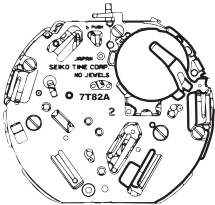
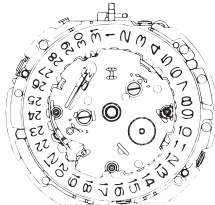


PARTS CATALOGUE/TECHNICAL GUIDE

Cal. 7T82A

[SPECIFICATIONS]

Item		Cal. No.	7T82A
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)			<p>Main time: Hour, minute and small second hands (1 second)</p> <ul style="list-style-type: none"> • STOPWATCH: <ul style="list-style-type: none"> STOPWATCH minute hand (40 minutes) STOPWATCH second hand STOPWATCH 1/10-second hand STOPWATCH 1/100-second hand
Driving system			Step motor 4 pcs.
Additional mechanism			<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • STOPWATCH functions <ul style="list-style-type: none"> 40-minute measurement in 1/100-second increments, consecutively measureable up to 120 minutes. Accumulated elapsed time measurement Split time measurement STOPWATCH hand position adjustment
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. 7T82A

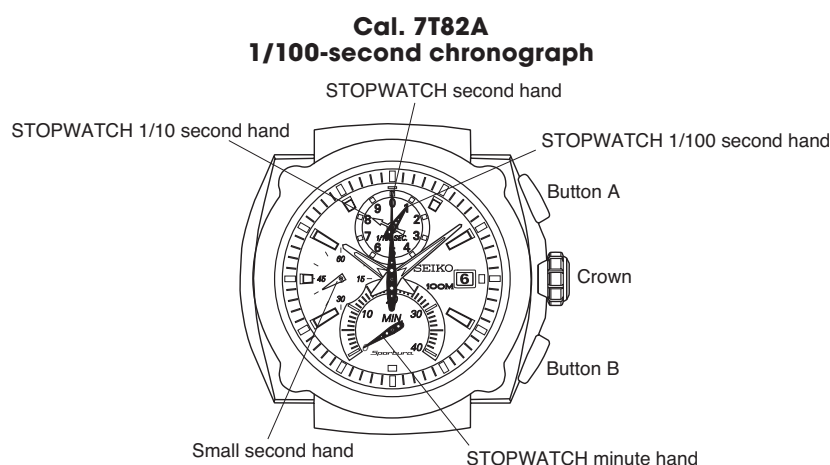
The basic movement structures of Cal. 7T82A is similar to the previous Cal. 7T Series watches, and the knowledge and technique you have gained in handling the previous Cal. 7T Series watches will come in handy when you repair Cal. 7T82A.

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. 7T82A has new movement structures, time setting and STOPWATCH hand position adjustment differ from those of the other Cal. 7T Series watches.

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



1. STOPWATCH FUNCTION

- **Measurement performance**

Displays the elapsed time with the 4 designated STOPWATCH hands.

Measures up to 40 minutes in 1/100 second increments.

- **Button operation (Crown position: Normal position)**

Button A: START/STOP

Button B: SPLIT/SPLIT RELEASE/RESET

- **Measurement functions**

Accumulated elapsed time measurement and split time measurement are available.

2. SYSTEM RESET

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

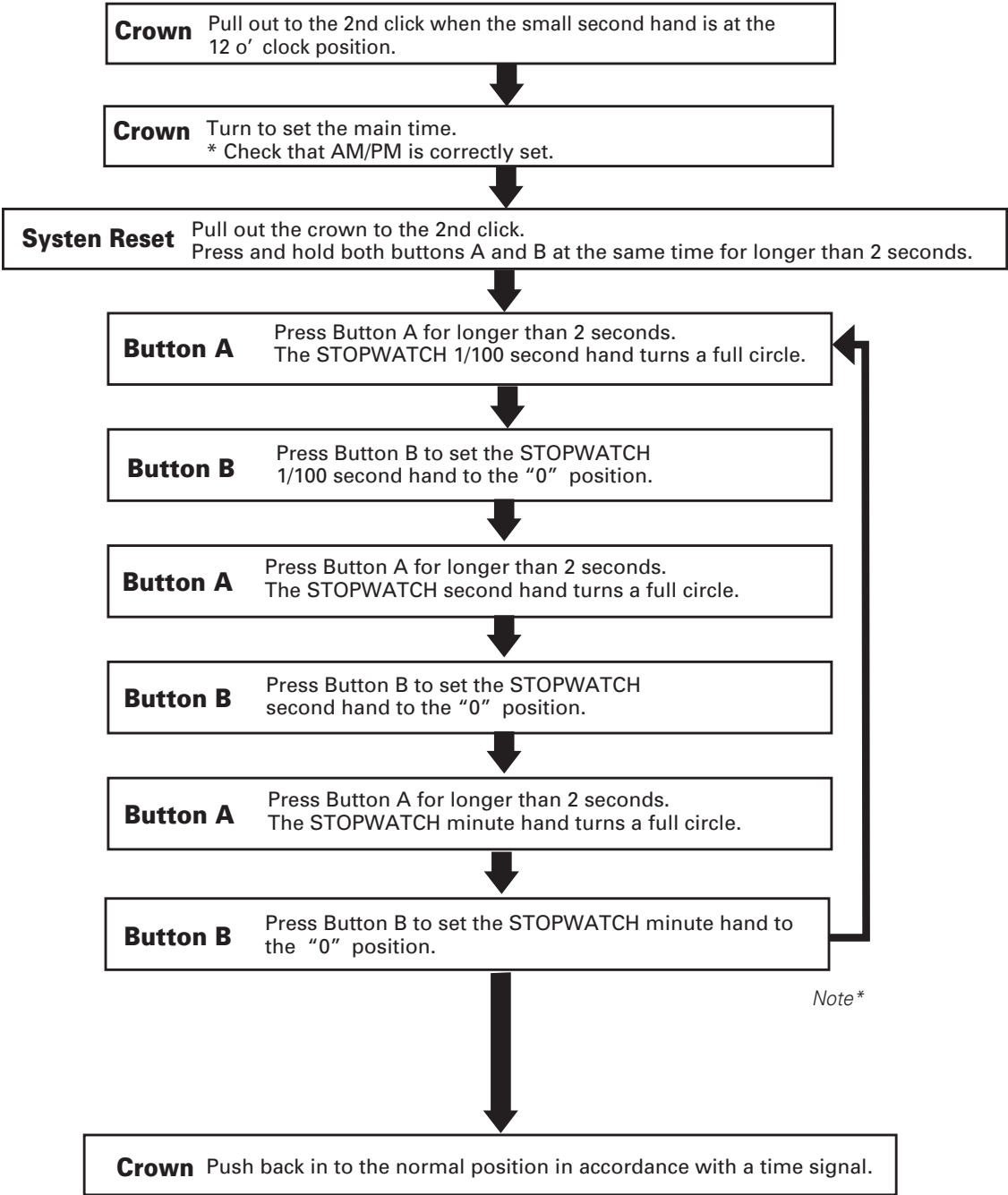
- **Button operation (Crown position: Second click)**

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

REMARKS ON REPAIRING CAL. 7T82A

II. NECESSARY PROCEDURE AFTER BATTERY CHANGE

After installing the battery, reset the built-in integrated circuit, and then **set the time and reset the STOPWATCH hands to the "0" position** 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.

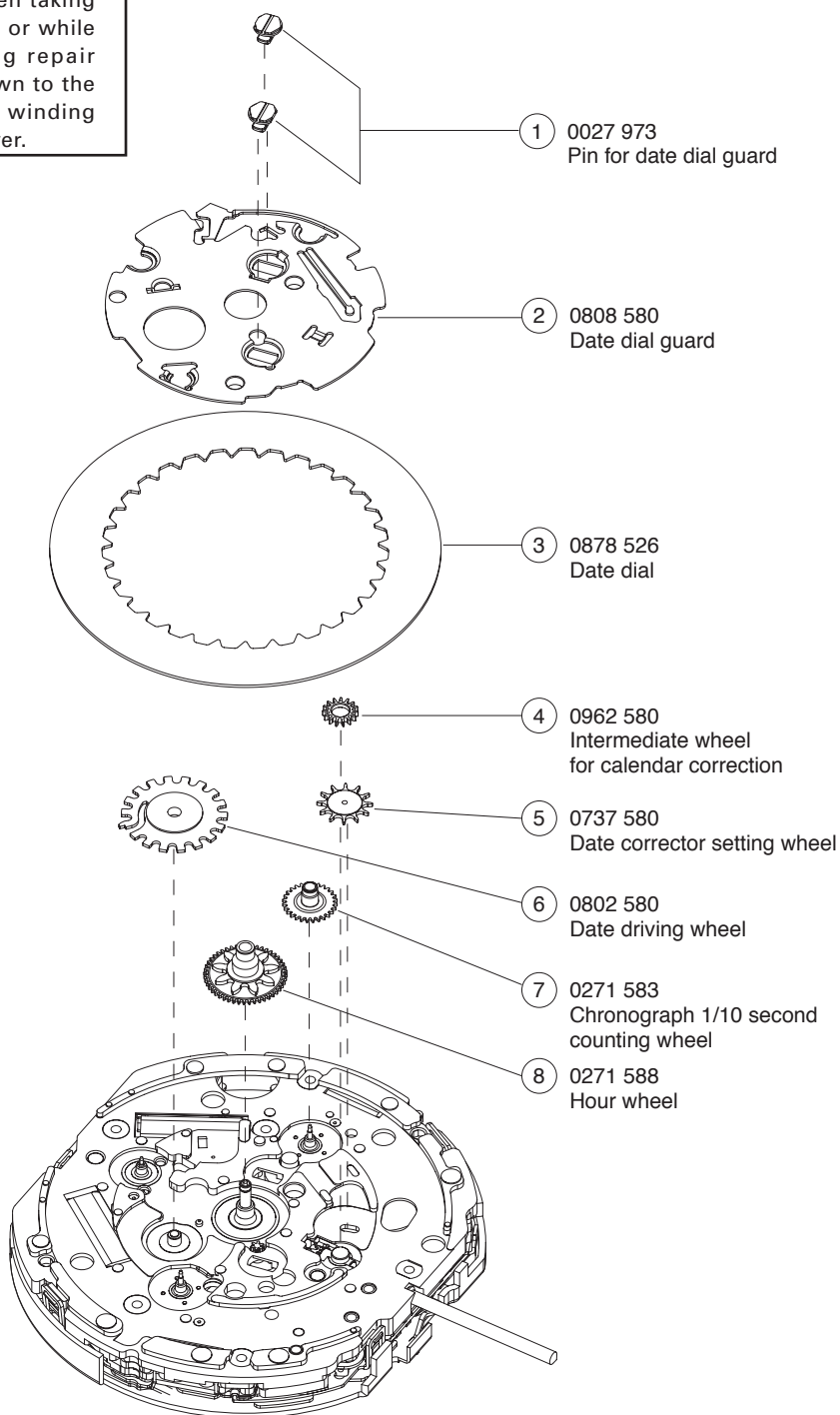
Disassembling procedures Figs. : ① → ⑤⑥

Reassembling procedures Figs. : ⑤⑥ → ①

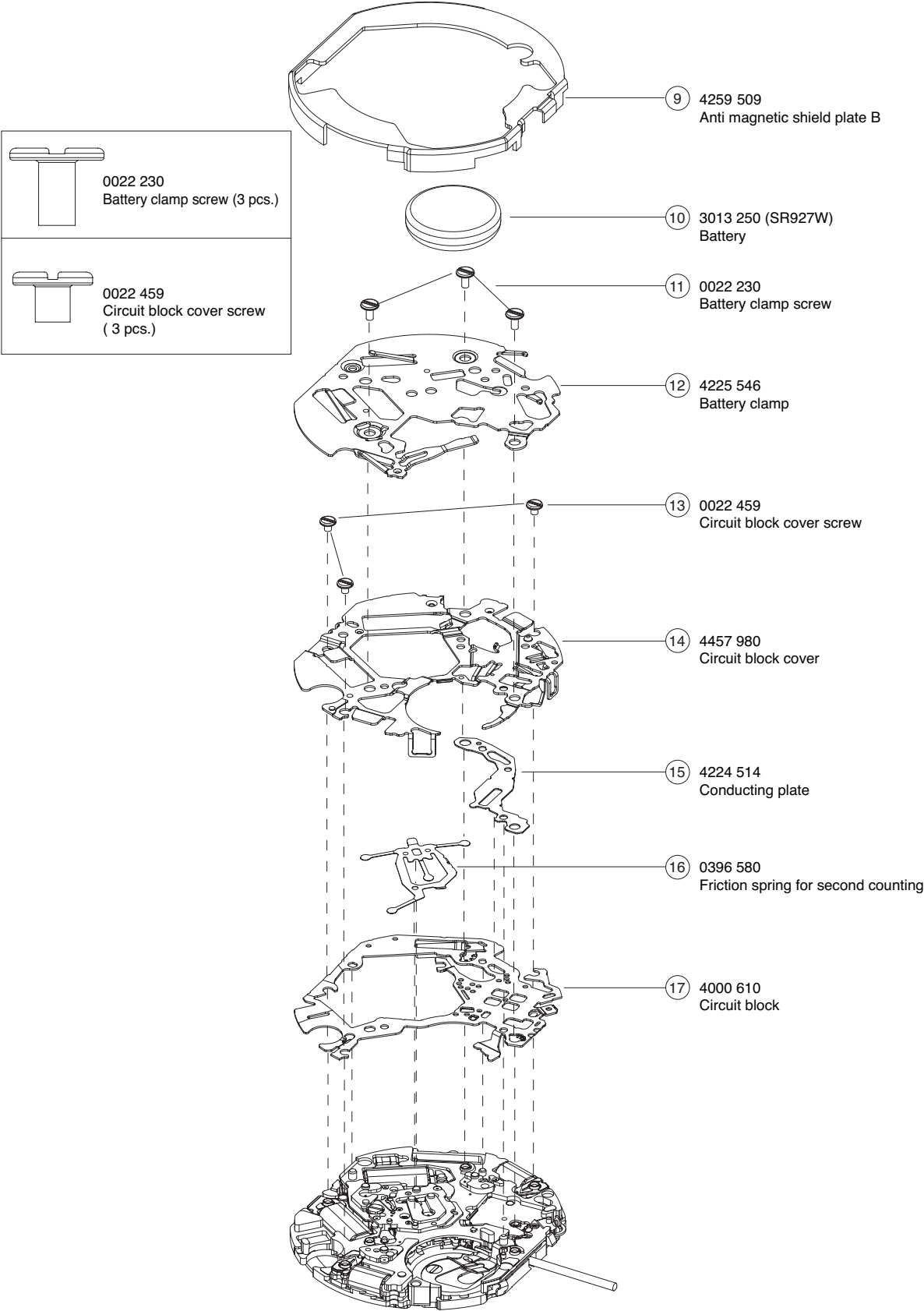
* For the type of oil and quantity of lubrication, refer to the following TECHNICAL GUIDE section.

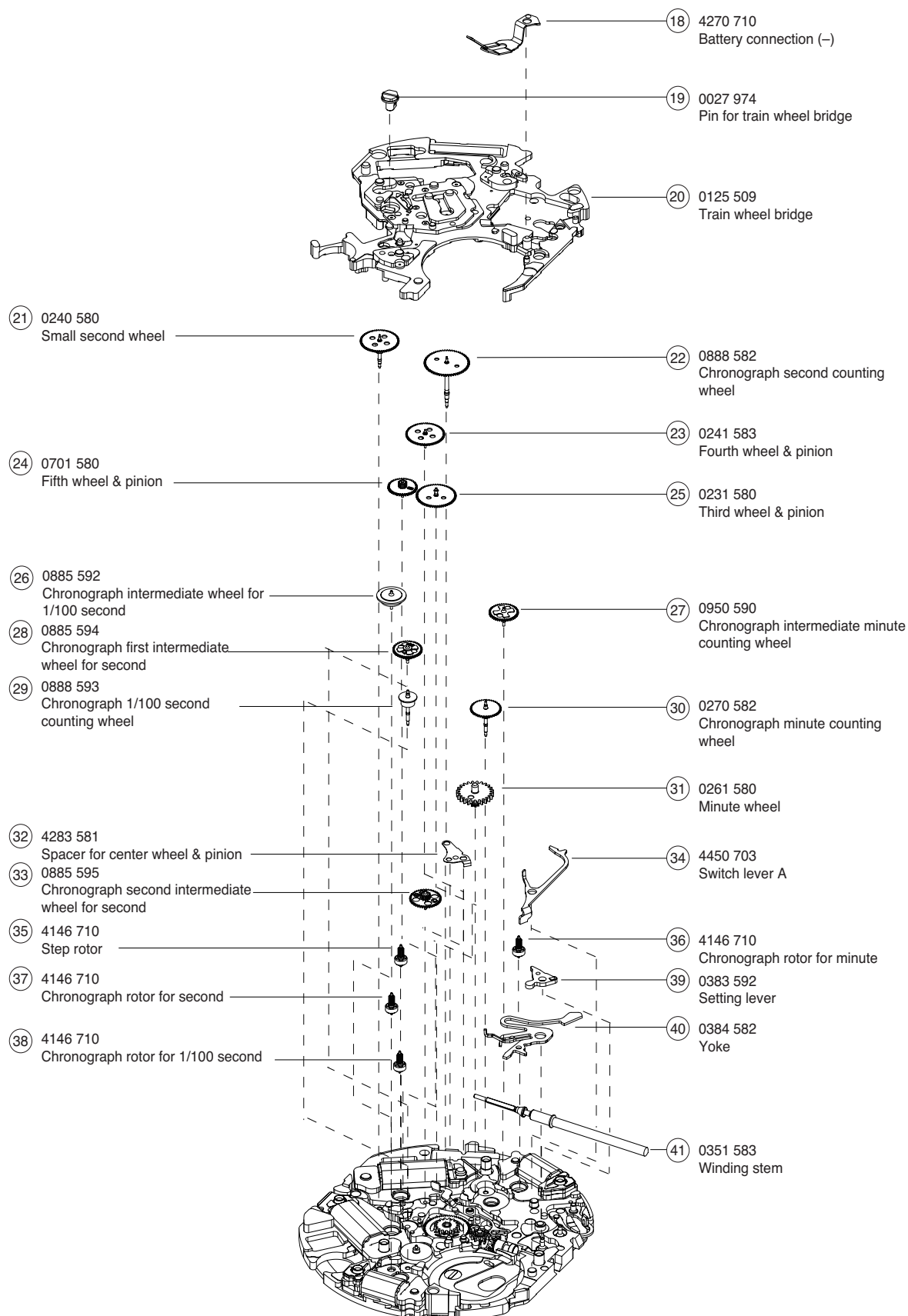
Remarks on removing the winding stem

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.

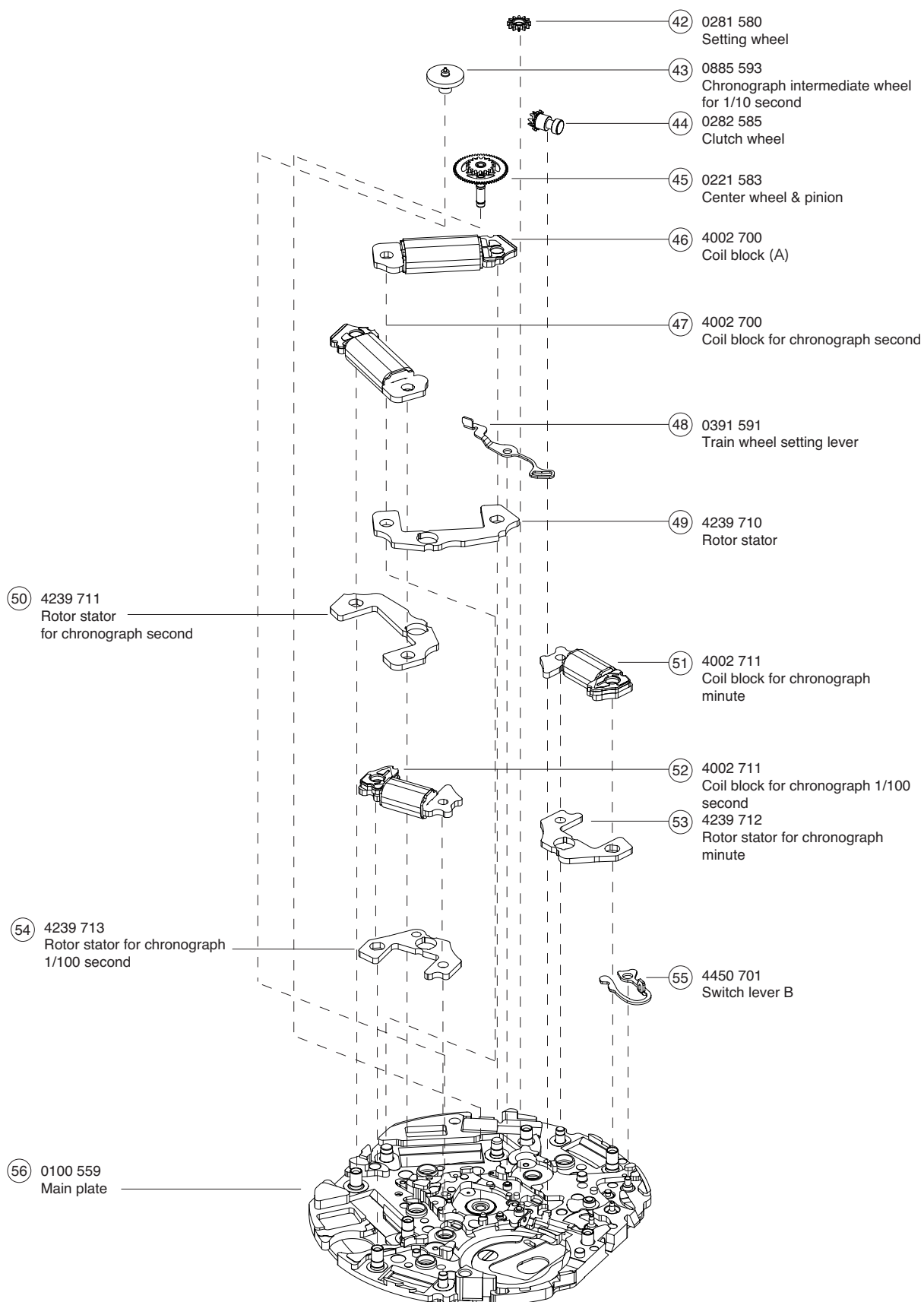


Lubricating of some parts is shown in "II. REMARKS ON DISASSEMBLING AND REASSEMBLING."





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."

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)

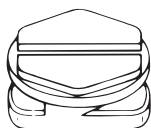
③ Date dial (0878 526)

④① Winding stem (0351 583)

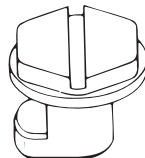
• Point of distinction

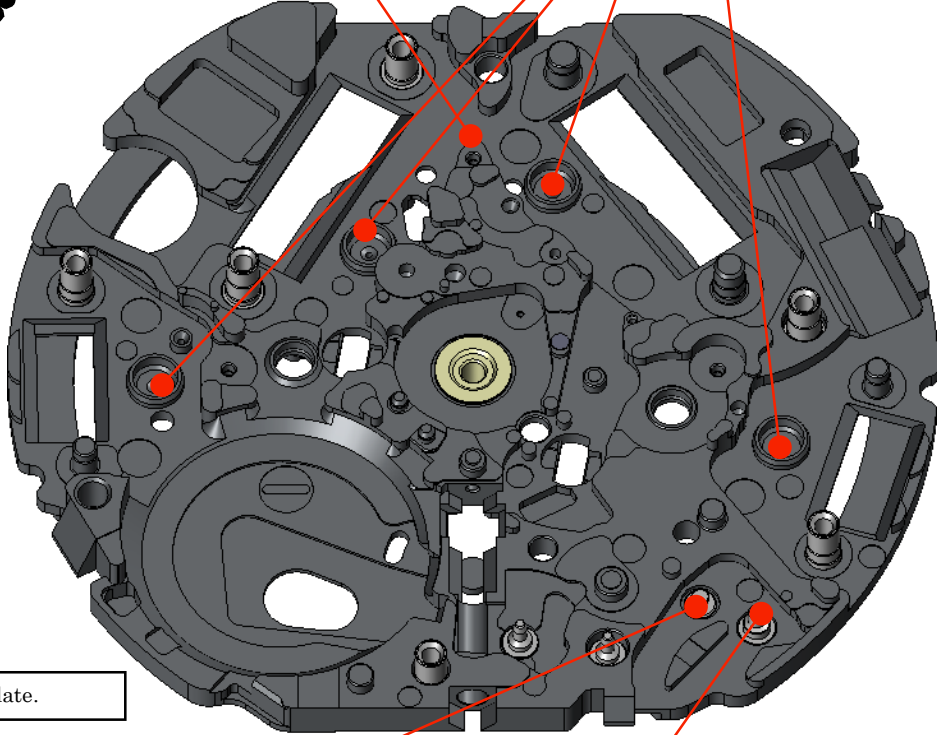
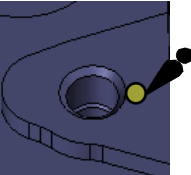
Refer to the illustrations below to see the difference between those two types of pins.

① Pin for date dial guard
0027 973



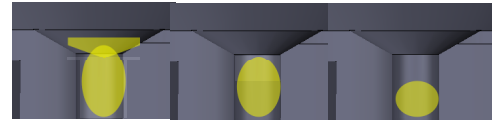
②① Pin for train wheel bridge
0027 974



No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
56	Assembling the switching unit and wheels Set the main plate.	<div data-bbox="409 196 929 260">Lubricate the contact area between the small second wheel and main plate: Moebius F or AO-2</div> <div data-bbox="1220 196 1877 260">Lubricate the lower pivots of the rotors: Moebius F or AO-2</div> 
	↓	
	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.	


<Amount of lubricant>

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

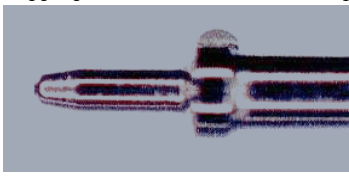


(a) Overlubricated×
(b) Appropriately lubricated◎
(c) Underlubricated×


Appropriate amount◎ (Stone)

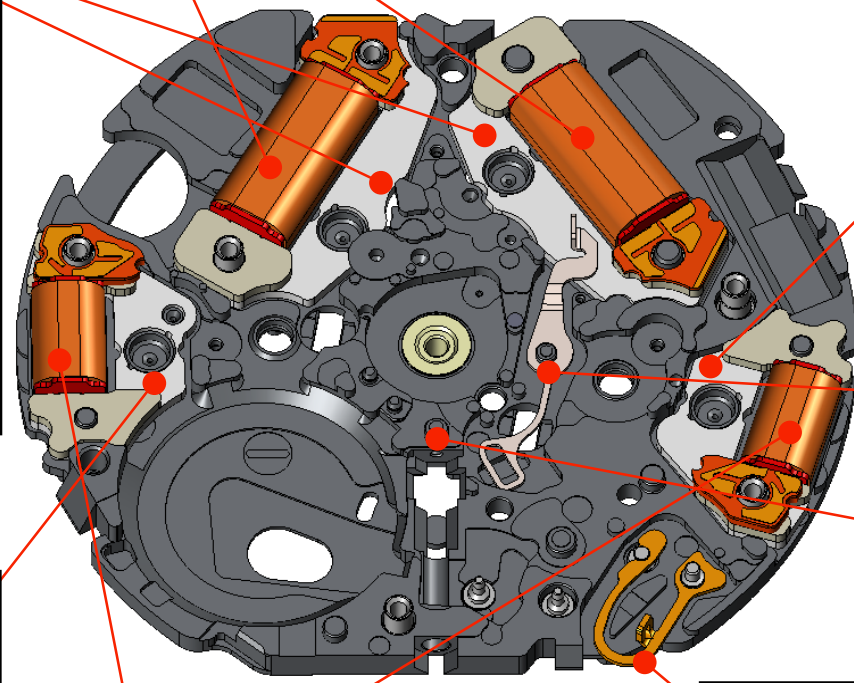
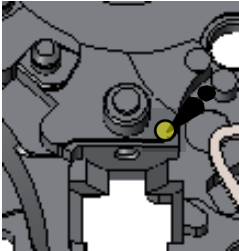
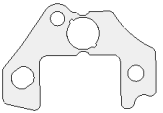
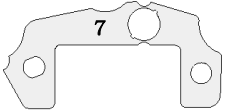
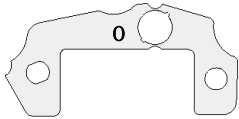


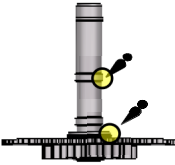

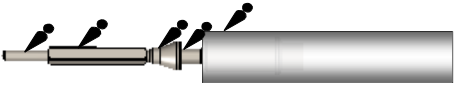
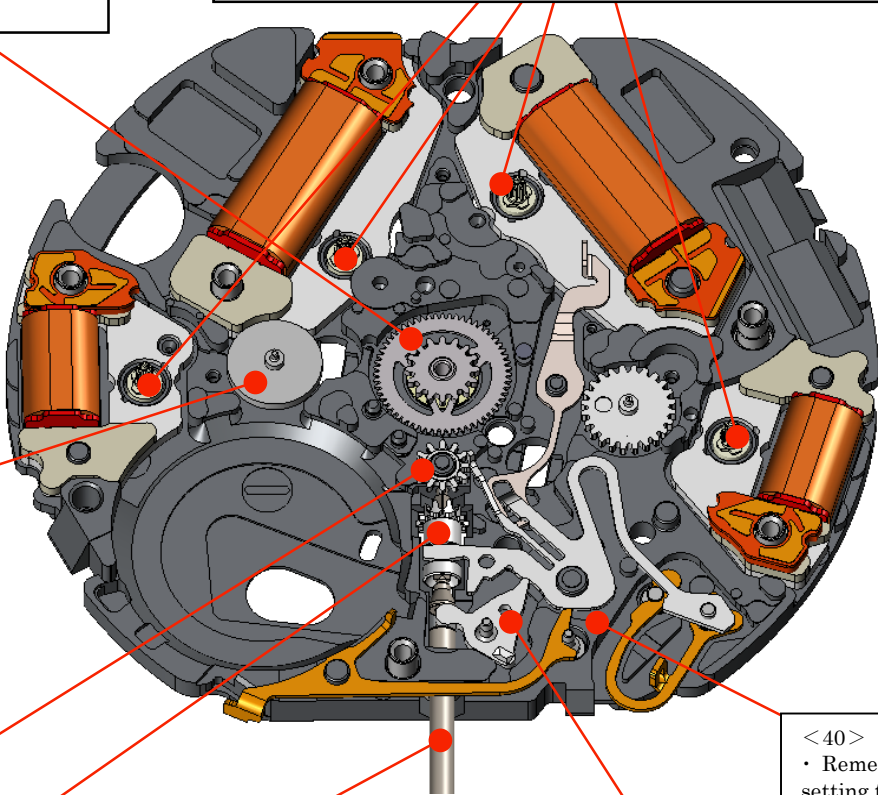
Appropriate amount◎ (Convex part)



Appropriate amount◎ (S-6)



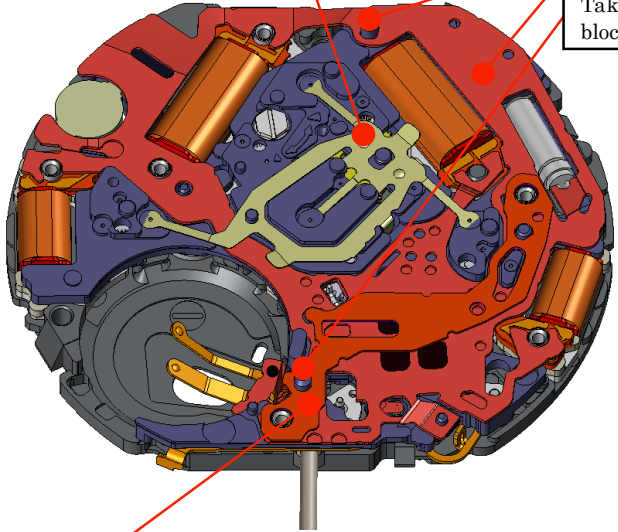
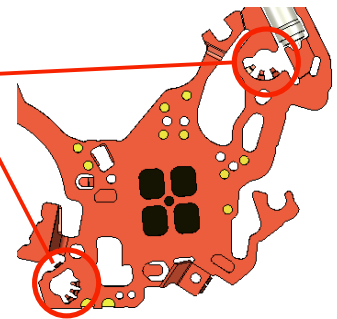
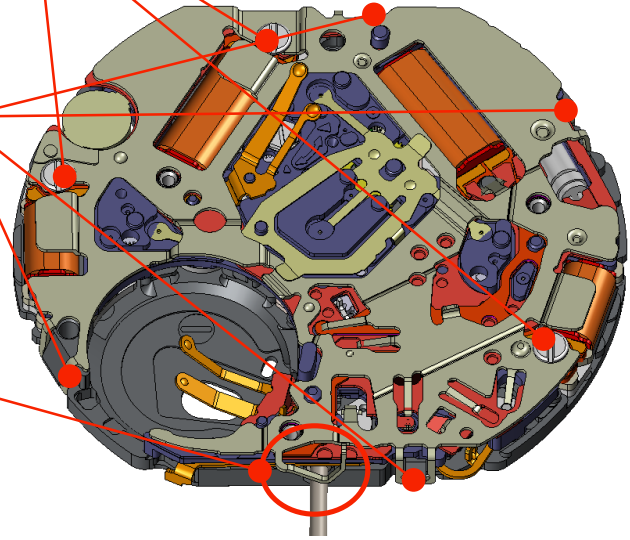
NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
55	Set the switch lever B. ↓	 <div data-bbox="929 204 2123 290" data-label="Text"> <p>< 47, 46 > Set the coil block for chronograph second and the coil block (A). Coil resistance: 2.10 KΩ ~ 2.70 KΩ</p> </div> <div data-bbox="1751 367 2136 673" data-label="Text"> <p>< 53 > Set the rotor stator for chronograph minute.</p> </div> <div data-bbox="1751 715 2136 788" data-label="Text"> <p>< 48 > Set the train wheel setting lever.</p> </div> <div data-bbox="1751 849 2136 922" data-label="Text"> <p>Lubricate the axis of the setting wheel: Moebius V or AO-3</p> </div> <div data-bbox="1550 1034 1809 1123" data-label="Text"> <p>< 55 > Set the switch lever B.</p> </div> <div data-bbox="1886 967 2123 1219" data-label="Image">  </div> <div data-bbox="891 1126 1482 1270" data-label="Text"> <p>< 52, 51 > Set the coil blocks for chronograph 1/100 second and chronograph minute. Coil resistance: 1.80 KΩ ~ 2.40 KΩ</p> </div> <div data-bbox="506 922 851 1270" data-label="Text"> <p>< 54 > Set the rotor stator for chronograph 1/100 second.</p>  <p>Discrimination number : 0</p> </div> <div data-bbox="506 188 851 788" data-label="Text"> <p>< 50, 49 > Rotor stator for chronograph second</p>  <p>Discrimination number : 7 Set the rotor stator</p>  <p>Discrimination number : 0</p> </div>
54	Set the rotor stator for chronograph 1/100 second. ↓	
	Lubricate the axis of the setting wheel. ↓	
53	Set the rotor stator for chronograph minute. ↓	
52, 51	Set the coil blocks for chronograph 1/100 second and chronograph minute. ↓	
50, 49	Set the rotor stator for chronograph second, and rotor stator. ↓	
48	Set the train wheel setting lever. ↓	
47, 46	Set the coil block for chronograph second and the coil block (A).	

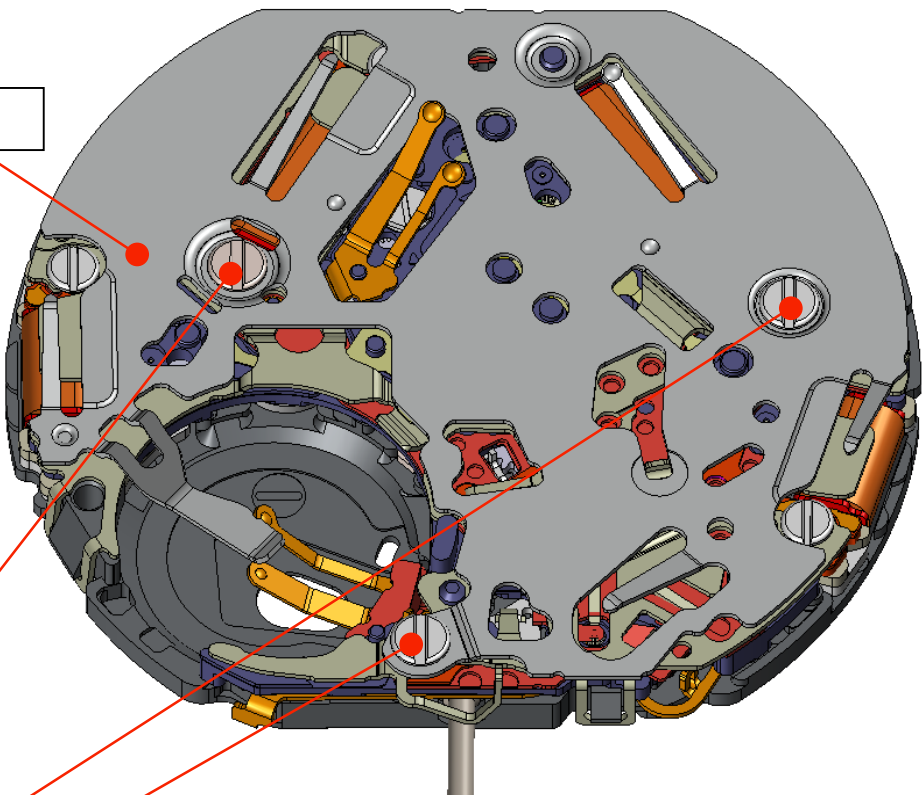
NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
45	Set the center wheel & pinion and lubricate its convex part and inner edge of the ring.	<div data-bbox="472 188 976 328"> <p><45> Set the center wheel & pinion and lubricate as illustrated below. (2 points) : Moebius AII or AO-3</p>  </div> <div data-bbox="1079 215 2179 296"> <p><38,37,36,35> Set the chronograph rotor for 1/100 second, chronograph rotor for second, chronograph rotor for minute and step rotor.</p> </div> <div data-bbox="501 695 837 818"> <p><43> Set the chronograph intermediate wheel for 1/10 second.</p>  <p>Dark gray</p> </div> <div data-bbox="488 1070 853 1139"> <p><42> Set the setting wheel.</p> </div> <div data-bbox="931 1107 1487 1211"> <p><41> Set and lubricate the winding stem: Lubricate the entire profile of the winding stem with Moebius V or AO-3.</p>  </div> <div data-bbox="501 1262 869 1331"> <p><44> Set the clutch wheel.</p> </div> <div data-bbox="1411 1275 1789 1353"> <p><39> Set the setting lever. • Crown at the normal position.</p> </div> <div data-bbox="1648 1011 2179 1257"> <p><40> 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.</p> </div> 
	↓	
44	Set the clutch wheel.	
	↓	
43	Set the chronograph intermediate wheel for 1/10 second.	
	↓	
42	Set the setting wheel.	
	↓	
41	Set and lubricate the winding stem.	
	↓	
40	Set the yoke.	
	↓	
39	Set the setting lever.	
	↓	
38, 37	Set the chronograph rotor for 1/100 second and chronograph rotor for second.	
36, 35	Set the chronograph rotor for minute and step rotor.	


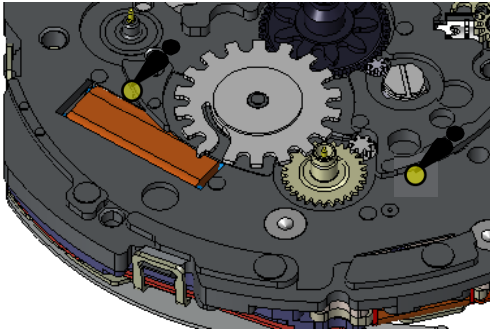
[illegible]

NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
33	Set the chronograph second intermediate wheel for second.	<div data-bbox="448 188 1131 236" data-label="Text"><28> Set the chronograph first intermediate wheel for second.</div> <div data-bbox="1232 212 1635 260" data-label="Text"><21> Set the small second wheel.</div> <div data-bbox="1624 284 2139 371" data-label="Text"><25,24> Set the fifth wheel and pinion and third wheel and pinion.</div> <div data-bbox="1680 403 2139 451" data-label="Text"><23> Set the fourth wheel & pinion.</div> <div data-bbox="1758 483 2139 603" data-label="Text"><30, 29> Set the chronograph minute counting wheel and chronograph 1/100-second counting wheel.</div> <div data-bbox="1904 611 2016 842" data-label="Image"> <div data-bbox="1792 850 2105 898" data-label="Caption">Chronograph minute counting wheel</div> </div> <div data-bbox="1747 962 2139 1034" data-label="Text"><27> Set the chronograph minute counting wheel.</div> <div data-bbox="1691 1058 2083 1106" data-label="Text"><31> Set the minute wheel.</div> <div data-bbox="1478 1129 2056 1177" data-label="Text"><32> Set the spacer for center wheel & pinion.</div> <div data-bbox="884 1153 1467 1329" data-label="Text"> <div data-bbox="896 1161 1456 1321" data-label="Text"> <22> Set and lubricate the chronograph second counting wheel as illustrated above. Lubricate the point of contact of the spacer for center wheel & pinion: Moebius A or AO-3. </div> <div data-bbox="694 1169 851 1385" data-label="Image"> </div> </div> <div data-bbox="448 818 851 914" data-label="Text"> <div data-bbox="459 826 840 906" data-label="Text"> Lubricate the point of contact of the spacer for center wheel & pinion : Moebius A or AO-3 </div> <div data-bbox="459 946 795 1129" data-label="Image"> </div> </div> <div data-bbox="448 651 840 802" data-label="Text"> <div data-bbox="459 659 828 715" data-label="Text"><26> Set the chronograph intermediate wheel for 1/100 second.</div> <div data-bbox="537 770 772 802" data-label="Text">Translucent</div> <div data-bbox="694 730 772 802" data-label="Image"> </div> </div> <div data-bbox="448 387 918 459" data-label="Text"> <div data-bbox="459 395 907 451" data-label="Text"><33> Set the chronograph second intermediate wheel for second.</div> <div data-bbox="582 555 649 579" data-label="Text">White</div> <div data-bbox="660 475 795 595" data-label="Image"> </div> </div> <div data-bbox="448 188 840 371" data-label="Text"> <div data-bbox="537 316 660 339" data-label="Text">Dark green</div> <div data-bbox="705 260 817 371" data-label="Image"> </div> </div>
32	Set the spacer for center wheel & pinion.	
31	Set the minute wheel.	
30, 29	Set the chronograph minute counting wheel and chronograph 1/100-second counting wheel.	
	Lubricate the point of contact of the spacer for center wheel & pinion.	
28	Set the chronograph first intermediate wheel for second.	
27	Set the chronograph minute counting wheel.	
26	Set the chronograph intermediate wheel for 1/100 second.	
25,24	Set the fifth wheel and pinion and third wheel and pinion.	
23	Set the fourth wheel and pinion.	
22	Set and lubricate the chronograph second counting wheel.	
21	Set the small second wheel.	

No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
20	Set the train wheel bridge. ↓	<div data-bbox="403 199 840 263" style="border: 1px solid black; padding: 5px;"> <20> Set the train wheel bridge. </div> <div data-bbox="1097 215 2128 311" style="border: 1px solid black; padding: 5px;"> Lubricate the upper pivots of the chronograph rotor for 1/100 second, chronograph rotor for second, chronograph rotor for minute and step rotor : Moebius F or AO-2 ※Lubricate the upper pivot of each rotor (at four points) illustrated below. </div> <div data-bbox="403 279 840 502" style="border: 1px solid black; padding: 5px;"> <19> 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. </div> <div data-bbox="672 319 1680 1133"> </div> <div data-bbox="1792 351 2038 454"> </div> <div data-bbox="1792 478 2038 510"> Upper pivot of the rotor </div> <div data-bbox="1814 598 2049 742"> </div> <div data-bbox="1859 750 2016 782"> Minute wheel </div> <div data-bbox="1814 861 2049 981"> </div> <div data-bbox="1859 989 2016 1021"> Other portions </div> <div data-bbox="403 1149 840 1212" style="border: 1px solid black; padding: 5px;"> <18> Set the battery connection (-). </div> <div data-bbox="896 1133 2083 1204" style="border: 1px solid black; padding: 5px;"> Lubricate the upper pivots of the minute wheel, chronograph minute counting wheel, chronograph second counting wheel and small second wheel: Moebius F or AO-2. </div>
19	Set the pin for train wheel bridge. ↓	
18	Set the battery connection (-) ↓	
	Lubricate the upper pivots of the chronograph rotor for 1/100 second, chronograph rotor for second, chronograph rotor for minute and step rotor. ↓	
*1	Lubricate the upper pivots of the minute wheel, chronograph minute counting wheel, chronograph second counting wheel and small second wheel.	
		<div data-bbox="896 1228 1792 1284" style="border: 1px solid black; padding: 5px;"> *1 : Do not lubricate the upper pivot of the chronograph 1/100 second counting wheel. 4 points to be lubricated as illustrated above. </div>

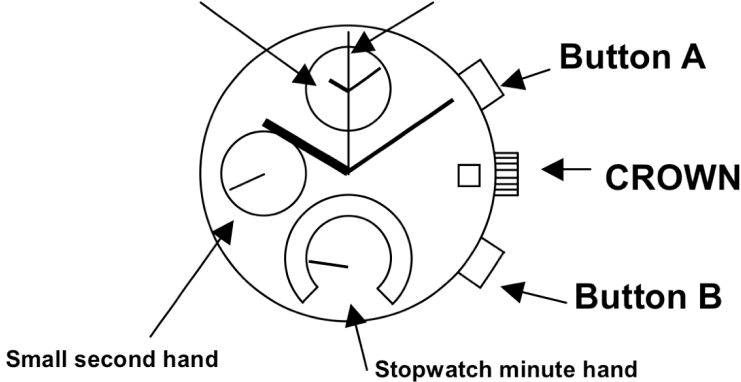
NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Assembling the circuit unit	
17	Set the circuit block.	 <p><16> Set the friction spring for second counting.</p> <p><17> Set the circuit block. Make sure that the circuit block is securely engaged with the two guide pins of the train wheel bridge. Take care so as not to deform these parts while setting the circuit block.</p> <p><15> Set the conducting plate.</p> <p><14> Set the circuit block cover. Securely engage the four hooks.</p> <p><13> Tighten the circuit block cover screws (3 positions.)</p> 
	↓	
16	Set the friction spring for second counting.	
	↓	
15	Set the conducting plate.	
	↓	
14	Set the circuit block cover.	 <p><13> Tighten the circuit block cover screws (3 positions.)</p> <p><14> Set the circuit block cover. Securely engage the four hooks.</p>
	Securely engage the four hooks.	
	↓	
13	Tighten the circuit block cover screws. (3 positions)	
		<p>Remarks on installing the circuit block cover. (hooking portions)</p> <ul style="list-style-type: none"> • 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. • <u>The conductive spring of the circuit block cover is easily deformable. Handle it with care so as not to deform it.</u>

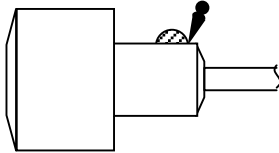
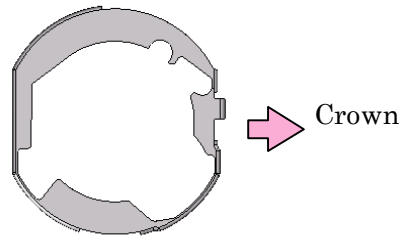
NO.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
12	Set the battery clamp.	 <p>The diagram shows an exploded view of a circular battery pack assembly. It includes various components such as battery cells, clamps, screws, and a central hub. Red dots and lines indicate the assembly points for the battery clamps and the tightening of the battery clamp screws.</p> <p>< 12 > Set the battery clamp.</p> <p>< 11 > Tighten the battery clamp screws. (3 positions)</p>
	↓	
11	Tighten the battery clamp screws. (3 positions)	
	↓	
	Measure the current consumption.	

No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
	Assembling the calendar unit.	
8	Set the hour wheel. ↓	<div><8> Set the hour wheel.</div> <div>• The hour wheel is made of plastic. Make sure that the gear teeth are properly engaged when setting the hour wheel.</div>
7	Set the chronograph 1/10 second counting wheel. ↓	<div><7> Set the chronograph 1/10 second counting wheel.</div> <div>Number of gear teeth is 28.</div> 
6	Set the date driving wheel. ↓	<div><6> Set the date driving wheel.</div>
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. ↓	<div>Lubricate the point of contact between the date dial and main plate: Moebius A or AO-3</div>
3	Set the date dial.	 <div><3> Set the date wheel.</div> <div><5> Set the date corrector setting wheel.</div> <div><4> Set the intermediate wheel for calendar correction.</div>

No.	PROCESS	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
2	Set the date dial guard. ↓ Set the jumper. ↓	<div data-bbox="427 309 1093 405"> <p><1> Set the date dial guard. (2 positions)</p> <ul style="list-style-type: none"> • Turn the pin 90-degree clockwise to fix it using a screwdriver. ※ Never turn the pin more than 90 degrees. </div> <div data-bbox="1357 240 2148 381"> <p>Lubricating points of the calendar wheels: contact points between</p> <ul style="list-style-type: none"> 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 </div> <div data-bbox="622 477 1541 1273"> </div> <div data-bbox="1588 421 2063 767"> </div> <div data-bbox="427 1238 878 1299"> <p><2> Set the date dial guard.</p> </div>

[illegible]

No.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
			<p><7T82A 1/100-second chronograph></p> <p>STOPWATCH 1/100-second hand & STOPWATCH 1/10-second hand</p> <p>STOPWATCH second hand</p> <p>Button A</p> <p>CROWN</p> <p>Button B</p> <p>Small second hand</p> <p>Stopwatch minute hand</p> 
	(12 o'clock position)		
	Set the STOPWATCH 1/10-second hand.		
	Set the STOPWATCH 1/100-second hand.		
	↓		
	(9 o'clock position)		
	Set the small second hand.		
	Check the hand position and hand installation height		
	↓		
	(6 o'clock position)		
	Set the STOPWATCH 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 STOPWATCH minute hand.		
	Check the hand position and hand installation height.		

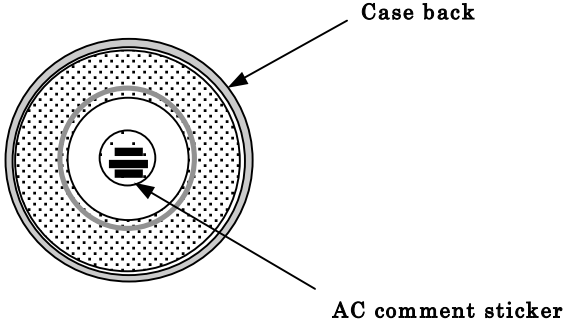
No.	PROCESS	SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.)	ILLUSTRATIONS AND SPECIAL INSTRUCTIONS ETC.
41	Remove the winding stem.	Pull out the crown temporarily to the first click position when removing the winding stem.	<p><41></p> <ul style="list-style-type: none"> • Be careful so as not to deform the winding stem conducting spring of the circuit block cover while removing or installing the winding stem. <p><41> Set the winding stem.</p> <ul style="list-style-type: none"> • 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. <p>A sufficient amount of silicone should be applied so that the entire surface becomes wet. (See the illustration below.)</p> 
	↓		
	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	
	↓		
41	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.	<p><9> Set the anti magnetic shield plate B.</p> 
	↓		
9	Set the antimagnetic shield plate B.	Make sure that it is securely set in the correct direction.	
	↓		
	Close the case back.		
			<p>Close the case back.</p> <ul style="list-style-type: none"> • Make sure that the circuit block cover is securely hooked before closing the case back.

Functional Inspection

Operational Specifications (Reference)

7T82

	Rotation	Button to press												
Normal position	Free	Button A: STOPWATCH START•STOP												
		Button B: STOPWATCH RESET•SPLIT•SPLIT RELEASE												
First click position	Clockwise: Date setting	Button A: STOPWATCH START•STOP												
		Button B: STOPWATCH RESET•SPLIT•SPLIT RELEASE												
Second click position	Hand position adjustment (Main time setting)	Press and hold Button A (2 seconds)	→	Button B: adjusting the STOPWATCH 1/100-second hand position (keep pressing it to quickly advance the hand)	→	Button A (2 seconds)	→	Button B: adjusting the STOPWATCH second hand position (keep pressing it to quickly advance the hand)	→	Button A (2 seconds)	→	Button B: adjusting the STOPWATCH minute hand position (keep pressing it to quickly advance the hand)	→	Button A (2 seconds)
	System reset	<div><div></div><div></div></div> <div>Press and hold both Buttons A and B at the same time for longer than 2 seconds.</div>												

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.	<p>Instructions on where to affix the AC comment sticker</p> <div><p>The diagram shows a circular case back with a textured outer ring and a smooth inner circle. In the center of the inner circle, there is a small rectangular sticker with horizontal lines. Two arrows point to the diagram: one from the text 'Case back' pointing to the outer ring, and another from the text 'AC comment sticker' pointing to the central sticker.</p></div> <p>AC comment sticker Affix the sticker to the center of the case back.</p> <p>Note) The AC comment sticker must be affixed to all calibers (models).</p>

IV. VALUE CHECKING

● Coil block resistance

Coil block (A) (4002 700)	2.10 K Ω ~ 2.70 K Ω
Coil block for chronograph second (4002 700)	2.10 K Ω ~ 2.70 K Ω
Coil block for chronograph minute (4002 711)	1.80 K Ω ~ 2.40 K Ω
Coil block for chronograph 1/100 second (4002 711)	1.80 K Ω ~ 2.40 K Ω

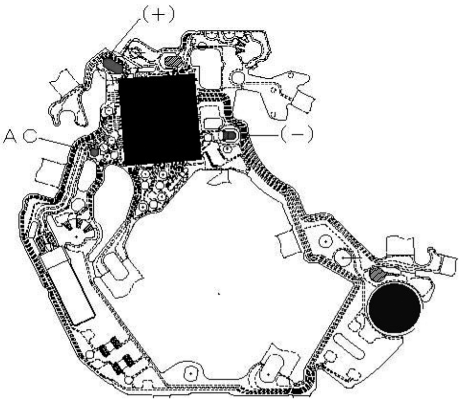
● Upconverter coil resistance : 150 Ω ~ 180 Ω

● Current consumption

For the whole movement	Less than 1.10 μ A (with 1.55 V supplied from a battery) (when the STOPWATCH is not used)
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

- 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.
- Connect the AC component to the positive terminal for 2 seconds until a short circuit occurs to reset the integrated circuit.
- 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
STOPWATCH	One or more STOPWATCH hands 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 chronograph 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.
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 STOPWATCH 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.