

PARTS CATALOGUE / TECHNICAL GUIDE

Cal. 7K52A

CAUTION

The SEIKO SCUBA Cal. 7K52A is intended for use in diving, an inherently hazardous form of recreation. Therefore, it is absolutely essential that you strictly observe all instructions for the repairing and checking of the SEIKO SCUBA watch described in this guide.

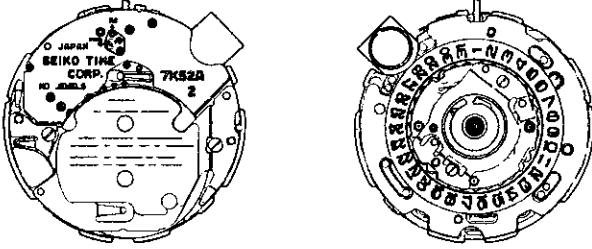
Take the greatest possible care when repairing and checking the depth measurement function as well as the water resistant quality of this watch, because the depth measurement serves as a guideline when the user is making a dive.

In addition, you must fully understand the following:

- This watch is for use in recreational scuba diving (no-decompression diving), and is not for decompression diving, saturation diving or diving at altitudes.
- It is for use in water having a temperature range of 0° C to 40° C.
- It can measure the depth of sea water correctly, whose specific gravity is 1.025, but not that of fresh water.

It is recommended that you explain to users the specifications of the watch, limits of use and cautions on improper use as required. In doing so, refer to the "CAUTION" included at the beginning of the instruction booklet of the watch.

[SPECIFICATIONS]

Cal. No.		7K52A		
Item				
Movement	 <p style="text-align: right;">(x 1.0)</p>			
Movement size	Outside diameter	ø31.0 mm		
	Casing diameter	ø30.0 mm		
	Height	5.9 mm		
Indication system	Time	Depth measurement part	Alarm part	
	Hour hand Minute hand Small second hand	1/10 m depth hand Depth hand (Up to 55m) Maximum depth hand (advanced by depth hand) Diving time hand	Alarm hour hand Alarm minute hand	
Driving system	Step motor (4 pcs.)			
Additional functions	<ul style="list-style-type: none"> • Electronic circuit reset switch • Train wheel setting device • Battery life indicator • Date calendar • Instant setting device for date calendar • Full automatic measurement of diving data • Recall of log data • Depth warning function • Single-time alarm function 			
Accuracy of the depth measurement	Temperature range providing warrantable accuracy	0 °C ~ 40 °C		
	In sea water at a stable temperature	Within ± (displayed value x 3% + 0.5 m)		
	Influence of temperature change of 20 °C	Within ±1 m		
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	SEIKO CR2016, Maxell CR2016, Sanyo CR2016, Matsushita CR2016, Eveready CR2016 Battery life is approximately 2 years. Voltage : 3.0 V			
Jewels	0 jewel			






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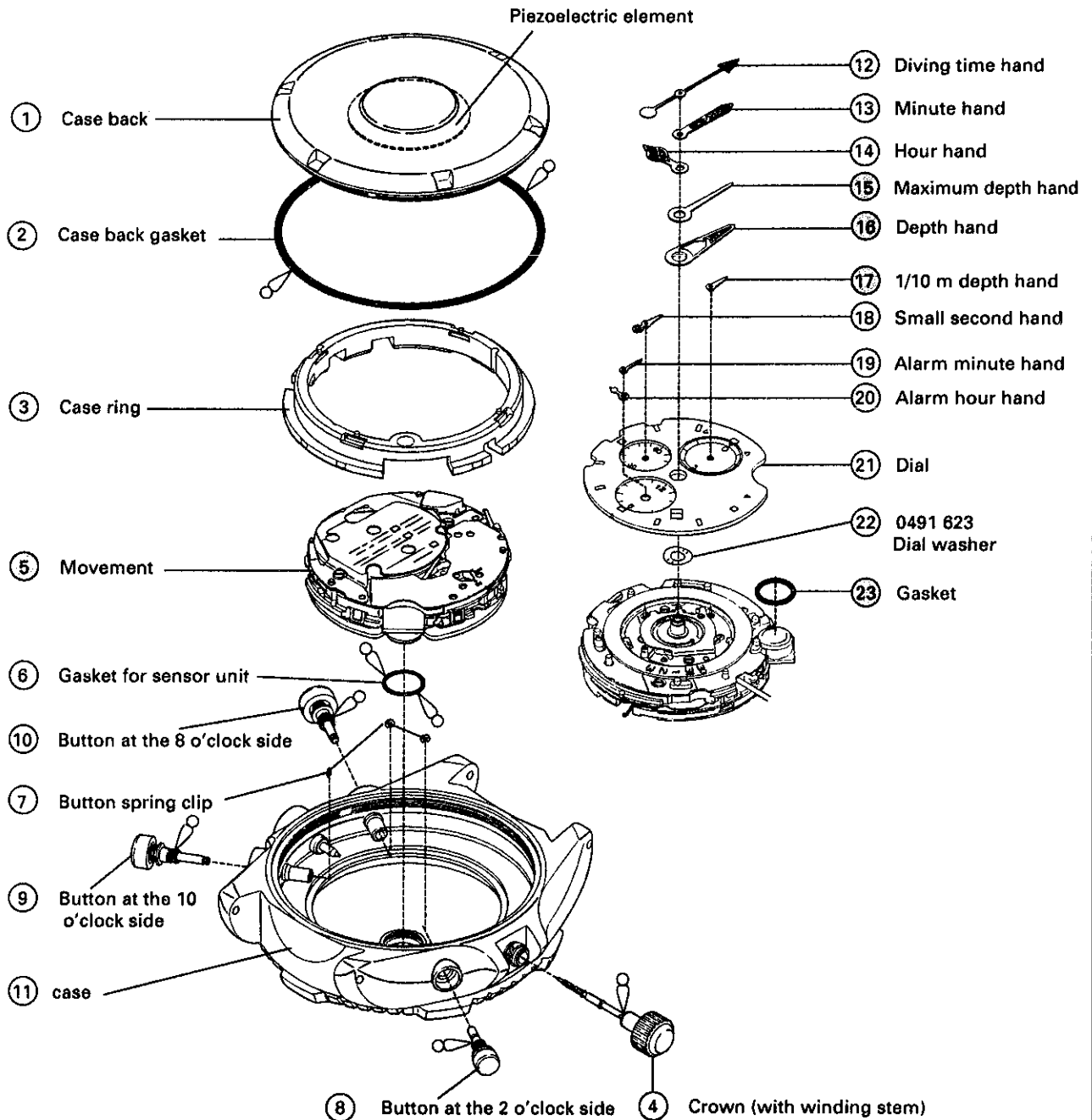
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Disassembling procedures Figs. : ① → ⑩①

Reassembling procedures Figs. : ⑩① → ①

Lubricating: Types of oil

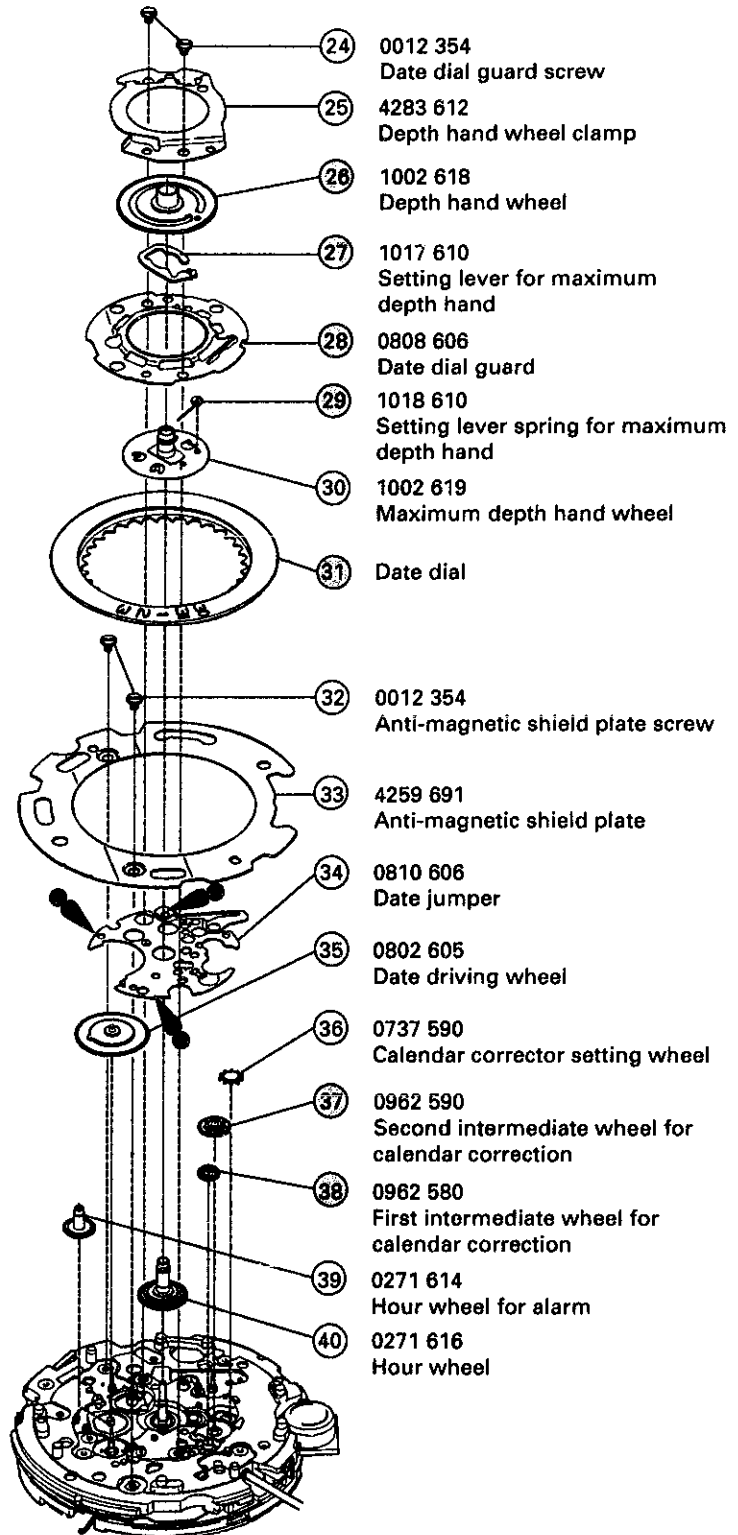
	Moebius A		Normal quantity
	SEIKO Watch Oil S-6		Extremely small
	Silicone oil 500,000 c.s.		





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

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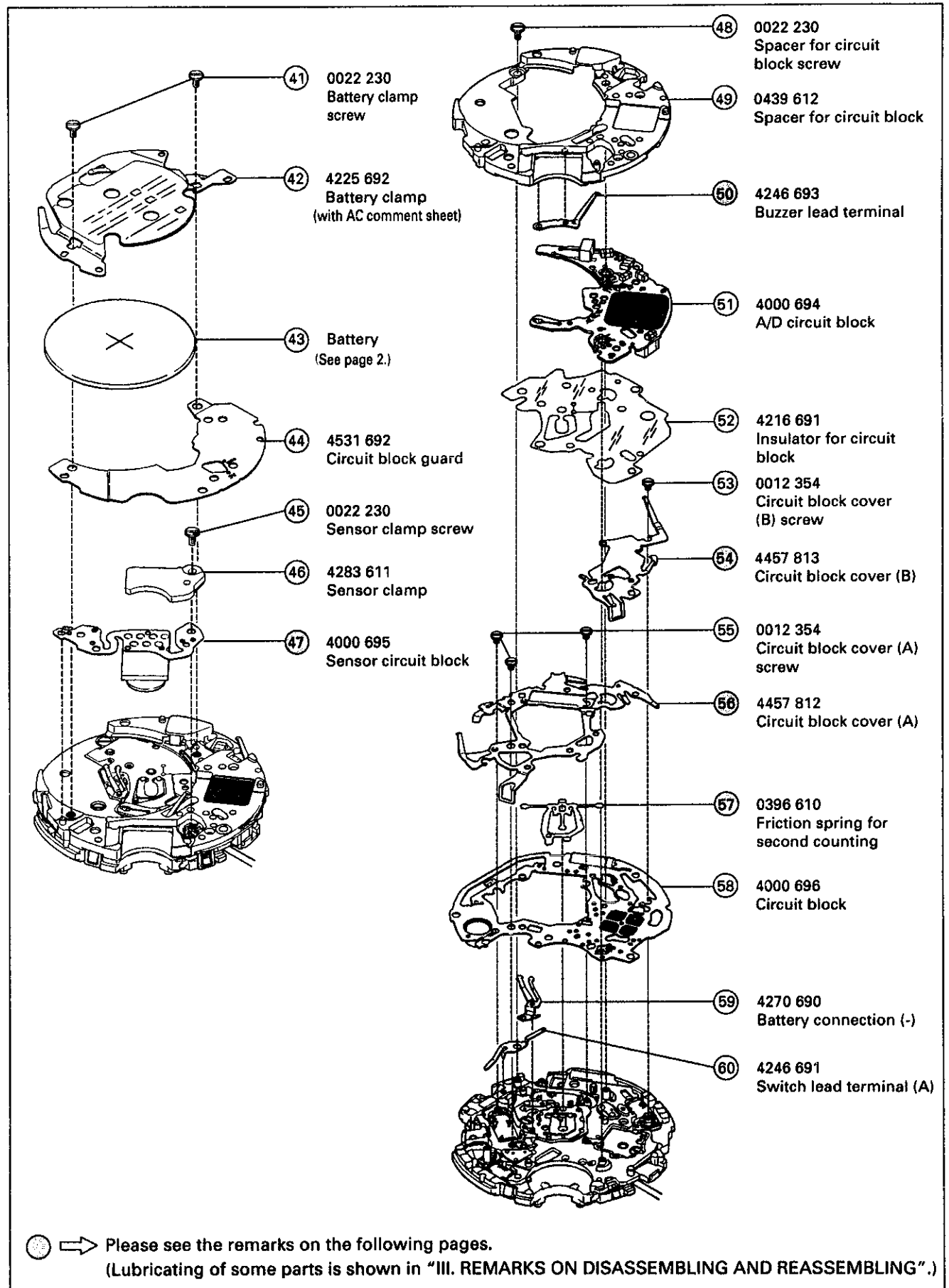


	<p>0012 354</p> <ul style="list-style-type: none"> • Date dial guard screw (2 pcs.) • Anti-magnetic shield plate screw (2 pcs.) • Circuit block cover B screw (1 pc.) • Circuit block cover A screw (3 pcs.)
	<p>0022 230</p> <ul style="list-style-type: none"> • Battery clamp screw (2 pcs.) • Sensor clamp screw (1 pc.) • Spacer for circuit block screw (1 pc.)

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

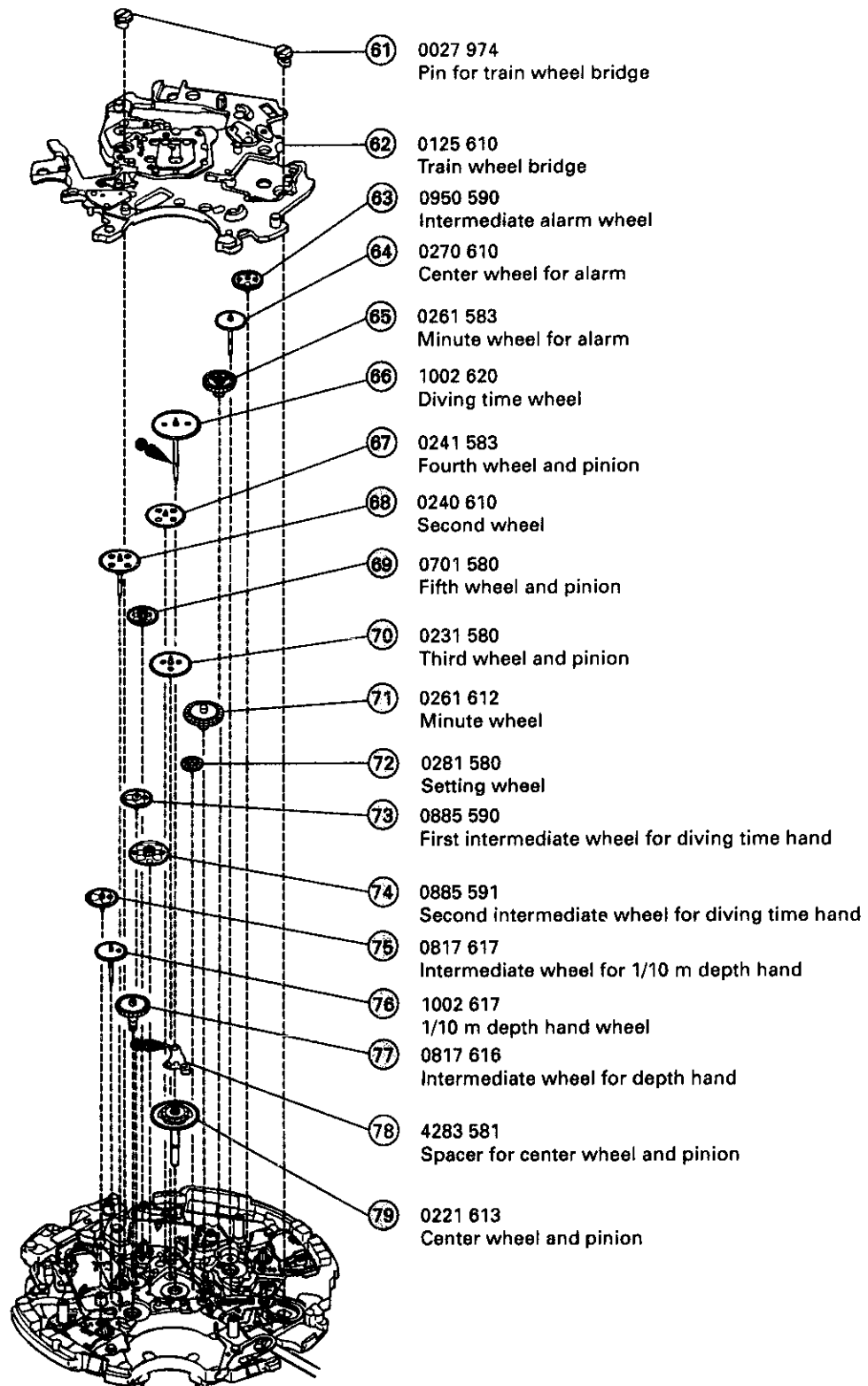
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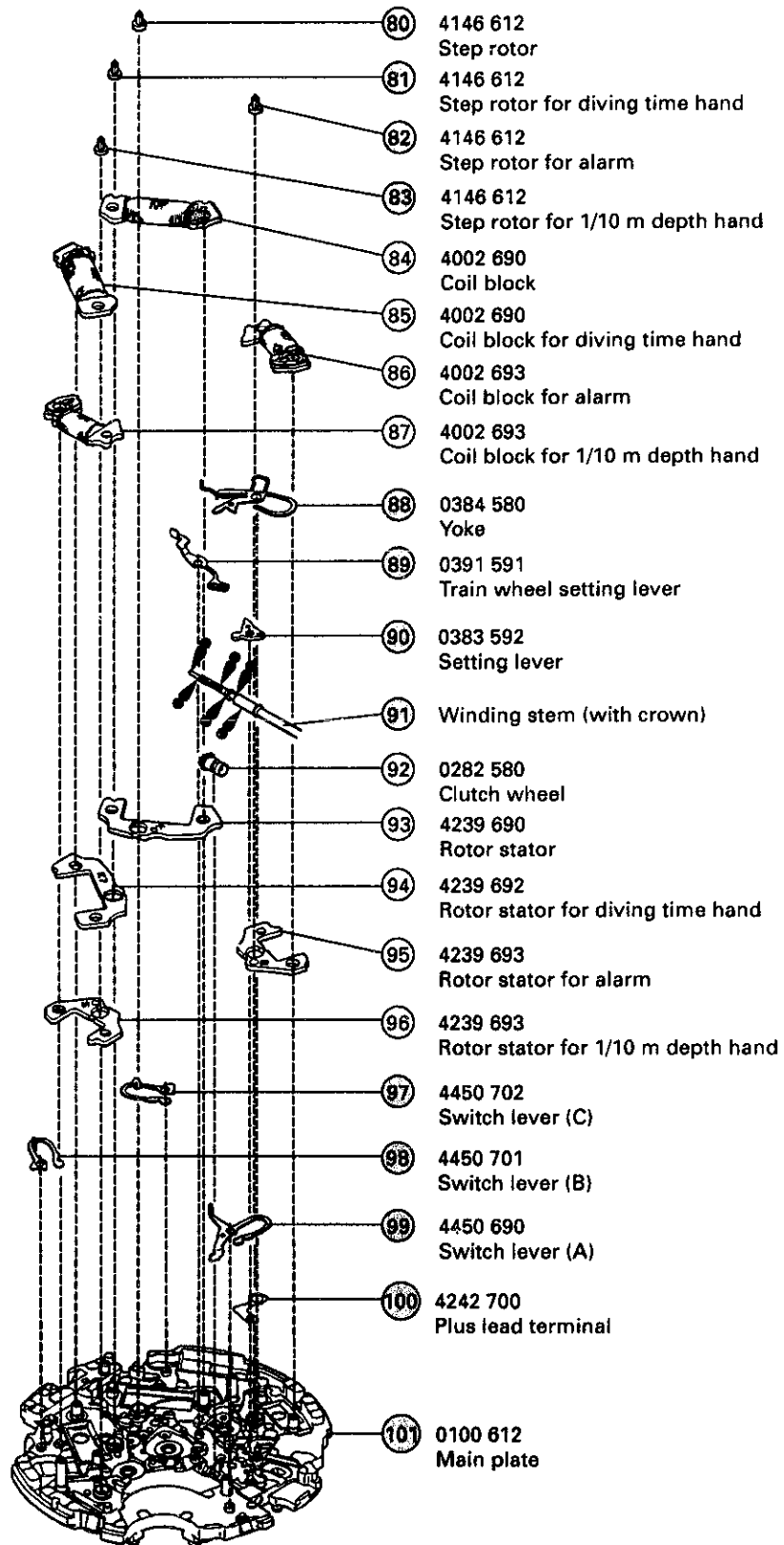
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○ ⇒ Please see the remarks on the following pages.
(Lubricating of some parts is shown in "III. REMARKS ON DISASSEMBLING AND REASSEMBLING".)

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 Please see the remarks on the following pages.
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③1 Date dial

Part No.	Position of crown	Position of date frame	Color of figure	Color of background
0878 910	3 o'clock	Between 4 and 5 o'clock	White	Black

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

⑨1 Winding stem (with crown)

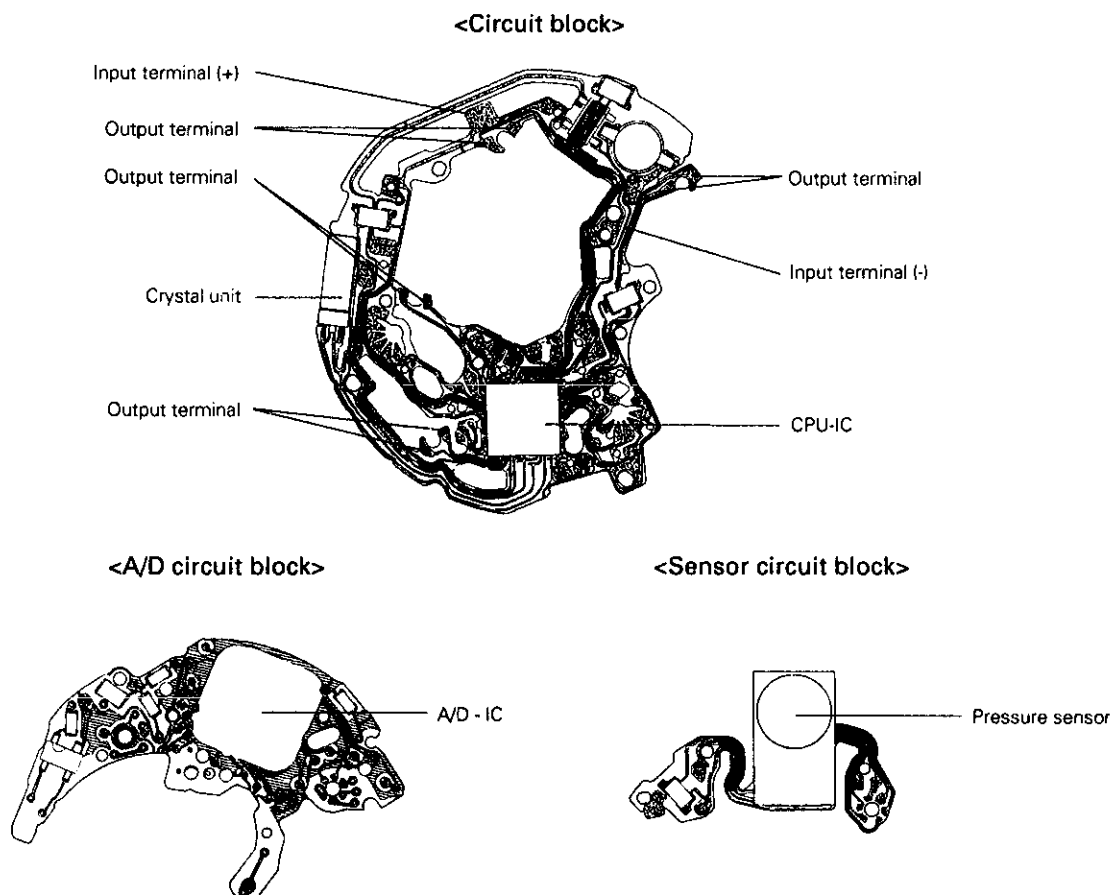
The winding stem and crown form an inseparable unit. The winding stem alone, therefore, is unavailable for supply but supplied as part of the crown. Check the case number and refer to "SEIKO Casing Parts Catalogue" to choose a corresponding crown.

TECHNICAL GUIDE

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- The explanation here is only for the particular points of Cal. 7K52A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

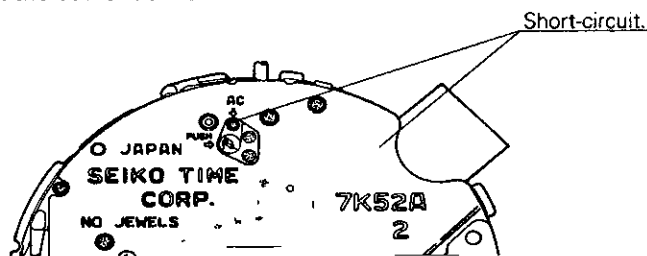
I. STRUCTURE OF THE CIRCUIT BLOCK



II. REMARKS ON INSTALLING THE BATTERY

- After the battery is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to short-circuit the AC terminal and the battery connection (+) (circuit block guard) to reset the circuit as illustrated below.

After resetting the circuit, be sure to reset the depth, 1/10 m depth, maximum depth and diving time hands to "0" position, and then set the current time.

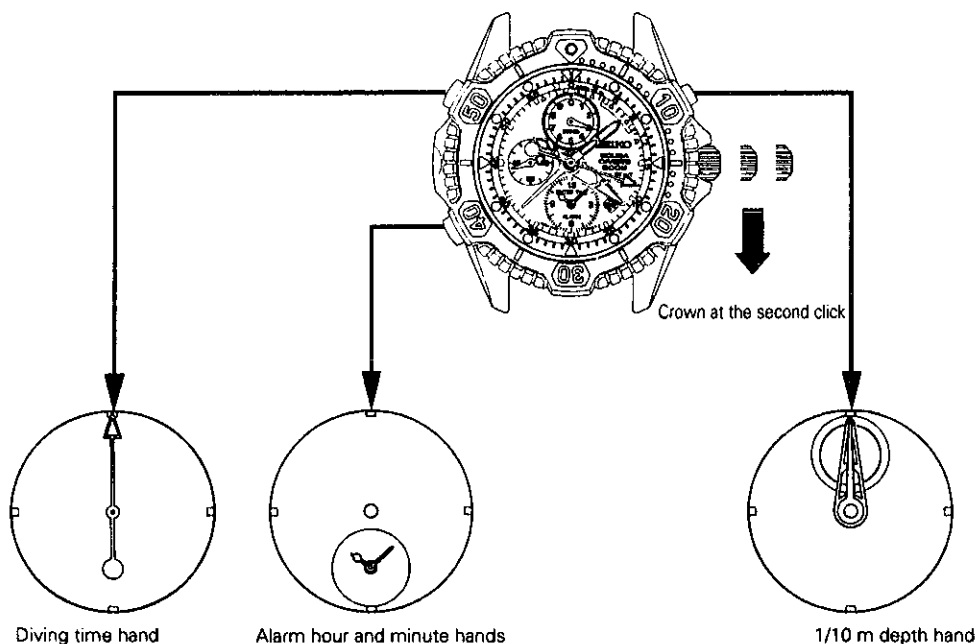


- How to reset the depth, 1/10 m depth and diving time hands to "0" position, and how to set the alarm hands to the current time

- 1) Pull out the crown to the second click.
- 2) Press the button at the 2 o'clock side to reset the depth and 1/10 m depth hands to the 12 o'clock position (0m).
- 3) Press the button at the 10 o'clock side to reset the diving time hand to "0" position.
- 4) Press the button at the 8 o'clock side to set the alarm hands to the current time.

(Here, also set the hour and minute hands to the current time.)

* The hands advance quickly if the respective buttons are kept pressed for 1 to 2 seconds.



- **Note on the demonstration function of the hands**

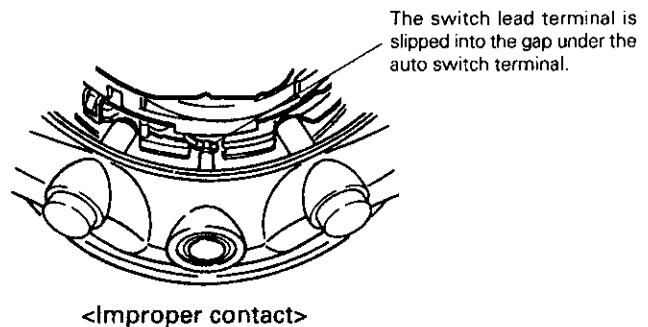
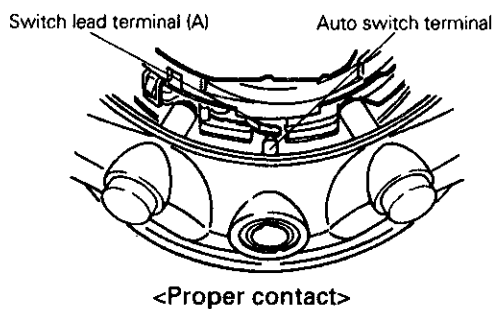
Use the demonstration function to check that each hand moves properly.

- 1) Pull out the crown to the first click.
- 2) After the depth, maximum depth and diving time hands are all reset to "0" position, press the button at the 10 o'clock side for more than 2 seconds.

III. REMARKS ON DISASSEMBLING AND REASSEMBLING

5 Movement

When installing the movement into the case, check that the switch lead terminal (A) securely makes contact with the auto switch terminal of the case.



15 Maximum depth hand

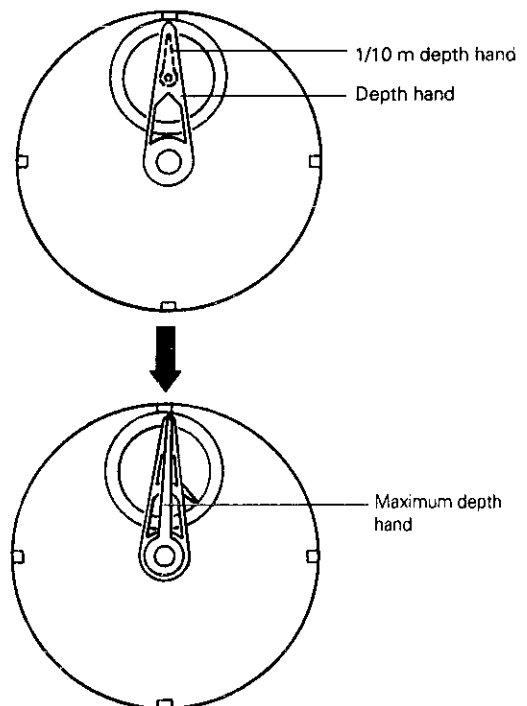
16 Depth hand

17 1/10 m depth hand

• Remarks on installing

- When installing the hands for diving measurement, check that they accurately point to the diving measurement scales on the dial.
- The depth hand moves correspondingly with the 1/10 m depth hand, and the maximum depth hand is advanced by the depth hand. To install them, therefore, be sure to follow the procedure below.

- 1) Reset the circuit.
- 2) Pull out the crown to the second click and wait for more than 40 seconds until all the wheels on the train wheel bridge stop moving.
- 3) Reset the 1/10 m depth and depth hands to "0" position as shown in the illustration at upper right.
- 4) After pressing the button at the 2 o'clock side more than 15 times, put the maximum depth hand exactly onto the depth hand as shown in the illustration at right.



Note : Be sure to observe the following to prevent any difference of indication between the depth and maximum depth hands.

- After pressing the button at the 2 o'clock side in step "4" above, be careful not to give the watch any vibration or impact until you finish installing the maximum depth hand.
 - Push in the hands straight from above, taking care not to turn them.
- * After installing the hands, recall the log data to check that :
- there is no difference of indication between the depth and the maximum depth hands.
 - when the depth hand returns to indicate the average depth, the maximum depth hand stays where it was advanced by the depth hand.

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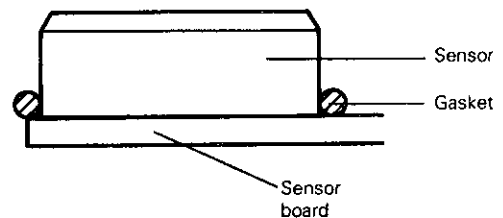
• How to recall the log data :

Press the button at the 10 o'clock side with the crown at the normal position.
(By pressing the button 3 times, a beep sounds and the display returns to the TIME/CALENDAR.)

23 Gasket

Push in the gasket until it touches the sensor board as shown in the illustration at right.

- Notes :**
- Do not remove the gasket except when it needs to be replaced with a new one.
 - Do not apply silicone oil to the gasket.

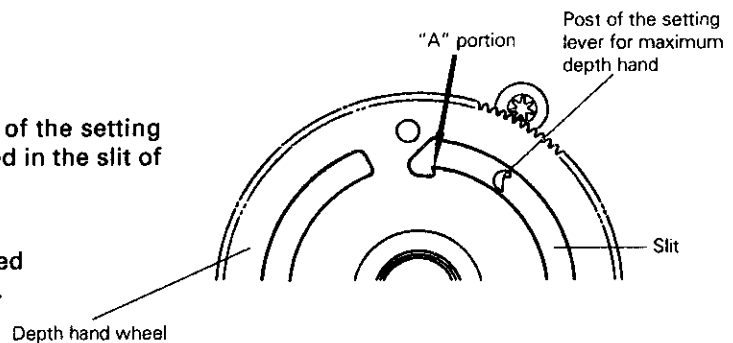


26 Depth hand wheel

• How to install

Set the depth hand wheel so that the post of the setting lever for maximum depth hand is positioned in the slit of the depth wheel.

- Note :** Take care not to press down the hooked portion ("A") of the depth hand wheel.

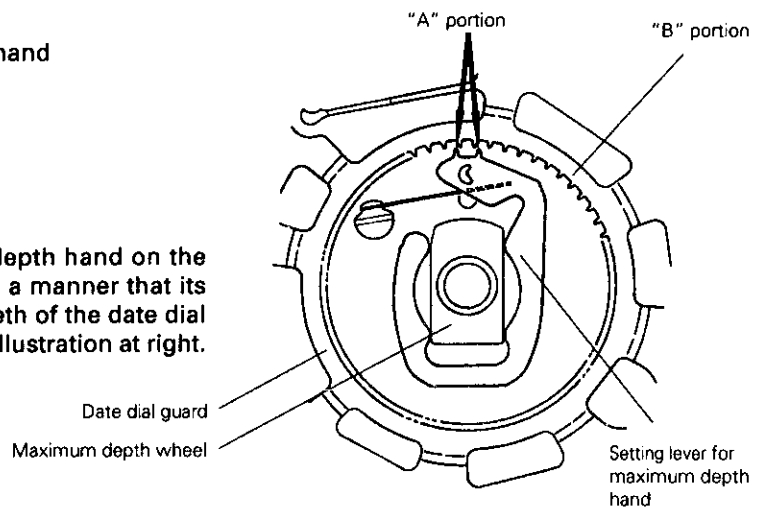


27 Setting lever for maximum depth hand

28 Date dial guard

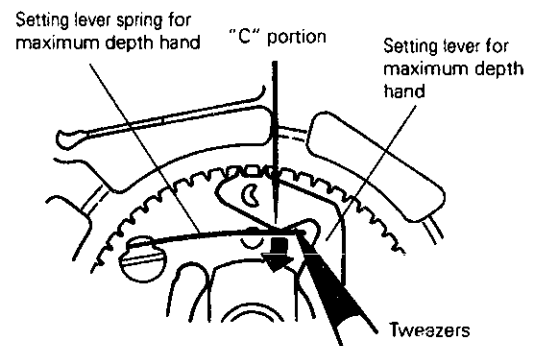
• How to install

- 1) Set the setting lever for maximum depth hand on the maximum depth hand wheel in such a manner that its teeth ("A" portion) stay inside the teeth of the date dial guard ("B" portion), as shown in the illustration at right.



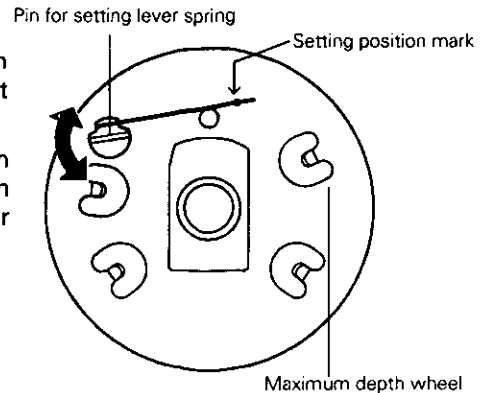
- 2) Hook the setting lever spring for maximum depth hand to the "C" portion of the setting lever. In doing so, pull the end portion of the setting lever spring in the direction of the arrow with tweezers, taking care not to deform the spring.

- Note :** Take care not to deform both teeth of the setting lever for maximum depth hand and of the date dial guard.



29 Setting lever spring for maximum depth hand

- It is not necessary to remove the setting lever spring for maximum depth hand from the maximum depth hand wheel except when it needs to be replaced with a new one.
- Check if the end portion of the setting lever spring for maximum depth hand is positioned on the setting position mark inscribed on the maximum depth hand wheel. If not, turn the pin for setting lever spring with a screwdriver to adjust the setting position.

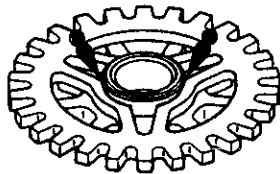


37 Second intermediate wheel for calendar correction

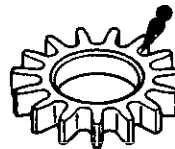
38 First intermediate wheel for calendar correction

Lubricating

Refer to the illustrations below.



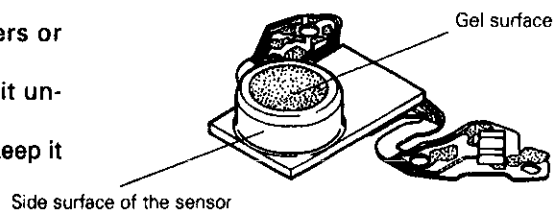
Second intermediate wheel for calendar correction



First intermediate wheel for calendar correction

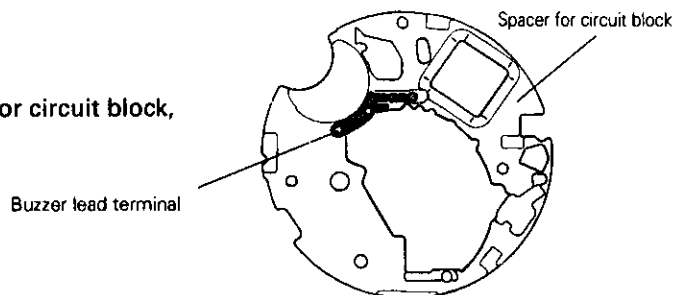
47 Sensor circuit block

- Do not touch the gel surface of the sensor with tweezers or fingers.
- If it is soiled, lightly rinse it with fresh water and leave it untouched until it is thoroughly dry.
- Take care not to scratch the side surface of the sensor and keep it clean, as the gasket for sensor is attached around it.



50 Buzzer lead terminal

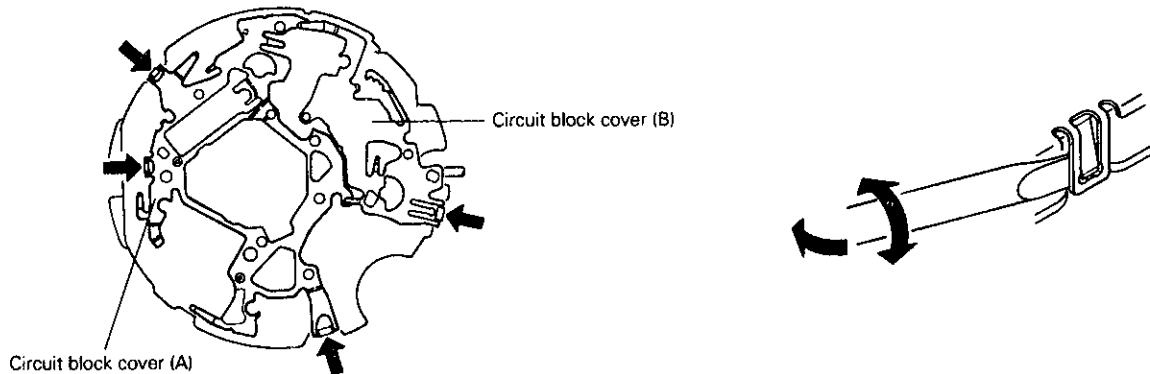
First, set the buzzer lead terminal to the spacer for circuit block, and then, install them to the movement.



54 Circuit block cover (B)

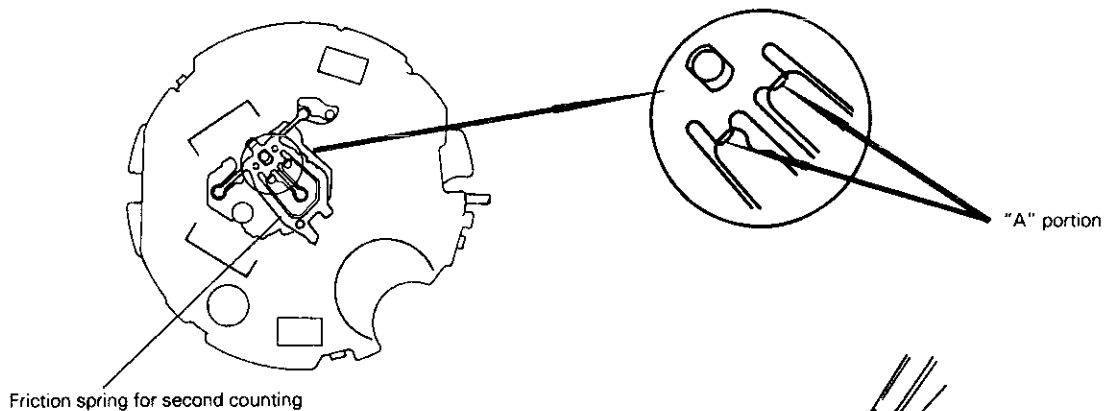
56 Circuit block cover (A)

- Pry up the one hooking portion of circuit block cover (B) and the three hooking portions of the circuit block cover (A) with the tip of a screwdriver to remove them.
- When installing the circuit block covers, check that the hooking portions securely catch the main plate.



57 Friction spring for second counting

Slip the "A" portion of the friction spring for second counting into the gap under the train wheel bridge as shown in the illustrations below.



61 Pin for train wheel bridge

• **How to remove**

Turn the pins 90° counterclockwise with a screwdriver to loosen them, and pick them up using rodico.

• **How to install**

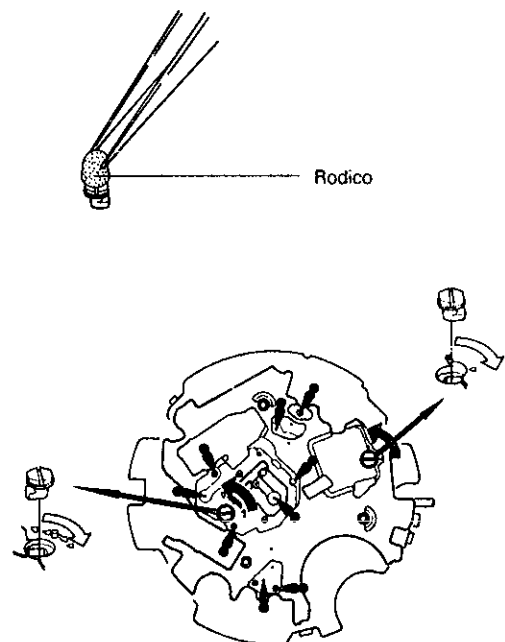
Set the pins properly into the groove as shown in the illustration, and turn them 90° clockwise with a screwdriver to fix them.

• **Lubricating of the upper pivots for wheels and rotors**

After installing the train wheel bridge, lubricate the portions marked with the lubricating marks in the illustration at right.

Notes : • Never turn the pins more than 90° clockwise or counterclockwise.

- Be sure to use a screwdriver that fits the slot of the pin head.
- Never apply undue force to the pins in turning them using a screwdriver.

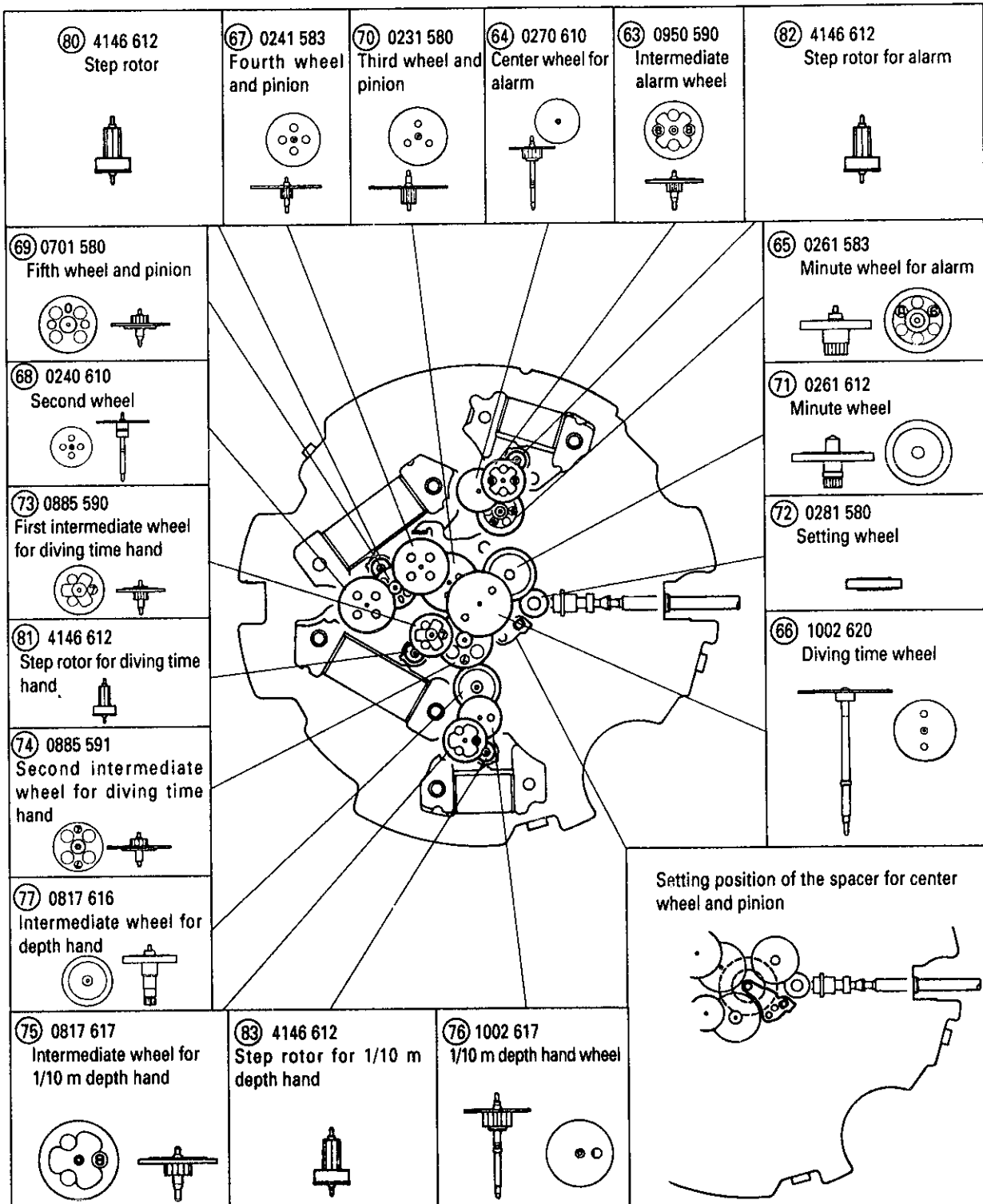


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62 Train wheel bridge

Before setting the train wheel bridge, be sure to check that each wheel is set at the right position and the lower pivot is inserted correctly.



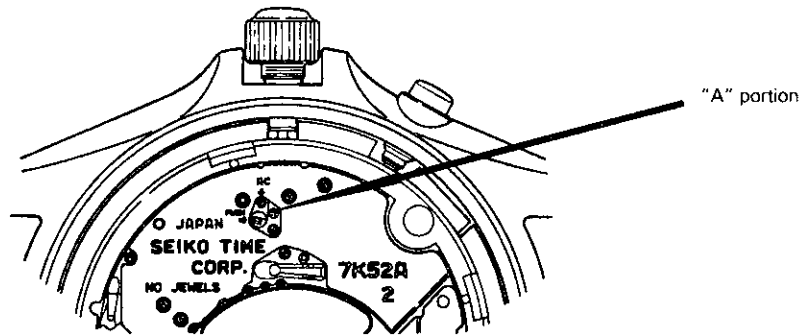
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91 Winding stem (with crown)

• Remarks on installing

To remove the winding stem (with crown), pull out the crown to the first click, and then, pull out the setting lever ("A" portion in the illustration, below) while pressing it.



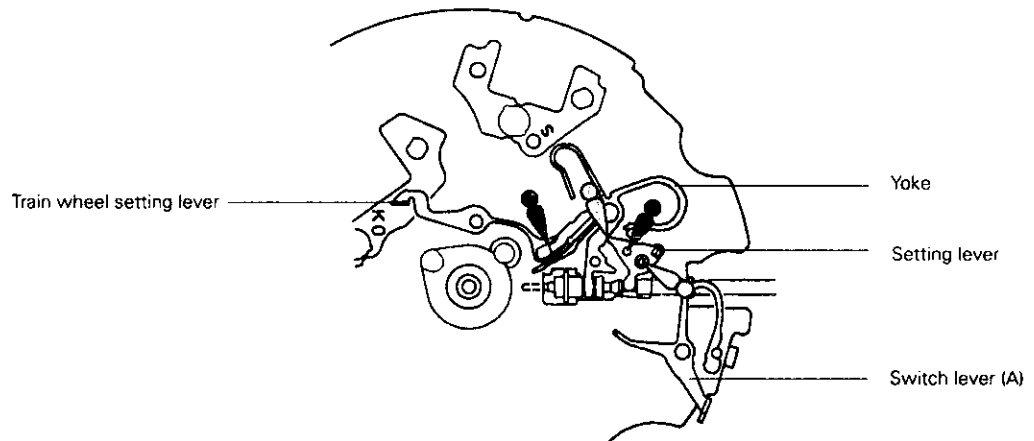
88 Yoke

89 Train wheel setting lever

90 Setting lever

99 Switch lever (A)

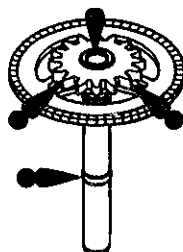
• Setting position and lubricating



79 Center wheel and pinion

• Lubricating

Lubricate the center wheel and pinion as shown in the illustration.



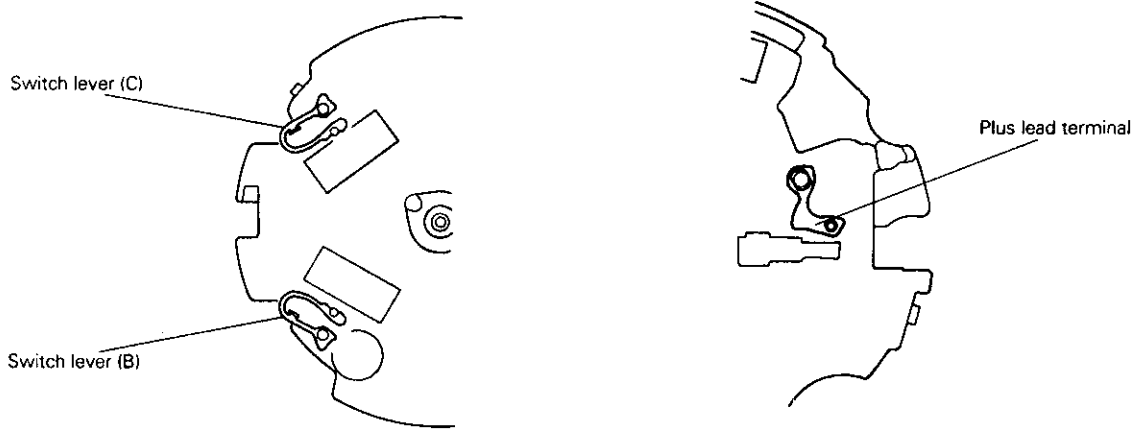
97 Switch lever (C)

98 Switch lever (B)

100 Plus lead terminal

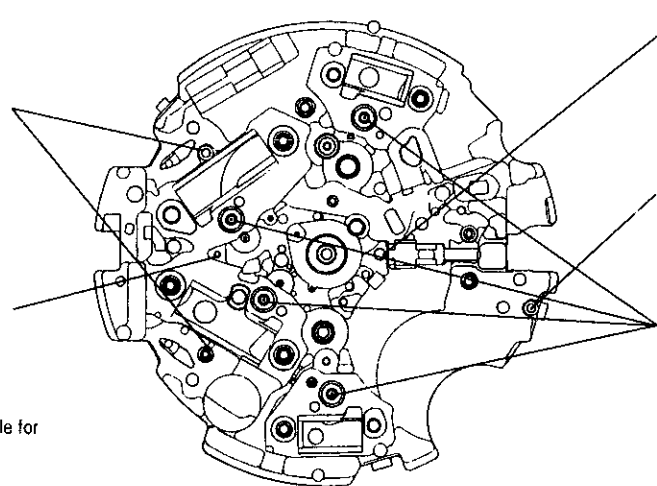
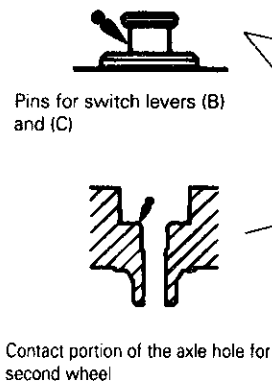
• Setting position

Set the switch levers (C) and (B) and the plus lead terminal as shown in the illustrations below.



101 Main plate

• Lubricating



- Axle hole for step rotor
- Axle hole for step rotor for diving time hand
- Axle hole for step rotor for alarm
- Axle hole for step rotor for 1/10 m depth hand

IV. VALUE CHECKING

• Coil block resistance

- Coil block : 2.8 kΩ ~ 3.5 kΩ
- Coil block for diving time hand : 2.8 kΩ ~ 3.5 kΩ
- Coil block for alarm: 1.1 kΩ ~ 1.7 kΩ
- Coil block for 1/10 m depth hand : 1.1 kΩ ~ 1.7 kΩ

• Current consumption

- For the whole movement : less than 1.6 μA (with voltage supplied from a battery)
- For the circuit block alone : less than 1.4 μA (with voltage supplied from a battery)

• Before measuring the current consumption, be sure to reset the circuit with the tester connected.

To reset the circuit, refer to "II. REMARKS ON INSTALLING THE BATTERY".

• When measuring the current consumption, do not touch the water contact sensor with fingers or short-circuit it. (If the water contact sensor is short-circuited, the diving function may be activated and increase the current consumption. As a result, correct measurement cannot be obtained.)

• Time accuracy

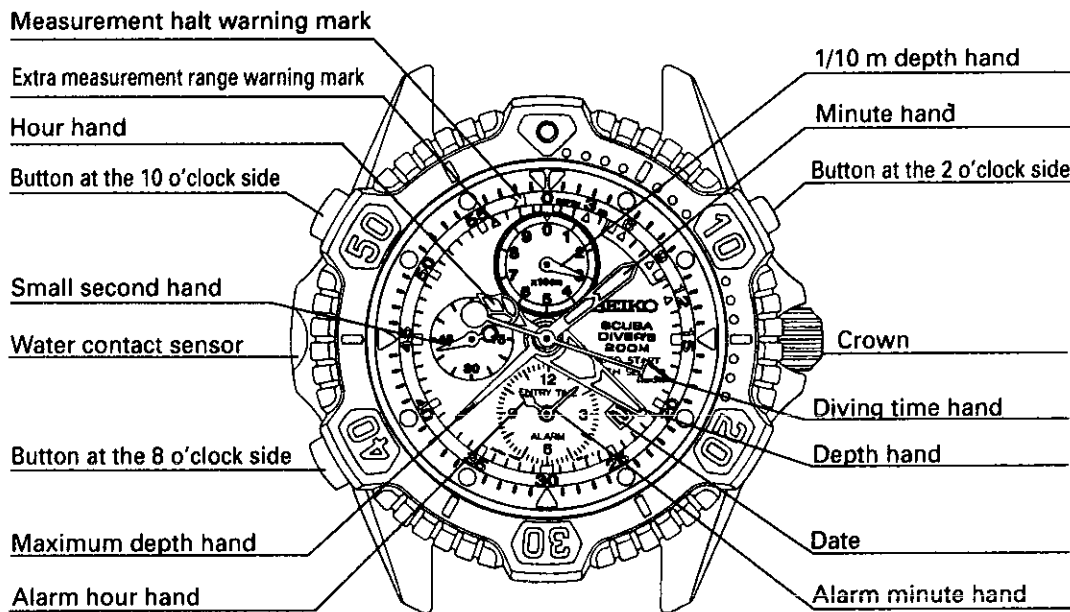
When measuring the accuracy, pull out the crown to the first click and set the gate of the quartz tester to "10".

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• Function checking

When checking the functions, operate the crown and buttons as follows.



Crown position

Normal position (Time/calendar display)	Crown operation	Free
	Button operation	<ul style="list-style-type: none"> Button at 10 o'clock side : Recall of log data and cancellation of the single-time alarm Button at 8 o'clock side : Single-time alarm setting (The single time alarm function cannot be used while log data is recalled.)
First click (Date setting function)	Crown operation	<ul style="list-style-type: none"> Counterclockwise : Date setting Clockwise : Free
	Button operation	<ul style="list-style-type: none"> Button at 10 o'clock side : Demonstration of the hands by pressing for 2 seconds. Button at 8 o'clock side : Single-time alarm setting
Second click (Time setting function)	Crown operation	Time hands setting
	Button operation	<ul style="list-style-type: none"> Button at 2 o'clock side : Resetting the 1/10 m depth and depth hands to "0" position. (The depth hand moves correspondingly with the 1/10 m depth hand) Button at 10 o'clock side : Resetting the diving time hand to "0" position. Button at 8 o'clock side : Setting the alarm hour and minute hands to the current time. (The alarm hour hand moves correspondingly with the alarm minute hand.) Simultaneous press of buttons at 2 o'clock and 10 o'clock sides : Resetting the circuit.

• **Accuracy of the pressure sensor**

To precisely measure the accuracy of the pressure sensor, use Water Resistance Tester S-470, which is equipped with a transparent water tank and a digital water pressure gauge, or Water Resistance Tester S-461.

Procedure for measuring the accuracy of the pressure sensor (when using Water Resistance Tester S-470.)

- 1) While pressing the crown, turn it clockwise to screw it in.
- 2) Press the button at the 10 o'clock side repeatedly to reset the 1/10 m depth, depth and maximum depth hands to "0" position.
(If they are at "0" position, it is not necessary to follow this step.)
- 3) Put the watch into the water tank of Water Resistance Tester S-470, and apply 1.00 kg/cm² of pressure.
- 4) Make a note of the depth displayed by the watch.
- 5) Apply pressure gradually, and make a note of the depth displayed by the watch when 3.00 kg/cm² of pressure is applied.
- 6) If the obtained depths fall within the range shown in the table below, the pressure sensor is normal and accurately measures the depth.

Pressure value	Depth display of Cal. 7K52A
1.00 kg/cm ²	8.5 ~ 10.5 m
3.00 kg/cm ²	27.5 ~ 30.5 m

• **Remarks on the water resistance test**

- 1) Use a water pressure type water resistance tester such as S-470 and S-461. Never use an air pressure type tester as it may cause damage to the pressure sensor.
- 2) In checking the water resistant quality of the watch using the water resistance tester, increase and decrease pressure gradually taking more than 15 minutes in each process.

