembling and reassembling, take care not to deform the hook portions.

After installing the battery connection (+), check that the three hook portions securely catch the main plate.

[Fig.1]

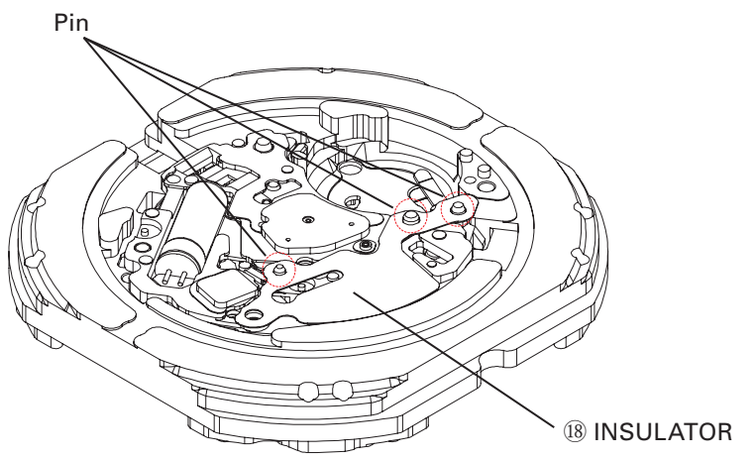


[Fig.2]



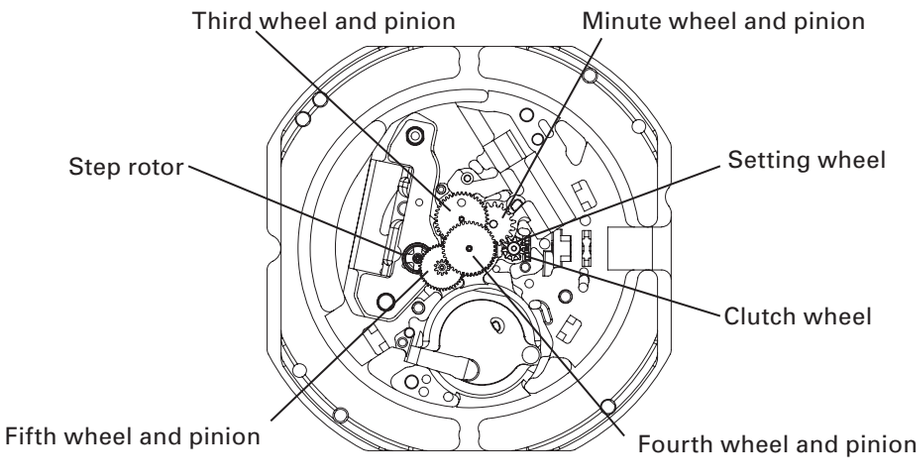
● Remarks for setting position of the INSULATOR

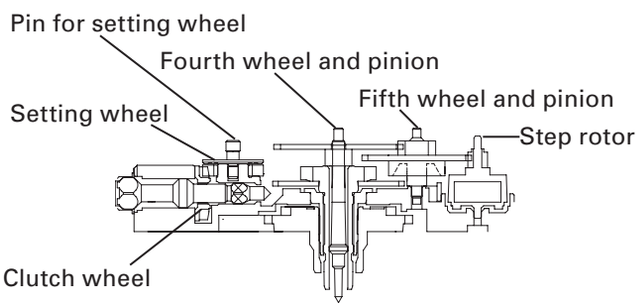
Notes: To insulate between the battery connection (+) and the battery connection (-), the insulator should be set securely with the three pins as bellow.

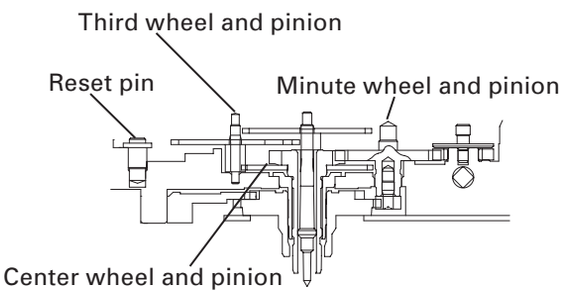


● Remarks for setting position of the TRAIN WHEEL BRIDGE

Notes: Since the fifth wheel and pinion and step rotor are made of plastic, take care not to damage them in disassembling and reassembling.



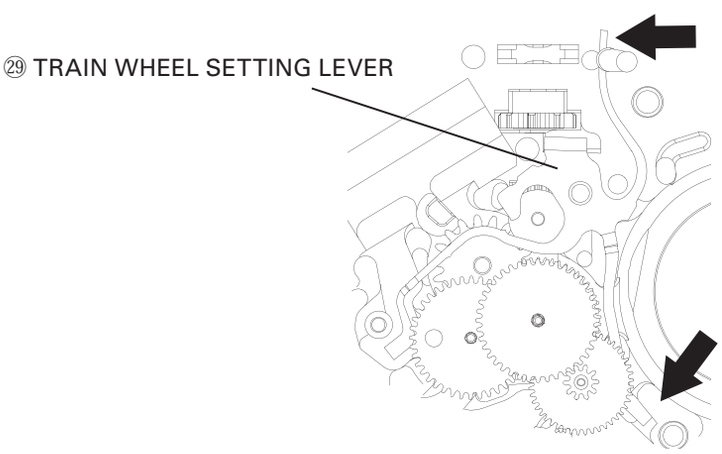




● Remarks for setting position of the TRAIN WHEEL SETTING LEVER

Notes:

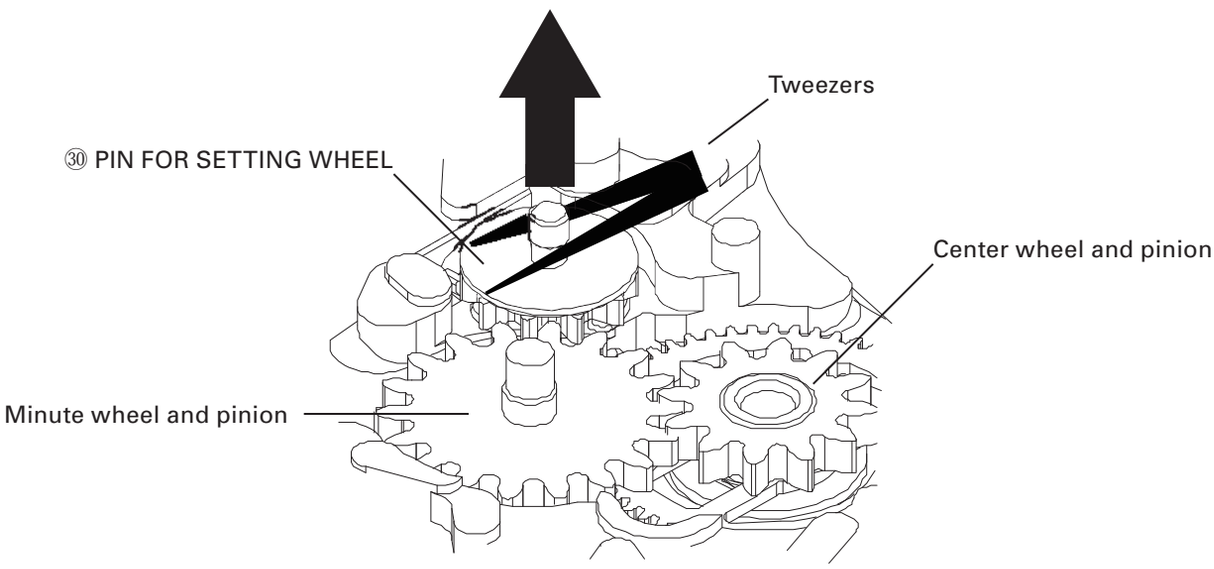
- Install the spring part of the train wheel setting lever to the pin as shown bellow.
- Take care not to deform the spring portion of the train wheel setting lever.



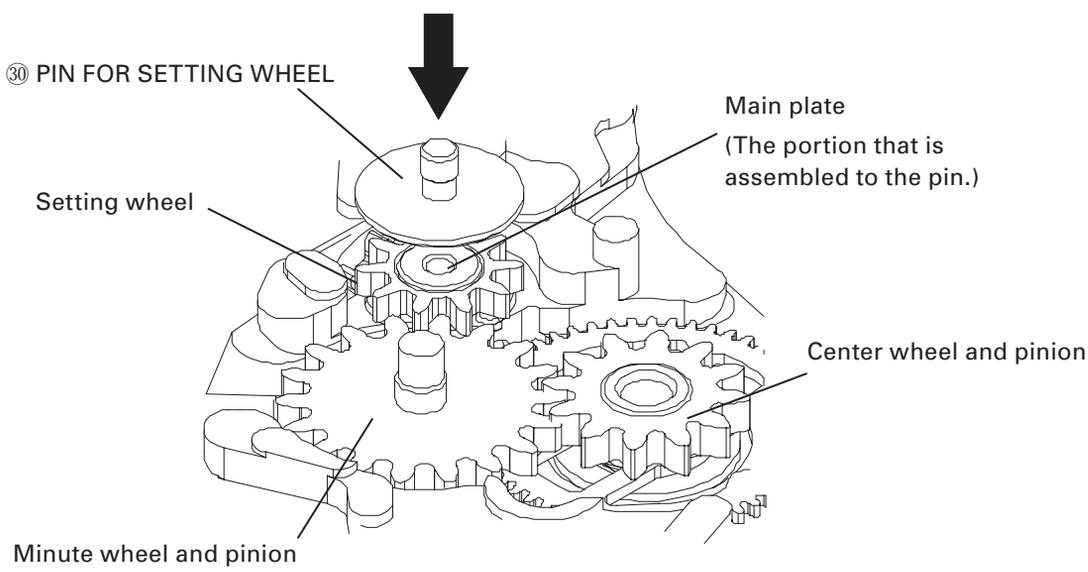
● **Remarks for disassembling and reassembling PIN FOR SETTING WHEEL**

Notes: In disassembling and reassembling, take care not to damage the portion that is assembled to the pin. (The portion that is assembled to the pin is made of plastics and can be damaged easily.)

1) In disassembling, pick up the pin vertically from the main plate with care.

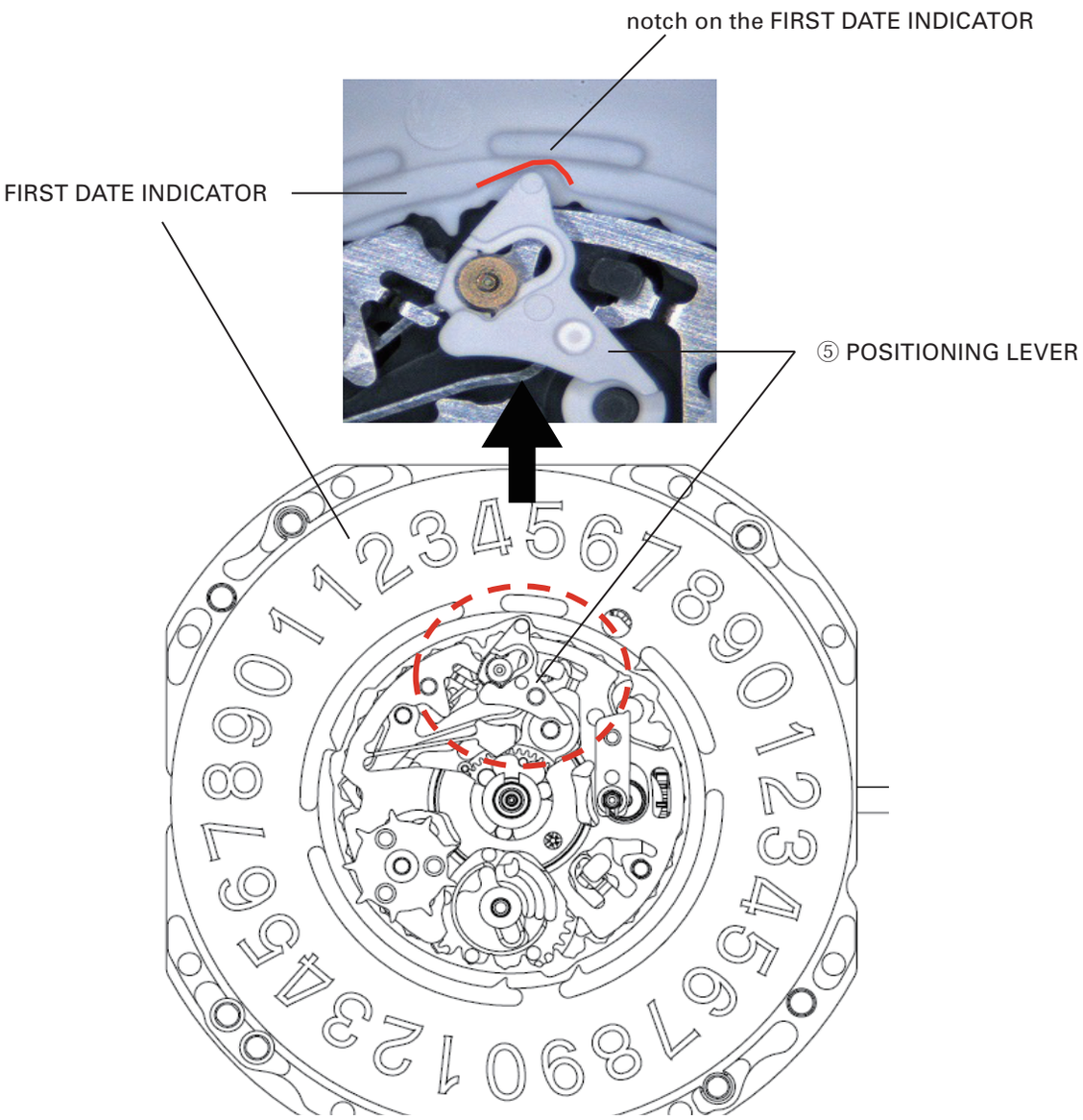


2) In reassembling, push the pin vertically to the main plate with care.



● **Remarks for disassembling and reassembling POSITIONING LEVER**

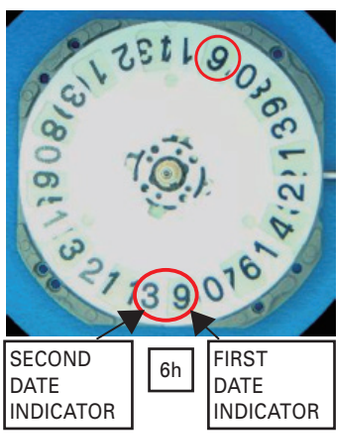
Notes: It can be dissassembled and reassembled only at notch on the first date indicator. (It is impossible to disassemble/reassemble at any other position.)



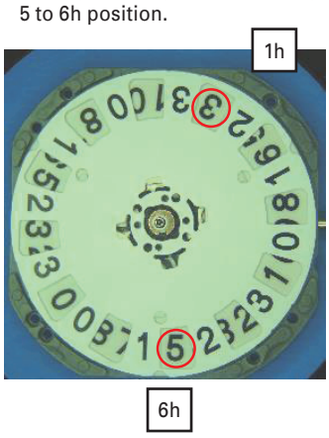
● How to set the FIRST DATE INDICATOR and the SECOND DATE INDICATOR

1) Calendar at 6 o'clock position

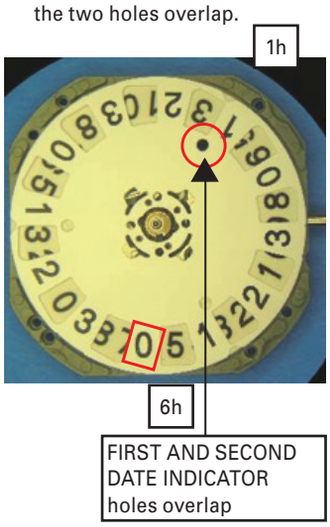
① First position at random



② First date indicator position setting: Pull out the crown to first click and turn the crown to set day 3 to 1h position and day 5 to 6h position.

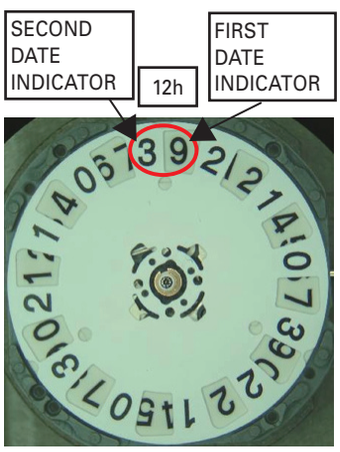


③ Second date indicator position setting: Rotate it in the clockwise direction by touching on its surface with finger until the two holes overlap.

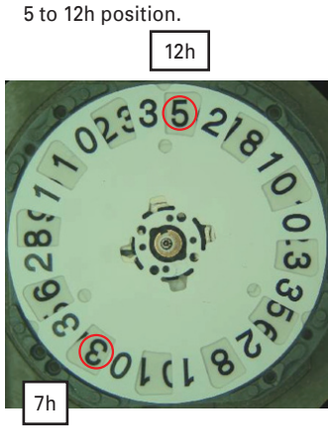


2) Calendar at 12 o'clock position

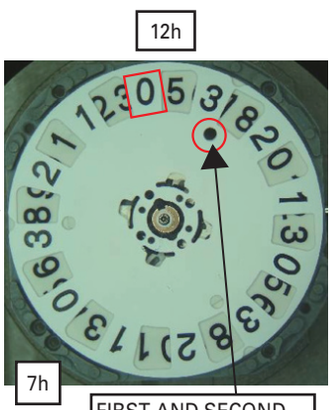
① First position at random



② First date indicator position setting: Pull out the crown to first click and turn the crown to set day 3 to 7h position and day 5 to 12h position.

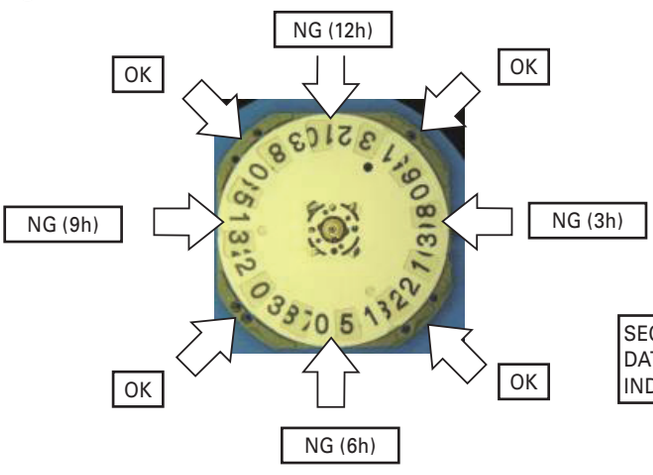


③ Second date indicator position setting: Rotate it in the clockwise direction by touching on its surface with finger until the two holes overlap.

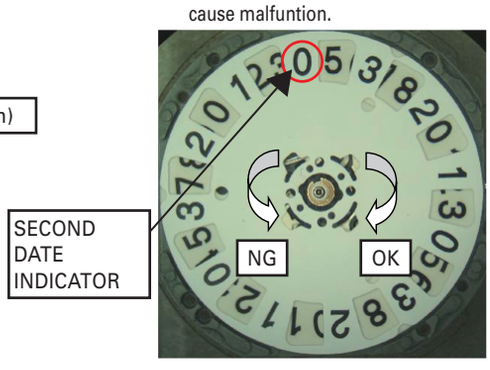


Notes:

① Positions to take hold of the movement



② Second date indicator may only be rotated in the clockwise direction. If rotated counterclockwise, it may cause malfuntion.



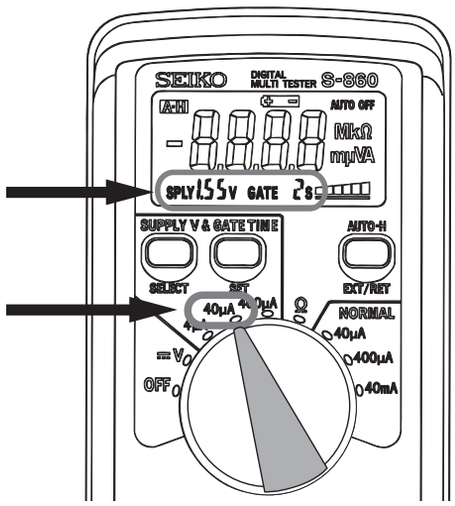
REMARKS ON INSPECTION AND MEASUREMENT

● How to measure the current consumption for the whole movement

1. To measure the current consumption for the whole movement, connect the (-) probe to the battery connection (-) and (+) probe to the other metal part of the movement, such as battery clamp or circuit block cover.

* When measuring the current consumption using the SEIKO digital multi-tester (S-860), use the range of 40 μA of SUPPLY V (= 1.55 V) & GATE TIME (2 S).

2. Connect the AC component to the positive terminal for 2 seconds until a short circuit occurs to reset the integrated circuit.
3. After the integrated circuit is reset, wait approximately for 10 seconds until a stable measurement is obtained, and then read the measurement.
4. Make sure the read value is less than 0.83 μA.



● How to measure the current consumption for the CIRCUIT BLOCK alone

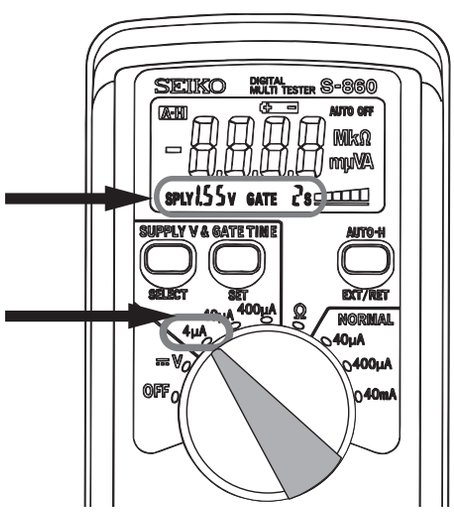
1. To measure the current consumption for the CIRCUIT BLOCK alone, connect each probe to the appropriate positive (+) or negative (-) input terminal of the CIRCUIT BLOCK (please refer to "Structure of the CIRCUIT BLOCK" below).

* When measuring the current consumption using the SEIKO Multi-Tester S-860, use the range of 4 μA of SUPPLY V (= 1.55 V) & GATE TIME (2 S).

2. Repeat the same procedures as 2. and 3. of measuring current consumption for the whole movement above.

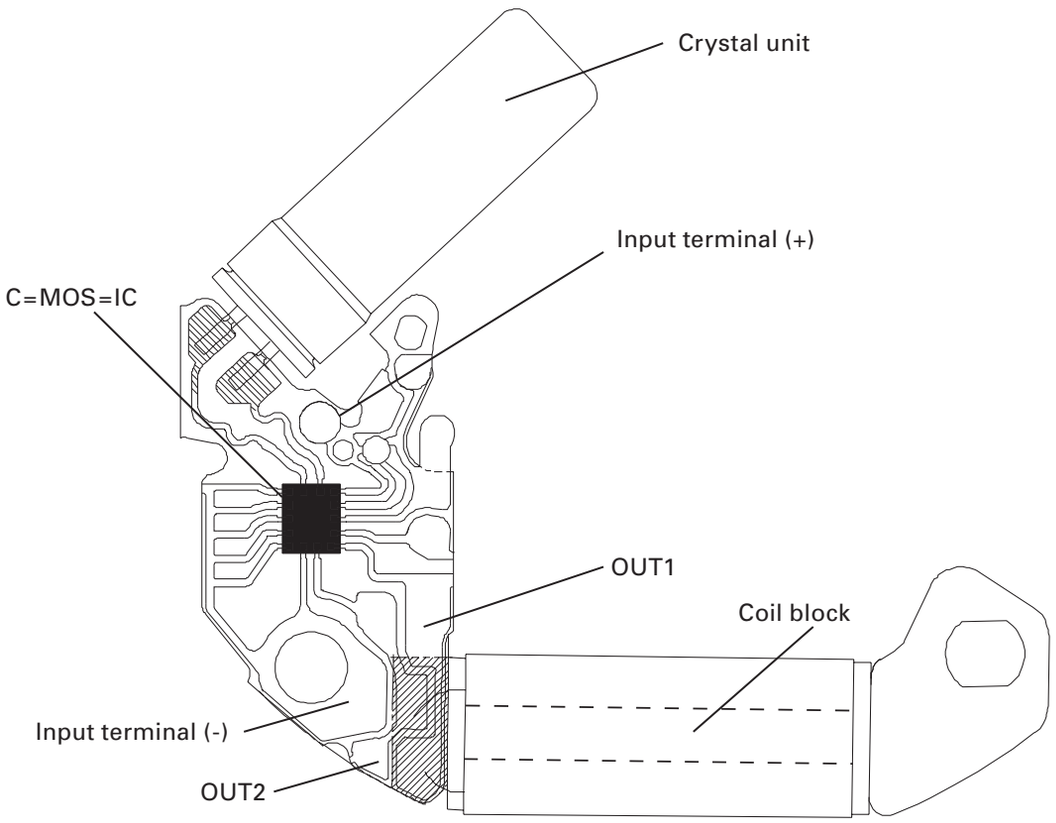
* When measuring the current consumption for the circuit block alone, be careful not to damage or deform the pattern of the circuit block.

3. Make sure the read value is less than 0.27 μA.



[Structure of the CIRCUIT BLOCK]

Notes: Since the circuit block and coil block are made by one piece, in disassembling and reassembling take care not to cut the coil line.



Coil resistance can be measured by touching on "OUT 1" and "OUT 2."

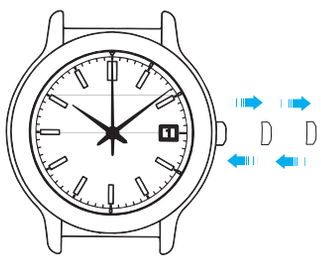
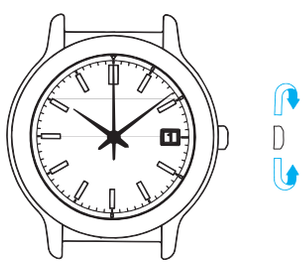
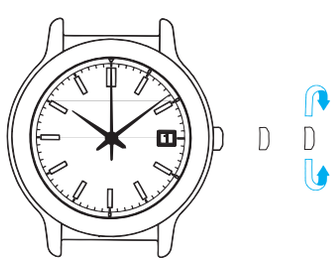
● **Value checking – coil resistance (coil blocks)**

Check the resistance of each coil block if they are within the range in the following table.

CIRCUIT BLOCK WITH COIL BLOCK COIL	4004274	2.1 KΩ ~ 2.3 KΩ

REMARKS ON INSPECTION AND MEASUREMENT

● **Function check**

Operation		Function	Checkpoint
	Pull out the crown to the 2nd click and push it back in to the normal position. Repeat the same several times.	Setting mechanism - switching the function of the time setting	Make sure that it has a click at each position and the stem is not pulled off.
	Pull out the crown to the 1st click, then turn it.	Calendar mechanism - correcting the date (and day), if available	Make sure that the date (and day) changes smoothly.
	Pull out the crown to the 2nd click, then turn it.	Setting mechanism - hour and minute hand setting	Make sure that the hour and minute hands move smoothly (without touching each other or touching the surface of the dial or inside of the glass).
		Hands installation	
		Calendar mechanism - date change	Make sure that the date changes when the hour and minute hands pass around midnight.

Note:

The design of the calendar in the above images are different from 6N76A, but function checking process for 6N76A is same as the basic caliber.

● **Water resistance test**

Check the water resistance according to the designated specification of the watch.

Marking on the case back	Test method	Applied pressure
WATER RESISTANT (WATER RESIST)	Air leak test	3 BAR
WATER RESIST 5BAR	Water pressure test → Condensation test	5 BAR
WATER RESIST 10BAR		10 BAR
WATER RESIST 15BAR		15 BAR
WATER RESIST 20BAR		20 BAR
SCUBA DIVER'S (AIR DIVER'S) 150 m	Condensation test → Water pressure test → Condensation test	18.75 BAR = 150 (m) times 0.125
SCUBA DIVER'S (AIR DIVER'S) 200 m		25 BAR = 200 (m) times 0.125
He-GAS DIVER'S 300 m		37.5 BAR = 300 (m) times 0.125
He-GAS DIVER'S 600 m		75 BAR = 600 (m) times 0.125
He-GAS DIVER'S 1000 m		125 BAR = 1000 (m) times 0.125

TROUBLESHOOTING

	Symptom	Possible causes	Solutions
Movement	The watch stops operating.	The battery has been depleted.	Measure the battery voltage. Replace the battery with a new one.
		The hour wheel and the pinion of the minute wheel are not properly engaged. (Or the teeth of the hour wheel and/or minute wheel have been broken.)	Check the relevant parts, and replace the damaged parts with new ones.
		The hooking portions of the circuit block cover are not properly engaged, resulting in poor conductivity. The coil is broken.	Securely attach the hooks of the circuit block cover to the main plate. Measure the coil block resistance. Replace the coil with a new one.
		One or more wheels have been contaminated with dirt, dust or other particles. An excessive amount of oil in the movement has caused adhesive forces among the parts. (wringing)	Remove dirt or dust and clean the contaminated wheels. Be careful so as not to damage the teeth of the plastic parts while cleaning.
	The current consumption for the whole movement exceeds the standard value.	Dirt, dust or foreign particles are adhered to the movement.	Remove dirt, dust or foreign particles and clean the movement.
		The driving pulse is generated in order to compensate the excessive load applied to the wheels. (The oil has deteriorated, leaked or run out.)	If the current consumption for the circuit block alone is within the standard value range, overhaul and clean the movement parts, and then make the measurement again.
	The current consumption for the circuit block alone exceeds the standard value.	The light from outside the movement is affecting the measurement.	Shut out the light, and make the measurement again.
		There is a defect in the IC (integrated circuit).	Replace the circuit block with a new one.
Exterior parts	The crown falls off.	The winding stem is not securely installed. (The setting lever and yoke are disengaged.)	Check the main plate, winding stem, setting lever and yoke. Replace the defective parts with new ones.
	The current consumption exceeds the standard value.	An excessive load is being applied due to friction among the hour, minute and second hands.	Adjust or remount the relevant hands.
	Small amount of water/blur inside of the glass persists.	Water resistance is deteriorated. The watch has been subjected to water pressure that exceeds the guaranteed degree.	Investigate the causes to take necessary measures, while cleaning inside of the watch.