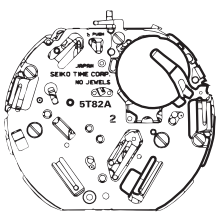
PARTS CATALOGUE/TECHNICAL GUIDE

Cal. 5T82A

[SPECIFICATIONS]

Item \ Cal. No.		5T82A
Movement		  (x 1.0)
Movement size	Outside diameter	Ø 27.6 mm
	Casing diameter	Ø 27.0 mm
	Height	3.3 mm
Time indication (Movement intervals)		Main time: Hour, minute and small second hands (1 second)
		• WORLD TIME: City hand (24 cities), WORLD TIME hour hand, WORLD TIME minute hand • ALARM: ALARM hour hand ALARM minute hand
Driving system		Step motor 4 pcs.
Additional mechanism		• Electronic circuit reset switch • Train wheel setting device • Date calendar • Instant setting device for date calendar • Battery life indicator (The small second hand moves at two-second intervals.) • System reset
		• WORLD TIME 24 cities WORLD TIME hand position adjustment • ALARM function Single-time ALARM
Loss/gain		Monthly rate at normal temperature range: less than 15 seconds
Regulation system		Nil
Measuring gate by quartz tester		Use 10-second gate.
Battery	Battery No.	SR927W
	Voltage	1.55 V
	Battery life	Approx. 3 years
Jewels		Nil

SEIKO WATCH CORPORATION

REMARKS ON REPAIRING CAL. 5T82A

The basic movement structures of Cal. 5T82A is similar to the previous Cal. 7T Series watches, and the knowledge and technique you have gained in handling the previous Cal. 7T Series watches will come in handy when you repair Cal. 5T82A.

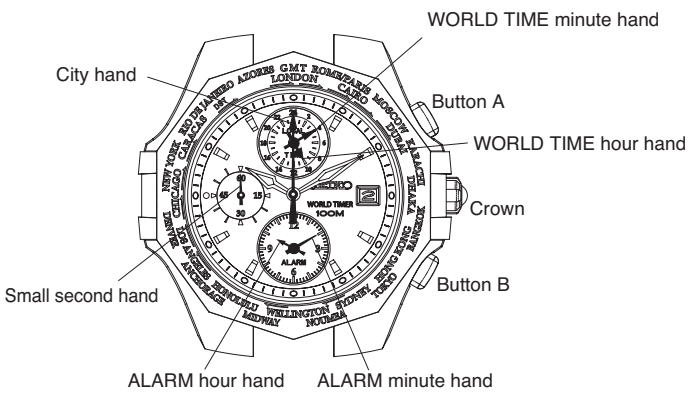
When repairing, however, you are requested to have the full knowledge of the features characteristic of these watches and strictly observe the repairing and checking instructions provided in this guide so that the watches will be repaired correctly.

I. FEATURES

As Cal. 5T82A has new movement structures, the operating procedures for ALARM setting, time setting, and ALARM hand position adjustment differ from those of the previous Cal. 7T Series watches.

As a result of this structure change, the battery life of Cal. 5T82A has increased to 3 years as compared with that of the previous Cal. 7T series watches.

Cal. 5T82A
WORLD TIME



1. ALARM FUNCTION

- The ALARM sounds only once at a designated time within the coming 12 hours and it is automatically disengaged.
- Pushing the crown back into the normal position after setting the ALARM will prevent the set ALARM time from changing by an accidental pressing of the button.

2. WORLD TIME FUNCTION

- Apart from the main time, the time in the city selected by the city hand is displayed with the designated WORLD TIME hands.
- The time in 24 cities is displayed in the 24-hour indication.

● **Button operation (Crown position: Original position)**

WORLD TIME city selection (turn clockwise)

WORLD TIME city selection (turn counterclockwise)

3. SYSTEM RESET

When an abnormal display appears, reset the built-in integrated circuit. The watch will resume its normal operation.

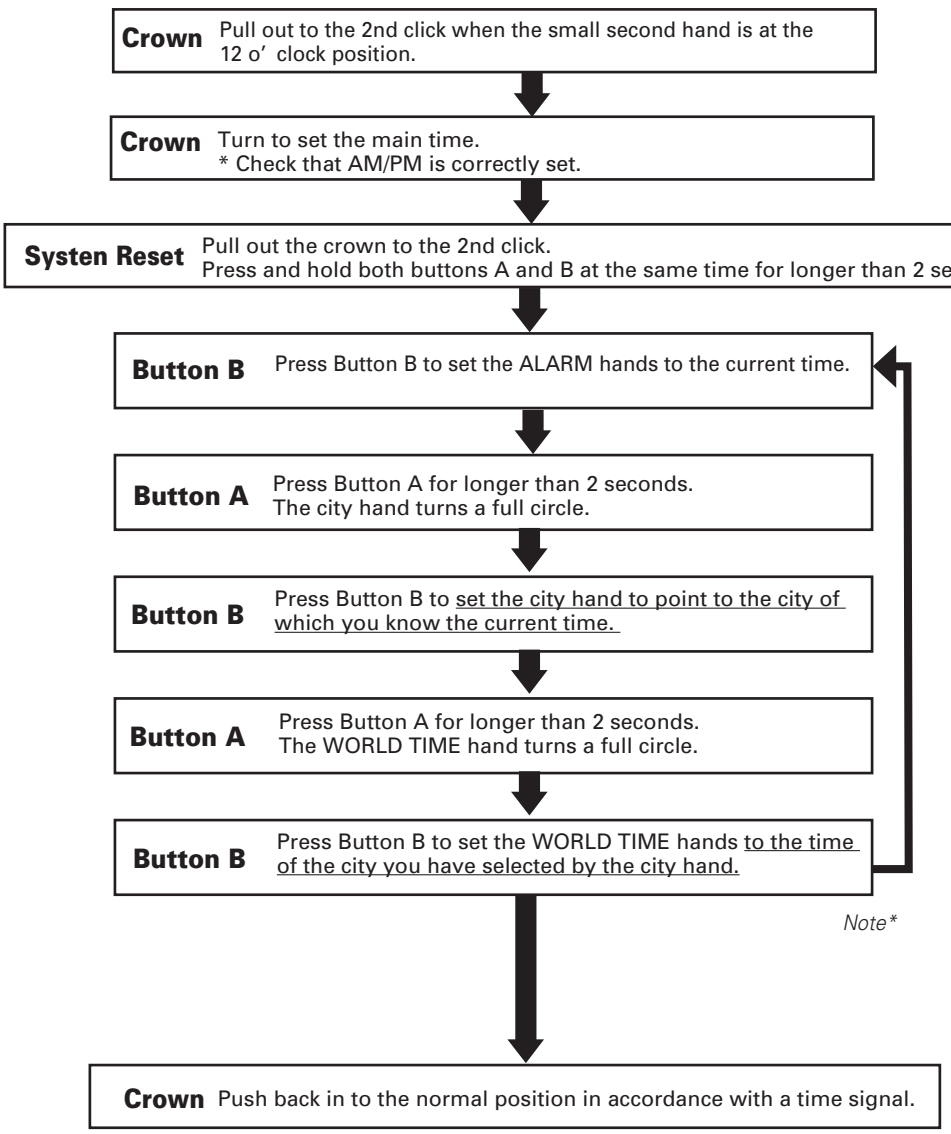
● **Button operation (Crown position: Second click)**

Press and hold buttons A and B at the same time for longer than 2 seconds.

REMARKS ON REPAIRING CAL. 5T82A

II. NECESSARY PROCEDURE AFTER BATTERY CHANGE

After installing the battery, reset the built-in integrated circuit, and then **set the time and adjust the ALARM and WORLD TIME hand positions** following the procedure below.



*Note** *Pressing Button A for longer than 2 seconds here will allow you to resume the procedure again as indicated by the arrow if neccessary.*

PARTS CATALOGUE

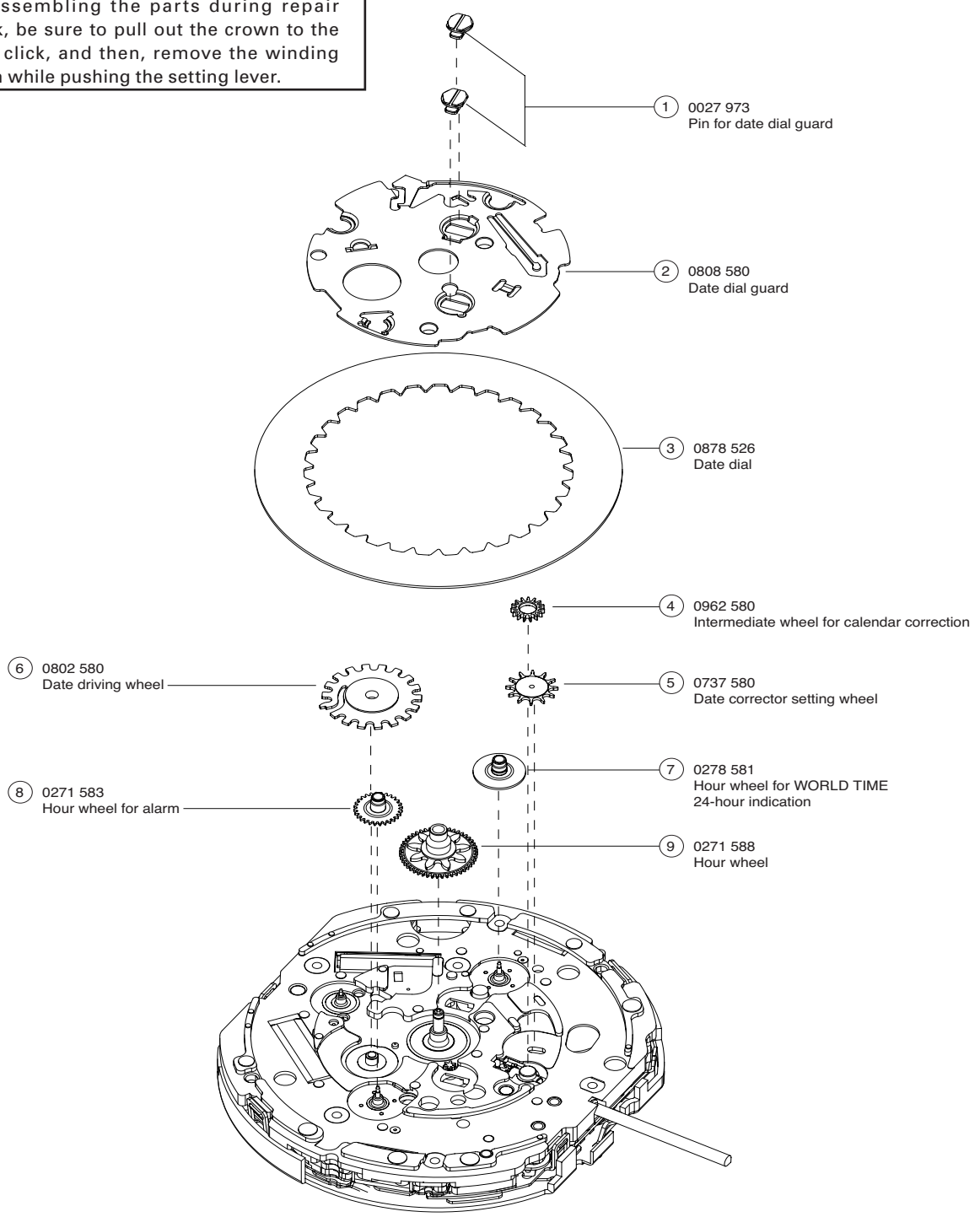
Disassembling procedures Figs. : (1) → (59)

Reassembling procedures Figs. : (59) → (1)

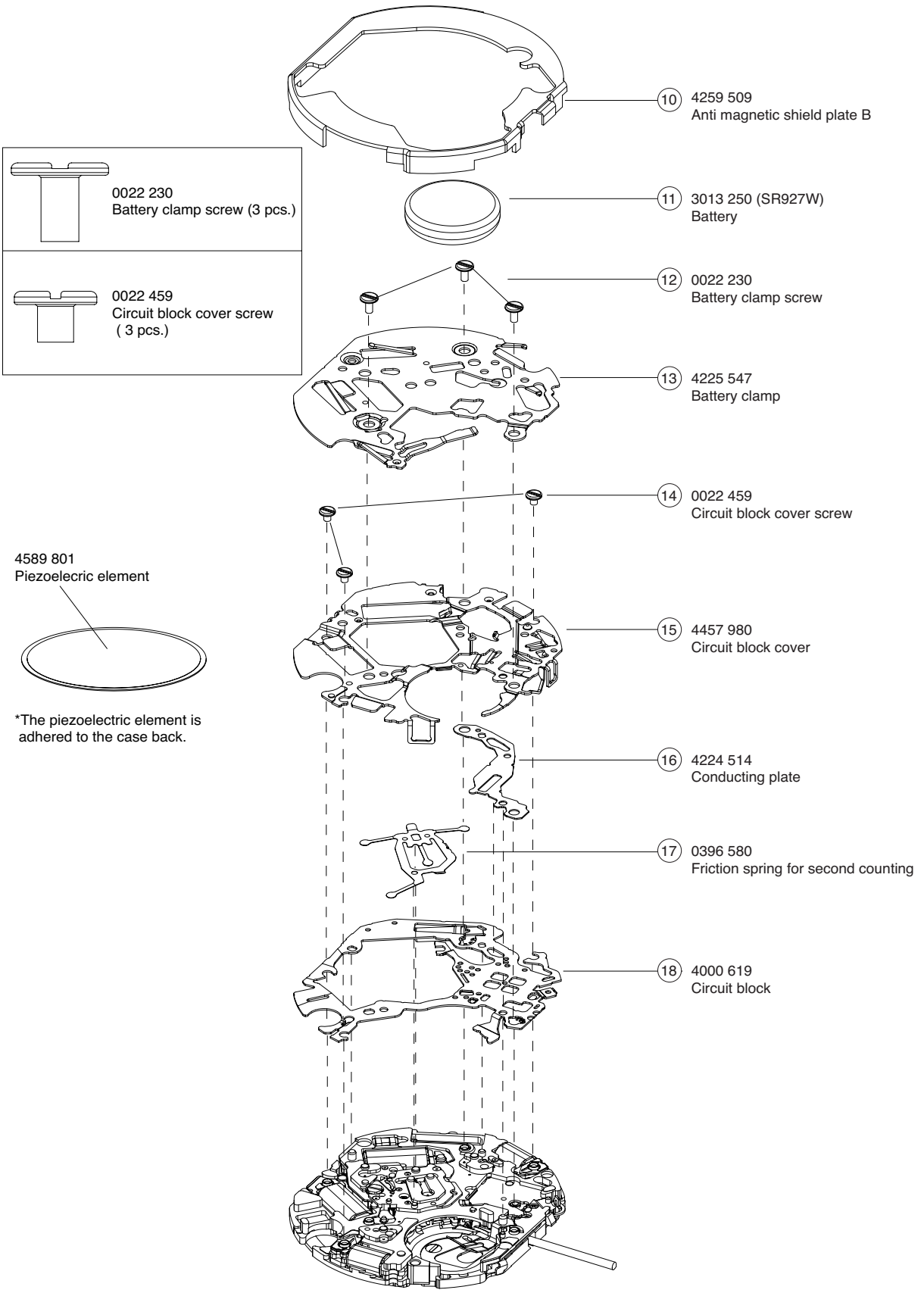
* For the type of oil and quantity of lubrication, refer to the following TECHNICAL GUIDE section.

Remarks on removing the winding stem

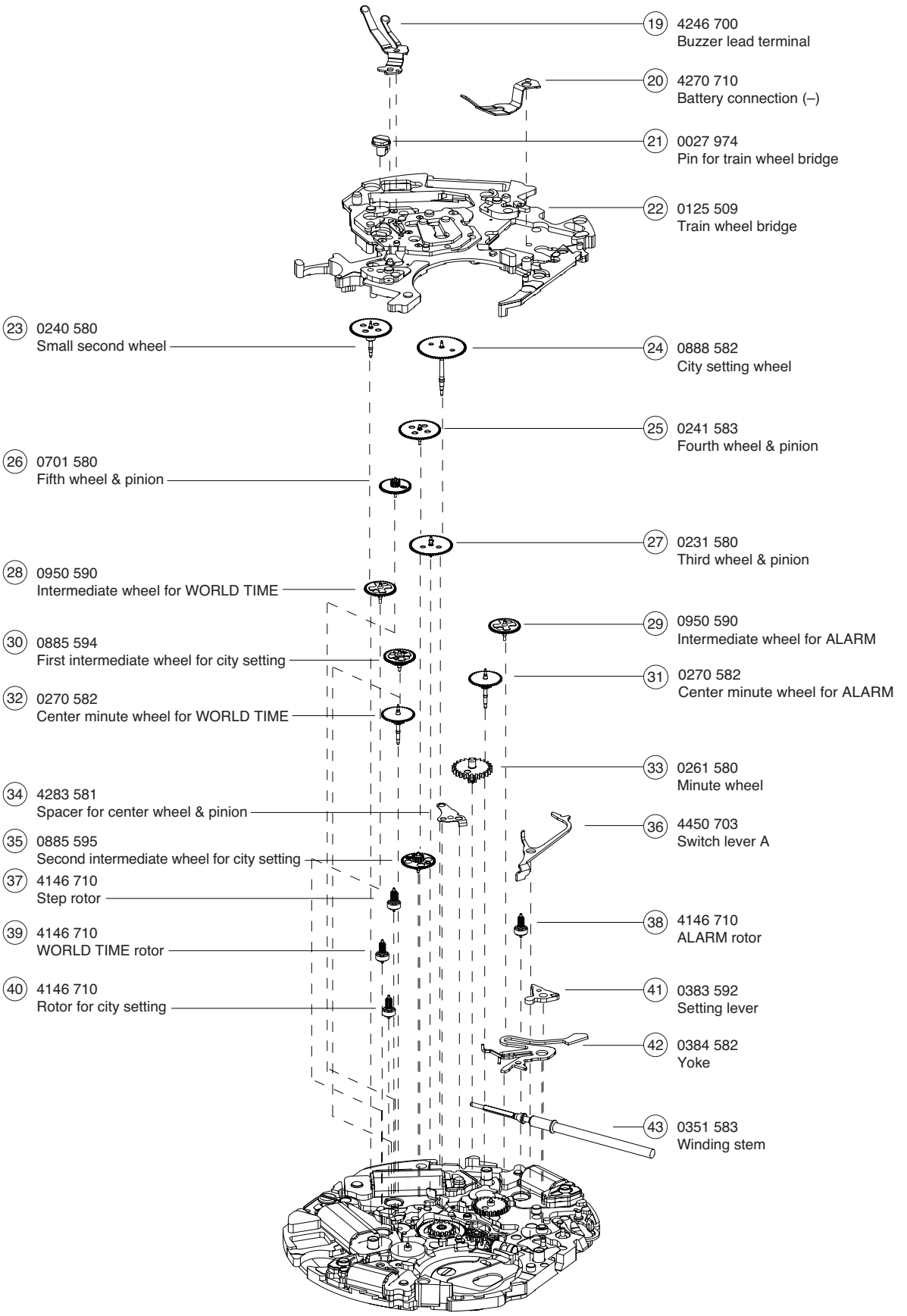
To remove the winding stem when taking out the movement from the case or while disassembling the parts during repair work, be sure to pull out the crown to the first click, and then, remove the winding stem while pushing the setting lever.



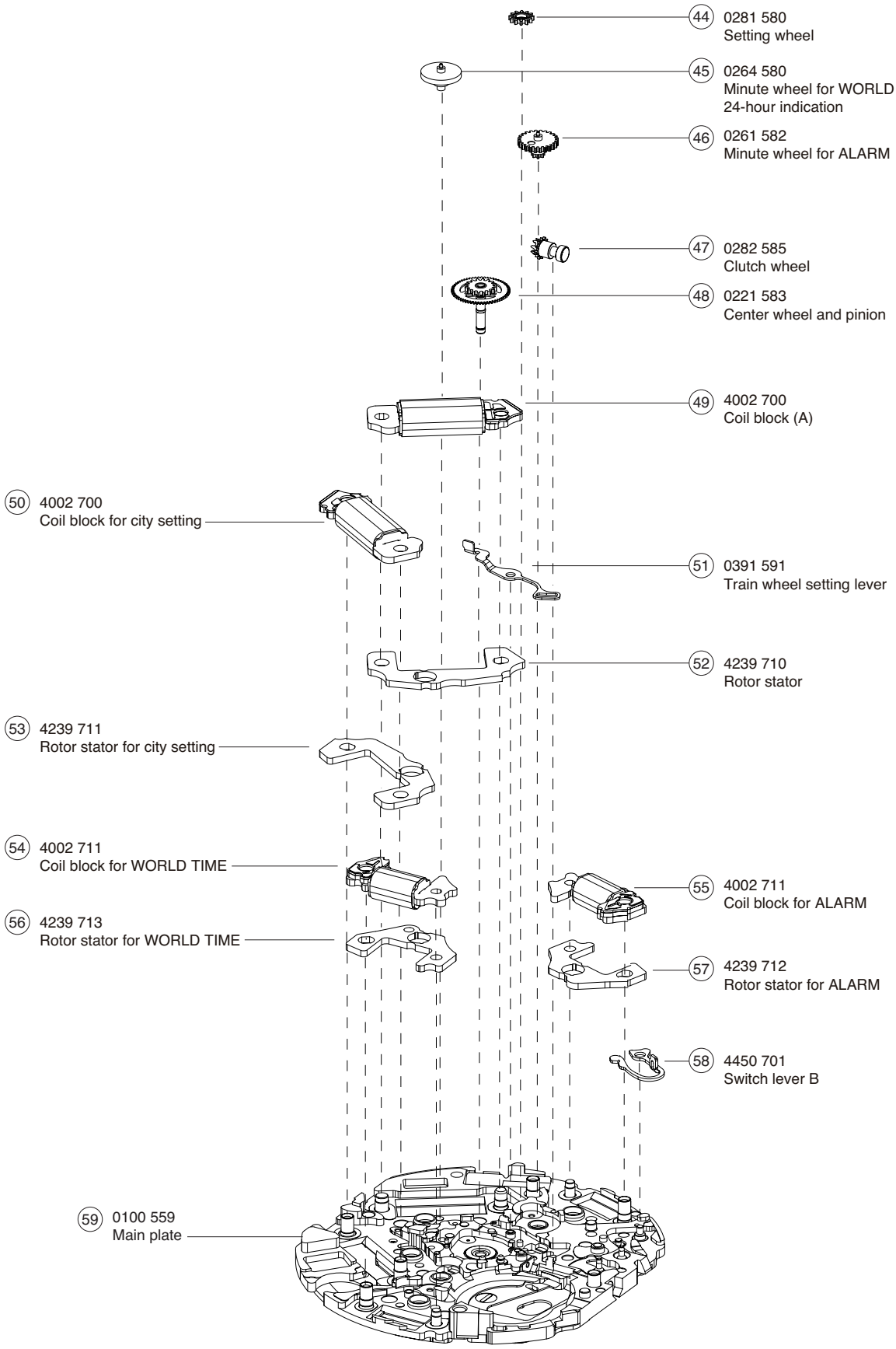
Lubricating of some parts is shown in “II. REMARKS ON DISASSEMBLING AND REASSEMBLING.”



Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING."



Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING."



Lubricating of some parts is shown in “II. REMARKS ON DISASSEMBLING AND REASSEMBLING.”

Remarks

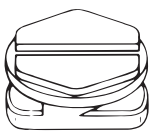
The correct parts for the followings are determined based on the design of cases. Check the case number, and refer to "Watch Parts Catalogue CD-ROM" to choose corresponding parts.

✳	Holding ring for dial	(0866 651)
③	Date dial	(0878 526)
㊸	Winding stem	(0351 583)

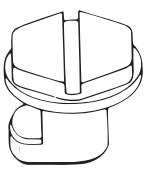
- **Point of distinction**

  Refer to the illustrations below to see the difference between those two types of pins.

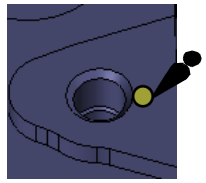
① Pin for date dial guard
0027 973

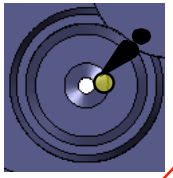


22 Pin for train wheel bridge
0027 974



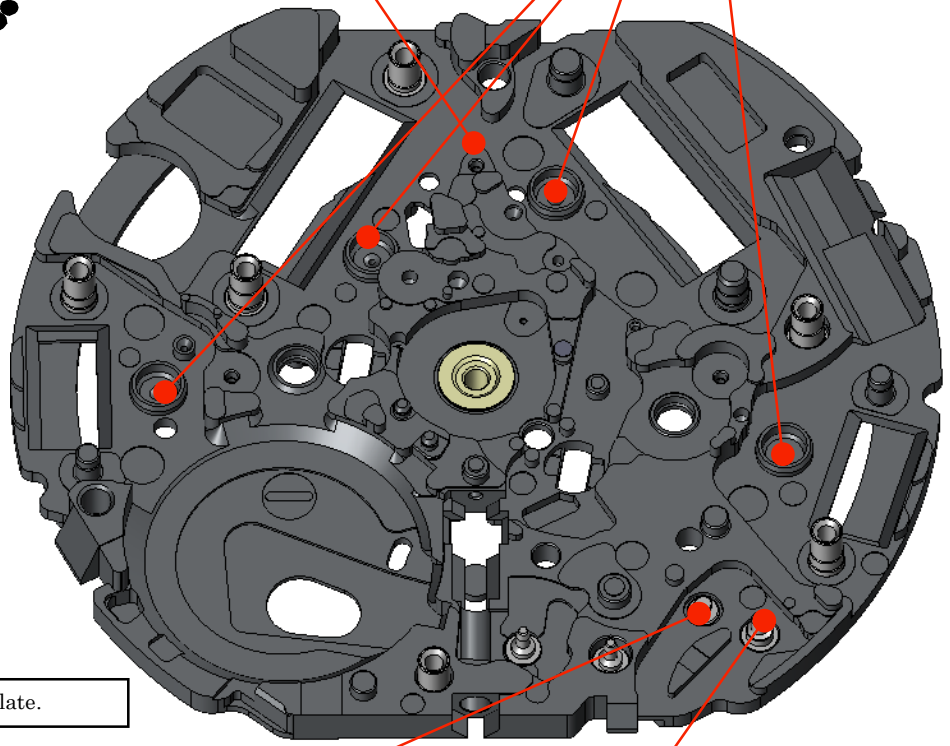
No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Assembling the switching unit and wheels	
59	Set the main plate.	
	↓	
	Lubricate the lower pivots of the rotors.	
	↓	
	Lubricate the contact area between the small second wheel and main plate.	
	↓	
	Lubricate the point of engagement of the switch lever B.	
	↓	
	Lubricate the axis of the switch lever B.	



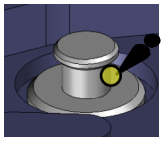


Lubricate the contact area between the small second wheel and main plate: Moebius F or AO-2

Lubricate the lower pivots of the rotors: Moebius F or AO-2



<59> Set the main plate.

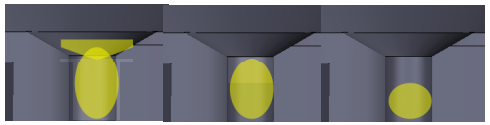


Lubricate the point of engagement of the switch lever B: S-6

Lubricate the axis of the switch lever B: Moebius V or AO-3

<Amount of lubricant>

Refer to the illustrations below to see the right amount of lubricant.

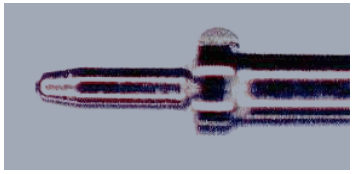


(a) (b) (c)

(a) Overlubricated×
(b) Appropriately lubricated◎
(c) Underlubricated×

Appropriate amount◎ (Stone)

Appropriate amount◎ (Convex part)

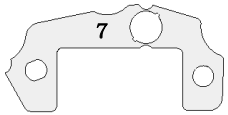


Appropriate amount◎ (S-6)

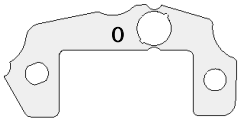
NO.	PROCESS
58	Set the switch lever B.
	↓
56	Set the rotor stator for WORLD TIME
	↓
	Lubricate the axis of the setting wheel.
	↓
57	Set the rotor stator for ALARM.
	↓
55, 54	Set the coil blocks for ALARM and WORLD TIME.
	↓
53, 52	Set the rotor stator for city setting, and rotor stator.
	↓
51	Set the train wheel setting lever.
	↓
50, 49	Set the coil block for city setting and the coil block (A).

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

＜53, 52＞
Rotor stator for city setting

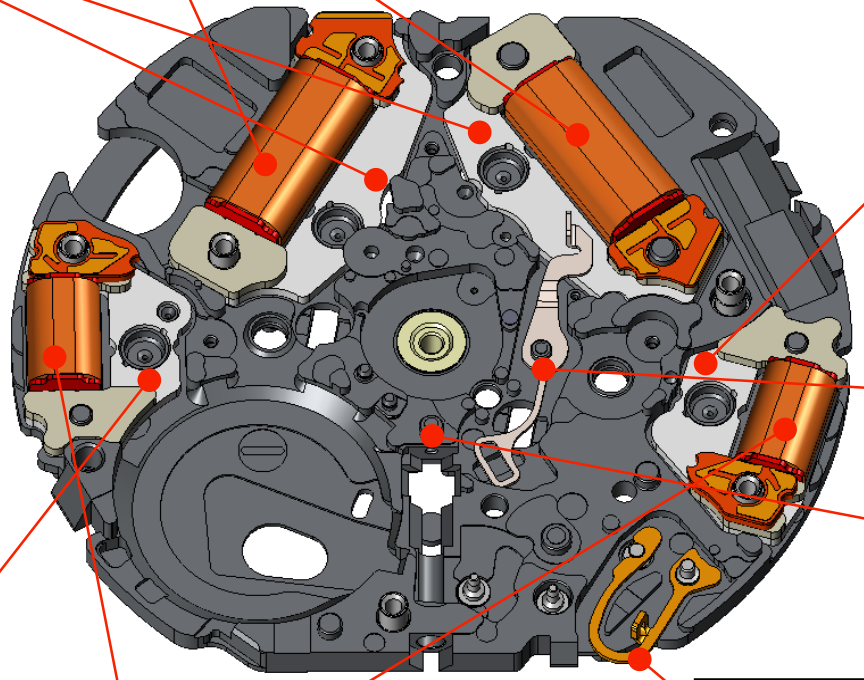


Discrimination number : 7
Set the rotor stator.

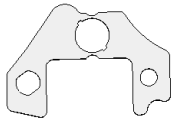


Discrimination number : 0

＜50, 49＞ Set the coil block for city setting and the coil block (A).
Coil resistance: 2.10 KΩ～2.70 KΩ

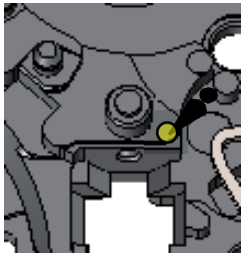


＜57＞
Set the rotor stator for ALARM.

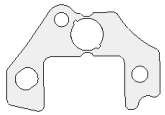


＜51＞
Set the train wheel setting lever.

Lubricate the axis of the setting wheel: Moebius V or AO-3



＜56＞
Set the rotor stator for WORLD TIME.



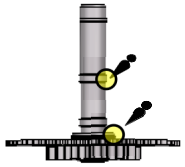
＜58＞
Set the switch lever B.

＜55, 54＞
Set the coil blocks for ALARM and WORLD TIME.
Coil resistance: 1.80 KΩ～2.40 KΩ

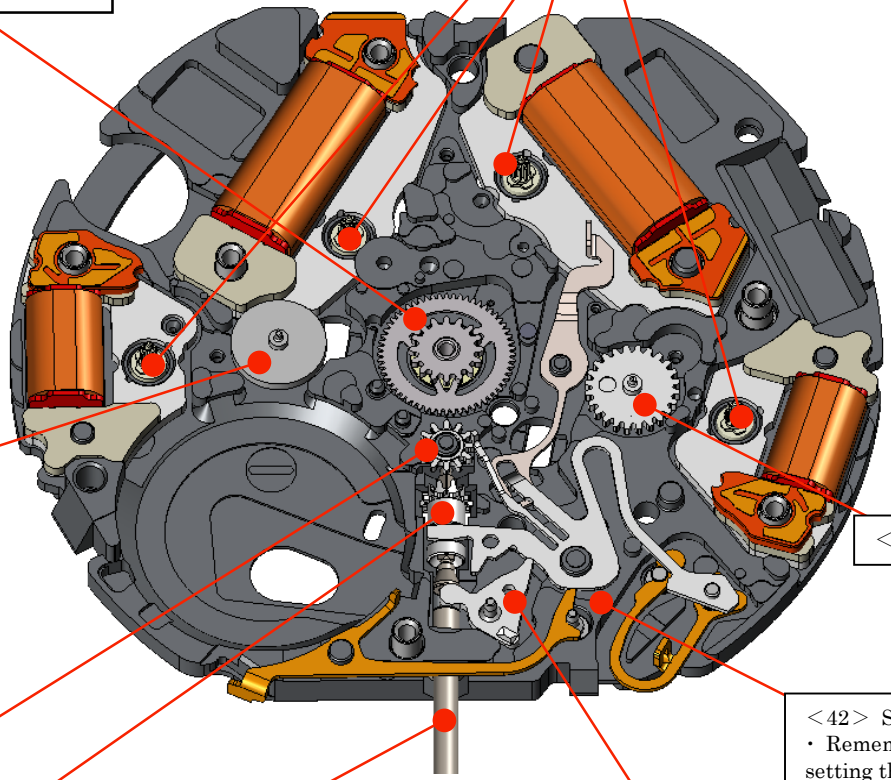
NO.	PROCESS
48	Set the center wheel & pinion and lubricate its convex part and inner edge of the ring.
	↓
47	Set the clutch wheel.
	↓
46	Set the minute wheel for ALARM.
	↓
45	Set the minute wheel for WORLD TIME 24-hour indication.
	↓
44	Set the setting wheel.
	↓
43	Set and lubricate the winding stem.
	↓
42	Set the yoke.
	↓
41	Set the setting lever.
	↓
40, 39	Set the rotor for city setting and the WORLD TIME rotor.
38, 37	Set the ALARM rotor and step rotor.

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

＜48＞
Set the center wheel & pinion and lubricate as illustrated below.（2 points）：Moebius AII or AO-3

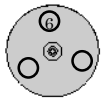


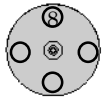
＜40, 39, 38, 37＞ Set the rotor for city setting, WORLD TIME rotor, ALARM rotor and step rotor.



＜45＞ Set the minute wheel for WORLD TIME 24-hour indication.

＜46＞ Set the minute wheel for ALARM.





White

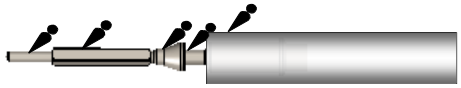
＜42＞ Set the yoke.
・ Remember to install the winding stem before setting the yoke. Otherwise the spring of yoke will lift the clutch wheel upward.

The reset spring of the yoke is easily deformable. Handle it with extra care as deformation of the spring can cause reset failure as well as mode change malfunction.

＜44＞Set the setting wheel.

＜43＞ Set and lubricate the winding stem:
Lubricate the entire profile of the winding stem with Moebius V or AO-3.

＜47＞Set the clutch wheel.



＜41＞ Set the setting lever.
・Crown at the normal position.

No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Lubricate the switching unit.	
	① Point of contact between the train wheel setting lever and yoke.	
	② Point of contact in the tail portion of the yoke.	
	③ Point of contact between the yoke and setting lever.	
	④ Axis of the setting lever	
	⑤ Axis of the switch lever A	
	⑥ Point of engagement of the switch lever A	
36	Set the switch lever A.	

Lubricate the point of contact between the train wheel setting lever and yoke. (①) Lubricate the two points with either Moebius V or AO-3.

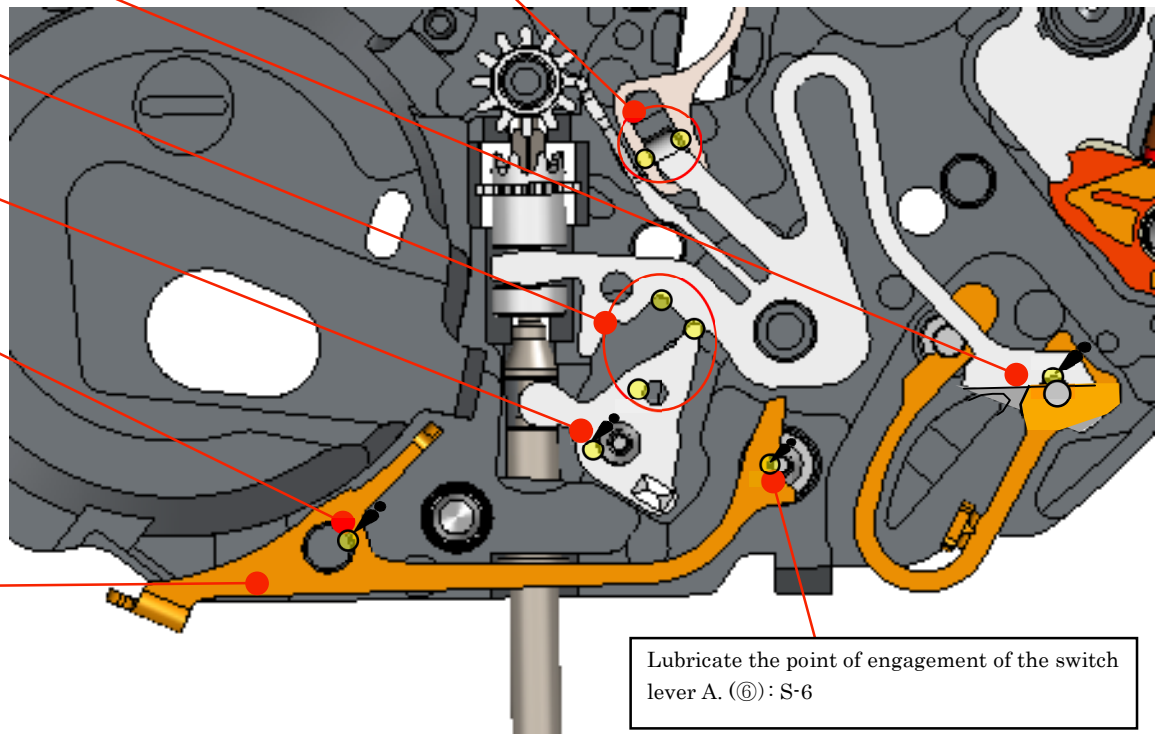
Lubricate the point of contact in the tail portion of the yoke. (②) : Moebius V or AO-3

Lubricate the point of contact between the yoke and setting lever. (③) : S-6

Lubricate the axis of the setting lever.(④) : S-6

Lubricate the axis of the switch lever A. (⑤) : S-6

<36> Set the switch lever A.



Lubricate the point of engagement of the switch lever A. (⑥) : S-6

NO.	PROCESS
35	Set the second intermediate wheel for city setting.
	↓
34	Set the spacer for center wheel & pinion.
	↓
33	Set the minute wheel.
	↓
32, 31	Set the center minute wheel for WORLD TIME and center minute wheel for ALARM.
	↓
	Lubricate the point of contact of the spacer for center wheel & pinion.
	↓
30	Set the first intermediate wheel for city setting.
	↓
29	Set the intermediate wheel for ALARM.
	↓
28	Set the intermediate wheel for WORLD TIME.
	↓
27, 26	Set the fifth wheel and pinion and third wheel and pinion.
	↓
25	Set the fourth wheel and pinion.
	↓
24	Set and lubricate the city setting wheel.
	↓
23	Set the small second wheel.

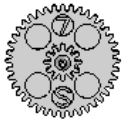
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

＜30＞ Set the first intermediate wheel for city setting.

Dark green

＜35＞ Set the second intermediate wheel for city setting.

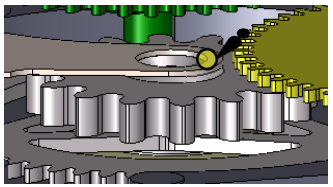
White

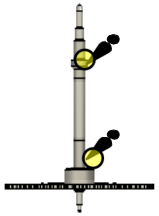


＜28＞ Set the intermediate wheel for WORLD TIME.

White

Lubricate the point of contact of the spacer for center wheel & pinion : Moebius A or AO-3





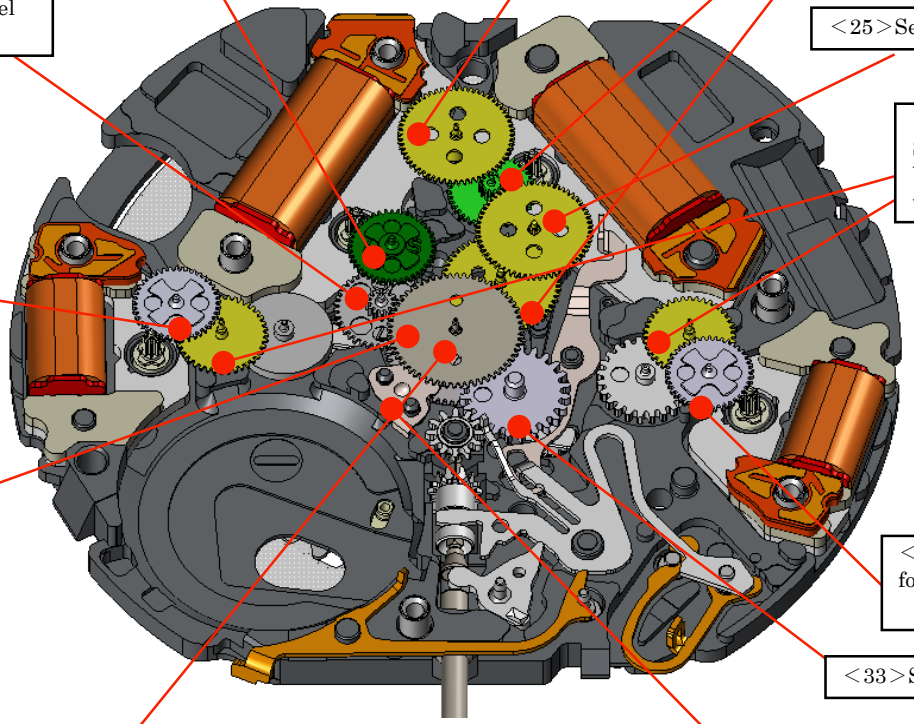
＜24＞
Set and lubricate the city setting wheel as illustrated above.
Lubricate the point of contact of the spacer for center wheel & pinion: Moebius A or AO-3.

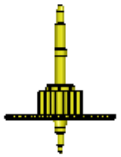
＜23＞ Set the small second wheel.

＜27, 26＞Set the fifth wheel and pinion and third wheel and pinion.

＜25＞Set the fourth wheel & pinion.

＜31, 32＞
Set the center minute wheel for WORLD TIME and center minute wheel for ALARM.





Center minute wheel for WORLD TIME

＜29＞ Set the intermediate wheel for ALARM.

＜33＞Set the minute wheel.

＜34＞ Set the spacer for center wheel & pinion.

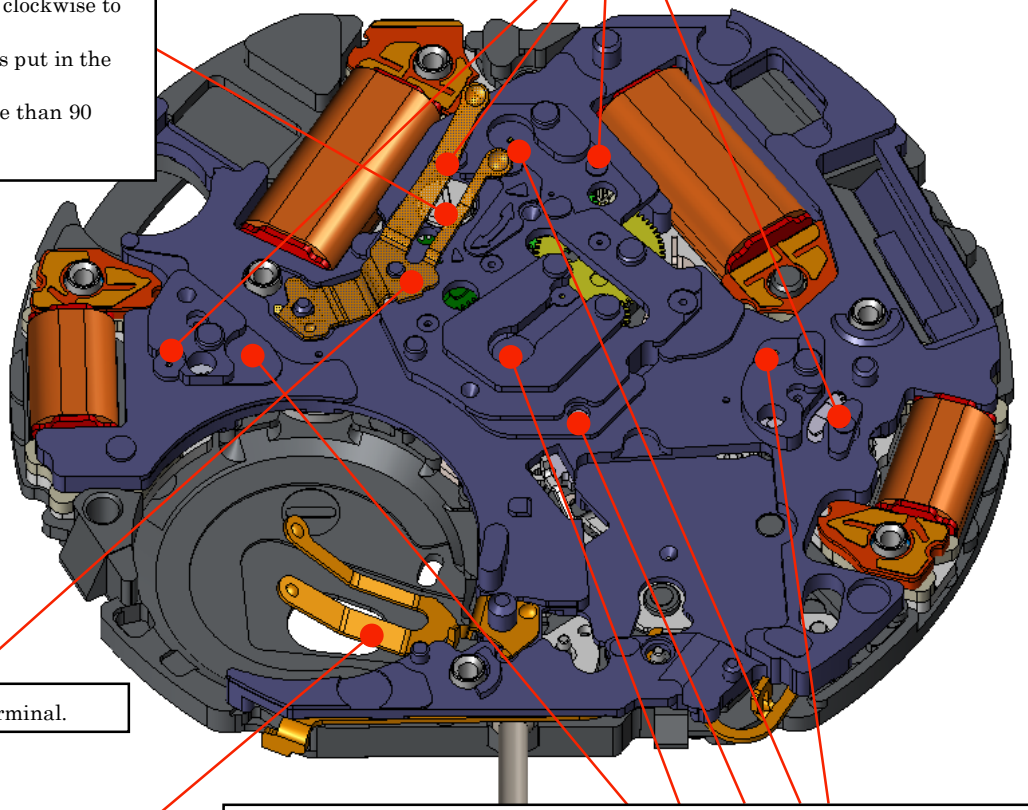
No.	PROCESS
22	Set the train wheel bridge.
	↓
21	Set the pin for train wheel bridge.
	↓
20	Set the battery connection (-)
	↓
	Lubricate the upper pivots of the rotor for city setting, WORLD TIME rotor, and ALARM rotor and step rotor.
	↓
19	Set the buzzer lead terminal.
	↓
＊1	Lubricate the upper pivots of the minute wheel, center minute wheel for ALARM, city setting wheel, center minute wheel for WORLD TIME and small second wheel.

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

<22> Set the train wheel bridge.

<21> Set the pin for train wheel bridge.
・ Turn the pin 90-degree clockwise to fix it using a screwdriver.
・Make sure that the pin is put in the correct direction.
※ Never turn the pin more than 90 degrees.

Lubricate the upper pivots of the rotor for city setting, WORLD TIME rotor, and ALARM rotor and step rotor : Moebius F or AO-2
※Lubricate the upper pivot of each rotor (at four points) illustrated below.

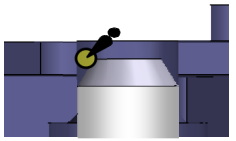


<19> Set the buzzer lead terminal.

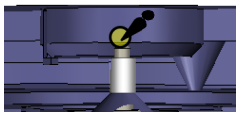
<20> Set the battery connection (-).

Lubricate the upper pivots of the minute wheel, center minute wheel for ALARM, city setting wheel, minute wheel for WORLD TIME and small second wheel: Moebius F or AO-2.

Upper pivot of the rotor



Minute wheel



Other portions

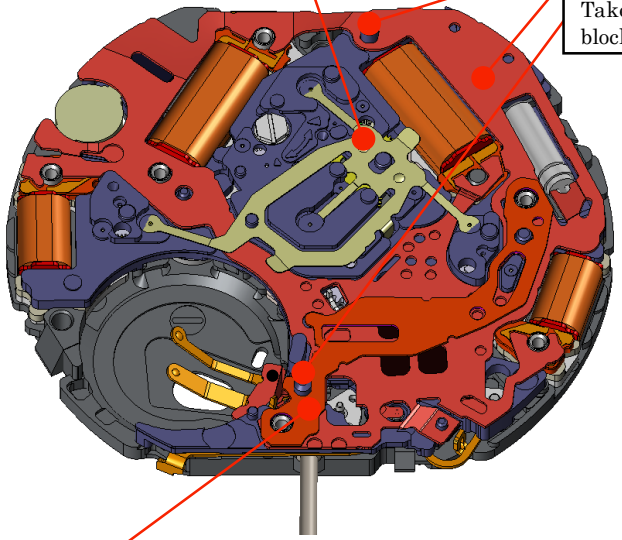
*1 : The upper pivot of the minute wheel for WORLD TIME should be additionally lubricated.
5 points to be lubricated as illustrated above.

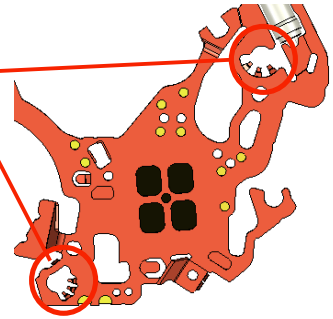
NO.	PROCESS
	Assembling the circuit unit
18	Set the circuit block.
	↓
17	Set the friction spring for second counting.
	↓
16	Set the conducting plate.
	↓
15	Set the circuit block cover.
	Securely engage the four hooks.
	↓
14	Tighten the circuit block cover screws.
	(3 positions)

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

＜17＞ Set the friction spring for second counting.

＜18＞Set the circuit block.
Make sure that the circuit block is securely engaged with the two guide pins of the train wheel bridge.
Take care so as not to deform these parts while setting the circuit block.

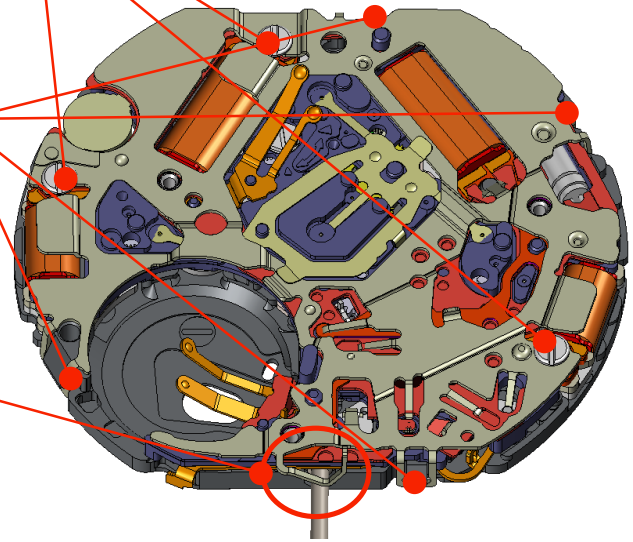




＜14＞ Tighten the circuit block cover screws (3 positions.)

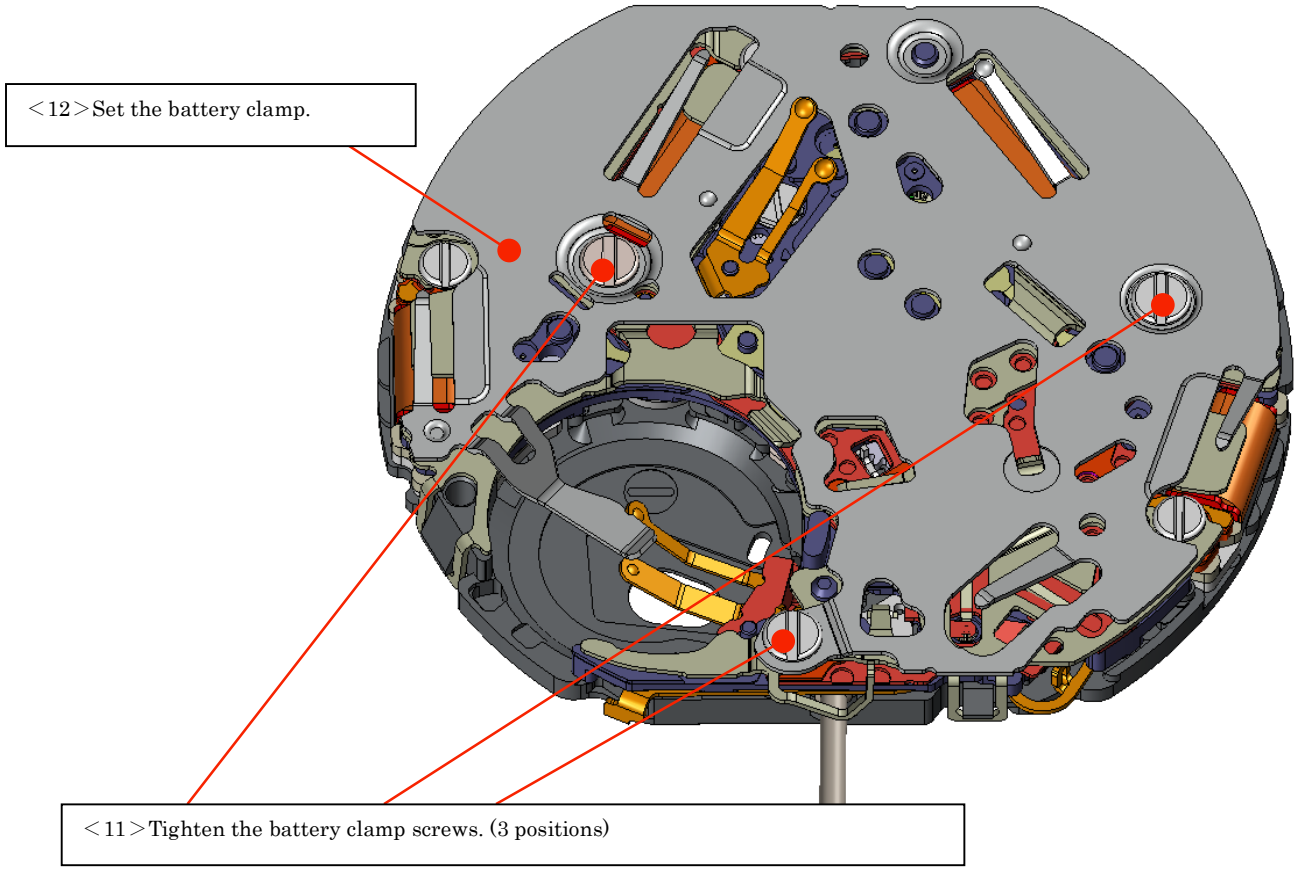
＜16＞ Set the conducting plate.

＜15＞ Set the circuit block cover.
Securely engage the four hooks.



Remarks on installing the circuit block cover. (hooking portions)
・Take care so as not to deform the rotor stator or coil block.
・Make sure that the circuit block cover is correctly aligned with the two pins of the train wheel bridge.
* Inaccurate alignment of the circuit block cover can cause malfunction of the yoke, resulting in defects of date correcting function.
・The hook of the circuit block cover is easily disengaged. Make sure that it is securely engaged with the pins all the way in at the four locations.
・Unhook the circuit block cover from a side angle using a pair of tweezers or a screwdriver while gently pressing it down.
・**The conductive spring of the circuit block cover is easily deformable. Handle it with care so as not to deform it.**

NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
12	Set the battery clamp.	
	↓	
11	Tighten the battery clamp screws. (3 positions)	
	↓	
	Measure the current consumption.	



No.	PROCESS
	Assembling the calendar unit.
9	Set the hour wheel.
	↓
8	Set the hour wheel for ALARM.
	↓
7	Set the Hour wheel for WORLD TIME 24-hour indication.
	↓
6	Set the date driving wheel.
	↓
5	Set the date corrector setting wheel.
	↓
4	Set the intermediate wheel for calendar correction.
	↓
	Lubricate the point of contact between the date dial and main plate.
	↓
3	Set the date dial.

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.

<9> Set the hour wheel.

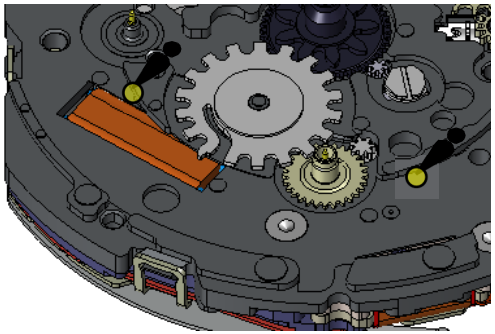
・The hour wheel is made of plastic. Make sure that the gear teeth are properly engaged when setting the hour wheel.

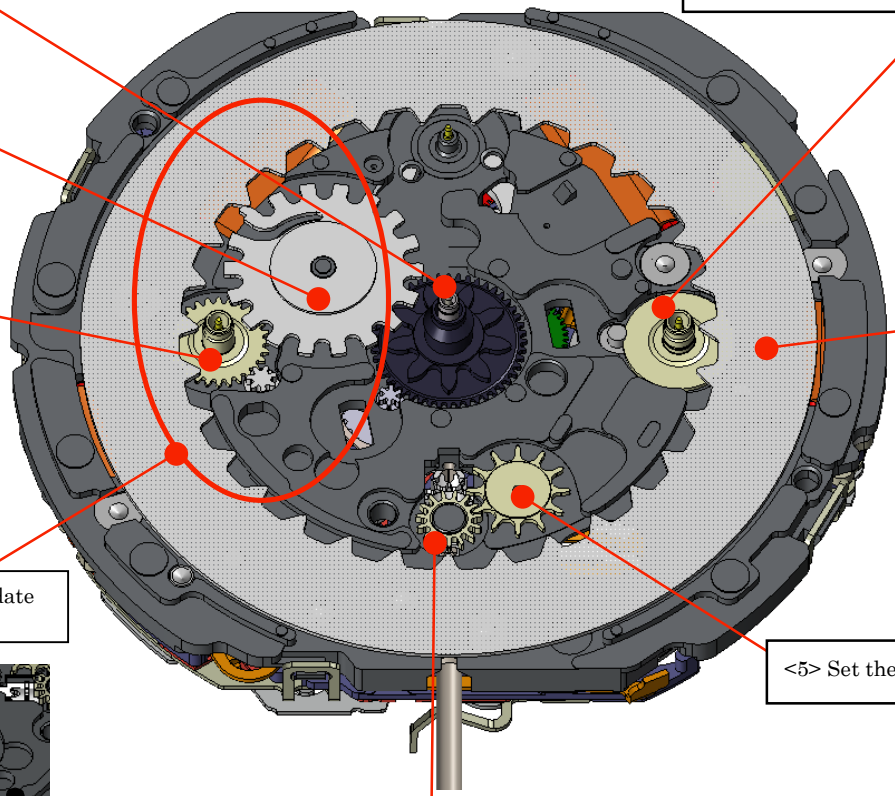
<6> Set the date driving wheel.

<8> Set the hour wheel for ALARM.

The number of gear teeth is 28.

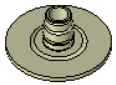
Lubricate the point of contact between the date dial and main plate : Moebius A or AO-3





<7>
Set the Hour wheel for WORLD TIME 24-hour indication.

The number of gear teeth is 48.



<3> Set the date wheel.

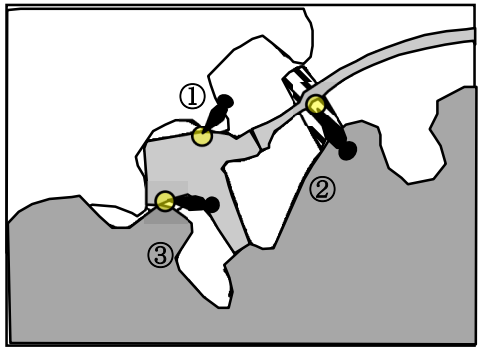
<5> Set the date corrector setting wheel.

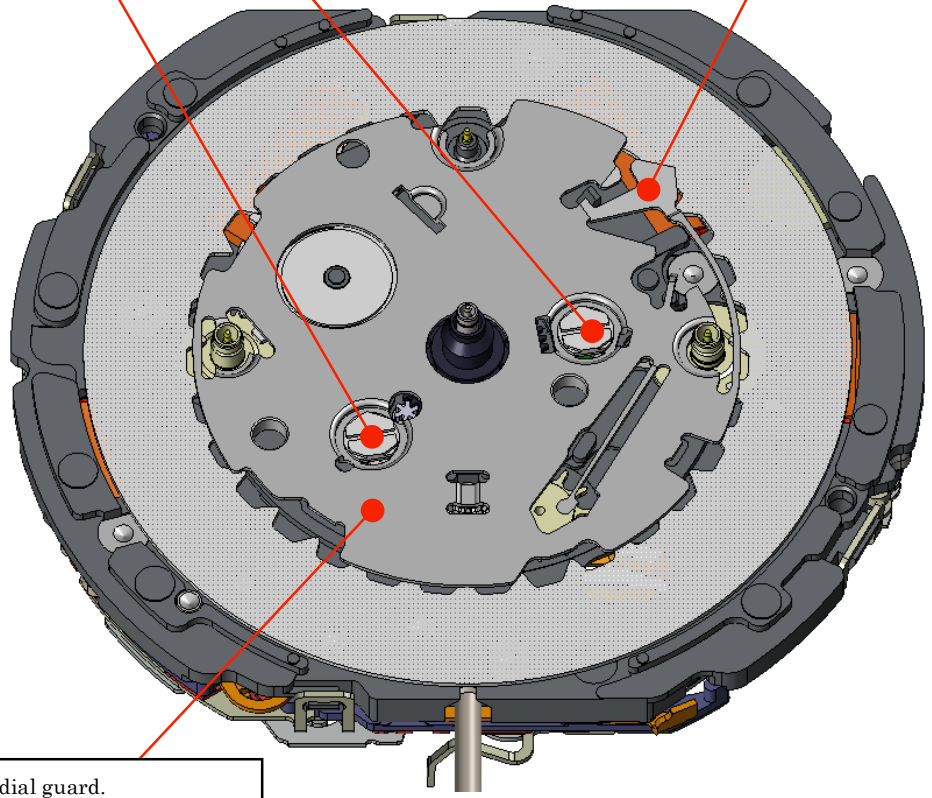
<4> Set the intermediate wheel for calendar correction.

No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
2	Set the date dial guard.	
	↓	
	Set the jumper.	
	↓	
1	Set the pins for date dial guard. (2 positions)	
	Lubricate the points of contact between:	
	① Date dial and date jumper.	
	② Main plate and date jumper.	
	③ Date dial guard and date jumper.	

<1> Set the date dial guard. (2 positions)
・Turn the pin 90-degree clockwise to fix it using a screwdriver.
※ Never turn the pin more than 90 degrees.

Lubricating points of the calendar wheels: contact points between
① Date dial and date jumper: Moebius F or AO-2
② Main plate and date jumper: Moebius F or AO-2
③ Date dial guard and date jumper: Moebius F or AO-2



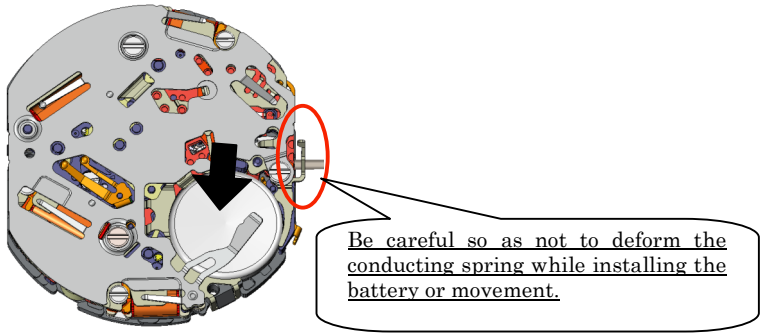


<2> Set the date dial guard.

No.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Assembling the case		
11	Set the battery.	Pay extra attention so as not to short-circuit the battery.	
	↓		
	AC	**Connect the AC component to the circuit block cover until a short circuit occurs to reset the integrated circuit.**	
	↓		
	Set the movement.	Do not press the date dial down when handling the movement.	
	↓	※Be careful so as not to deform the conducting spring of the movement.	
	Check that the date changes correctly.	Make sure that the date changes smoothly without dragging.	
	↓		
	Set the holding ring for dial.	When installing the holding ring for dial, be careful so as not to unhook it.	
	↓		
	Set the dial.		
	↓		
	Preparation for installing the hands	Follow the instructions below before installing the hands.	
		(It is necessary to adjust the backlash in a certain direction in order to ensure the proper hand positions before installing the hands.)	
		Activate the city hand in the hand adjustment mode.	
		(→Press and hold Button A for 3 seconds or longer with the crown at the second click position.)	
		(Adjust the backlash by turning the city hand, which is located at the center, clockwise.)	

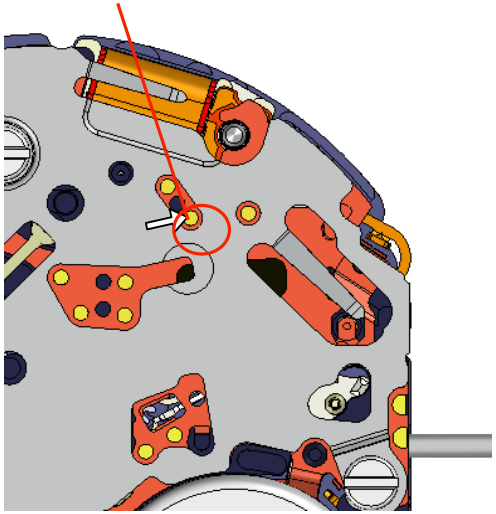
＜11＞Set the battery.

・ Install the battery in the direction shown by the arrow in the illustration below. Installing the battery from any other angle may result in bending or deforming the battery connection (-).



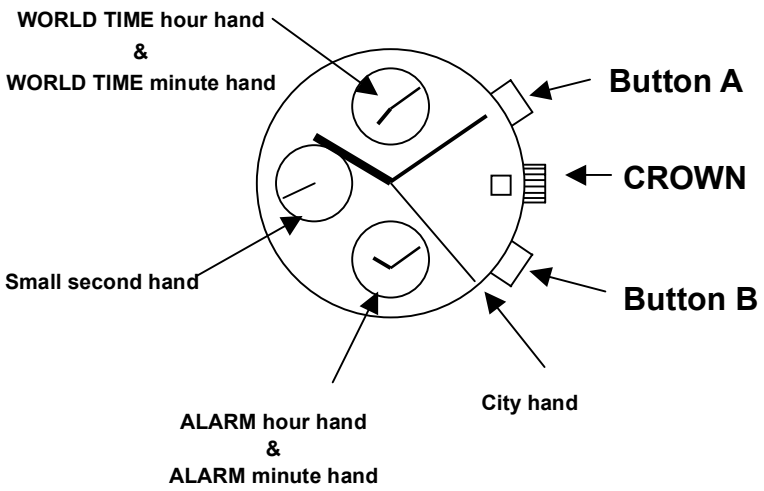
System Reset

・ Connect the AC component to the circuit block cover until a short circuit occurs to reset the integrated circuit.



No.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	(12 o'clock position)		
	Set the WORLD TIME hour hand.		
	Set the WORLD TIME minute hand.		
	↓		
	(9 o'clock position)		
	Set the small second hand.		
	Check the hand position and hand installation height.		
	↓		
	(6 o'clock position)		
	Set the ALARM hour hand.		
	Set the ALARM minute hand.		
	Check the hand position and hand installation height.		
	↓		
	(Center)		
	Set the hour hand.		
	Set the minute hand.		
	Check the hand position and hand installation height.		
	Set the city hand.		
	Check the hand position and hand installation height.		

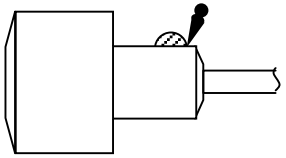
＜5T82A WORLD TIME＞



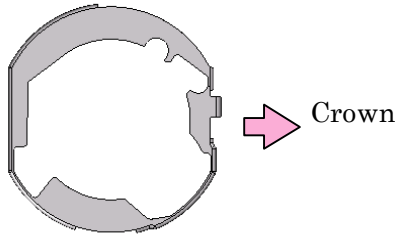
No.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
43	Remove the winding stem.	Pull out the crown temporarily to the first click position when removing the winding stem.	
	↓		
	Set the movement with dial and hands into the case.	Remove dust and dirt on the movement with dial and hands and inside of the case before casing	
	↓		
43	Set the winding stem.		
	↓		
*1	Set the buttons. (2 pieces)	*1：Only some models require this process. Whether a watch requires this process or not depends on the design of its case.	
	↓		
10	Set the antimagnetic shield plate B.	Make sure that it is securely set in the correct direction.	
	↓		
	Close the case back.		

＜43＞
・Be careful so as not to deform the winding stem conducting spring of the circuit block cover while removing or installing the winding stem.
＜43＞ Set the winding stem.
・For a watch with a screw lock type crown, apply silicone grease (100,000 to 500,000 c.s.) to the point of contact between the winding stem and gasket of the crown.

A sufficient amount of silicone should be applied so that the entire surface becomes wet. (See the illustration below.)



＜10＞Set the anti magnetic shield plate B.

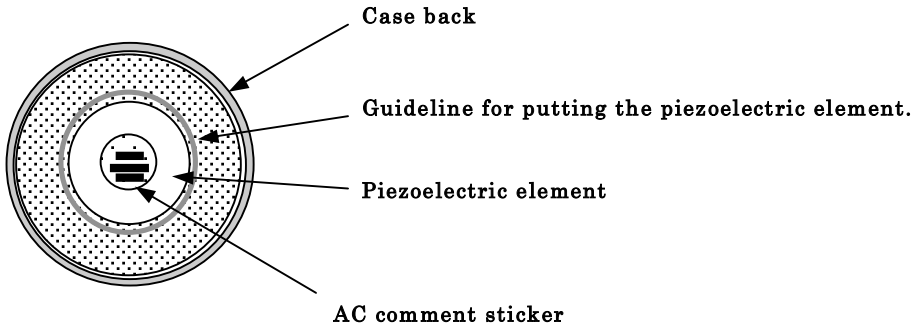


Close the case back.
・ Make sure that the circuit block cover is securely hooked before closing the case back.

Functional Inspection

Operational Specifications (Reference)

	Rotation	Button to press
Normal position	Free	Button A: adjusting the WORLD TIME hands in the clockwise direction (stopping the ALARM while it is ringing) Button B: adjusting the WORLD TIME hands in the counterclockwise direction (stopping the ALARM while it is ringing)
First click position	Clockwise: Date setting	Button A: activating the ALARM demonstration function Button B: setting the ALARM time (setting the ALARM time to the current time can reset the ALARM) (keep pressing Button B will quickly advance the ALARM hands.)
Second click position	Hand position adjustment (Main time setting	Button B: setting the ALARM time (keep pressing it to quickly advance the ALARM hands) → Button A (2 seconds) → Button B: setting the city hand position (keep pressing it to quickly advance the city hand) → Button A (2 seconds) → Button B: setting the WORLD TIME hands (keep pressing it to quickly advance the WORLD TIME hands) → Button A (2 seconds)
	System reset	Press and hold both Buttons A and B at the same time for longer than 2 seconds.

NO.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Affix the AC comment sticker.	For instructions on where to affix the sticker, refer to the illustration at the right.	Instructions on where to affix the AC comment sticker  **AC comment sticker** Before affixing the AC comment sticker, make sure that the center of the **piezoelectric element** and the center of the AC comment sticker are correctly aligned. (Failing to do this can cause a continuity defect resulting in a malfunction of the ALARM, as the AC comment sticker may adversely contact the buzzer lead terminal.) **Note) The AC comment sticker must be affixed to all calibers (models).**

IV. VALUE CHECKING

● **Coil block resistance**

Coil block (A) (4002 700)	2.10 KΩ ~ 2.70 KΩ
Coil block for city setting (4002 700)	2.10 KΩ ~ 2.70 KΩ
Coil block for ALARM (4002 711)	1.80 KΩ ~ 2.40 KΩ
Coil block for WORLD TIME (4002 711)	1.80 KΩ ~ 2.40 KΩ

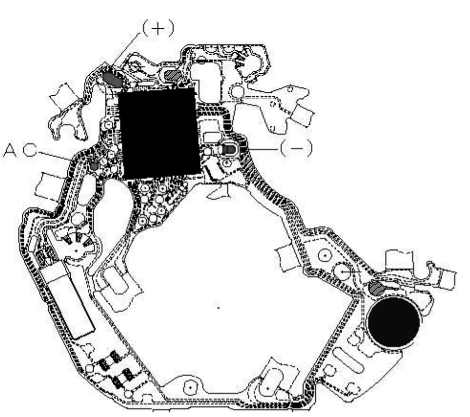
● **Upconverter coil resistance : 150 Ω ~ 180 Ω**

● **Current consumption**

For the whole movement	Less than 1.10 μ A (with 1.55 V supplied from a battery)
For the circuit block alone	Less than 0.30 μ A (with 1.55 V supplied from a battery)

● **How to measure the current consumption**

1. To measure the current consumption for the circuit block alone or for the whole movement, connect the each tester of S-860 to the appropriate positive (+) or negative (-) input terminal of the circuit block.
   * When measuring the current consumption using the SEIKO Multi-Tester S-860, select the measurement range as follows:
     For the whole movement:
     Use the range of 40 μ A of SUPPLY V (= 1.55 V) & GATE TIME (2 S)
     For the circuit block alone:
     Use the range of 4 μ A of SUPPLY V (= 1.55 V) & GATE TIME (2 S)
   * When measuring the current consumption for the circuit block alone, be careful not to damage or deform the pattern of the circuit block.
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.
   * When measuring the current consumption for the circuit block alone, be sure to protect the integrated circuit from light.
   * Refer to the illustration below to measure the current consumption for the circuit block alone.



V. 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.	Securely attach the hooks of the circuit block cover to the main plate.
		The coil is broken.	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.
	The date dial shows an abnormal movement.	The date dial has become improperly engaged with the date driving wheel or disengaged from the date driving wheel.	Check the rotation and engagement of the date dial. Bend the date dial downward to adjust the clearance. Or replace the date dial with a new one.
	The date dial does not move.		
	The date does not change.	The date jumper has been disengaged.	

	Symptom	Possible causes	Solutions
ALARM/ WORLD TIME	One or more ALARM hands, WORLD TIME hands or city hand have stopped moving or show an abnormal movement.	The relevant coil is broken.	Measure the coil block resistance. Replace the coil with a new one if necessary.
		An excessive load is being applied to the ALARM and/or WORLD TIME wheels due to dust or foreign particles adhering to them or oil starvation.	Clean the relevant parts and lubricate with an adequate amount of oil.
	The step motor shows an abnormal movement.	There is a crack on the circuit block switch pattern.	Replace the circuit block with a new one.
		The step motor has been deformed.	Replace the stator with a new one.
	The buttons do not operate normally.	The amount of oil around the buttons is insufficient.	Clean the buttons and lubricate appropriately.
		The circuit block pattern has been broken or bent.	Adjust the circuit block pattern or replace the circuit block with a new one.
	The ALARM does not sound.	The upconverter coil is broken.	Replace the circuit block with a new one.
		The piezoelectric element is broken or out of alignment.	Remount the piezoelectric element or replace it with a new one.
	The ALARM sound is too small.		
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 ALARM and/or WORLD TIME 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.

