


# PARTS CATALOGUE/TECHNICAL GUIDE

## Cal. Y187B

### [SPECIFICATIONS]

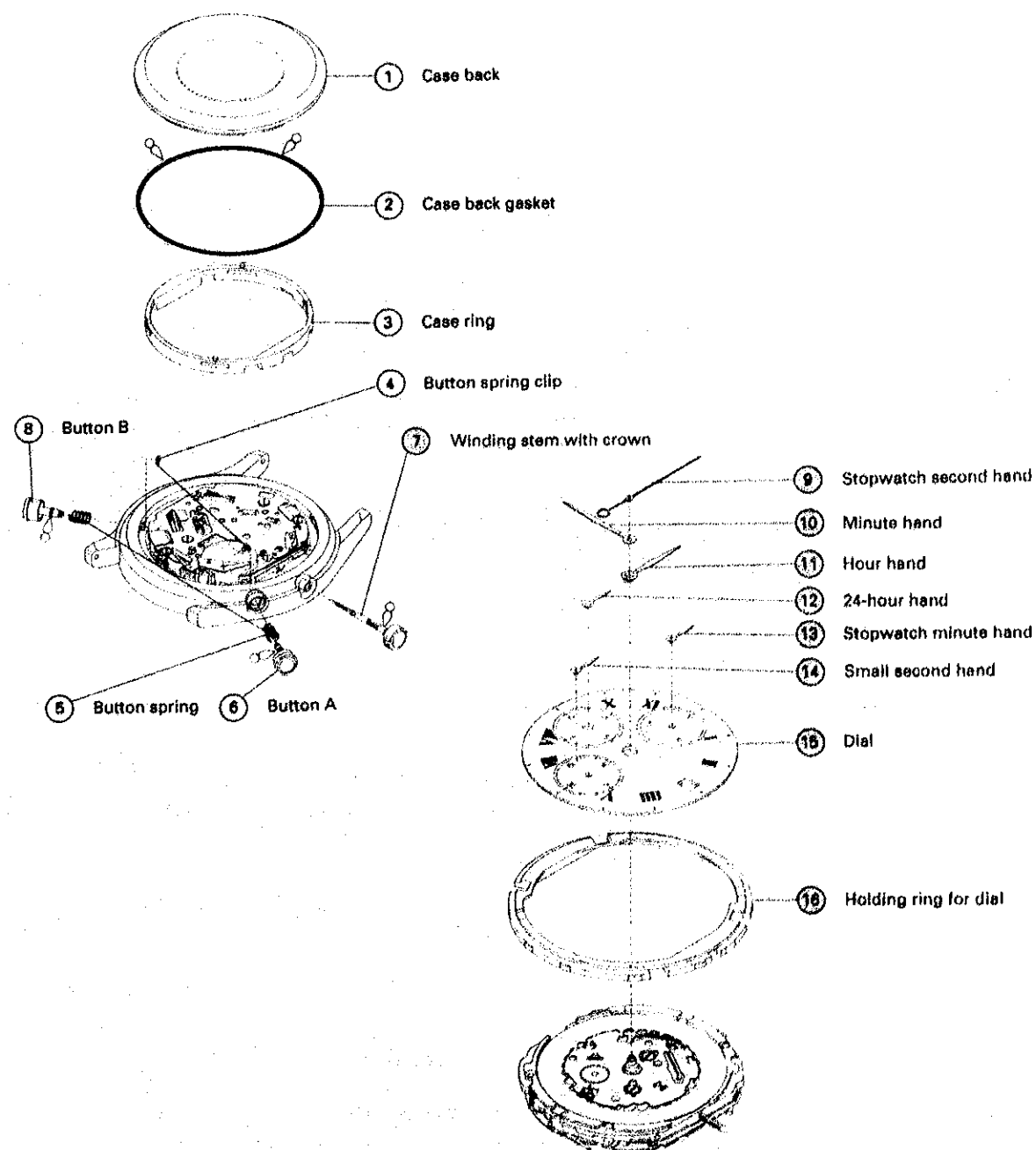
Item		Cal. No.	Y187B
Movement			 <p style="text-align: right;">(x 1.0)</p>
Movement size	Outside diameter	ø27.6mm 24.0mm between 3 o'clock and 9 o'clock sides	
	Casing diameter	ø27.0mm 24.0mm between 3 o'clock and 9 o'clock sides	
	Height	3.3mm	
Time indication		Main time	Stopwatch function
		Hour, minute, small second and 24-hour hands	Minute and 1/5 second hands
Driving system		Step motor, 3 pieces	
Additional mechanism		<ul style="list-style-type: none"> <li>• Electronic circuit reset switch</li> <li>• Train wheel setting device</li> <li>• Battery life indicator (Small second hand moves at two-second intervals.)</li> <li>• Date calendar</li> <li>• Instant setting device for date calendar</li> <li>• Stopwatch function (Up to 30 minutes in 1/5 seconds)                             <ul style="list-style-type: none"> <li>• Accumulated elapsed time measurement</li> <li>• Split time measurement</li> </ul> </li> </ul>	
Loss/gain		Monthly rate at normal temperature range: less than 20 seconds	
Regulation system		Nil	
Measuring gate by quartz tester		Use 10-second gate.	
Battery		SEIKO SR927SW, Maxell SR927SW, SONY SR927SW, EVEREADY 395 Battery life is approximately 2 years. Voltage: 1.55V	
Jewels		0 jewel	

SEIKO CORPORATION

# PARTS CATALOGUE

Cal. Y187B

Disassembling procedures Figs. : ① → ⑥⑧  
 Reassembling procedures Figs. : ⑥⑧ → ①  
 Lubricating: Types of oil      Oil quantity  
 ● 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.

# PARTS CATALOGUE

Cal. Y187B

# PARTS CATALOGUE

Cal. Y187B

17 027 973  
Pin for date dial guard

18 808 580  
Date dial guard

19 Date dial

20 962 580  
Intermediate wheel for calendar correction

21 737 580  
Date corrector setting wheel

22 802 580  
Date driving wheel

23 278 580  
24-hour wheel

24 817 583  
First intermediate 24-hour wheel

25 817 583  
Second intermediate 24-hour wheel

26 Hour wheel

27 022 230  
Battery clamp screw

28 Battery clamp

29 Battery  
(See the front page.)

30 022 459  
Circuit block cover screw

31 4457 727  
Circuit block cover

32 396 580  
Friction spring for second-counting

33 4000 711  
Circuit block

34 4270 710  
Battery connection (-)

35 027 974  
Pin for train wheel bridge

36 126 590  
Train wheel bridge

37 Second-counting wheel

38 4283 581  
Spacer for center wheel and pinion

39 241 583  
Fourth wheel and pinion

40 231 580  
Third wheel and pinion

41 817 591  
Intermediate small second wheel

42 701 580  
Fifth wheel and pinion

43 885 590  
First intermediate wheel for second-counting

44 885 591  
Second intermediate wheel for second-counting

45 261 580  
Minute wheel

46 281 580  
Setting wheel

47 902 580  
Minute-counting wheel

48 240 582  
Small second wheel

	022 230 Battery clamp screw
	022 459 Circuit block cover screw

Please see the remarks on the following pages.

50 4146 710  
Step rotor

51 4146 710  
Chronograph rotor for second

52 4146 710  
Chronograph rotor for minute

53 4002 700  
Coil block

54 4002 700  
Coil block for chronograph second

55 4002 711  
Coil block for chronograph minute

56 4450 710  
Switch lever A

57 383 592  
Setting lever

58 351 580  
Winding stem

59 384 580  
Yoke

60 282 580  
Clutch wheel

61 391 591  
Train wheel setting lever

62 4239 710  
Rotor stator

63 4239 711  
Rotor stator for chronograph second

64 4239 713  
Rotor stator for chronograph minute

65 439 591  
Spacer

66 Center wheel and pinion

67 4450 701  
Switch lever B

68 \* Main plate (Plastics)

69 \* Unavailable for supply

Please see the remarks on the following pages.

# PARTS CATALOGUE

Cal. Y187B

## Remarks:

- ⑩ Holding ring for dial 866 589, 866 595

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

- ⑰ Pin for date dial guard

- ⑳ Pin for train wheel bridge

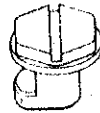
For distinction between the pins, see the illustration below.

[Pin for date dial guard]



027 973

[Pin for train wheel bridge]



027 974

- ⑲ Date dial

Part No.	Figure color	Background color	Crown position	Calendar frame position
878 527	Black	White	3 o'clock	3 o'clock
878 536	White	Black	3 o'clock	3 o'clock

If any other type of date dial is required, check the case number and refer to "Casing Parts Catalogue" or "List of Date Dial" to choose a corresponding date dial.

- ⑳ First intermediate 24-hour wheel

- ㉑ Second intermediate 24-hour wheel

The first intermediate 24-hour wheel and second intermediate 24-hour wheel can be used interchangeably.

- ㉒ Battery clamp

Movement type	Part No.
Standard	4225 735
Short	4225 734

# PARTS CATALOGUE

Cal. Y187B

- ㉔ Hour wheel

- ㉕ Second-counting wheel

- ㉖ Center wheel and pinion

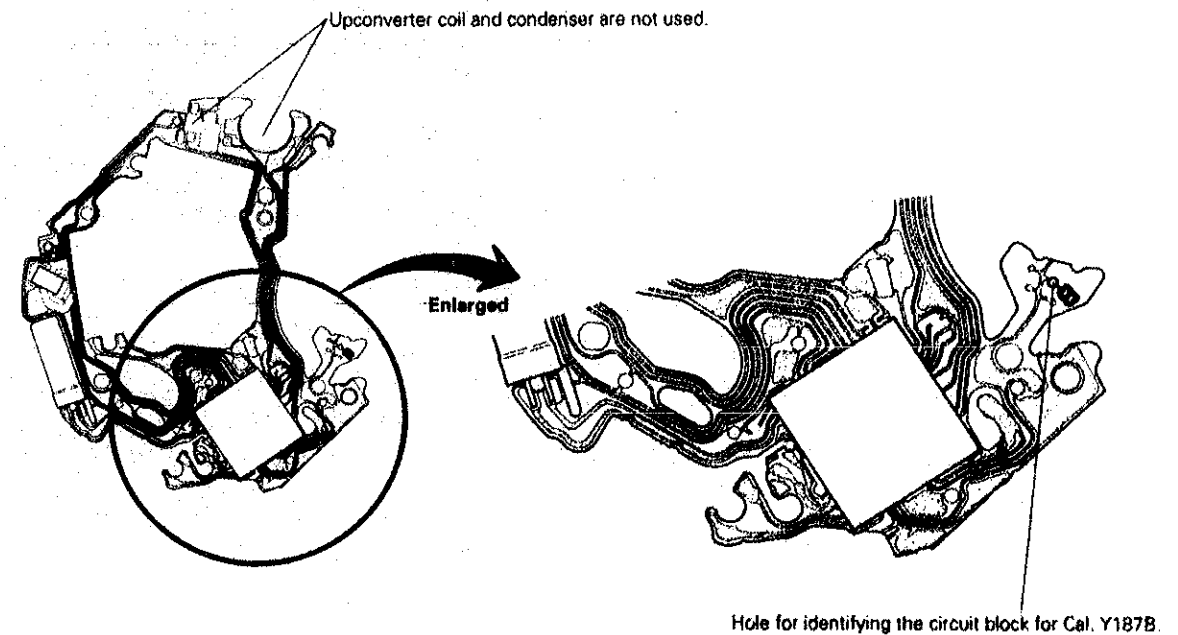
## Combination

Parts name Type*	Hour wheel	Second-counting-wheel	Center-wheel and pinion
M	271 593	888 580	221 580
S	271 582	888 581	221 582

\*Abbreviation M ..... Standard type  
(Movement type) S ..... Short type

- ㉗ Circuit block

The circuit block doesn't have an upconverter coil and condenser.



- ㉘ Winding stem 351 580

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

# TECHNICAL GUIDE

## Characteristics

## Remarks

Casing diameter :  $\phi$  27.0mm x 24.0mm  
 Maximum height : 3.3mm  
 Hour, minute, small second and 24h hand  
 Date calendar  
 Instant setting device for date calendar  
 Battery life indicator  
 Train wheel setting device  
 Electronic circuit reset switch  
 Chronograph function  
 (up to 30 minutes in 1/5 seconds)  
 • Accumulated elapsed time measurement  
 • Split time measurement

Winding stem : \*351 580  
 The type of winding stem is determined by the design of case. Check the case number and refer to "Casing Parts Catalogue".  
 Date dial : \*878 527(Black figures on white background)  
 \*878 536(White figures on black background)  
 ... Used when both the crown and the calendar frame are located at 3 o'clock position.  
 If any other type of date dial, check the case number and refer to "Casing Parts Catalogue" and "List of date dial".

Center wheel & pinion, Hour wheel & pinion, Second counting wheel and Battery clamp - There are two different types as specified below:

## Combination

Type	Center wheel & pinion	Hour wheel & pinion	Second counting wheel	Battery clamp
M	*221 580	*271 593	*888 580	*4225 735
S	*221 582	*271 582	*888 581	*4225 734

N/*	Part No.	Part Name
	125 590	Train wheel & pinion
*	221 580	Center wheel & pinion
*	221 582	Center wheel & pinion
	231 580	Third wheel & pinion
	240 582	Small second wheel
	241 583	Fourth wheel & pinion
	261 580	Minute wheel
*	271 593	Hour wheel
*	271 582	Hour wheel
	278 580	24 hour wheel
	281 580	Setting wheel
	282 580	Clutch wheel
*	351 580	Winding stem
	383 592	Setting lever
	384 580	Yoke
	391 591	Train wheel setting lever
	396 580	Friction spring for second counting
	439 591	Spacer B
	701 580	Fifth wheel & pinion
*	878 527	Date dial
*	878 536	Date dial
	737 580	Date corrector setting wheel
	802 580	Date driving wheel
	808 580	Date dial guard
	817 591	Intermediate small second wheel
	817 583	First intermediate 24 hour wheel
	817 583	Second intermediate 24 hour wheel
	885 590	First intermediate wheel for second counting
	885 591	Second intermediate wheel for second counting
*	888 580	Second counting wheel
*	888 581	Second counting wheel

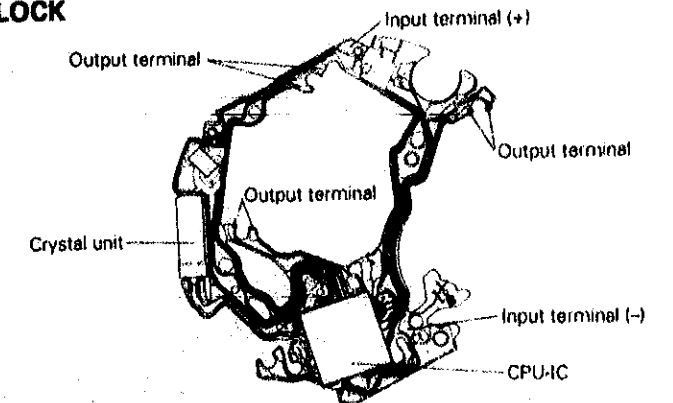
N/*	Part No.	Part Name
	902 580	Minute counting wheel
	950 590	Intermediate minute counting wheel
	962 580	Intermediate wheel for calendar correction
	4000 711	Circuit block
	4002 700	Coil block
	4002 700	Coil block for chronograph second
	4002 711	Coil block for chronograph minute
	4146 710	Step rotor
	4146 710	Chronograph rotor for minute
	4146 710	Chronograph rotor for second
N/*	4225 734	Battery clamp
*	4225 735	Battery clamp
	4239 710	Rotor stator
	4239 711	Rotor stator for chronograph second
	4239 713	Rotor stator for chronograph minute
	4270 710	Battery connection (-)
	4283 581	Spacer for center wheel & pinion
	4450 710	Switch lever A
	4450 701	Switch lever B
	4457 727	Circuit block cover
	022 230	Battery clamp screw
	022 459	Circuit block cover screw
	027 973	Pin for date dial guard
	027 974	Pin for train wheel bridge
	SEIKO MAXCELL SONY EVEREADY	SR927SW SR927SW SR927SW 395
		Battery

'N' Mark : New Part  
 '\* ' Mark : See above remarks

- The explanation here is only for the particular points of Cal. Y187B.

- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS" and "PARTS CATALOGUE/TECHNICAL GUIDE for Cal. Y187A".

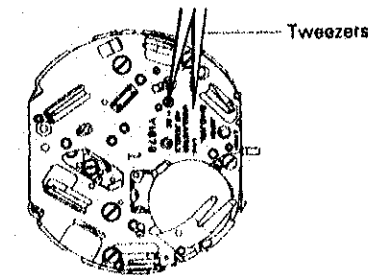
## I. STRUCTURE OF THE CIRCUIT BLOCK



## II. REMARKS ON INSTALLING THE BATTERY

- A necessary step after installing the battery

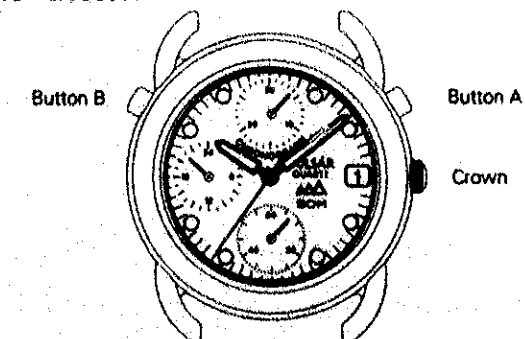
- After the battery is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to short-circuit the AC terminal and the circuit block cover with tweezers to reset the circuit as shown in the illustration below.



- After resetting the circuit, be sure to reset the stopwatch hands to the 12 o'clock position.

- 1) Pull out the crown at the 3 o'clock side to the second click.
- 2) Press button "B" to reset the stopwatch second hand to "0".
- 3) Press button "A" to reset the stopwatch minute hand to "0".

- \* With each press of buttons "B" and "A", the stopwatch second and minute hands move 0.2 seconds and 0.5 minutes, respectively. They move automatically while the buttons are kept pressed and stop when they are released.



# TECHNICAL GUIDE

Cal. Y187B

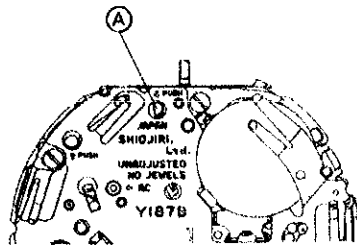
## III. REMARKS ON DISASSEMBLING AND REASSEMBLING

Use the universal movement holder for disassembling and reassembling.

### ⑦ Winding stem with crown

#### • How to remove

Pull out the crown to the first click, and then push the setting lever by inserting the tip of tweezers into hole "A" in the illustration below.



### ⑨ Stopwatch second hand

### ⑩ Minute hand

### ⑪ Hour hand

### ⑫ 24-hour hand

### ⑬ Stopwatch minute hand

### ⑭ Small second hand

#### • How to install

- 1) Pull out the crown to the second click.
- 2) Install the small second hand, checking that it accurately points to the second scale on the dial.
- 3) Install the stopwatch minute hand, checking that it accurately points to the stopwatch minute scale on the dial.
- 4) Turn the crown clockwise until the date changes.
- 5) Install the 24-hour hand, checking that it accurately points to the 24-hour scale.
- 6) Turn the crown counterclockwise to move back the 24-hour hand to 23:00.
- 7) Turn the crown slowly clockwise to set the 24-hour hand exactly at the 24 o'clock position.
- 8) Gently install the hour hand at the 12 o'clock position, taking care not to give any shock to the movement.
- 9) Install the minute hand.
- 10) Install the stopwatch second hand at the 12 o'clock position.
- 11) Check that there are proper clearances among the hands and that they accurately point to the corresponding scales.

# TECHNICAL GUIDE

Cal. Y187B

### ⑮ Dial

#### • How to install

When installing the dial, make sure that its center is securely set at the proper position.

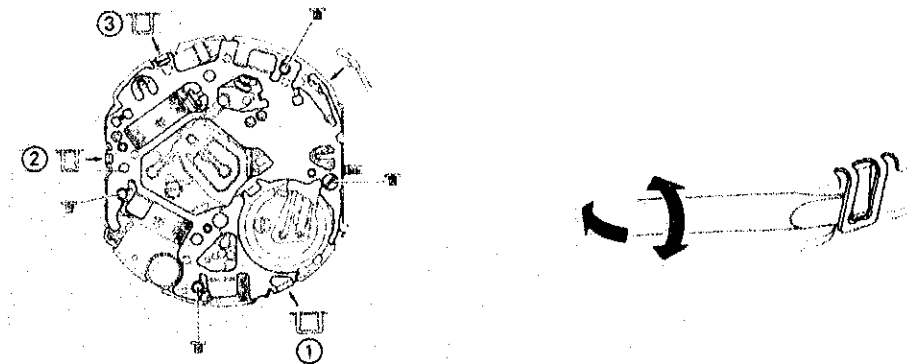
### ⑶ Circuit block cover

• Disassembling procedures ① → ③

• Reassembling procedures ③ → ①

#### • How to install

Be sure to install the circuit block cover securely at the hooking portion of the main plate.



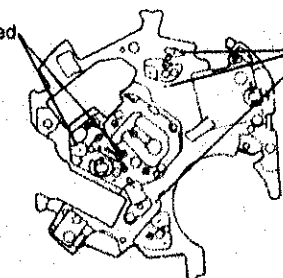
### ⑶ Train wheel bridge

#### • Remarks on installing

- Before installing the train wheel bridge, check if the wheels are set in the proper position. Also, check if their lower pivots are securely set in position using tweezers.
- Check that the pinion of each rotor securely engages with the proper gear, so that the upper pivots can be easily set in position when the train wheel bridge is installed.
- To set the upper pivots in position, first use a microscope and hold slightly down the train wheel bridge with tweezers. Then, lightly shake the train wheel bridge so that the pivots are put into position.

- Notes:**
- If the upper pivots cannot be set smoothly into the train wheel bridge, check the following points.
    - 1) Check if the lower pivot of each wheel is set in position.
    - 2) Check if the pinion of each rotor securely engages with the proper gear.
  - Do not press down the train wheel bridge forcibly.
  - Note that some of the axle holes are not used, depending on calibres. For Cal. Y187B, the axle holes indicated in the illustration are not used.

These axle holes are not used for Cal. Y187B.



These axle holes are not used for Cal. Y187B.

# TECHNICAL GUIDE

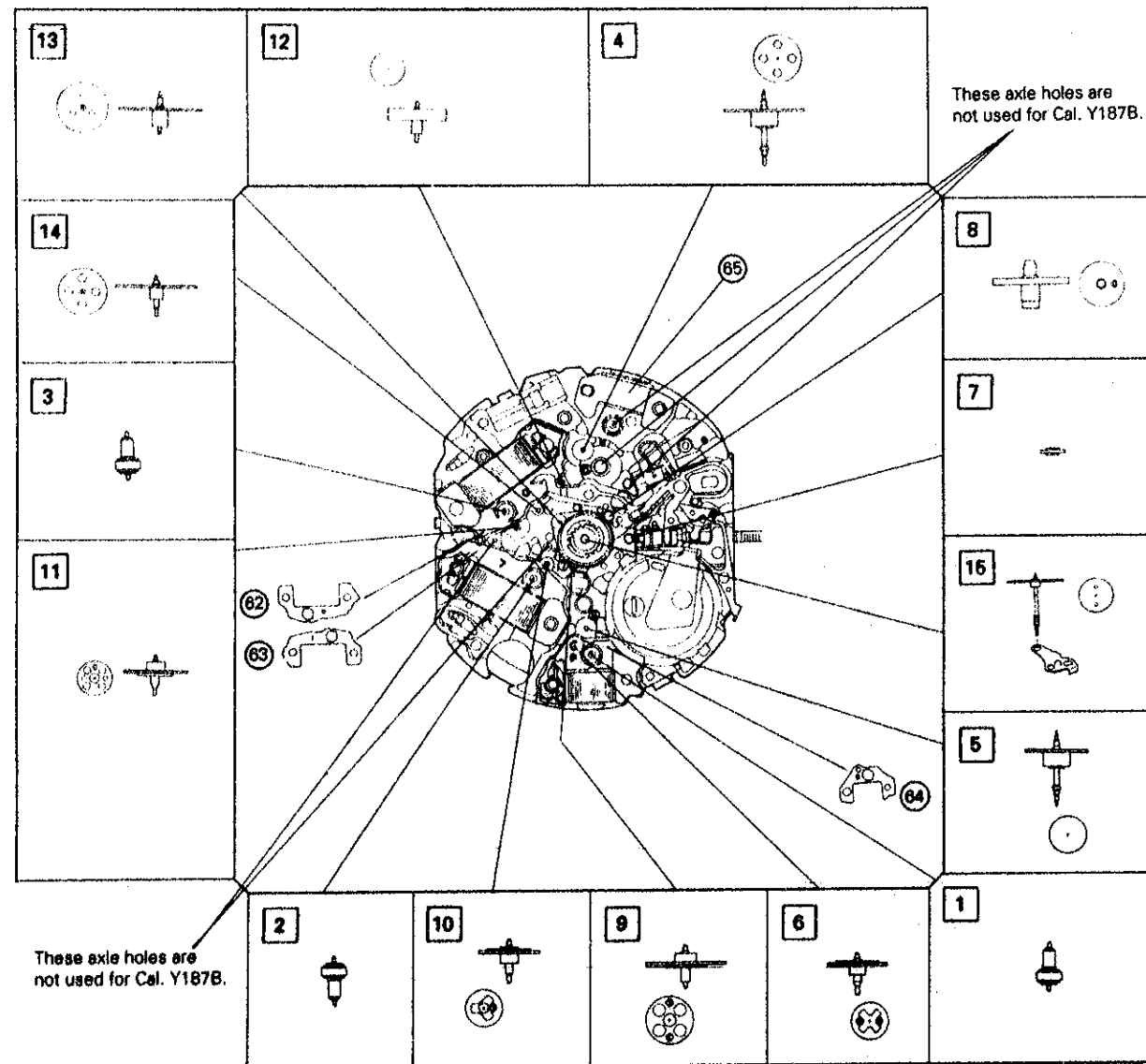
Cal. Y187B

37 Second-counting wheel ~ 52 Chronograph rotor for minute

After disassembling the wheels and rotors, arrange them as indicated in the illustration below to facilitate the reassembling procedures. However, the rotors should be kept separately from each other, as they emit magnetism.

• **Setting position**

See the illustration below.



Reassembling Procedures Figs. : 1 ~ 15

# TECHNICAL GUIDE

Cal. Y187B

**[Reassembling procedures]**

• Reassemble the parts below in the following order.

\* The reassembling order shown below is different from the one in the exploded view on pages 3 and 4.

- |   |  |
|---|--|
| <p>1 4146 710<br/>Chronograph rotor for minute<br/>(Plastic: white)</p> <p>2 4146 710<br/>Chronograph rotor for second<br/>(Plastic: white)</p> <p>3 4146 710<br/>Step rotor (Plastic: white)</p> <p>4 240 582<br/>Small second wheel (Metal: gold)</p> <p>5 902 580<br/>Minute-counting wheel (Metal: gold)</p> <p>6 950 590<br/>Intermediate minute-counting wheel<br/>(Plastic: white)</p> <p>7 281 580<br/>Setting wheel (Metal: silver)</p> <p>8 261 580<br/>Minute wheel (Plastic: white)</p> | <p>9 885 591<br/>Second intermediate wheel for second-<br/>counting (Plastic: green)</p> <p>10 885 590<br/>First intermediate wheel for second-<br/>counting (Plastic: white)</p> <p>11 701 580<br/>Fifth wheel and pinion (Plastic: green)</p> <p>12 817 591<br/>Intermediate small second wheel<br/>(Metal: silver)</p> <p>13 231 580<br/>Third wheel and pinion (Metal: gold)</p> <p>14 241 583<br/>Fourth wheel and pinion (Metal: gold)</p> <p>15 888 580<br/>Second-counting wheel (Metal: gold)</p> |
|---|--|

\* The numerals inscribed on the main plate and plastic wheels refer to the block No.

66 Switch lever A

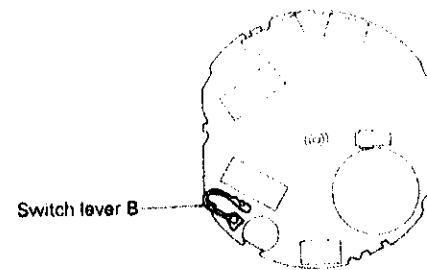
66 Center wheel and pinion

• **Setting position and lubricating**



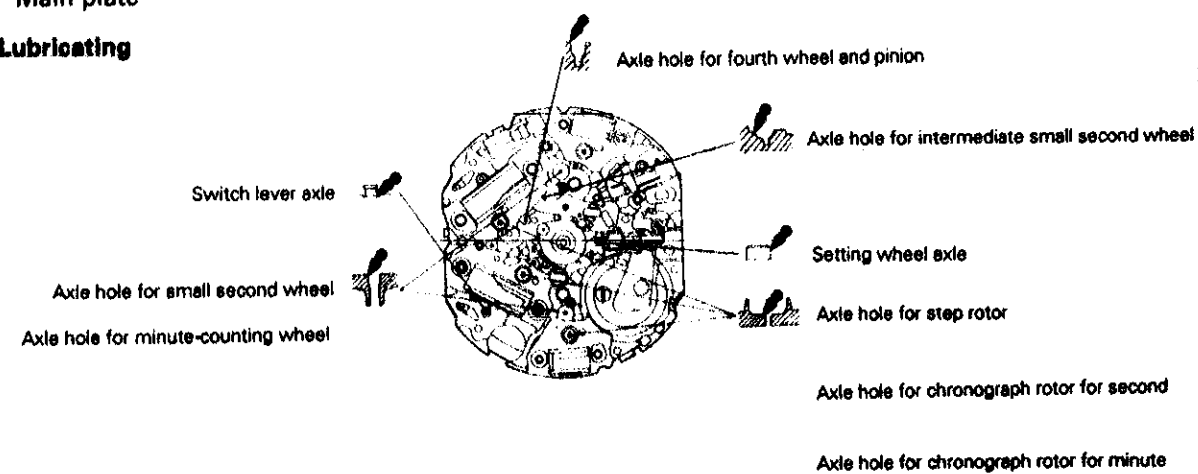
67 Switch lever B

• **Setting position**

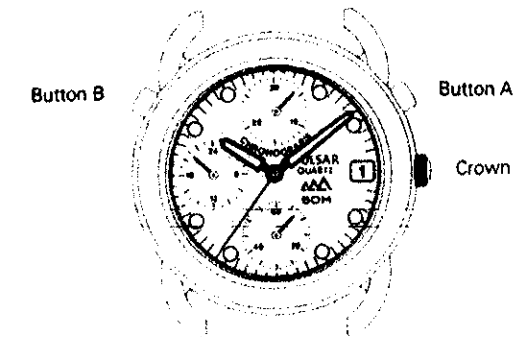


68 Main plate

• **Lubricating**



## IV. CHECKING OF THE FUNCTIONS



• **Reset adjustment of the chronograph hands**

- 1) Pull out the crown all the way to the second click.
- 2) Press button "B" to reset the stopwatch second hand to "0".
- 3) Press button "A" to reset the stopwatch minute hand to "0".

\* With each press of buttons "B" and "A", the stopwatch second and minute hands move 0.2 seconds and 0.5 minutes, respectively. They move automatically while the buttons are kept pressed and stop if they are released.

• **Checking of the stopwatch function**

- 1) Push back the crown in to the normal position.
- 2) Press button "A" repeatedly to check if the stopwatch hands start and stop with each press of the button.
- 3) Press button "A" to stop the stopwatch, and then, press button "B" to check if the stopwatch second and minute hands reset to "0".
- 4) Press button "A" to start the stopwatch second hand, and then, press button "B" to check if the stopwatch second hand stops. After that, press button "B" again to check if the stopwatch second hand automatically advances the time elapsed while it was stopped and resumes the measurement.

\* If the crown is pulled out all the way to the second click while the stopwatch is in use, the measurement is stopped and the stopwatch second and minute hands return to "0". However, even if the crown is pulled out to the first click to change the date, the stopwatch will not stop measuring.

## V. VALUE CHECKING

- **Coil block resistance**

Coil block for chronograph minute :	1.8K $\Omega$ ~ 2.4K $\Omega$
Coil block for chronograph second :	2.0K $\Omega$ ~ 2.6K $\Omega$
Coil block :	2.0K $\Omega$ ~ 2.6K $\Omega$

- **Current consumption**

Before measuring current consumption, be sure to reset the circuit.

\* Refer to "A necessary step after installing the battery" on page 7.

For the whole of the movement

Time mode :	less than 2.5 $\mu$ A
Stopwatch mode :	less than 9.5 $\mu$ A

For the circuit block alone

Time mode :	less than 1.8 $\mu$ A
-------------	-----------------------

- **Time accuracy**

When measuring the accuracy, make sure that the stopwatch is stopped. Otherwise, the accuracy cannot be measured.