


PARTS CATALOGUE/TECHNICAL GUIDE

Cal. H021A

[SPECIFICATIONS]

Item		Cal. No.	H021A
Movement		 <p style="text-align: center;">(x 1.0)</p>	
Movement size	Outside diameter	ø31.0 mm 29.0 mm between 3 o'clock and 9 o'clock sides 28.5 mm between 6 o'clock and 12 o'clock sides	
	Casing diameter	ø30.0mm 29.0 mm between 3 o'clock and 9 o'clock sides 28.5 mm between 6 o'clock and 12 o'clock sides	
	Height	5.5 mm	
Time indication		Analogue section	Digital section
		3 hands (Hour, minute and second hands)	Nematic Liquid Crystal, FEM (Field Effect Mode)
Driving system		Step motor, 2 pieces	Multiplex driving system
Display system		<ul style="list-style-type: none"> • Time/calendar display • World time display • Stopwatch display <ul style="list-style-type: none"> • 1-minute tachymeter (Second hand) 	<ul style="list-style-type: none"> • Time/calendar display <ul style="list-style-type: none"> • Month, date, day and automatic calendar from the year 1994 up to 2043 • Hour, minutes and seconds • Automatic daylight saving time function • World time display <ul style="list-style-type: none"> • 28 city display • Automatic daylight saving time function • Display of time difference between the selected city and your area • Stopwatch display <ul style="list-style-type: none"> • Up to 100 hours (Hour, minutes, seconds and 1/1000 seconds) • Alarm display <ul style="list-style-type: none"> • Daily alarm (2 channels)
Additional mechanism		—	<ul style="list-style-type: none"> • Hourly time signal • Alarm test system • Sound for button operation confirmation • Battery life indicator
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		Maxell SR1130W, Sony SR1130W Battery life is approximately 2 years. Voltage: 1.55V	
Jewels		5 jewels	

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Disassembling procedures Figs. :

① → ④②

Reassembling procedures Figs. :

④② → ①

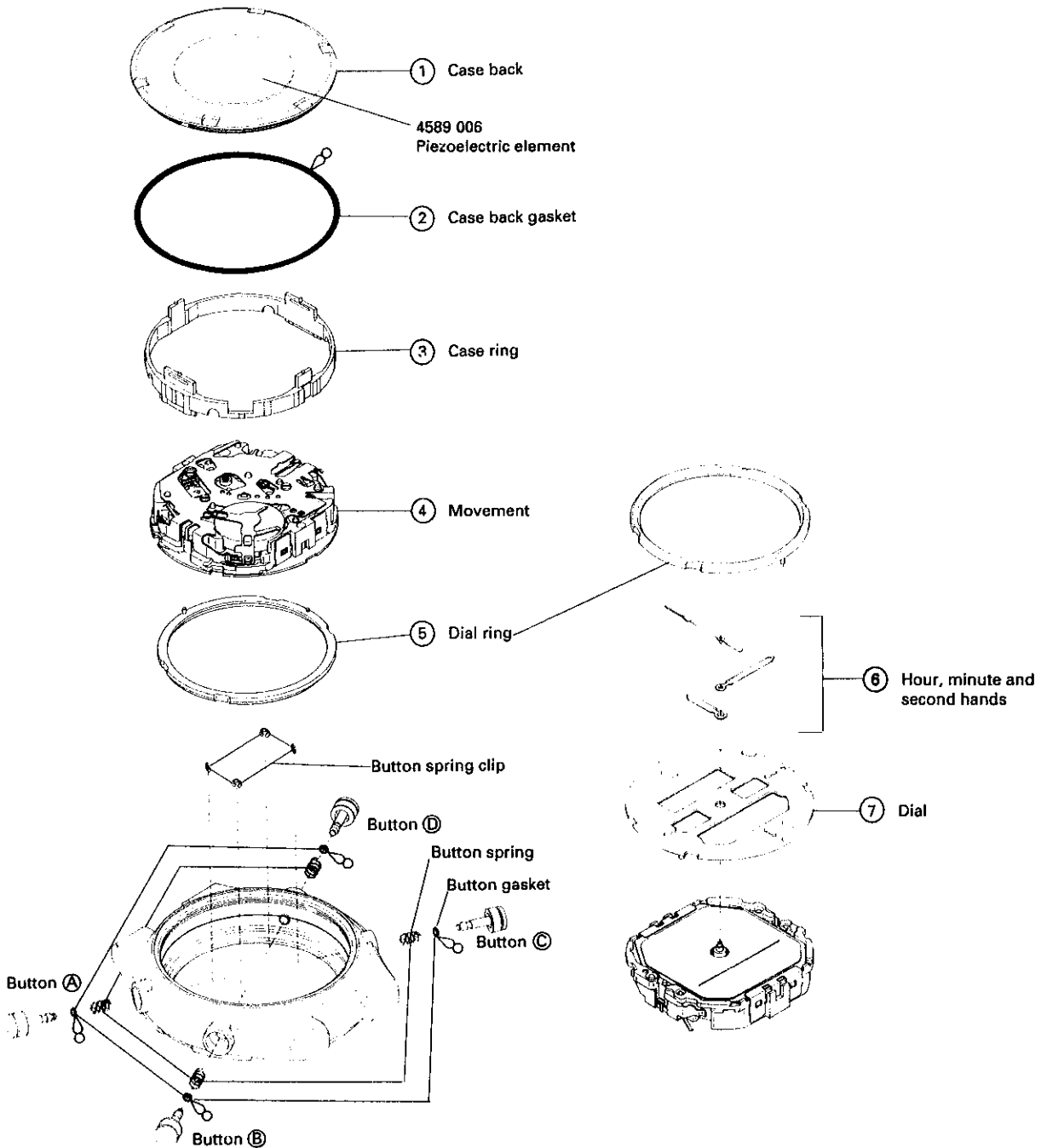
Lubricating: Types of oil

Oil quantity

● Moebius A

∞ Normal quantity

○ Silicone Oil 500,000 c.s.

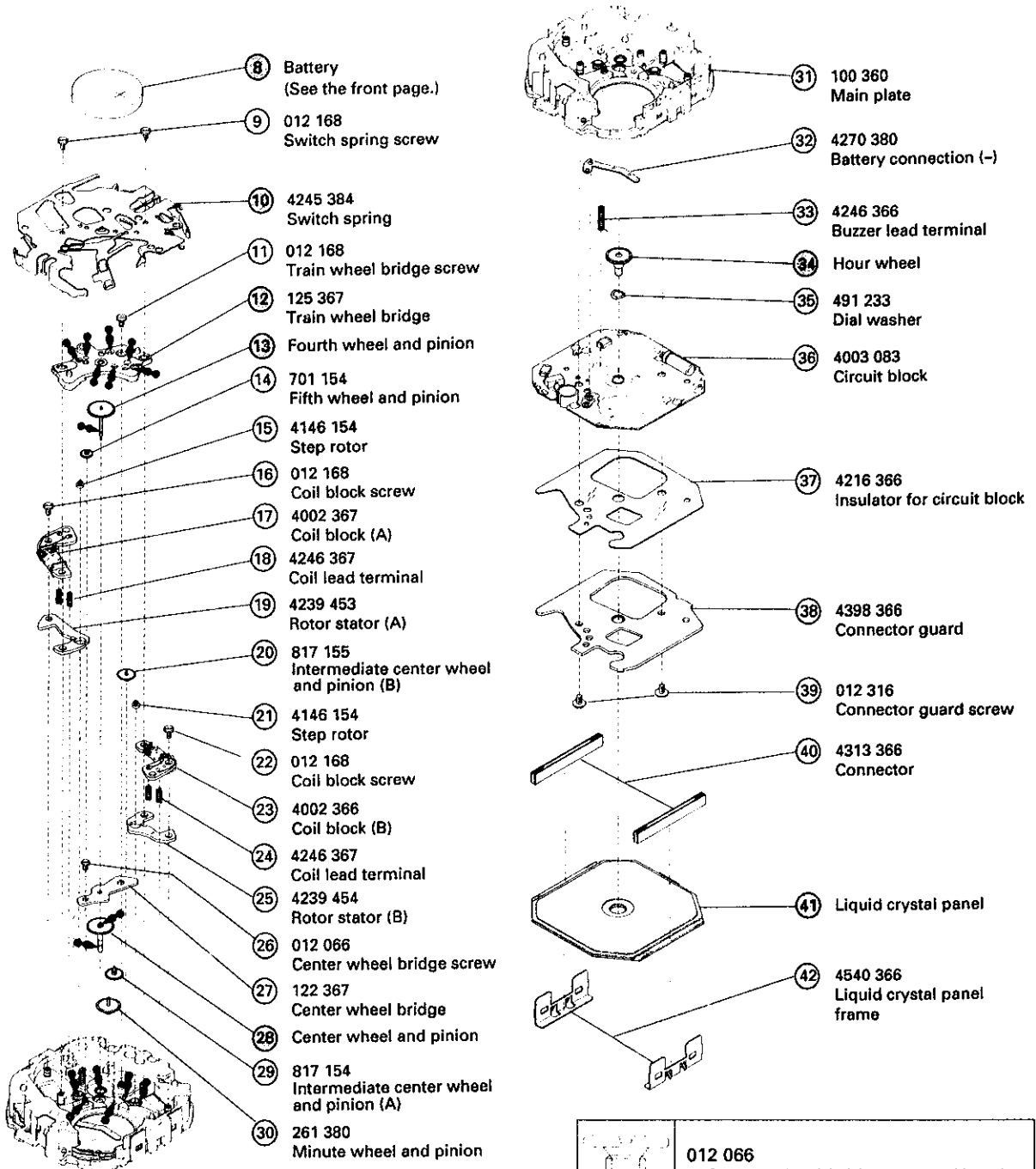





* Do not disassemble the buttons except when they need to be replaced.

○ → Please see the remarks on the following pages.

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	012 066 • Center wheel bridge screw (1 pc.)
	012 168 • Switch spring screw (2 pcs.) • Train wheel bridge screw (1 pc.) • Coil block screw (2 pcs.)
	012 316 • Connector guard screw (2 pcs.)

 Please see the remarks on the following pages.

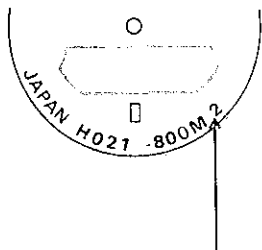
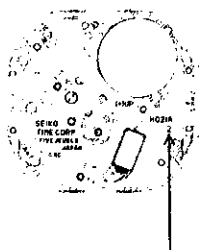
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Remarks:

• Discrimination of the hand installation height

Cal. H021A watches have numerals printed on the dial and the movement to indicate the hand installation height. When repairing, refer to the table below.

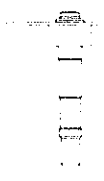


Discrimination	Height	Standard type	Standard type
	Numeral for discrimination	2	2
Printed on		Dial	Movement
Printed position		 <p>The numeral is printed at the right end.</p>	 <p>The numeral is printed below the calibre number.</p>

⑬ Fourth wheel and pinion

⑳ Center wheel and pinion

㉓ Hour wheel

These parts are determined by the hand installation height. Refer to the table below or check the case number and refer to "SEIKO Casing Parts Catalogue".

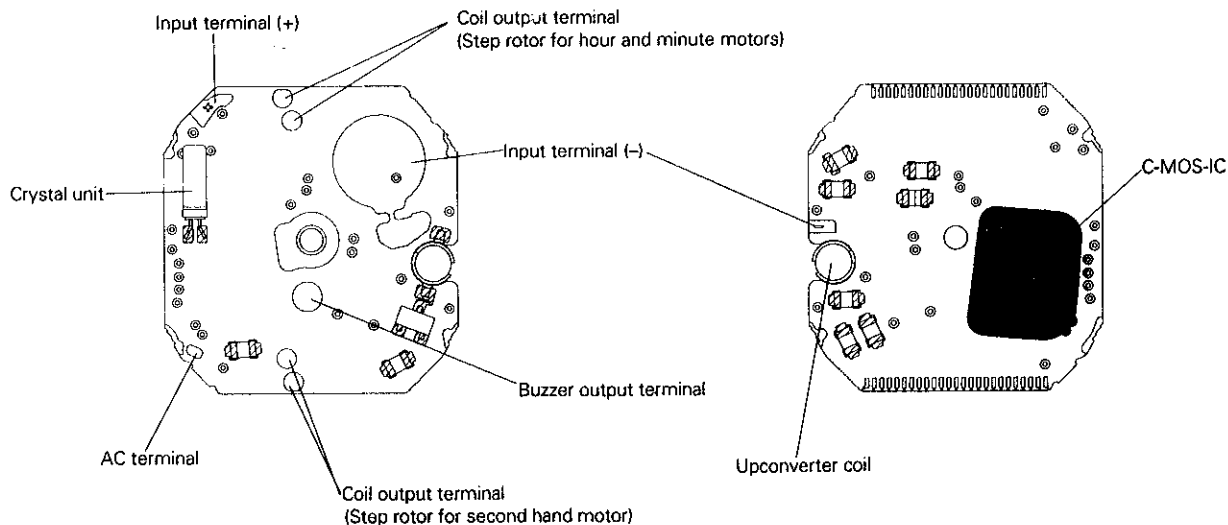
Numeral for discrimination	Center wheel and pinion	Fourth wheel and pinion	Hour wheel
2	 <p>221 379</p>	 <p>241 362</p>	 <p>271 380</p>

㉑ Liquid crystal panel

The type of liquid crystal panel differs depending on the model. Refer to "SEIKO Casing Parts Catalogue" to choose the corresponding liquid crystal panel.

- The explanation here is only for the particular points of Cal. H021A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

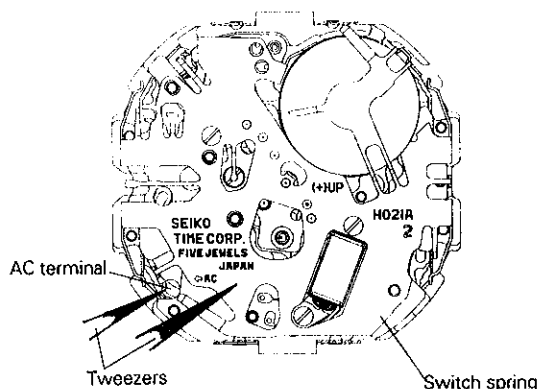
I. STRUCTURE OF THE CIRCUIT BLOCK



II. REMARKS ON INSTALLING THE BATTERY

1. 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 of the circuit block and the switch spring with conductive tweezers to reset the circuit as illustrated at right.

Note: When checking the current consumption, short-circuit with the power supplied from external source.

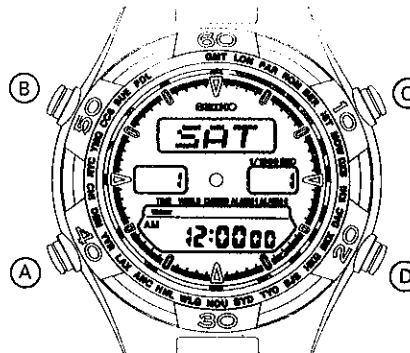


2. To reset the circuit of the complete watch, press and hold buttons "A", "B", "C" and "D" at the same time for 2 to 3 seconds. The display will become blank, and "12:00'00" AM, Saturday, January 1st" will be shown as the buttons are released, indicating that the resetting of the circuit has been completed.

* Before closing the case back, apply a small quantity of silicone oil to the contact portion (piezoelectric element) of the case back with the buzzer lead terminal.

3. Be sure to set the digital time first before setting the analogue time, as the analogue hands are governed by the digital time.

* For time/calendar setting, refer to the instruction booklet for Cal. H021.



III. REMARKS ON DISASSEMBLING AND REASSEMBLING

Use the universal movement holder for disassembling and reassembling.

⑥ Hands

• Remarks on installing

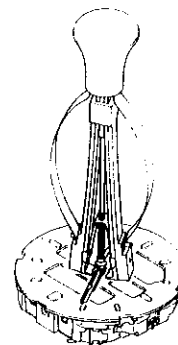
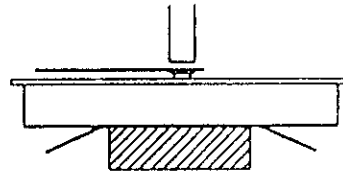
After installing the battery in the movement, place the movement on a flat metal plate or the like to install the hands.

* Install the hour and minute hands at the 12 o'clock position within 60 seconds after resetting the circuit.

* When installing the second hand, be sure to check that it accurately points to a second marker on the dial. This is because in some modes it indicates city names which may be located between second markers. If not installed correctly, the second hand will not properly indicate the city names.

• Remarks on removing

To remove the hands with a bow-shaped hand removing jig, set the jig between the 2 o'clock and 8 o'clock sides or the 4 o'clock and 10 o'clock sides so that it does not get caught in the display windows of the dial.



⑧ Battery

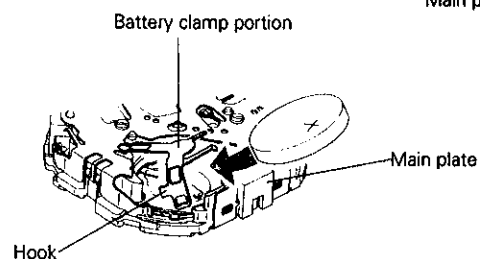
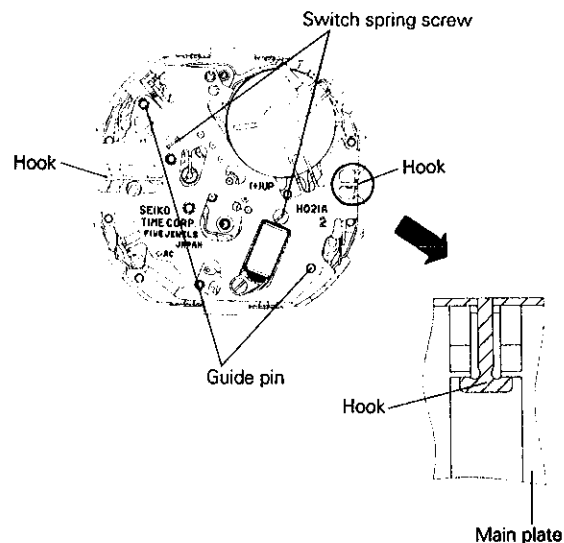
⑩ Switch spring

• How to install

(1) Set the switch spring in position, taking care not to damage the two guide pins for the main plate. Then, tighten the two switch spring screws.

(2) Make sure the two hooks of the switch spring engage the main plate.

(3) Insert the battery sideways, and have the hook of the switch spring's battery clamp portion catch the main plate.


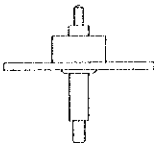
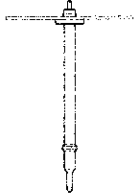



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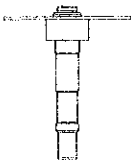
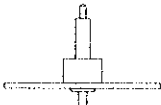
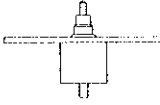

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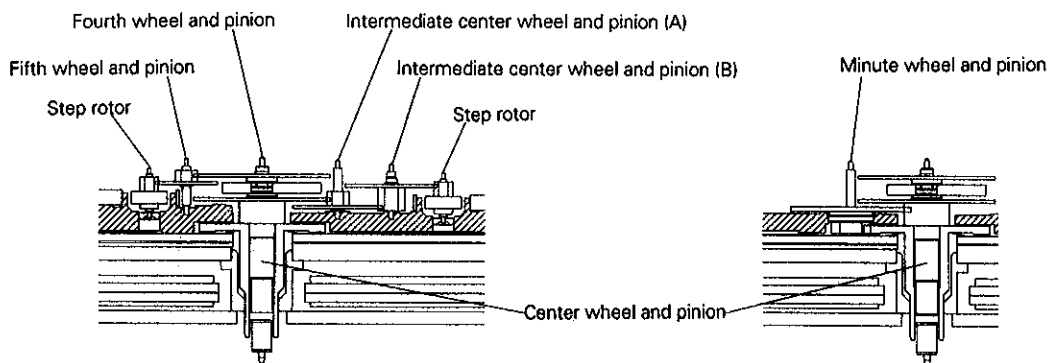
⑫ Train wheel bridge

• Setting position

Second hand motor		
Step rotor	Fifth wheel and pinion	Fourth wheel and pinion
		
4146 154	701 154	241 362

Minute wheel and pinion

261 380




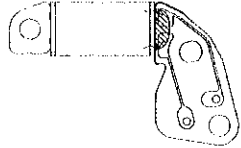
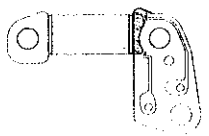
Center wheel and pinion	Intermediate center wheel and pinion (A)	Intermediate center wheel and pinion (B)	Step rotor
			
221 379	817 154	817 155	4146 154
Hour and minute hand motors			



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• Distinction of motors

Part name \ Distinction	Second hand motor	Hour and minute hand motors
Step rotor	 4146 154	
Rotor stator	 4239 453 No mark	 4239 454 Marked with "1"
Coil block	 4002 367	 4002 366

- * The step rotors can be used interchangeably.
- * To use the proper rotor stator, be sure to check for the numeral.
- * For the distinction of the coil blocks, see the table above and find the proper ones from their shapes.

IV. VALUE CHECKING

- **Time accuracy**

To measure accuracy, light up all the segments. To do so, press buttons "C" and "D" at the same time in the TIME/CALENDAR SETTING display.

After the measurement, press button "A", "B", "C" or "D" to return to the TIME/CALENDAR display.

- **Upconverter coil resistance**

135Ω ~ 165Ω

- **Coil block resistance**

Coil block (A): 1.5KΩ ~ 2.1KΩ

Coil block (B): 1.1KΩ ~ 1.7KΩ

- **Current consumption**

For the whole movement : less than 4.7μA

For the circuit block alone : less than 1.5μA

Notes:

- Before measuring the current consumption, be sure to reset the circuit. Otherwise, current consumption cannot be measured properly.
- When the current consumption exceeds the standard value for the whole movement but is within the standard value range for the circuit block alone, the watch is generating the driving pulse for compensating for the heavy load that may be applied to the gear train, etc. In this case, overhaul and clean the movement parts and then measure current consumption for the whole movement again.