

# ***TECHNICAL INFORMATION***

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**CITIZEN QUARTZ**

**Cal. No. 6750**



## §1. OUTLINE

This is an analog multi-hand watch having the functions of timers (I) and (II) and chronograph, as well as calendar (Recognition of leap years, month, date, and day of week).

## §2. SPECIFICATIONS

Caliber No.	6750A-01
Type	Analog quartz watch (Multi-hand)
Oscillation	32,768 Hz
Accuracy	±20 sec./month at normal temperature (5°C ~ 35°C)
Effective temperature range	-10 °C ~ +60 °C (14 °F ~ 140 °F)
Converter	2-pole step motor 4 units
Additional functions	<ul style="list-style-type: none"><li>● Hand-type calendar Year (with recognition of leap year), month, date, day (Can be set quickly, excluding day.) No need of adjustment at month end.</li><li>● Timer (I): With fly-back function Minute and second (Can be set up to 60 minutes in unit of 1 minute.)</li><li>● Timer (II): with fly-back function Minute and second (Can be set up to 60 minutes in unit of 1 minute.) Auto chronograph function (Chronograph starts when timer times up.) Forecast sound for timing up</li><li>● Chronograph Hour, minute, second, and 1/10 second (Can measure up to 4 hours. Measurement is repeated continuously after 4 hours unless stopped.) Measurement of split time Storage of split times (Up to five data can be stored from first.) Calling stored split times</li><li>● Other functions Alarm for incompleteness of initial setting Mechanism of stopping second hand at any time</li></ul>
Power cell	One silver battery No. 280-44 (SR927W)
Power cell life	Approx. 2 years*1 Chronograph: 1 hour/day Timer (I): 30 minutes/day Timer (II): 15 minutes/day (Timer: 7.5 minutes, Chronograph: 7.5 minutes)
Integrated circuit	2 units of C-MOS-LSI (1 unit of CPU IC and 1 unit of IC for driving motor)

\*1 The life of power cell depends more or less on the frequency of use of sounding functions such as the forecast sound of timer, time-up sound, etc.

### §3. OPERATING METHOD

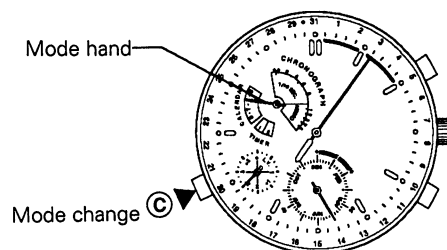
#### A. Before using this watch

Before using this watch, be sure to confirm that it is so set that all the functions can be used (it is at the initial position) according to the following procedure.

##### 1. Confirmation of calendar mode

Confirm the mode hand is at the calendar mode.

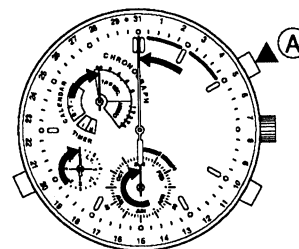
- If it is not at the calendar mode, press the © button one or more times to set it to the calendar mode.



##### 2. Initial monitor

If the Ⓐ button is pressed and held for 1 second or more, the **all calendar hands** move quickly and stop (They stop for about 10 seconds). If the hands are at the following position, the watch is at the correct initial position.

- Each calendar hand:  
Year, month, date, and day hands are at the 12 o'clock position (top). If any hand is not at the 12 o'clock position in the initial monitor, set it to the correct position according to the procedure shown in the next page.
- \* Resetting of initial monitor  
If any one of the Ⓐ ~ © buttons is pressed, the watch is returned to the calendar mode. Even if any button is not pressed, the watch is automatically returned to the calendar mode after about 10 seconds.



##### < Caution >

**If this watch receives a strong shock, its initial position may shift. In this case, perform the initial monitoring. If its initial position has shifted, correct it according to "Setting to initial position" 1 and 2 in the next page.**

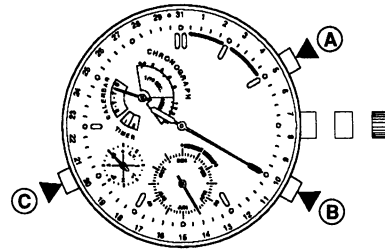
## How to set watch to initial positions

### 1. All reset operation

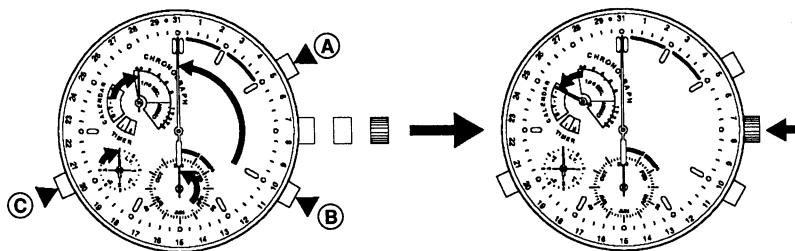
Pull the crown out to the second click

- 1) Press the (A), (B), and (C) buttons at the same time.
- 2) About 2 second after the (A), (B), and (C) buttons are released, rotate the date hand, day hand (mode hand), and month/year hand in order, and all the functions of the watch are reset. At this time, a peep sound comes out for confirmation.

\* For the names of hands etc., see Name of Each Part (Page 4).



### 2. Setting to initial position



Keep the crown at the second click.

\* Any one of the (a), (b), and (c) buttons is pressed and held, the corresponding hand moves quickly.

- 1) Press the (a) button to set the date hand to the 12 o'clock position (top).
- 2) Press the (b) button to set the month/year hand to the 12 o'clock position.
- 3) Press the (c) button to set the day (mode) hand to the 12 o'clock position.
- 4) Push the crown to the normal position, and the day (mode) hand moves to the Sunday and initialize is completed.

**After the power cell is replaced, be sure to perform the above initial setting.  
If it is not performed, the calendar, times, and chronograph do not work correctly.**

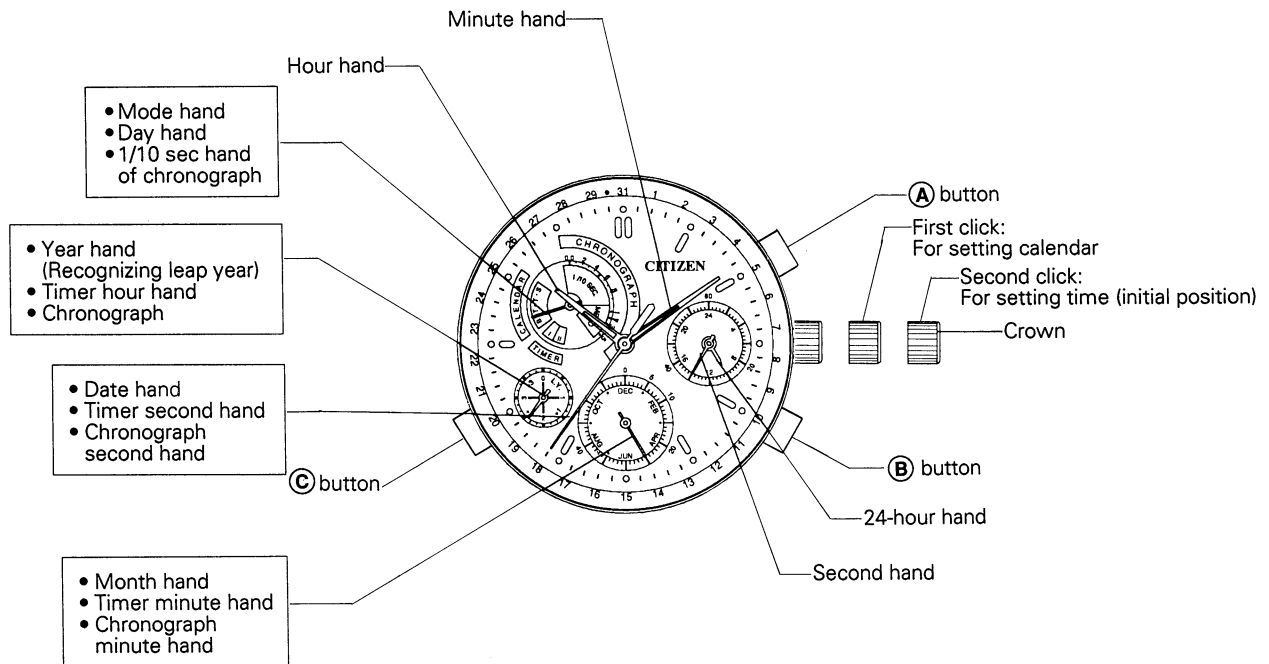
#### \* In case of trouble

- The date hand moves quickly counterclockwise.  
This is caused by that the initial setting incompleteness alarm indicating function is working.  
In this case, perform initial setting to set the watch to **the initial position**.

## B. Notes on use

- For the normal use, keep the crown pressed in (at the normal position).  
If the crown is kept pulled out, the power cell runs out more quickly than in the normal position.  
Keep the crown at the normal position while this watch is not used.
- Since the calendar of this watch does not need to be adjusted at each month end and in each leap year, you can use it without adjusting it as long as it is used normally.

## C. Name of each part




**If the crown is pulled to the first click in any mode, the watch is changed to the calendar correction mode, and if the former is pulled to the second click, the latter is set to the time setting mode.**

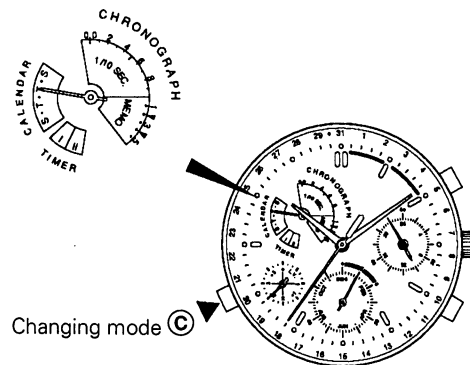
**(If the crown is pressed in, the watch is set to the calendar mode.)**

## D. How to change function mode


This watch has the additional functions of calendar, timers I and II, and chronograph with split time memory.

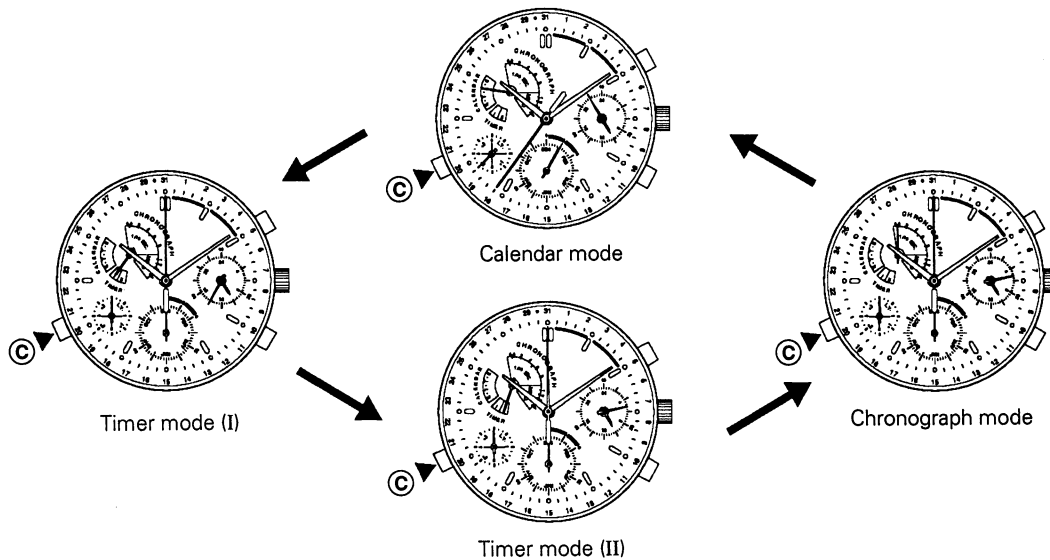
When using any one of these functions, press the  button and set the mode hand to the desired mode.

### [Indication of mode]



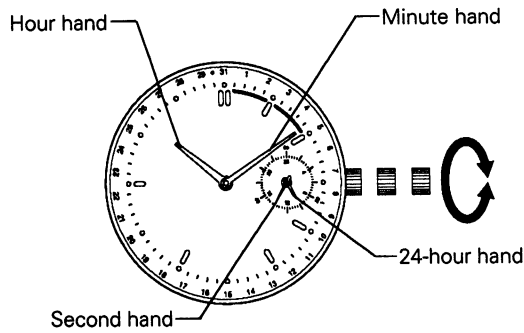
Keep the crown at the normal position.

Every time the  button is pressed, the mode hand moves to the next mode position and a peep sound comes out for confirmation.



\* Measurement and stopping of timers I and II, and chronograph are canceled when the mode is changed.

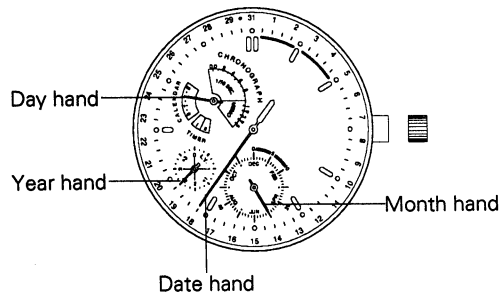
## E. How to set time



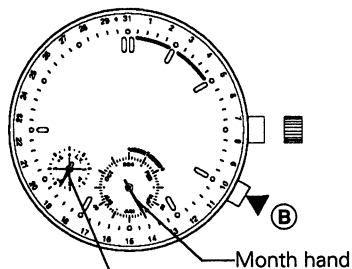
- Pull the crown to the second click so that the second hand stops at 0 second position.
  - Rotate the crown to right or left to set the time. The 24-hour hand is interlocked with the hour hand. Use the 24-hour time display to confirm AM and PM.
  - After the time is set, press the crown to the normal position to a time signal etc., and the second hand starts to indicate correct time.
- \* The calendar cannot be changed by setting the time.

## F. How to set calendar

### 1. Pull the crown to the first click

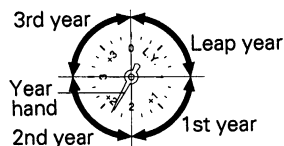


### 2. Set the year and month



- Confirm how many years have passed by this year since the last leap year in advance. See the leap years list shown on page 16.
- Every time the (B) button is pressed, the month hand moves clockwise by one month. If it is pressed and held, the month hand moves quickly. The year hand is interlocked with the month hand.

#### Recognition of leap year

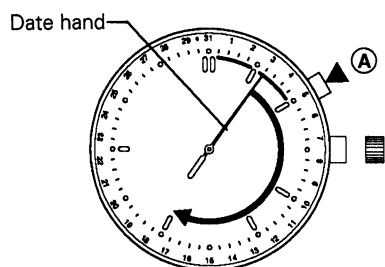


This hand indicates a leap year and how many years have passed after it.

It takes four years for this hand to rotate by one turn.

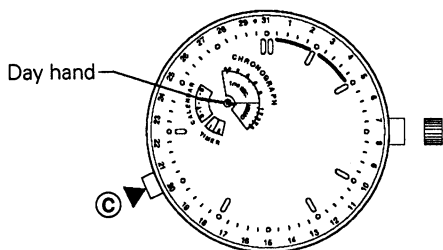
Example: If the year hand is at the +2 position, this year is the second after the last leap year.

### 3. How to set the date



- Keep the crown at the first click.
- Every time the (A) button is pressed, the date hand moves clockwise by one day. If it is pressed and held, the date hand moves quickly.

### 4. How to set the day



- Keep the crown at the first click.
- Every time the (C) button is pressed, the day hand moves counterclockwise by one day. The day hand moves quickly from Saturday to Sunday clockwise. The quick move function of the watch is not functional during this operation.

### 5. Push the crown to the normal position.

- Push the crown to the normal position. If it is kept at the first click, the calendar does not change.

- \* Do not set the calendar between 11 p.m. and 1 a.m. Calendar setting during this period may not be corrected.
- \* This watch does not need to be adjusted at each month end and in each leap year.

Example:

- No need of adjustment at month end:  
The date is automatically changed from Nov., 30 to Dec., 01.
- No need of adjustment in leap year:  
The date is automatically changed from Feb., 29 to Mar., 01 in leap year and from Feb., 28 to Mar., 01 in normal year.



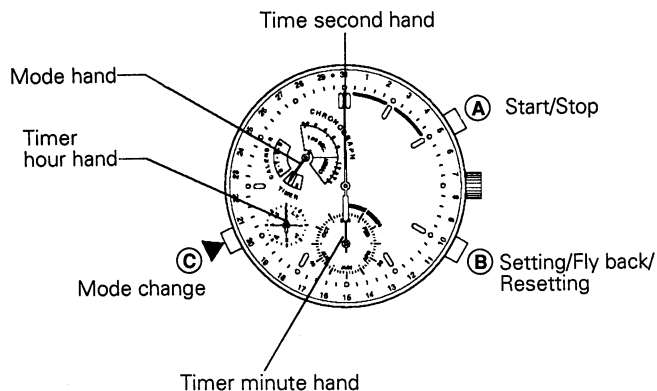
## G. How to use timers

This watch has two timer functions (I) and (II).

### 1 How to use timer (I)

- This timer can be set up to 60 minutes by one.
- Once a time is set, it is stored as long as another time is newly set.

#### 1. Set the watch to timer mode (I)



- Press the (C) button one or more times to set the mode hand to Timer (I) mode. At this time, the second hand of the timer moves quickly to the 0 second (top) position and stops there, and the minute and hour hands move quickly to the previous set values and stop there.

- \* The 0 minute and 60 minutes of the timer are at the same position, but 0 minute and 60 minutes can be distinguished by the position of the hour hand of the timer.

Timer hour hands is at 0 hour:

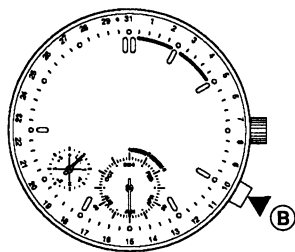
Timer minute hand is at 0 minute.

Timer hour hand is at 1 hour:

Timer minute hand is at 60 minute.

Accordingly, the above figure shows that the timer was set to 60 minutes at the previous time.

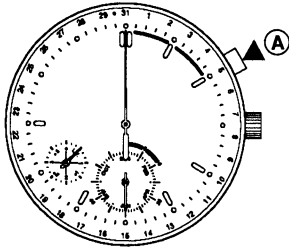
#### 2. Set the timer



Timer minute hand	Timer hour hand

- Every time the (B) button is pressed, the timer minute hand moves clockwise by 1 minute. If the former is pressed and held, the latter moves quickly. It does not move clockwise exceeding 60 minutes, however. After it reaches 60 minutes, it moves counterclockwise (It moves clockwise and counterclockwise between 0 minute and 60 minutes). The timer hour hand also moves clockwise and counterclockwise between 0 hour and 1 hour as the minute hand moves.

### 3. Starting/Stopping the timer



- If the timer is set and the (A) button is pressed, the timer starts (and a peep sound comes out for indicating the start). At the same time the timer starts, the timer minute hand moves in counterclockwise in the unit of 1 minute and the timer second hand reaches 0 second. Every time the timer second hand reaches 0 second, the timer minute hand moves counterclockwise by one minute. If the (A) button is pressed while the timer is operating, the latter is stopped. If the former is pressed again, the latter starts again.

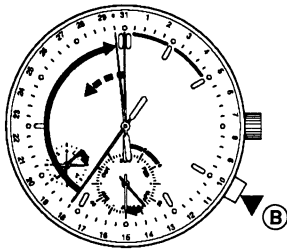
### 4. Timer times up

When the timer times up, peep sound comes out for 10 seconds for confirmation. When this confirmation sound stops, the hour hand, minute hand, and second hand of the timer moves quickly to the set values.

- \* The set time of the timer is maintained even if the watch is set to another mode, as long as it is changed.

### Fly-back function

If the timer is started by mistake, it can be started again easily.



If the (B) button is pressed while the timer is operating, a peeping sound comes out for confirmation, and the timer start again from the set value.

Since the timer started again at the same time when the (B) button is pressed, the timer second hand is set forward when started again by the length of the time required to return to the set value.

#### < Resetting of timer >

If the (B) button is pressed while the timer is stopping, the latter is returned to the set value and stopped there.

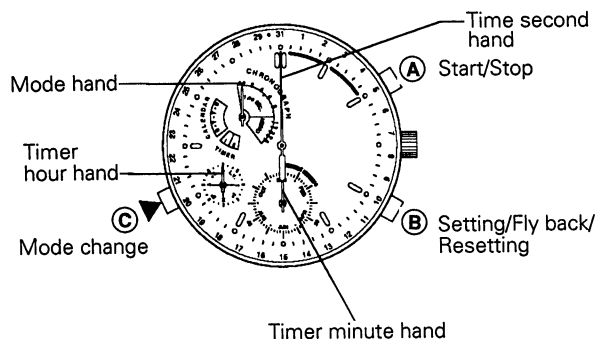
#### \* Caution

**If the watch is changed to another mode while the timer (I) is operating (in running or stopping condition), the measurement is cancelled. The set value is maintained, however.**

## 2 How to use timer (II)

- Timer (II) can be set up to 60 minutes in the unit of 1 minute.
- If this timer times up, the watch is automatically set to the chronograph mode, and the chronograph is started automatically (auto chronograph function).
- Time-up forecast sound and time-up sound come out.

### 1. Set the watch to timer mode (II)



- Press the (C) button one or more times to set the mode hand to Timer (II) mode. At this time, the second hand of the timer moves quickly to the 0 second (top) position and stops there, and the minute and hour hands move quickly to the previous set values and stop there.

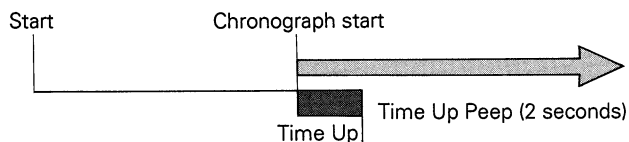
### 2. Set/Start/Stop the timer

Timer (II) is set, started, and stopped by the same method as timer (I). See the explanation of timer (I).

### 3. Timing up of timer and auto chronograph function

When the timer times up, the time-up sound comes out for 2 seconds and the timer hands are changed to the chronograph mode, and the chronograph mode, and the chronograph starts automatically (Auto chronograph function).

One time-up forecast sound comes out at 10, 5, 3, and 1 minute, and 50, 40, 30, 20, 10, 5, 4, 3, 2, and 1 second before the timer times up.



\* For the chronograph function, see the section of the chronograph. (Next page)

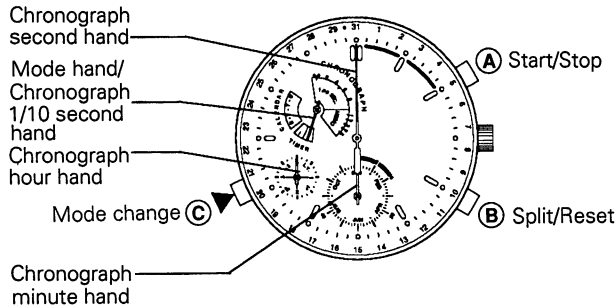
#### \* Cautions

**If the watch is changed to another mode while the timer (II) is operating (in running or stopping condition), the measurement is canceled.  
The set value is maintained, whenever.**

## H. How to use chronograph

The chronograph measures time in the unit of 1/10 second up to 4 hours.  
After 4 hours, it repeats the measurement from 00.

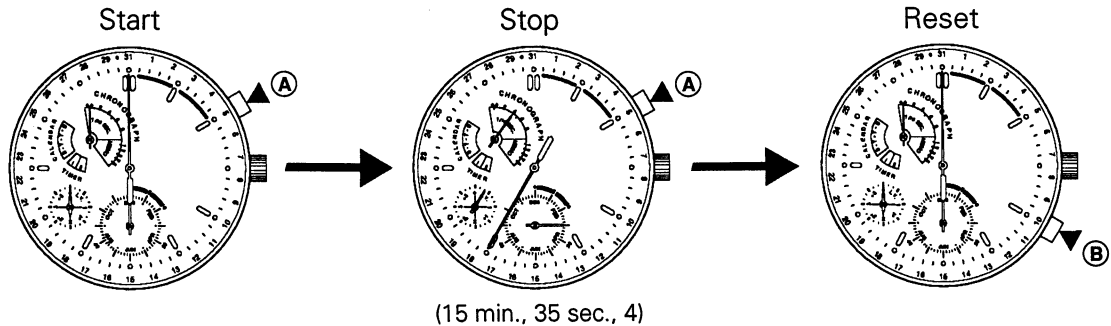
### 1. Set the watch to the chronograph mode



Press the (C) button one or more times to set the mode hand to the chronograph mode.

At this time, the 1/10 second (mode) hand, second hand, minute hand, and hour hand of the chronograph stop at respective 0 positions (They are reset).

### 2. General usage (Simple measurement)



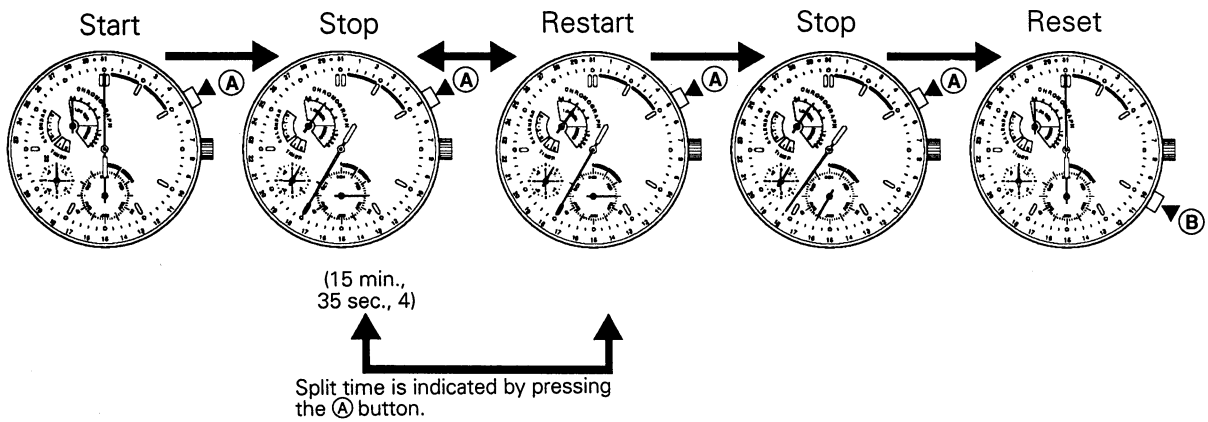
Press the (A) button once to start chronograph.  
All of the 1/10 second hand, and hour hand of the chronograph are interlocked with one another.

**The 1/10 second hand moves for 1 minute after started, then it waits at 00 second position.**

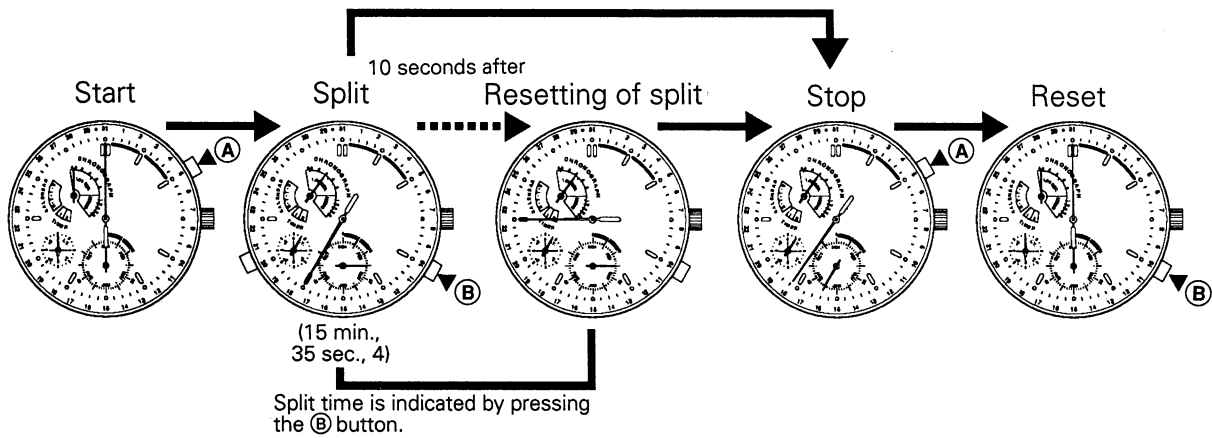
If the (A) button is pressed again, the chronograph stops. **When the chronograph is stopped, the 1/10 second hand indicated the correct time.**

If the (B) button is pressed while the chronograph is stopped, all the chronograph hands are reset.

### 3. Use as integrating stop watch

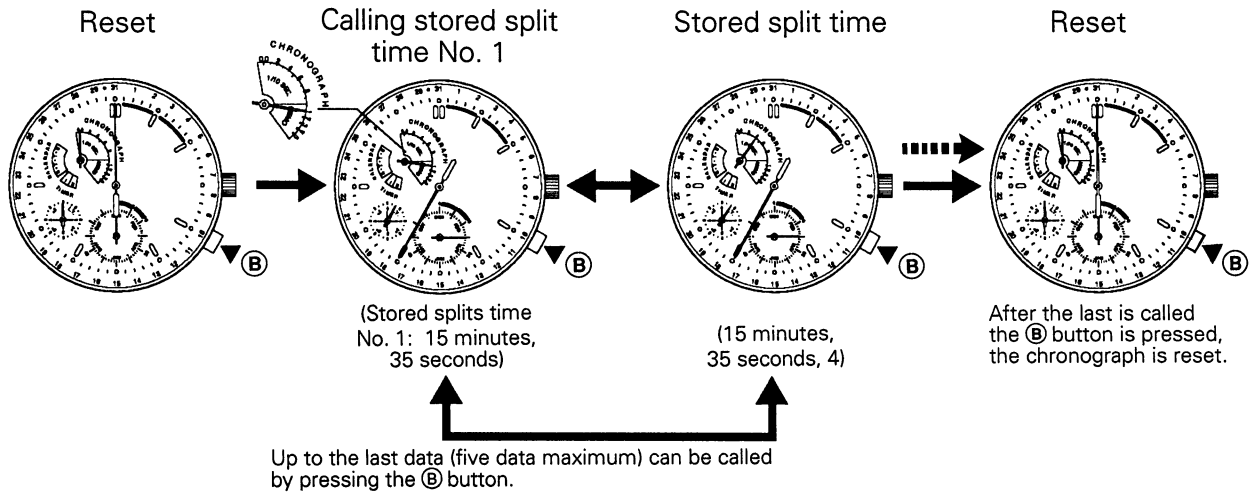


### 4. Measurement of split time



- \* If no buttons are pressed for 10 seconds under the split indication mode, each chronograph hand moves quickly to the time measured up to now and starts measurement.
- \* **Up to five split times from the first one can be stored, and they can be called afterward (Split time call).**  
Sixth split time and after ones are indicated but not stored.

## Split time call



- \* The stored split times can be called after the chronograph is reset.
- \* If the **B** button is pressed once, the mode hand indicates the data No., and if the former is pressed twice, the latter indicates the data in 1/10 second. Every time the **B** button is pressed, one stored data is called, up to five data.
- \* After the last data (If only two data have been stored, the second one) is called, if the **B** button is pressed, the chronograph is reset. Even if the **B** button is not pressed, the chronograph is automatically reset after about 10 seconds.
- \* The stored data are maintained even if the watch is set to another mode, as long as the chronograph is not started again.
- \* **Caution**  
**If the watch is changed to the RUN/STOP MODE while the chronograph is measuring, the measurement is canceled.**  
**The stored split times are maintained, however.**

## I. List of operation methods

Button Crown	Ⓒ button		Ⓐ button	Ⓑ button	Rotation of crown
Normal Position	Mode change	Calendar	Initial monitor* <sup>1</sup>	—	—
		Timer (I)	Start/Stop	Setting of Timer (I)/ Fly-back/Reset	—
		Timer (II)	Start/Stop	Setting of Timer (II)/ Fly-back/Reset	—
		Chrono- graph	Start/Stop	Reset/Split time/ Split time call	—
First click	Day correction		Date correction	Year/Month correction	—
Second click	—		—	—	Time setting

\*<sup>1</sup> If the Ⓐ button is pressed and held for 1 seconds with the crown at the normal position while the calendar is indicated, the initial monitoring is executed.

### Leap year list

L.Y.	1988	L.Y.	1992	L.Y.	1996	L.Y.	2000	L.Y.	2004	L.Y.	2008
1	1989	1	1993	1	1997	1	2001	1	2005	1	2009
2	1990	2	1994	2	1998	2	2002	2	2006	2	2010
3	1991	3	1995	3	1999	3	2003	3	2007	3	2011

#### < How to read this table >

"L.Y." represents leap year, and 1, 2, and 3 represent the number of years after each leap year.

Example: 1992 is a leap year, and 1993 is the first year after that year.

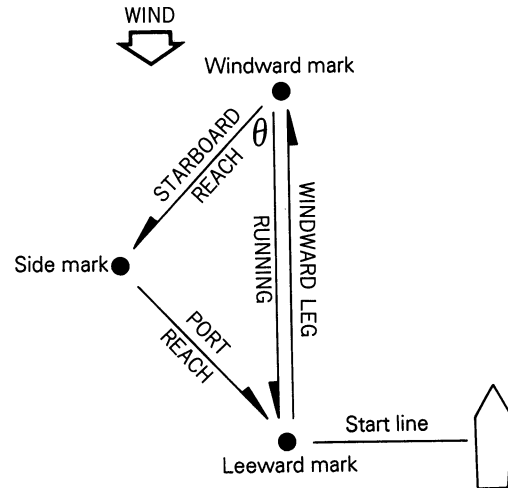
# How to Use Register Ring

## Preparatory knowledge

In case of a common yacht race, the marks shown in right figure are set, and the racers sail around those marks in order as fast as they can.

The directions are indicated by angles, e.g. North:  $0^\circ$ , East:  $90^\circ$ , South:  $180^\circ$ , West:  $270^\circ$ , etc.

To sail the yacht receiving wind from the right of its center is called starboard reach, and to sail it receiving wind from its left is called port reach.

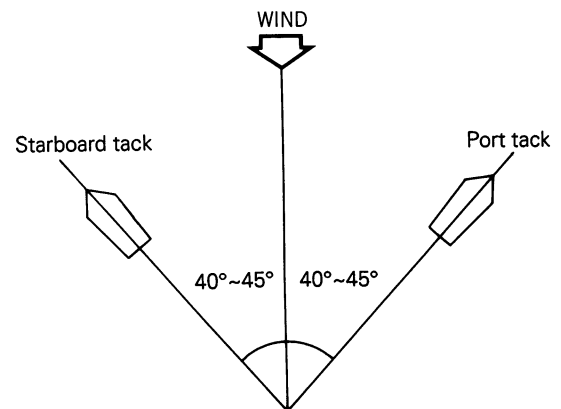


## Using method

- (1) Before starting the race, read the position of the windward mark with a compass, then set it to the triangle mark at 12 o'clock point.
  - (2) The course from the windward mark to the side mark (starboard reach) is in the direction indicated by the green triangle mark at left lower point. Accordingly, even if the side mark is not seen because of weather condition, you can reach the side mark by sailing in the indicated direction.
  - (3) Similarly, the course from the side mark to the leeward mark (port reach) is indicated by the red triangle mark at the right lower point. Accordingly, you should sail in that direction.
  - (4) Similarly, it is possible to know the course from the windward mark to leeward mark by reading the numeral indicated by the white triangle mark at the lower point.
- \* However, the above operation is effective only when 0 is set to  $45^\circ$ . If it is set to  $60^\circ$ , for example, it is required to read the numerals above the green and red triangle marks to see the correct course. If it is set to  $30^\circ$ , it is required to read the numerals under the green and red triangle marks.

## Using method 2

Usually, a yacht can sail against wind at up to about  $45^\circ$  to it (even at  $40^\circ$  in case of a high performance yacht). If the yacht is sailed against the windward at the limit angle to it and that angle is set to the red (green) mark at the right upper (or left upper) point, the shifting of the wind can be seen. By this operation, you can sail your yacht in a more advantageous direction.

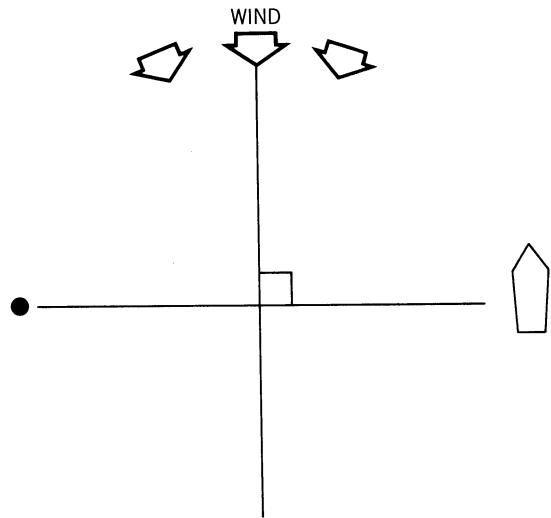




### Using method 3

The register ring can be used to see the inclination of the start line. Usually, the start line is set at a right angle to the wind direction. However, since the wind constantly changes, the start line is seldom set at a right angle to it.

First, set the wind direction to the white triangle mark at 12 o'clock position, and sail the yacht from one end to the other. At this time if the yacht sails on plus side of the white line at 3 o'clock position (or 9 o'clock position), you should start from a point near the end at which you are aiming at now. If the yacht is on minus side, you should start from a point near the opposite end.



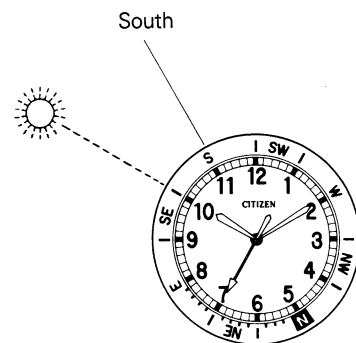
\* By using the above three functions, you can bring your yacht to a more advantageous position.

### Directional register ring <Northern Hemisphere>

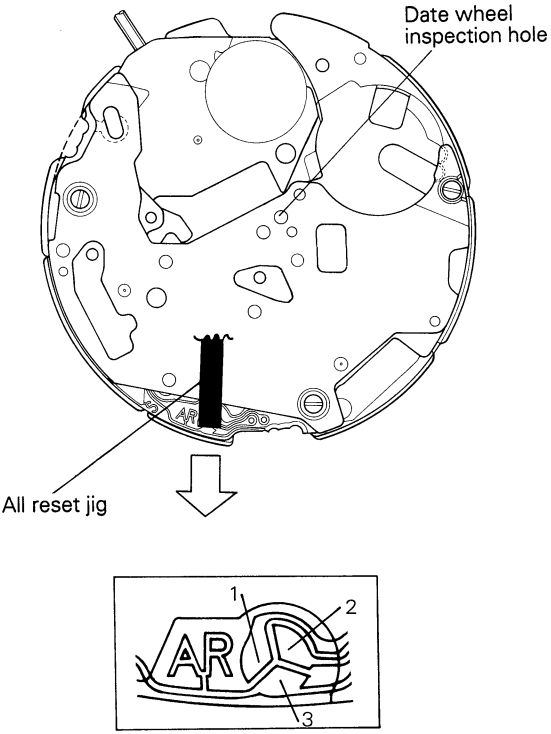
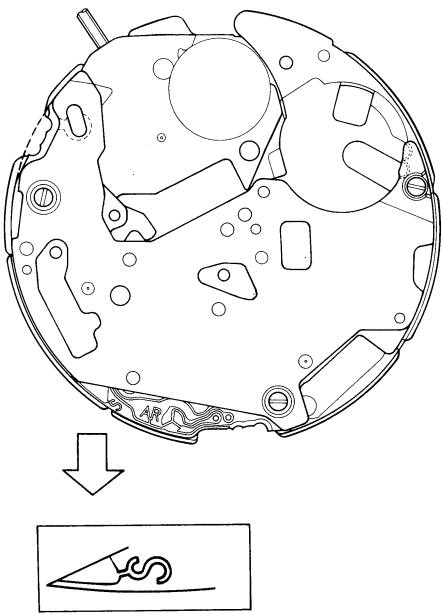
- One of the features of this watch is a directional register ring for use in the Northern Hemisphere.

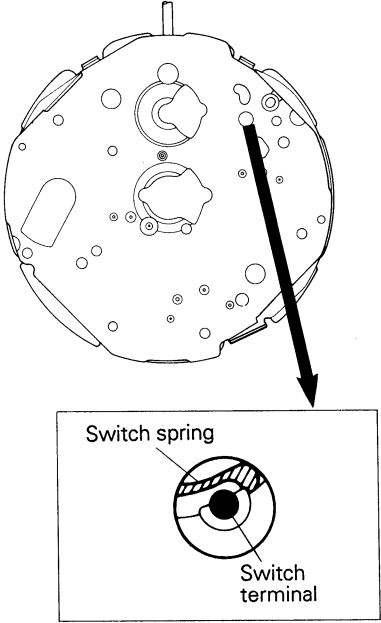
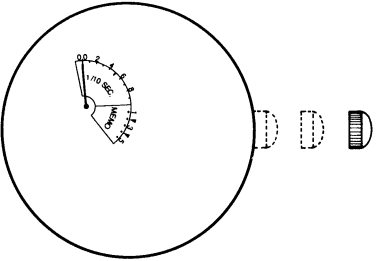
By aligning the hour hand with the position of the sun in the sky, the middle point between the hour hand and the 12 o'clock position will indicate south. Align the S mark on the register ring with the south, and all points of the compass (directions) can be roughly determined.

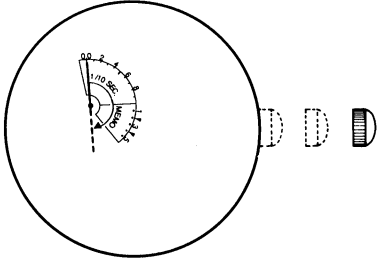

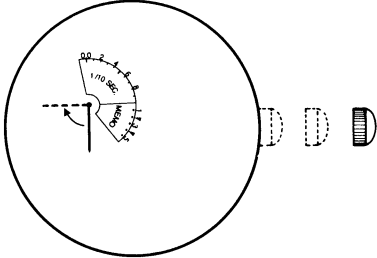

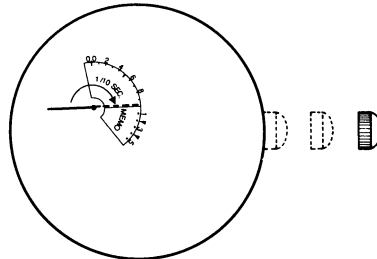
However, its accuracy depends on the latitude and seasonal conditions.

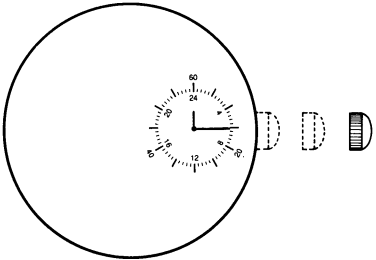
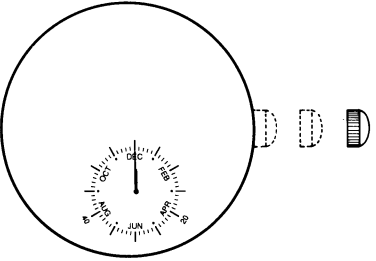
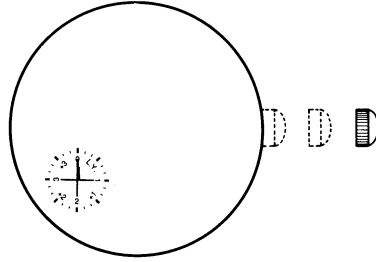
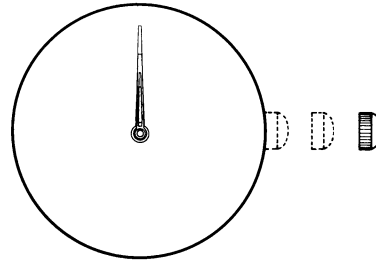


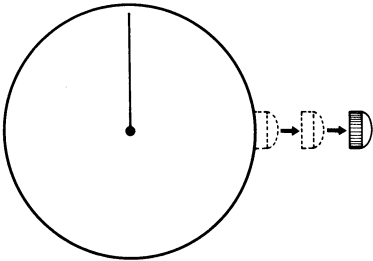
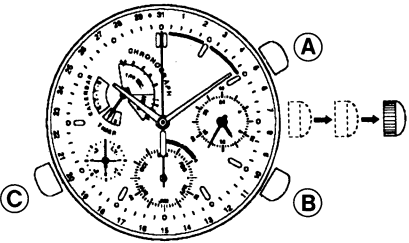
## §4. FITTING PROCEDURE OF HANDS

Step	Explanatory illustration	Remarks
<p>① Pull out the crown to the second position.</p>		<p><b>Keep the crown pulled to the second position while fitting the hands to this watch.</b></p>
<p>② Perform all reset.</p>	 <p>The diagram shows a top-down view of the watch movement. A rod is inserted into the 'Date wheel inspection hole' at the top. An 'All reset jig' is positioned at the bottom, with an arrow pointing down towards the 'AR' patterns. Below this, a detailed view of the 'AR' patterns is shown, with three numbered points (1, 2, 3) indicating specific electrical connections.</p>	<p>Keep the three all-reset (AR) patterns (1 – 3) on the electronic circuit with a rod of all-reset, and electrically connect the train wheel bridge [II] for more than 2 seconds.</p> <p>* If the all-reset has been performed normally, the intermediate year wheel starts after the all-reset condition is reset.</p>
<p>③ Set the calendar.</p>	 <p>The diagram shows a top-down view of the watch movement. An arrow points down from the movement to a detailed view of the electrical switch (S) pattern, which is connected to the train wheel bridge.</p>	<p>4 – 5 seconds after the all-reset is confirmed, electrically connect switch (S) pattern on the electronic circuit and train wheel bridge [II].</p> <p>* Perform this operation to find operating time of the calendar, similarly to find changing time of date dial.</p>

Step	Explanatory illustration	Remarks
<p>4 Adjust the position of the switch wheel.</p>		<p>Turn the crown forward to set the switch spring of the switch wheel near the switch end.</p>
<p>5 Assemble parts related to hour wheel.</p>		<p>Install the hour wheel [I], hour wheel [II], and dial washer.</p>
<p>6 Install the dial.</p>		
<p>7 Install the mode hand.</p>		<p>Install the mode hand to 0.0 position of 1/10 second scale of chronograph.</p> <p>* Do not install to left end line.</p>

Step	Elanatory illustration	Remarks
<p>8 Set the calendar operation time.</p>	<div style="text-align: center;">              </div> <p>* Keep the crown pulled to the second click position until the calendar operation time is confirmed.</p>	<p>1) Slowly turn the crown forward to turn the hand and stop when the mode hand start moving.  ⇒ The mode hand automatically moves by 180°.</p> <p>2) Slowly turn the crown in reverse to turn the hand, and stop when the mode hand start moving.  ⇒ The mode hand automatically moves by 90°.</p> <p>3) Slowly turn the crown forward to turn the hand, and stop when the mode hand start moving.</p>

Step	Explanatory illustration	Remarks
<p>9 Install the 24-hour hand and second hand.</p>		<p>1) Install the 24-hour hand to 24-hour position.</p> <p>2) Install the second hand at any position of scale.</p>
<p>10 Install the month hand.</p>		<p>Install the month hand to the position of Decmeber (in the 12 o'clock direction).</p>
<p>11 Install the year hand.</p>		<p>Install the year hand directed up (12 o'clock position).</p>
<p>12 Install the hour and minute hand.</p>		<p>Install the hour and minute hands to 12 o'clock position.</p>

Step	Explanatory illustration	Remarks
<p>13 Install the date hand.</p>		<p>Install the date hand to the center of 31th line.</p>
<p>14 Confirm the operating time of calendar.</p>		<ol style="list-style-type: none"> <li>1) Set the hour and minute hands to 23 hours by turning the crown backward.</li> <li>2) Slowly turn the crown clockwise, and confirm the time by the hour and minute hands when the year hand starts rotation.</li> </ol>
<p>15 Install the module to the case.</p>		
<p>16 Set the initial position of the calendar.</p>		<p>Keep the crown pulled out to the second click position.</p> <ol style="list-style-type: none"> <li>1) Press the <b>(A)</b> button.</li> <li>2) Press the <b>(B)</b> button.</li> <li>3) Press the <b>(C)</b> button.</li> </ol>
<p>17 Set the hands to the current calendar and time.</p>		

## §5. REPLACING PROCEDURE OF POWER CELL

\* When replacing the power cell, remove one screw and shield plate.

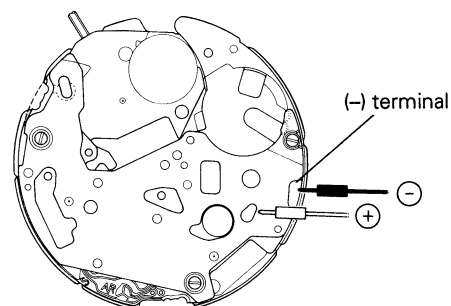
**When replacing the power cell, be sure to measure the current consumption with the module in the case.**

### I. Measurement of current consumption

① Pull out the crown to the second click position.

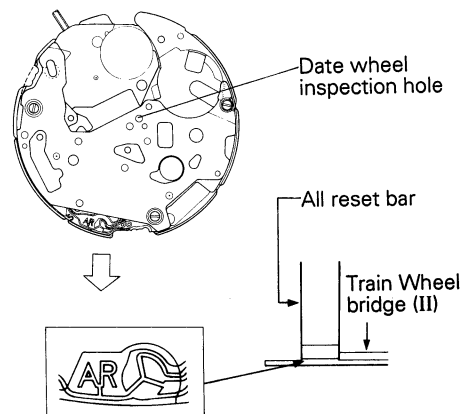
② Set the tester for measurement of current consumption and apply the test lead bars to ⊕ and ⊖ of the module.

\* Keep the test lead bars applied until the measurement of the current consumption is finished.



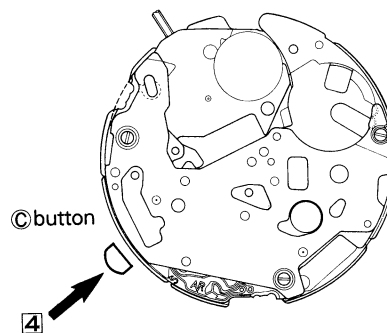
③ With the test lead bars applied, apply the all reset bar to the three AR patterns of the unit of electronic circuit and the train wheel bridge at the same time.

\* If the all reset has been performed, the date wheel moves about 2 seconds after the all reset bar is removed.



④ With the test lead bars applied, press © button once.

⑤ With the test lead bars applied, press the crown into the normal position.



⑥ When the tester needle is stabilized, read the current consumption. The normal current consumption is below 3.1  $\mu\text{A}$ .

If the power cell is replaced, the information in the IC of the watch is not matched to the position of each calendar hand. Accordingly, the initial setting operation is necessary.

## II. Initial setting

1 Pull out the crown to the second click position.

2 Press the three buttons (A), (B), and (C) to perform the all reset operation.

\* The date hand, day hand (mode hand), and month hand/year hand turn in order about 2 seconds after the buttons are released, and the all reset operation is completed. At this time, the beep sound comes out for confirmation.

3 Set each hand to the initial position.

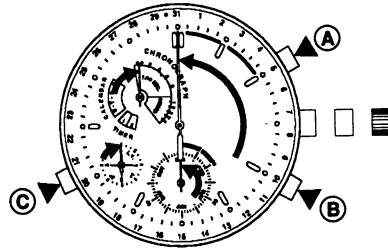
Perform the following operation with the crown kept pulled out to the second click position.

1) Press the (A) button to set the date hand to the 12 o'clock position (Top).

2) Press the (B) button to set the month/year hand to the 12 o'clock position (Top).

3) Press the (C) button to set the day hand (mode hand) to the 0.0 position (Top).

Note 1. The hand moves one division every time the (A) or (B) button is pressed. If the button is pressed and held, the hand moves fast.



4 **<Set to the current time.>**

With the crown pulled out to the second click position, set each hand to the current time, taking care of AM and PM.

5 **<Set to the current calendar.>**

Push the crown to the first click position.

1) Press the (B) button to set the year/month.

2) Press the (A) button to set the date hand.

3) Press the (C) button to set the day.

4) Push the crown to the normal position.

\* If the crown is kept at the first click position, the calendar does not change.



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## **§6. DISASSEMBLY AND ASSEMBLY OF THE MODULE**

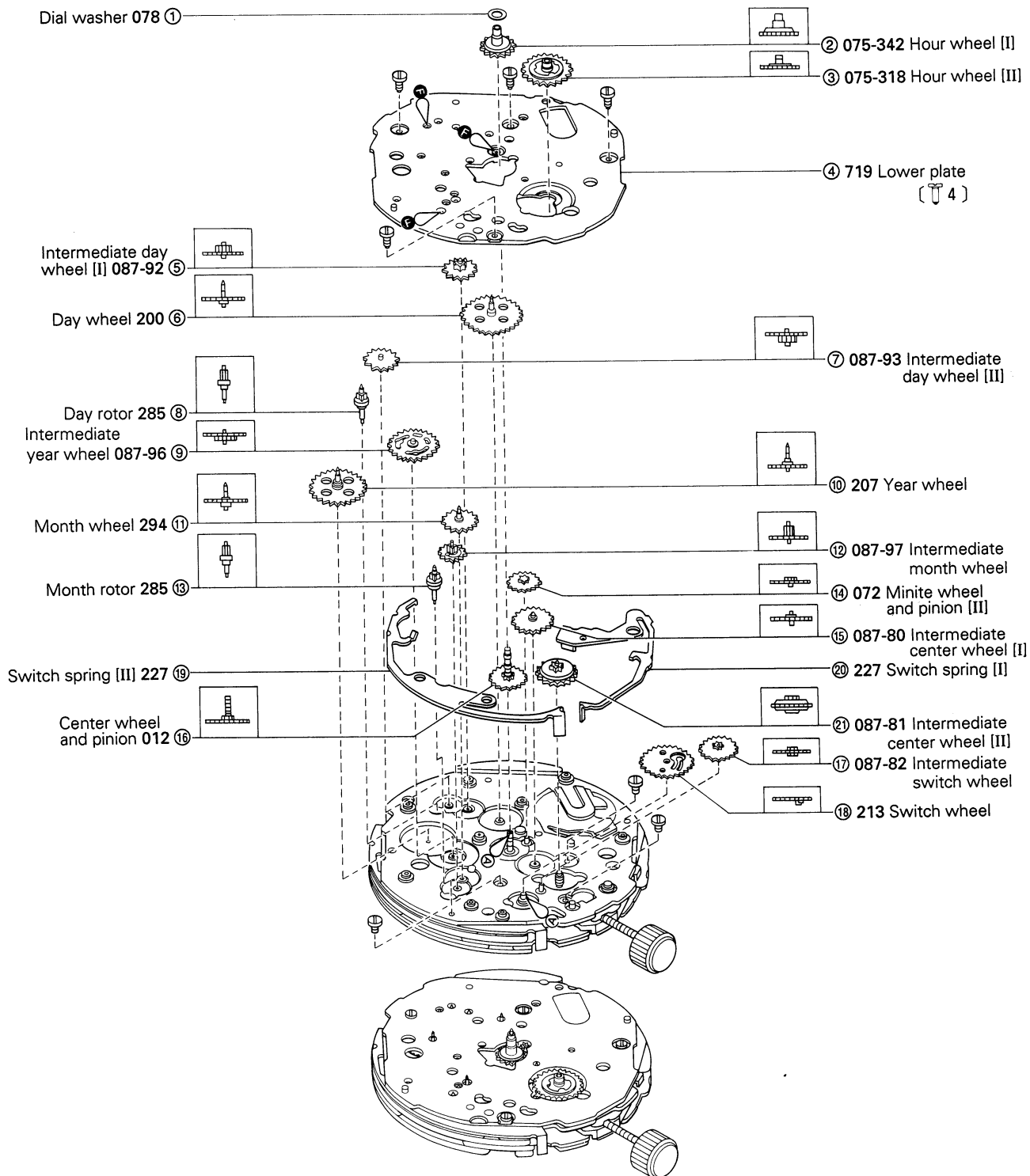
### **1. Precautions in disassembly and assembly**

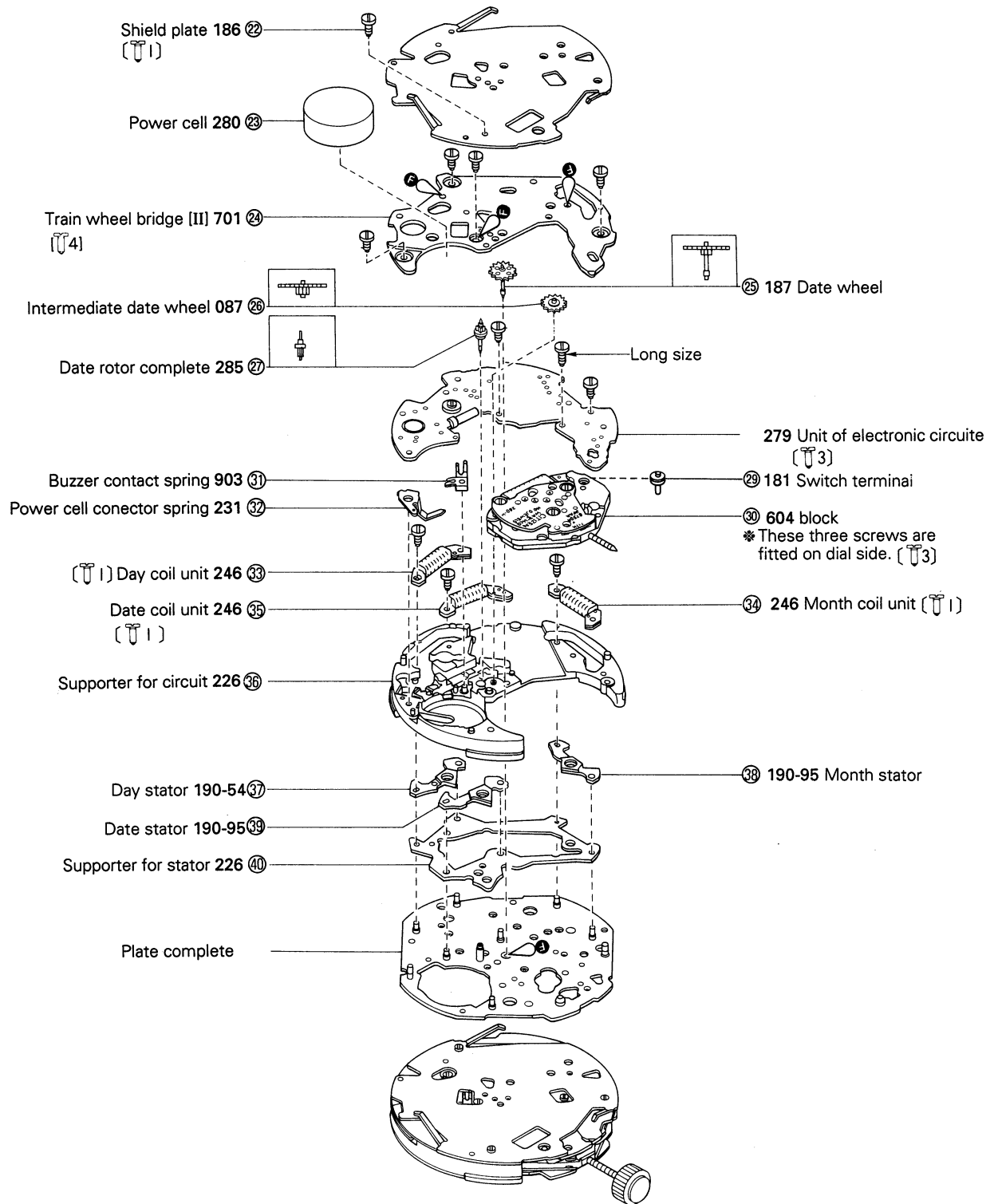
- 1) The day stator has one more round hole than other stators. the date stator and year stator are the common parts.
  - 2) Since the intermediate second wheel and pinion is fitted by pressing, pry it up with the tip of a screwdriver when removing it.
  - 3) Install the switch wheel with the spring part down.
  - 4) Both sides of the intermediate switch wheel and pinion are the same.
-

## 2. Disassembly and assembly of the module

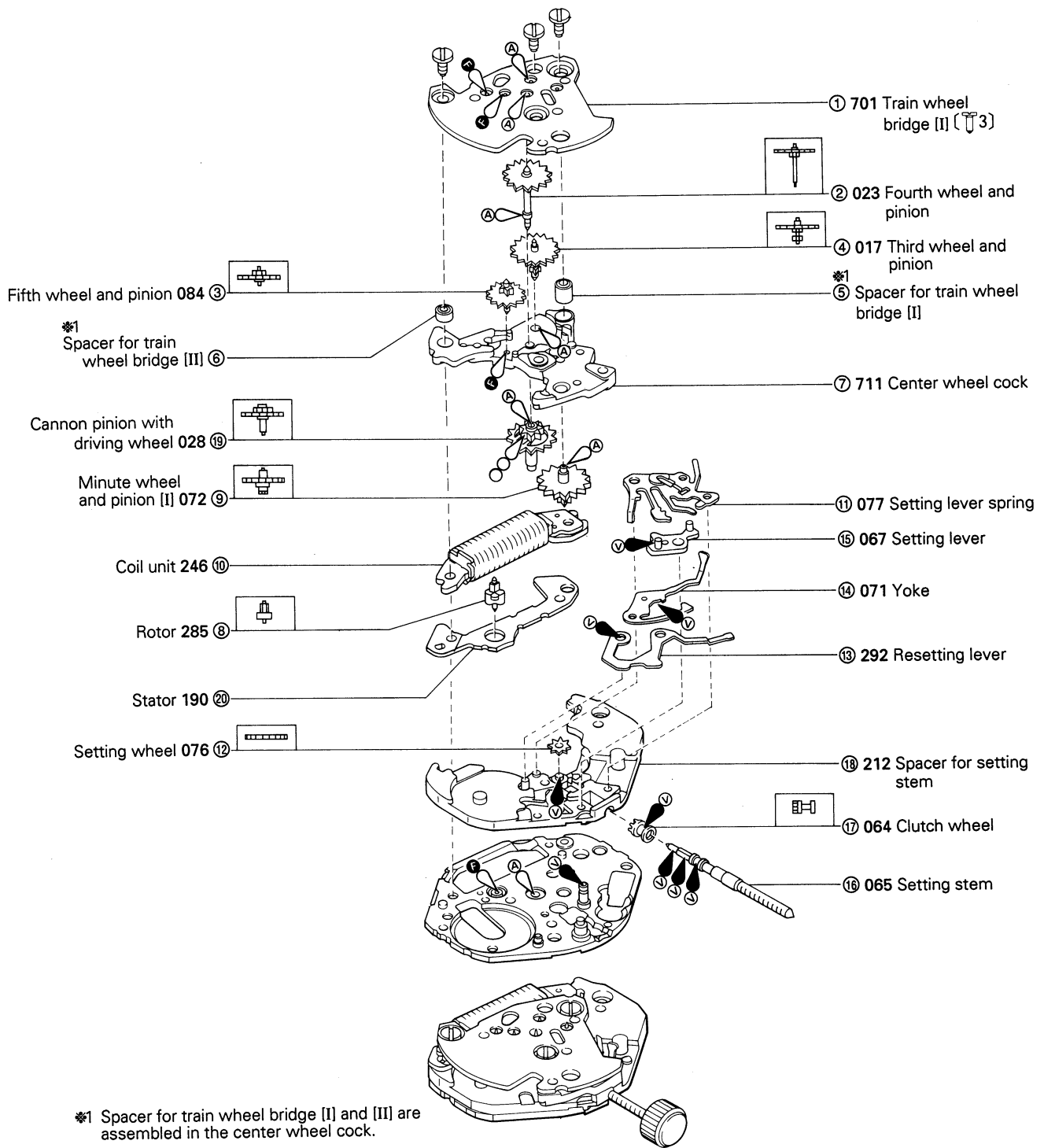
Lubrication narjubgs

	A-Lube oil
	V-Lube oil
	CH-1 oil
	F-Lube oil

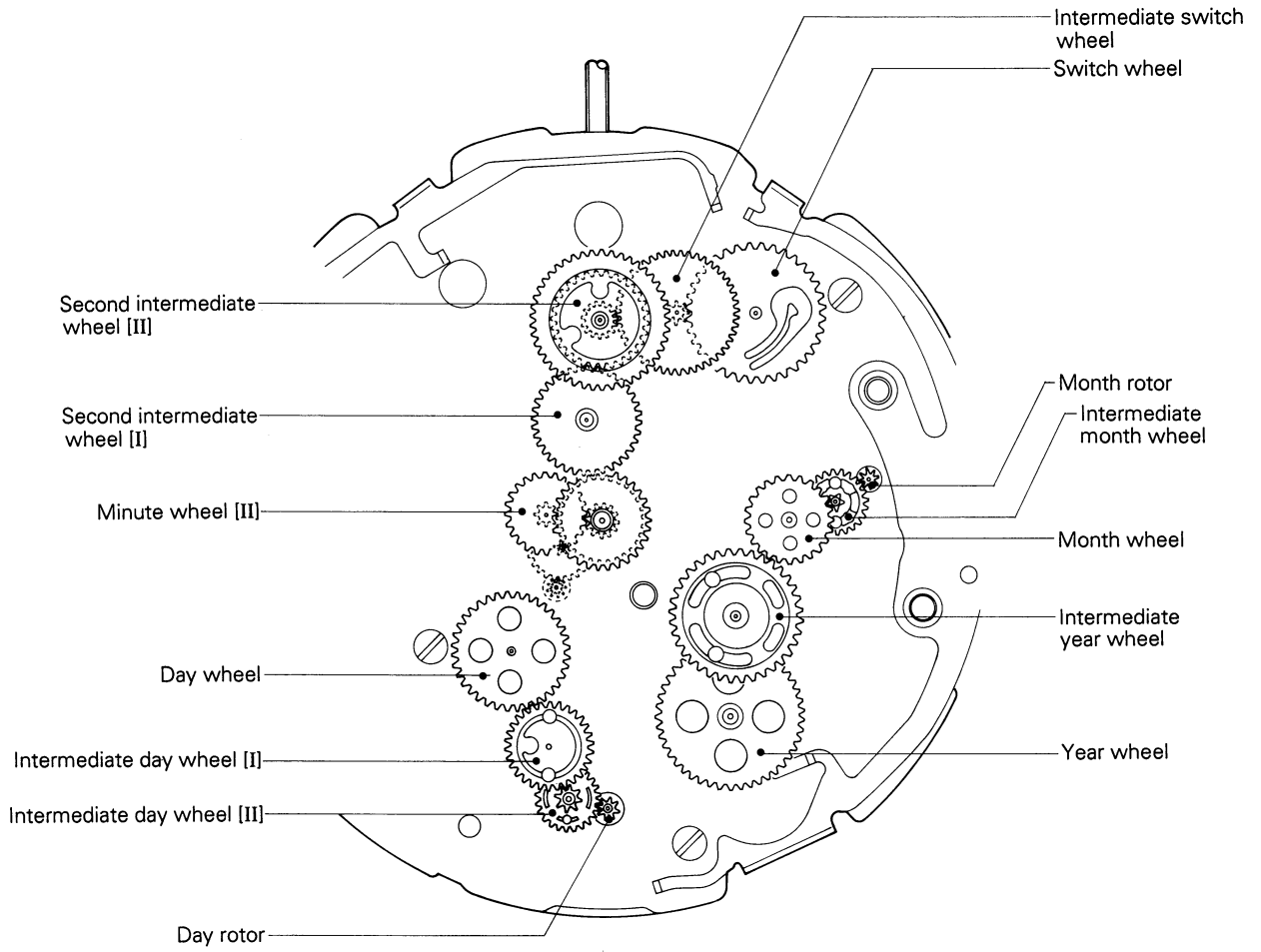




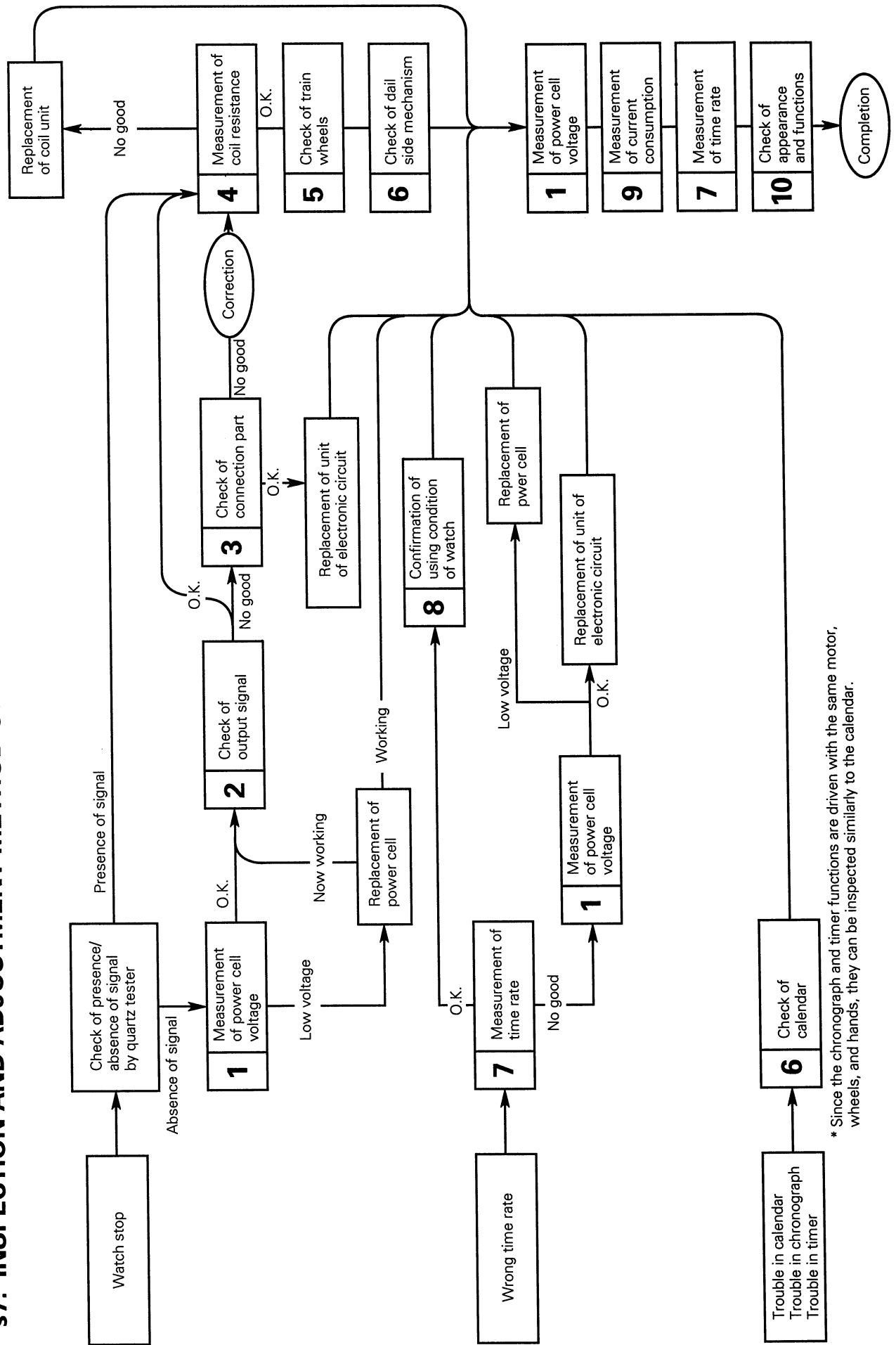
# Cal. 604 block



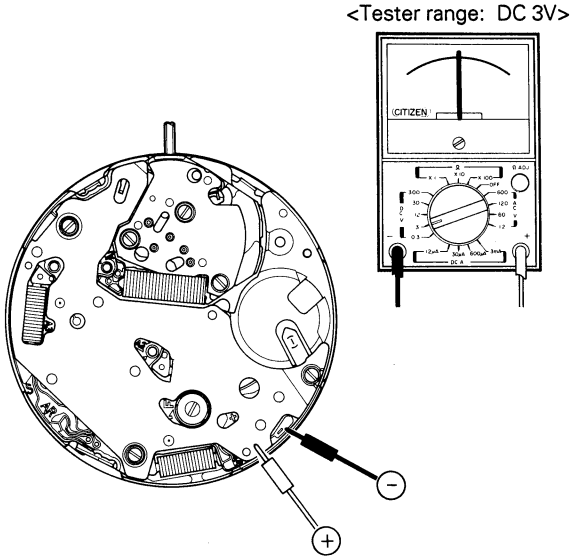
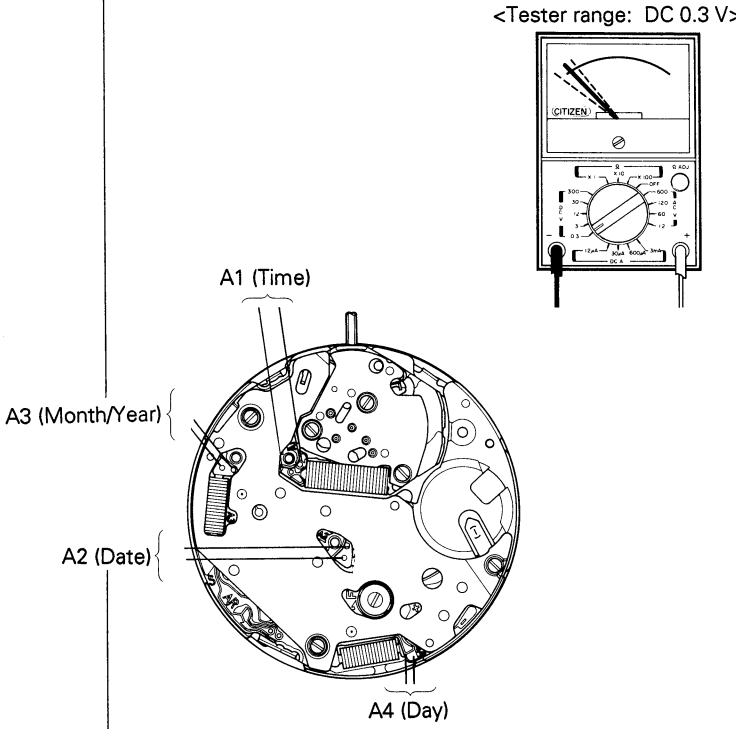
### 3. Arrangement of wheels on dial side

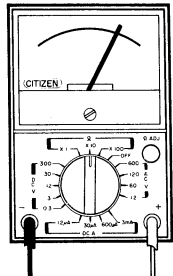


# \$7. INSPECTION AND ADJUSTMENT METHOD OF MODULE

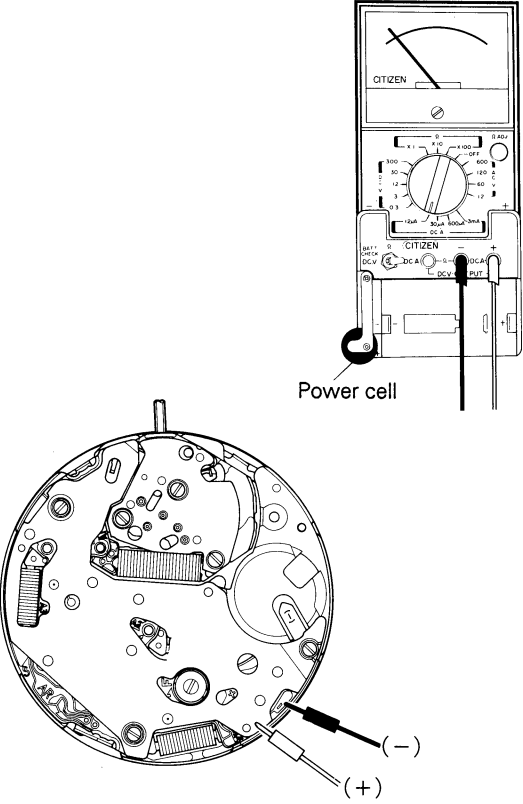


\* Since the chronograph and timer functions are driven with the same motor, wheels, and hands, they can be inspected similarly to the calendar.

Check items	Method	Results and repair procedure
<p>① Measurement of power cell voltage</p>	<p>* Refer to Technical Manual, Basic Course II-1-a for the setting procedure of the tester.</p> <p>&lt;Tester range: DC 3V&gt;</p> 	<ul style="list-style-type: none"> <li>• <b>Over 1.5 V</b> → Non-defective</li> <li>• <b>Under 1.5 V</b> → Replace the power cell</li> </ul>
<p>② Check of output Signal</p>	<p>* Refer to Technical Manual, Basic Course II-1-a for the setting procedure of the tester.</p> <p>Measuring method</p> <ul style="list-style-type: none"> <li>• Measure A1 output signal with the crown at the normal position.</li> <li>• When measuring the A2, A3, and A4, press and hold the (A), (B), and (C) buttons respectively.</li> </ul> <p>* Measure with the module installed in the case.</p> <p>&lt;Tester range: DC 0.3 V&gt;</p> 	<ul style="list-style-type: none"> <li>• A1 output signal (Timer) Tester pointer swings at interval of 1 sec. → OK</li> <li>• A2 output signal (Date)</li> <li>• A3 output signal (Month/Year)</li> <li>• A4 output signal (Day) Tester pointer swings. → OK</li> </ul>

Check items	Method	Results and repair procedure
<p>③ Check of connection part</p>	<p>* Refer to the analog part of Technical Manual, Basic Course II-2-a.</p> <p>If the output signal cannot be obtained for checking, dust may be caught between electronic circuit unit and each part.</p> <p>When the fixing screws of the electronic circuit unit are loosened, the output signal may not be obtained. Tighten those screws securely.</p>	<ul style="list-style-type: none"> <li>• Dust and dirt → Remove</li> </ul>
<p>④ Measurement of coil resistance</p>	<p>* Refer to Technical Manual, Basic Course II-1-c for the setting procedure of the tester.</p> <p style="text-align: center;">&lt;Tester range: X10Ω&gt;</p> 	<p>Resistance</p> <ul style="list-style-type: none"> <li>• Coil unit <b>2.0 kΩ ~ 2.5 kΩ</b> → Non-defective</li> <li>• Year coil unit/Date coil unit/ Day coil unit <b>1.3 kΩ ~ 1.7 kΩ</b> → Non-defective</li> </ul>
<p>⑤ Check of train wheel</p>	<p>* Refer to Technical Manual, Basic Course II-2-b.</p> <ol style="list-style-type: none"> <li>1. Confirm all the gears are meshed smoothly.</li> <li>2. Confirm reset lever works securely.</li> <li>3. Confirm all the parts are properly lubricated.</li> </ol>	
<p>⑥ Check of dial side mechanism (Calendar)</p>	<p>* Refer to Technical Manual, Basic Course II-2-c.</p> <p>If the calendar is not correct, press the button for about 1 second (with the crown at the normal position), and the each calendar hand moves fast, then stops (for about 10 seconds). At this time, confirm that the calendar hands are at the following positions.</p> <ul style="list-style-type: none"> <li>• Year, month, and date hands: 12 o'clock position (Top)</li> <li>• Day hand (Mode hand): 0.0 position (Top)</li> </ul>	<ul style="list-style-type: none"> <li>• The calendar and world time hands are not set to initial positions. → Perform initial setting.</li> </ul>



Check items	Method	Results and repair procedure
<p>⑦ Measurement/adjustment of time rate</p>	<p>* Refer to Technical Manual, Basic Course II-2-d.</p> <p>Measure the time with CITIZEN QUARTZ TESTER and adjust it if necessary.</p> <ul style="list-style-type: none"> <li>• Measurement of time rate The major time can be measured with the tester in any range.</li> <li>• Adjustment of time rate Adjust the time rate with the trimmer capacitor.</li> </ul> <p><b>Do not measure the time rate under the direct sunlight or incandescent lamp. If measured under them, the time rate may shift and may not be measured correctly.</b></p>	
<p>⑧ Check of calendar mechanism</p>	<p>* Refer to Technical Manual, Basic Course II-2-e.</p> <ol style="list-style-type: none"> <li>1. Since the accuracy may be affected by the environment of the watch, confirm the using condition of the watch (Magnetism, extremely high or low temperature and humidity, impacts, etc).</li> <li>2. Confirm how many days have passed after the time was set last time.</li> </ol>	
<p>⑨ Measurement of current consumption</p>	<p>* Refer to Technical Manual, Basic Course II-1-f for the setting procedure of the tester.</p> <p style="text-align: center;">&lt;Tester range: DC 12 <math>\mu</math>A&gt;</p> 	<ul style="list-style-type: none"> <li>• <b>Under 3.1 <math>\mu</math>A</b> → Non-defective</li> <li>• <b>Over 3.1 <math>\mu</math>A</b> → Measure the electronic circuit unit separately.</li> </ul> <p>Measurement of the separate electronic circuit unit</p> <ul style="list-style-type: none"> <li>• <b>Under 2.1 <math>\mu</math>A</b> → Non-defective</li> <li>• <b>Over 2.1 <math>\mu</math>A</b> → Replace the electronic circuit unit.</li> </ul>

Check items	Method	Results and repair procedure
	<p>*Precautions in measurement of current consumption</p> <ol style="list-style-type: none"> <li>1. This watch is equipped with a load compensation circuit. This circuit adjusts the drive output according to the wave form obtained when the rotor rotates. This function works for 10 ~ 30 sec after the power cell is set. At this time, the current of about 1.7 <math>\mu</math>A is consumed, and "abnormal current consumption" is indicated. In this case, wait for at least 30 sec to measure correctly.</li> <li>2. If the module is exposed to the light of an incandescent lamp of the sun, much current may be consumed. The light of a fluorescent lamp does not affect the current consumption.</li> </ol>	
<p>⑩ Check of appearance and functions</p>	<p>* Refer to Technical Manual, Basic Course II-2-f.</p> <ol style="list-style-type: none"> <li>1. Confirm there is not dust, dirt, etc. on the dial.</li> <li>2. Confirm the crown works normally.</li> <li>3. Pull the crown to the second click (C position), and confirm the second hand stops and the time can be set normally (Cal. No. 2850/2860).</li> <li>4. Pull the crown to the first click (B position), and confirm the date and day can be set normally (Date only in case of Cal. No. 2860).</li> </ol>	

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