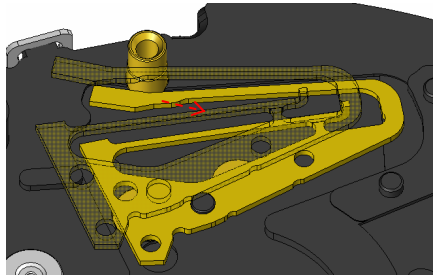
| No. | PROSESS |
|---|---|
| | **Assembling the calendar circuit** |
| | |
| 51 | Set the contact point spring. |
| | ↓ |
| 50 | Set the 2nd intermediate wheel for calendar corrector. |
| | ↓ |
| 49 | Set the control jumper and hook it. |
| | ↓ |
| | Pull out the winding stem from the “0” position to the first position. |
| | ↓ |
| 48 | Set the ratchet lever and hook it. |

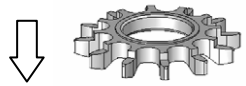
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

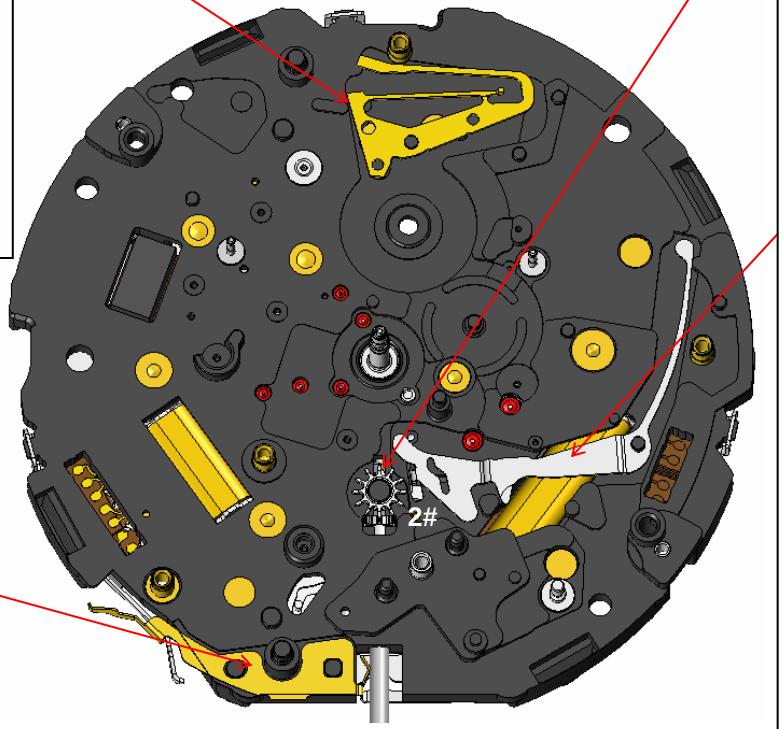
<49> Set the control jumper and hook it.

*Put the tail of the spring inside the pin, and then insert the control jumper from the side to engage it with the guide pin of the main plate.



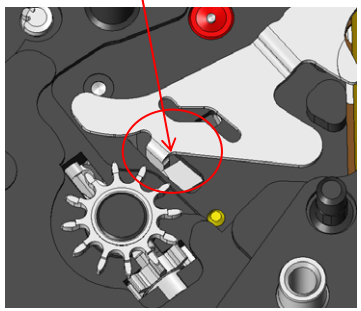
<50> Set the 2nd intermediate wheel for calendar corrector.



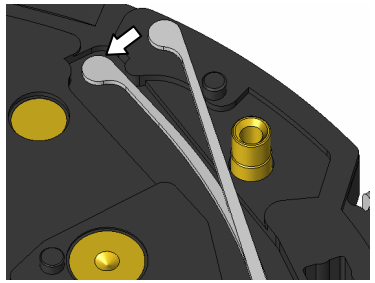



<48> Set the ratchet lever and hook it.

*While the winding stem is at the first click position, securely set the tip of the ratchet lever inside the yoke.

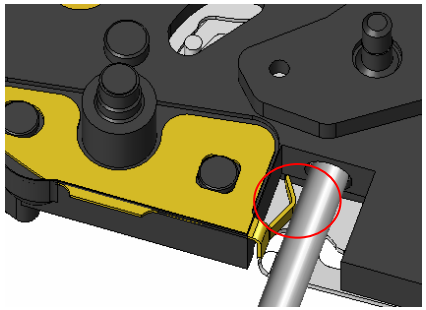


*Make sure that the ratchet lever is properly fitted inside the frame of the main plate.
(See the illustration below.)



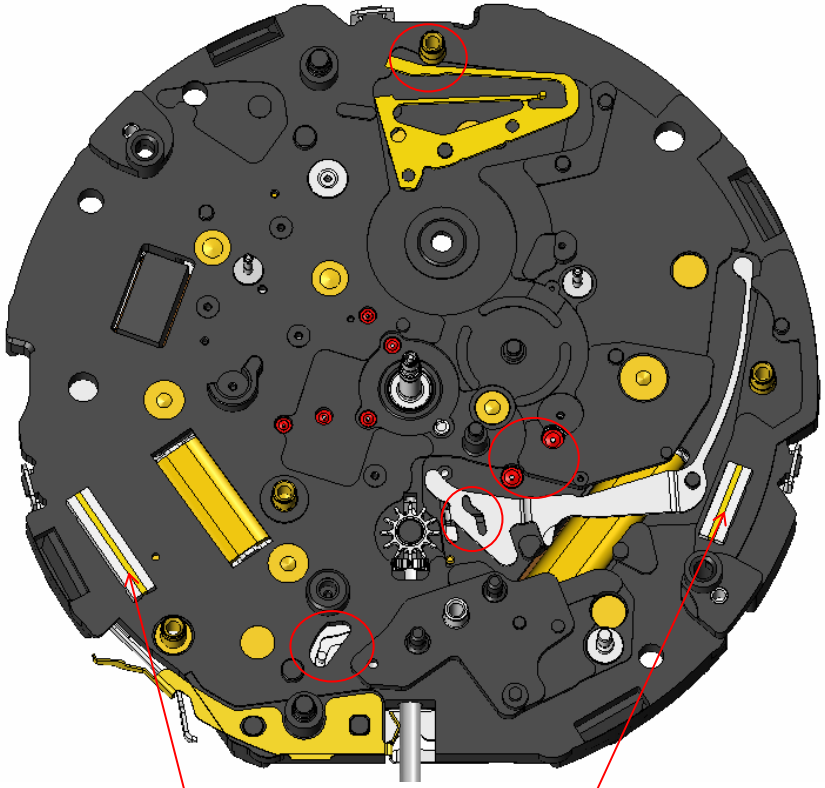
<51> Set the contact point spring.

*Set the contact point spring making a good connection with the surface of the winding stem.



| No. | PROSESS |
|---|---|
| | |
| Lubrication | |
| | -66#, 65# lower pivots |
| | -Guiding slit of the ratchet lever |
| | -Guiding slit of the train wheel setting lever |
| | -Arm of the control jumper |
| | -Corner point of the control jumper |
| | ↓ |
| 47 | Set the A connector. |
| | ↓ |
| 46 | Set the B connector. |

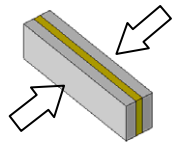
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS



<47> Set the A connector.

*Handle with care not to bend or deform the gold line inside. (To prevent deterioration of circuit continuity)

*Gently hold the lateral sides of the connector (as shown by the arrows in the illustration).



<46> Set the B connector.

Lubrication (red-circled parts in the illustration to the left)

1. 66#, 65# lower pivots

*Type of oil, oil quantity: A0-3II-1 (To prevent parts from wearing)

2. Guiding slit of the ratchet lever

*Type of oil, oil quantity: A0-3II-2 (To prevent parts from wearing)

3. Guiding slit of the train wheel setting lever

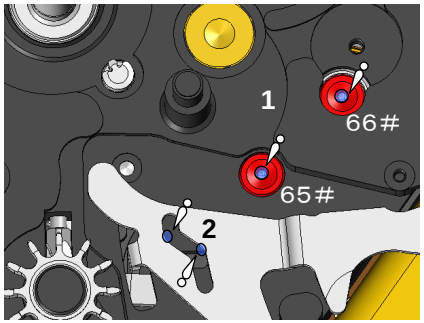
*Type of oil, oil quantity: A0-3II-1 (To prevent parts from wearing)

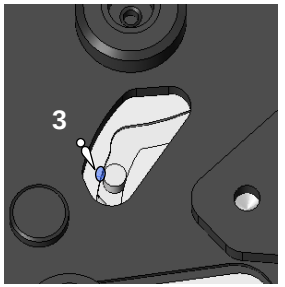
4. Arm of the control jumper

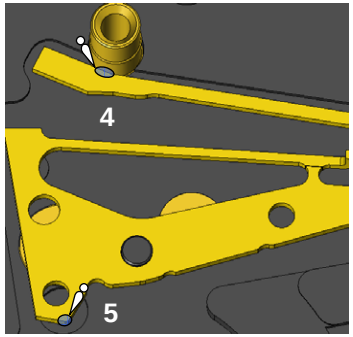
*Type of oil, oil quantity: A0-3II-1 (To keep the smooth movement)

5. Corner point of the control jumper

*Type of oil, oil quantity: A0-3II-1 (To prevent parts from wearing)



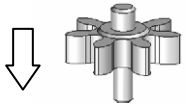



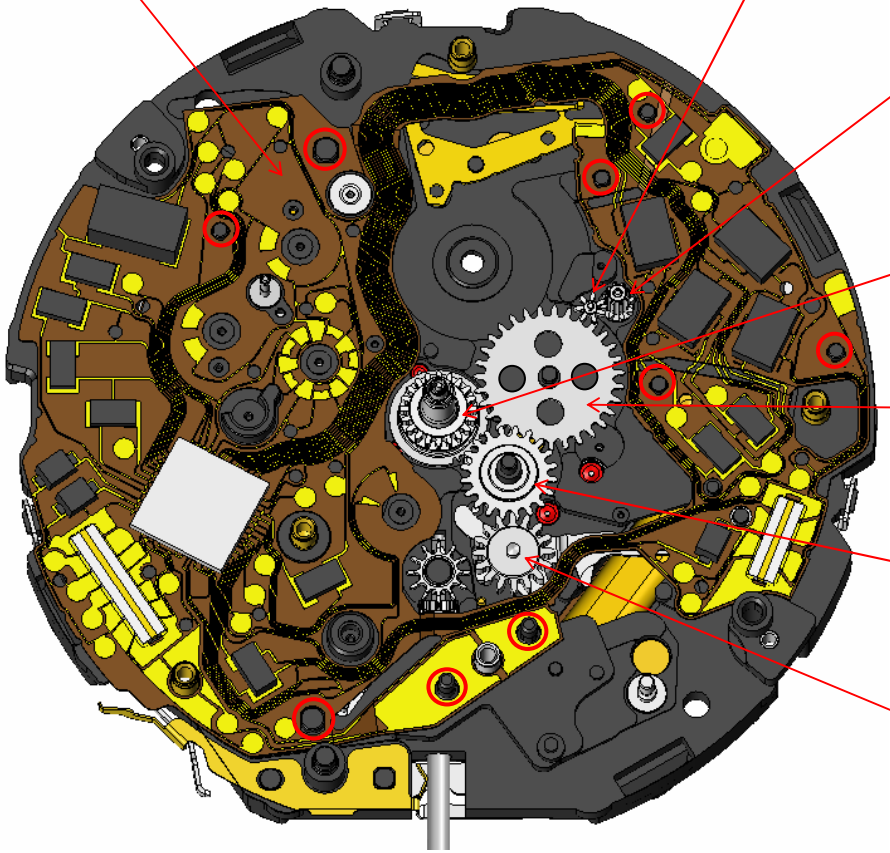
| No. | PROSESS |
|---|---|
| | |
| 45 | Set the circuit block for calendar. |
| | ↓ |
| 44 | Set the hour wheel. |
| | ↓ |
| 43 | Set the 3rd intermediate wheel for calendar. |
| | ↓ |
| 42 | Set the 4th intermediate wheel for calendar corrector. |
| | ↓ |
| 41 | Set the 3rd intermediate wheel for calendar corrector. |
| | |
| | ↓ |
| 40 | Set the pinion for ten's digit. |
| | ↓ |
| 39 | Set the date driving wheel for ten's digit. |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

<45> Set the circuit block for calendar.
*Firmly press down the points of engagement (9 red-circled points in the illustration below) down to securely set it in position.
*Never push the lead portion directly as the lead wire of the circuit pattern is thin and could be cut easily.

<39> Set the date driving wheel for ten's digit.
*Make sure the date driving wheel for ten's digit is put in the correct direction. (See the illustration below.)





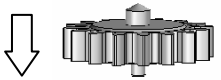
<40> Set the pinion for ten's digit.

<44> Set the hour wheel.

<43> Set the 3rd intermediate wheel for calendar.

<42> Set the 4th intermediate wheel for calendar corrector.
*Make sure that the pinion and the teeth are properly engaged.

<41> Set the 3rd intermediate wheel for calendar corrector.
*Make sure the 3rd intermediate wheel for calendar corrector is put in the correct direction. (See the illustration below.)

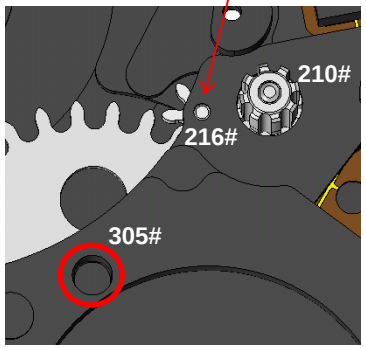


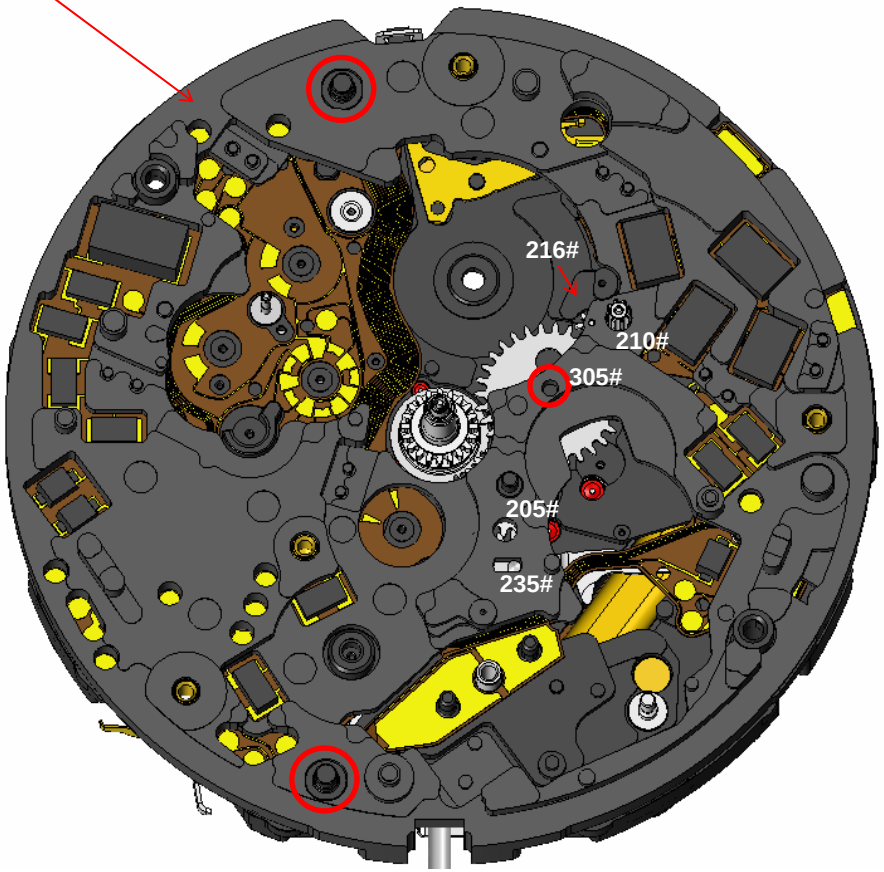
| No. | PROSESS | ILLUSTRATIONS AND SPECIAL INSTRUCTIONS |
|---|---|---|
| 38 | Set the circuit block spacer for calendar. | |

<38> Set the circuit block spacer for calendar.

*Firmly press down the points of engagement (3 red-circled points in the illustration below) to securely set it in position.

*Ensure that the 305# portion is securely pressed down. Failing to do so will make the 216# unable to engage with the 210# properly. After pressing it down, check the pivot hole of 216#.



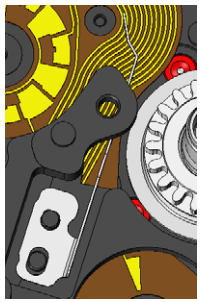



| No. | PROSESS |
|---|---|
| | |
| 37 | Set the jumper for ten's digit. |
| | ↓ |
| 36 | Set the spring for intermediate wheel for month indicator. |
| | ↓ |
| ◆ | Set the positioning guide pin for the spring for intermediate wheel for month indicator and hook the spring for intermediate wheel for month indicator. |
| | ↓ |
| 35 | Tentatively set the jumper for month. |

## ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

### <36> Set the spring for intermediate wheel for month indicator.

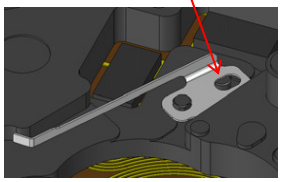
*Firmly press down the point of engagement.



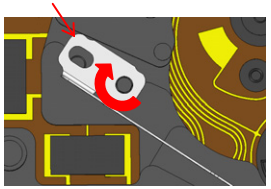
### <35> Tentatively set the jumper for month.

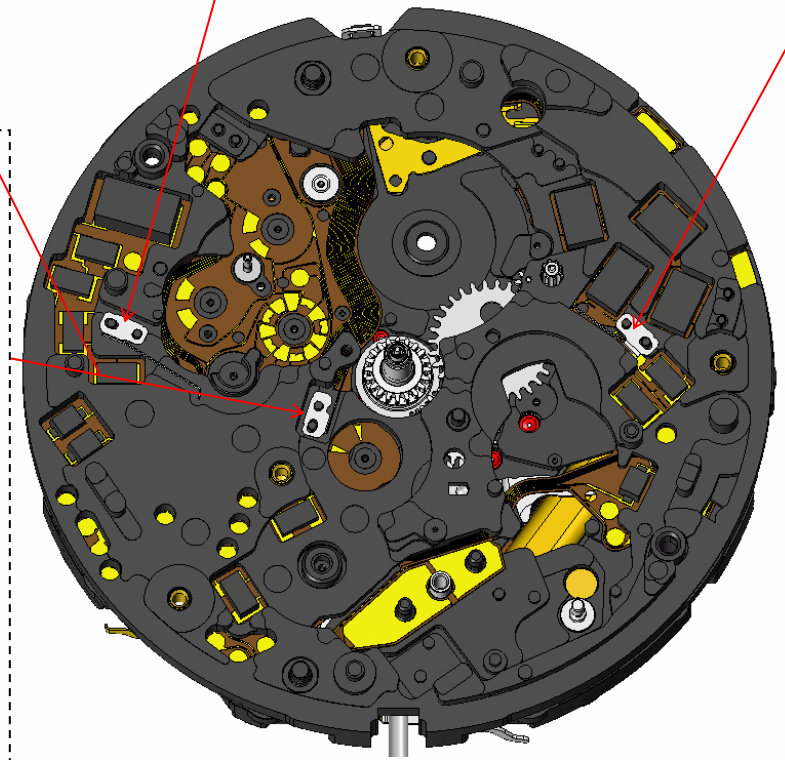
*Set the jumper tentatively as shown below. (To install the calendar wheels more effectively)

1. Put the jumper for month on the outer dowel.



2. Rotate the jumper until it is fit to the frame of the circuit block spacer for calendar.

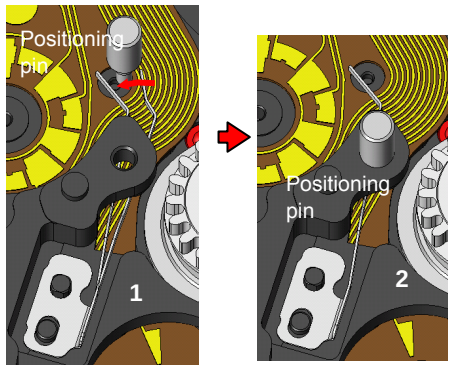




### ◆ Set the positioning guide pin for the spring for intermediate wheel for month indicator and hook the spring for intermediate wheel for month indicator.

*While pushing the spring outward, set the positioning pin (1 in the illustration below) and then hook it (2 in the illustration below).

Note) You can install the spring for intermediate wheel for month indicator without using the positioning pin.

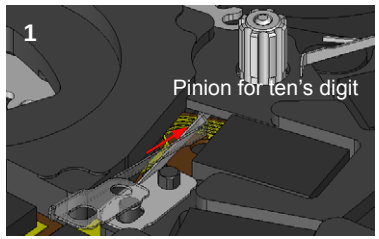


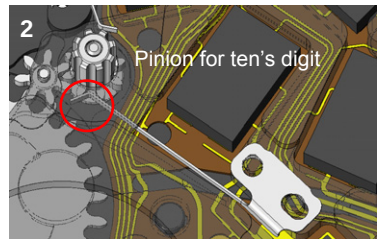

### <37> Set the jumper for ten's digit.

*Insert the jumper for ten's digit from an angle to beneath the circuit block spacer for calendar (illustration 1 below), and then set the jumper contacting the pinion for ten's digit as shown red-circled in the illustration 2.

*After setting the jumper for ten's digit, firmly press down the point of engagement to securely set it in position.

*Rotate date driving wheel for ten's digit to check if the pinion for ten's digit rotates smoothly.



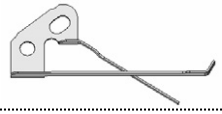




Distinction among the different types of jumpers

Jumper for ten's digit
Jumper for month

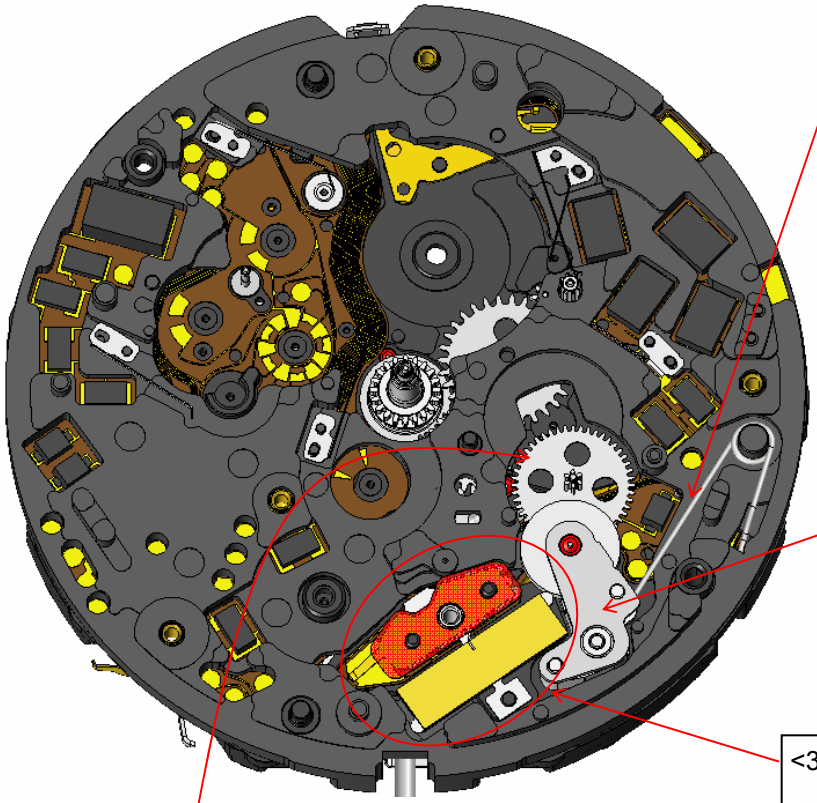
Jumper for year
Spring for intermediate wheel for month indicator

Jumper for units digit



| No. | PROSESS |
|---|---|
| | **Assembling the piezoelectric motor** |
| | |
| 34 | Set the piezoelectric stator block. |
| | |
| 33 | Set the piezoelectric motor lead plate. |
| | |
| 32 | Set the insulator for piezoelectric motor. |
| | |
| 31 | Set the piezoelectric rotor block. |
| | |
| 30 | Set the 1st intermediate wheel for calendar. |
| | |
| | |
| 29 | Set the piezoelectric motor connecting spring and hook it. |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

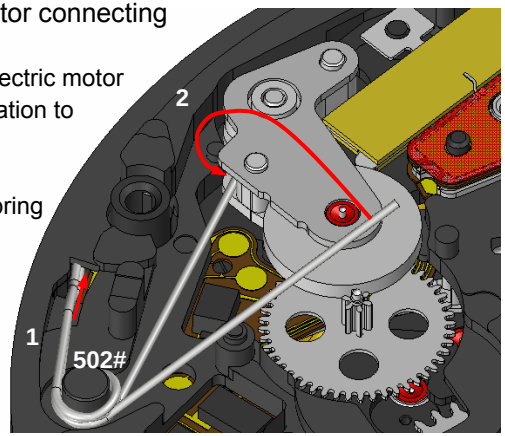
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS



<29> Set the piezoelectric motor connecting spring and hook it.

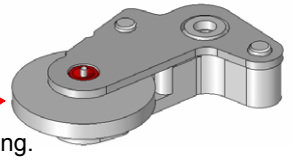
*How to set and hook the piezoelectric motor connecting spring (See the illustration to the right.)

1. While inserting the tip of the piezoelectric motor connecting spring into the gap with the circuit block spacer for calendar, set it to engage with the dowel of the spacer (502#).
2. Hook the spring up to the lateral surface of the piezoelectric rotor block.



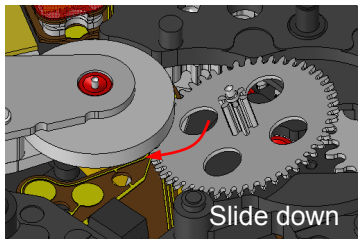

<31> Set the piezoelectric rotor block.

*Make sure that there are no scratches, dirt, dusts or stains on the lateral surface of the wheel of the rotor;
check the condition of the wheel before mounting.
(To prevent deterioration of the piezoelectric motor)

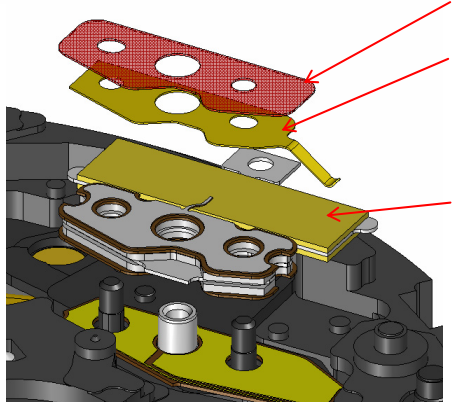


<30> Set the 1st intermediate wheel for calendar.

*Make sure that the pinion of the piezoelectric rotor and the teeth of the 1st intermediate wheel for calendar are properly engaged. (Refer to the illustration to the right.)



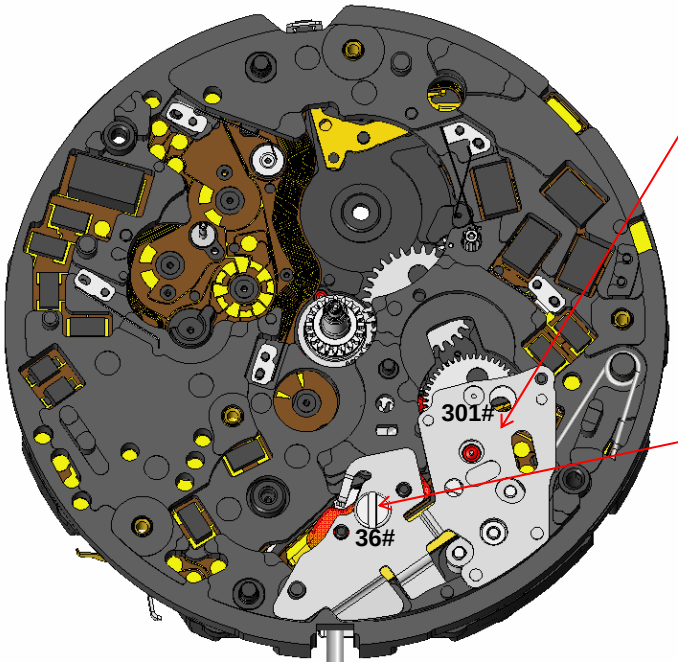

<32-34>



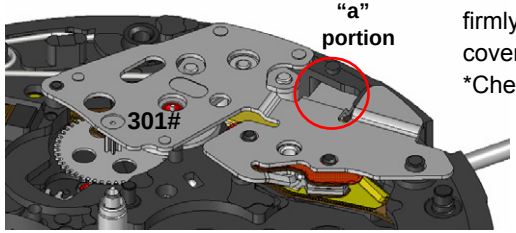
◆ 32 Set the insulator for piezoelectric motor.
◆ 33 Set the piezoelectric motor lead plate.
*Firmly press down the point of engagement to securely set it in position.
◆ 34 Set the piezoelectric stator block.
*Handle with care not to distort or deform it.
*Hold the lead board side when handling the piezoelectric stator block. (To prevent deterioration of the piezoelectric motor)

| No. | PROSESS |
|---|---|
| | |
| 28 | Set the piezoelectric motor cover. |
| | ↓ |
| 27 | Tighten the screw for piezoelectric motor cover. (36#) |
| | |
| | ↓ |
| Push the winding stem back in from the first position to the original position. | |
| | ↓ |
| , | Check the PTP drive. |

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS




<28> Set the piezoelectric motor cover.




*Insert the "a" portion beneath the circuit block spacer for calendar to firmly set the piezoelectric motor cover. (See the illustration below.)
*Check the pivot hole 301#.

<27> Tighten the screw for piezoelectric motor cover. (36#)
*Make sure to set the correct screw.

Check the PTP drive.
*Ensure that the voltage of the rechargeable battery reaches 1.3v or higher, otherwise it will not work.

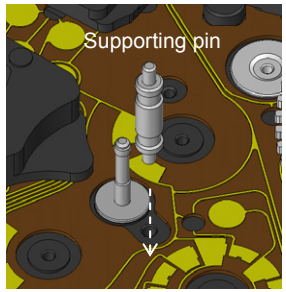
| No. | PROSESS |
|---|---|
| | Assembling the calendar wheels |
| | |
| ◆ | Set the supporting pin for alignment. |
| | ↓ |
| 26 | Align and set the control wheel and hook the control jumper. |
| | |
| | ↓ |
| 25 | Set the 2nd intermediate wheel for calendar. |
| | ↓ |
| | |
| 24 | Set the detection on wheel for 24H. |
| | ↓ |
| 23 | Set the indicator on wheel for 24H. |
| | ↓ |
| 22 | Set the intermediate wheel for month indicator. |

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

## Set the supporting pin for alignment.

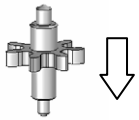
*Ensure that the supporting pin for alignment is set properly without any clearance. (The pin is reversible.)

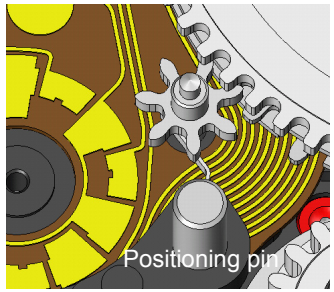
Note) You can install the calendar wheels without using the supporting pin.




## <22> Set the intermediate wheel for month indicator.

*Ensure that the intermediate wheel for month indicator is put in the correct direction. (See the illustration below.)



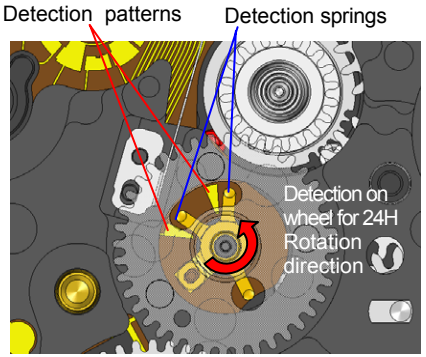


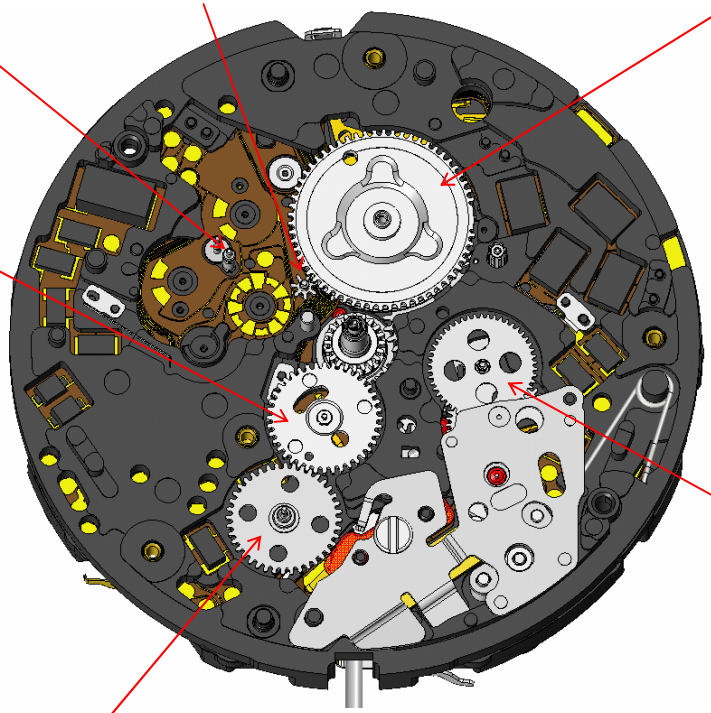

*Set the intermediate wheel for month indicator from inside the spring (from the control wheel side). (See the illustration to the right.)

## <24> Set the detection on wheel for 24H.

*To effectively test the detection of the 24H continuity, the detection on wheel for 24H should be mounted as shown below. (See the illustration.)

The detection springs are positioned in front of the detection patterns.



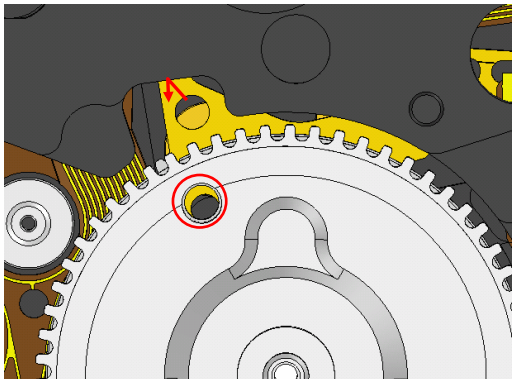



## <23> Set the indicator on wheel for 24H.

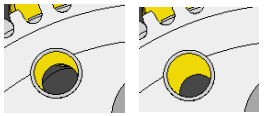
## <26> Align and set the control wheel and hook the control jumper.

*Setting position: Align the hole of the control wheel and the hole of the control jumper. (See the red-circled part in the illustration below. Check if you can see the hole of the control jumper through the hole of the control wheel.)

*Moving the hole of the jumper outwards to search the correct position to hook the jumper securely. (See the illustration below.)

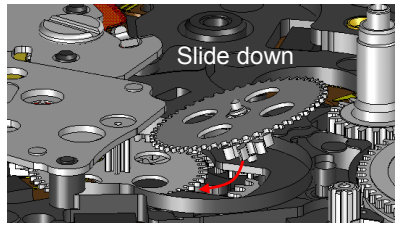


Position of the jumper after it is fixed.
Red-circled part



OK NG

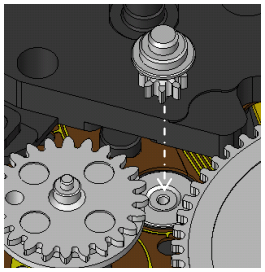
## <25> Set the 2nd intermediate wheel for calendar.



| No. | PROSESS |
|---|---|
| | |
| 21 | Set and align the driving wheel for year. |
| | ↓ |
| 20 | Set the indicator wheel for year. |
| | ↓ |
| 19 | Set and align the detection on wheel for year. |
| | ↓ |
| 18 | Set and align the intermediate wheel for year indicator. |
| | ↓ |
| 17 | Set and align the detection on wheel for month. |
| | ↓ |
| 16 | Set the indicator on wheel for month. |
| | ↓ |
| | Check the alignments. |

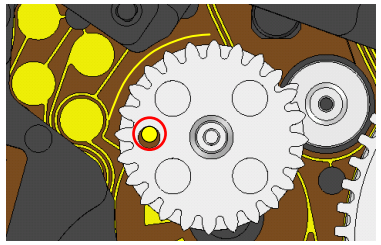
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

<20> Set the indicator wheel for year.



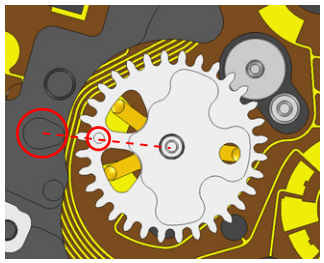
<21> Set and align the driving wheel for year.

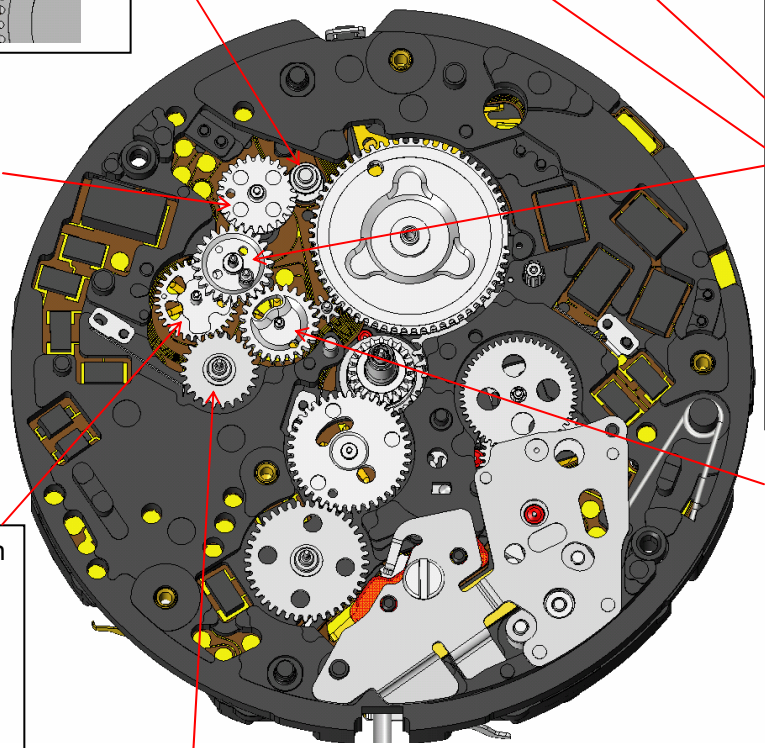
*Align the hole of the toothed wheel and the mark (indicator) on the circuit block for calendar. (See the illustration below.)



<19> Set and align the detection on wheel for year.

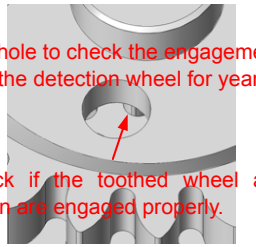
*Align the mark of the toothed wheel and the mark of the circuit block spacer for calendar. (See the illustration below.)





The hole to check the engagement with the detection wheel for year

Check if the toothed wheel and pinion are engaged properly.

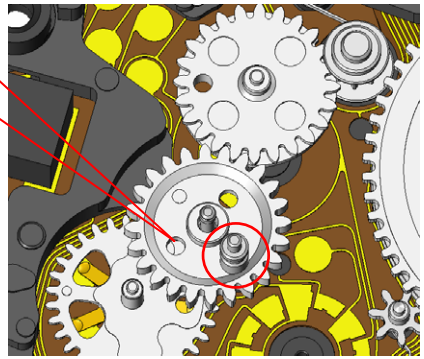


<16> Set the indicator on wheel for month.

<18> Set and align the intermediate wheel for year indicator.

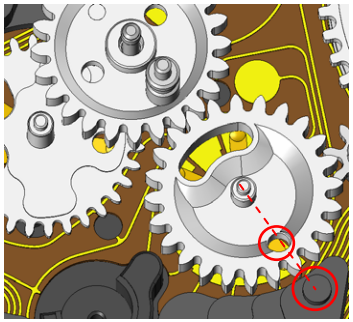
*Set the hole of the toothed wheel (biggest hole) to the positioning pin to correctly align the intermediate wheel for year indicator. (If you do not use the positioning pin, align the hole of the toothed wheel (biggest hole) to the hole of the main plate.)

*When mounting the intermediate wheel for year indicator, make sure that it is properly engaged with the driving wheel for year and detection wheel for year. Check that they are correctly aligned each other.



<17> Set and align the detection on wheel for month.

*Align the mark of the toothed wheel and the mark of the circuit block spacer for calendar. (See the illustration below.)



| No. | PROSESS |
|---|---|
| | |
| 15 | Set the train wheel bridge for calendar and check the pivot hole. |
| | ↓ |
| 14 | Tighten the train wheel bridge for calendar screw. (401#, 402#, 403#, 404#) |
| | ↓ |
| ◆ | Remove the supporting pin for alignment. |
| | ↓ |
| ◆ | Remove the positioning pin for the spring for intermediate wheel for month indicator. |
| | ↓ |
| | Lubricate the upper pivot of the 3rd intermediate wheel for calendar corrector. |
| | ↓ |
| 35 | Set the jumper for month. |
| | ↓ |
| 13 | Set the jumper for year. |

ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

<15> Set the train wheel bridge for calendar and check the pivot hole.

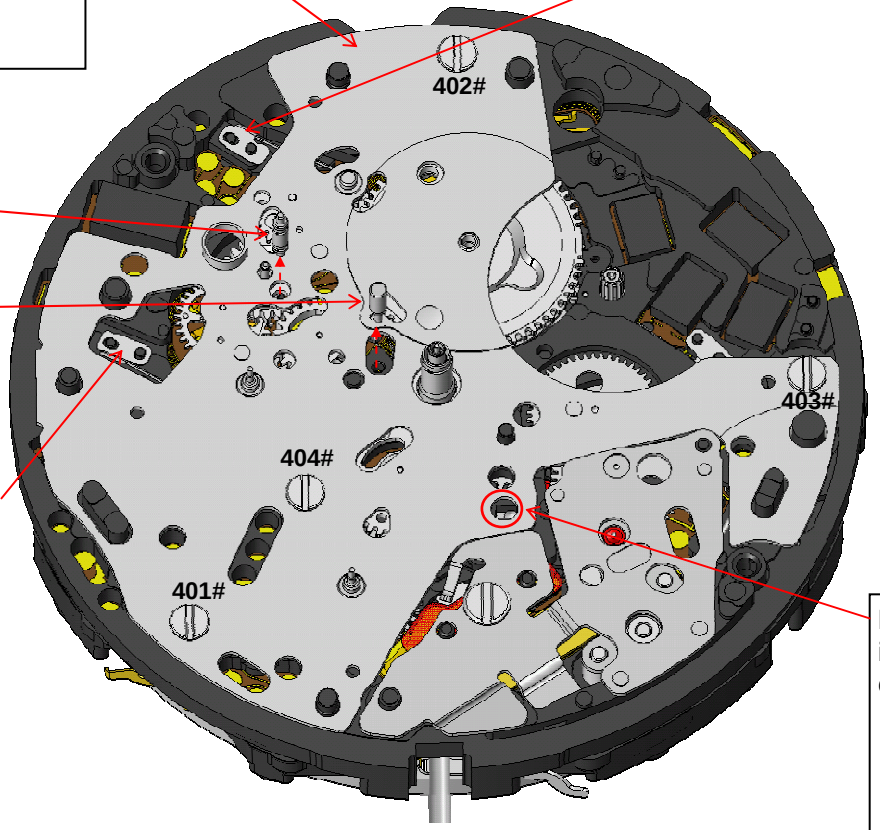
<14> Tighten the train wheel bridge for calendar screws. (410#, 402#, 403#, 404#)

◆Remove the supporting pin for alignment

◆Remove the positioning pin for the spring for intermediate wheel for month indicator.

<35> Set the jumper for month.

*Rotate the jumper for month which has been tentatively set until it becomes engaged with the dowel. (See the illustration below.)



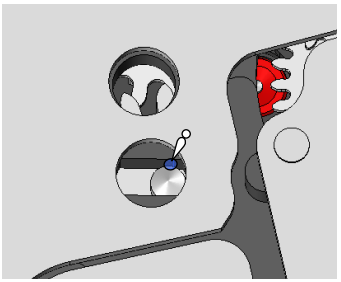

<13> Set the jumper for year.

*Insert the tip of the jumper from an angle (1) and engage it with the dowel of the circuit block spacer for calendar while holding the jumper contacting the lateral surface of the axes of the indicator on wheel for year (2). (See the illustration below.)

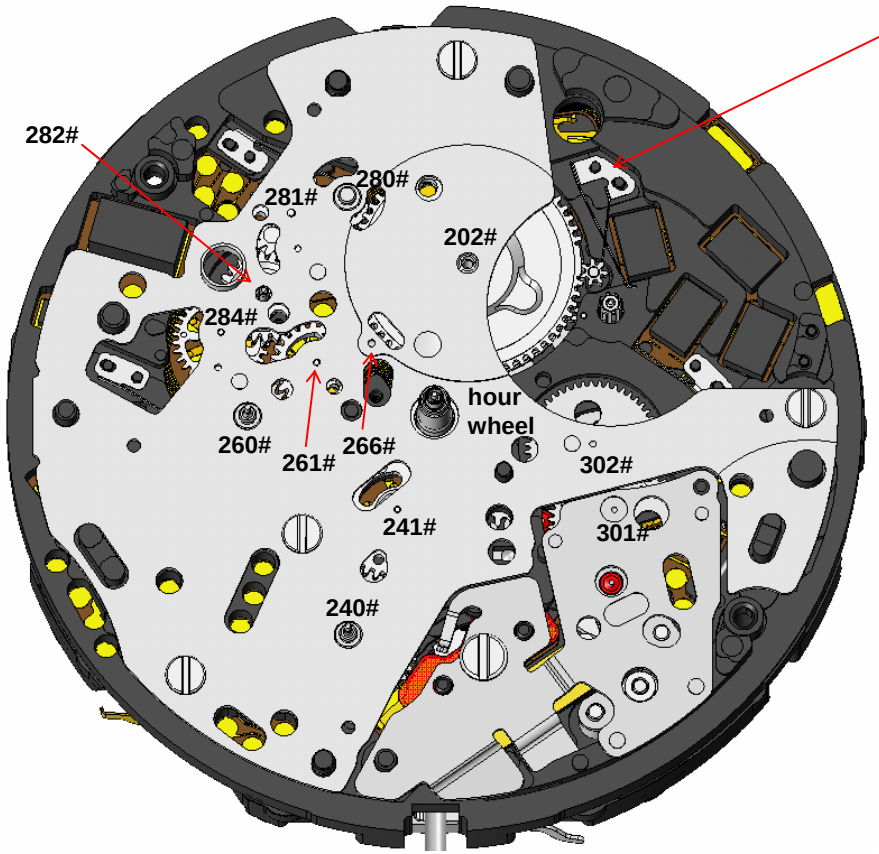
*Press the jumper straight down to securely engage it with the dowel without any clearance.

Lubricate the upper pivot of the 3rd intermediate wheel for calendar corrector.

*Type of oil, oil quantity: A0-3II-1 (To prevent parts from wearing)



| No. | PROSESS | ILLUSTRATIONS AND SPECIAL INSTRUCTIONS |
|---|---|---|
| 12 | Set the jumper for units digit. | |

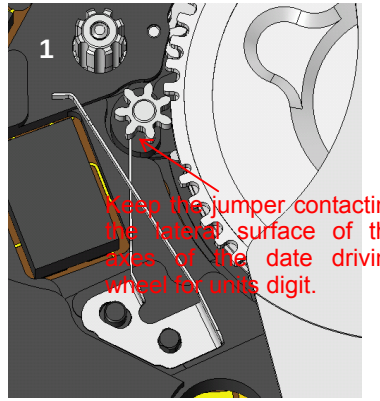


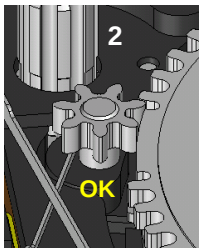

<12> Set the jumper for units digit.

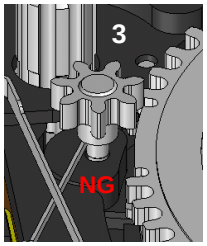
*Set the jumper for units digit, keeping the jumper in contact with the lateral surface of the axes of the date driving wheel for units digit. (See 1 in the illustration below.)

*Press the jumper straight down to securely engage it with the dowel of the circuit block spacer for calendar without any clearance.

*After completing the setting of the jumper, make sure that date driving wheel for units digit is well set in position without any resistance or rebound resilience. (See 2 and 3 in the illustration below.)



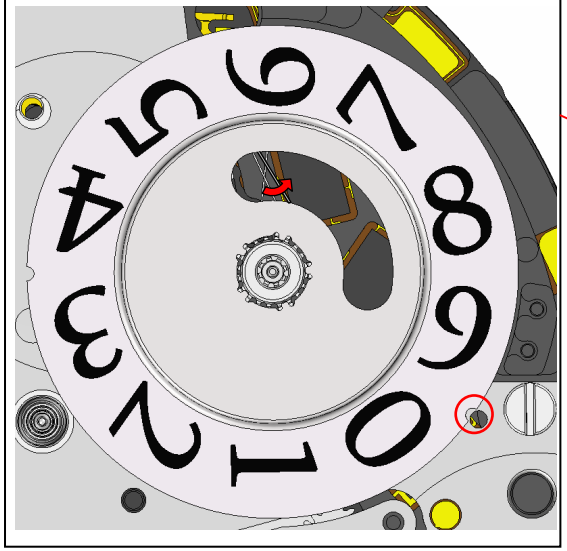
| No. | PROSESS |
|---|---|
| | |
| 11 | Set the date dial for units digit and hook it. |
| | ↓ |
| 10 | Set the date dial for ten's digit. |
| | ↓ |
| 9 | Set the date dial holder for trans wheel for units digit. |
| | ↓ |
| 8 | Set the indication disk for year. |

## ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

### <11> Set the date dial for units digit and hook it.

*Set "1" to the 3 o'clock direction, and then align the notch of the date dial and hole of the train wheel bridge. (See the red-circled part in the illustration below.)

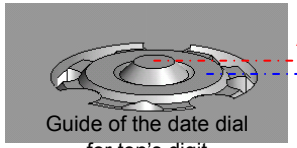
*Pushing the jumper outwards to set the date dial for units digit, and then hook it. (See the illustration below.)



*Press the stem of the date dial for ten's digit straight down to the same level of the upper end of the pinion.

*Do not press it down too deeply to cause the pinion for ten's digit to protrude.

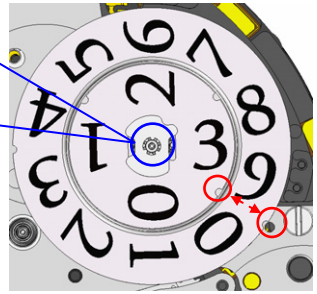
*When the pinion has protruded, gently press it down until it goes down to the same level as the stem. Keep a good balance between them. (To prevent friction between the date dial and the dial)

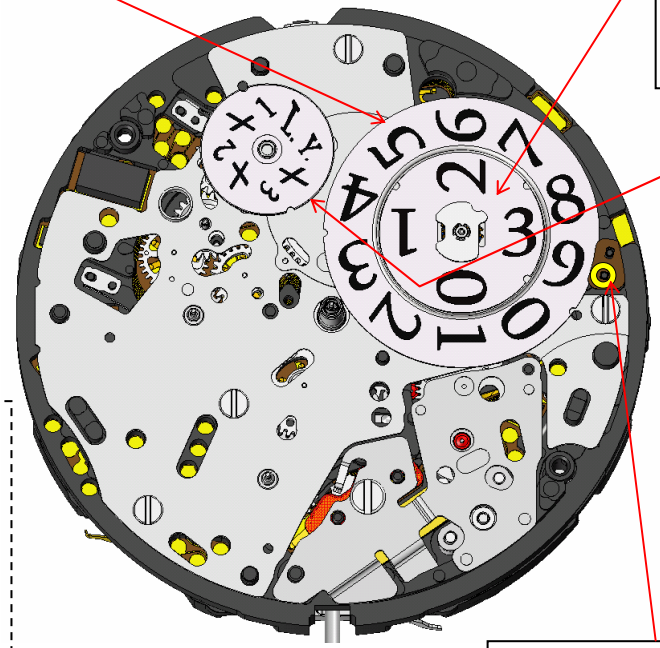



### <10> Set the date dial for ten's digit.

*While moving "0" to the 3 o'clock direction, set the date dial for ten's digit to the pinion for ten's digit at an angle that the notch of the date dial and hole of the train wheel bridge are aligned (see the red-circled part in the illustration below) and then firmly press it down to secure.

(See the blue-circled part in the illustration below.)

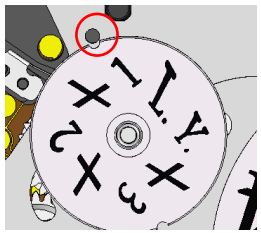


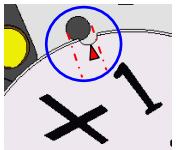


### <8> Set the indication disk for year.

*Align the notch at the "+1" side and the hole of the train wheel bridge, and then firmly press it down to secure. (See the red-circled part in the illustration below.)

*The center of the notch should be within the range of the hole of the train wheel bridge. (See the blue-circled part in the illustration below.)





### ◆Remarks on handling the date dials

*Extra attention must be paid when handling the date dials. Scratches or stains on the printed sides may cause malfunction.

*When removing the date dial for ten's digit, insert the jig from the "2" direction of the date dial for ten's digit and from the directions other than the "6","7","8" or "9" of the date dial for units digit, and then remove the date dial for ten's digit. (To prevent any scratches to the backside, and damages to parts)

### <9> Set the date dial holder for trans wheel for units digit.

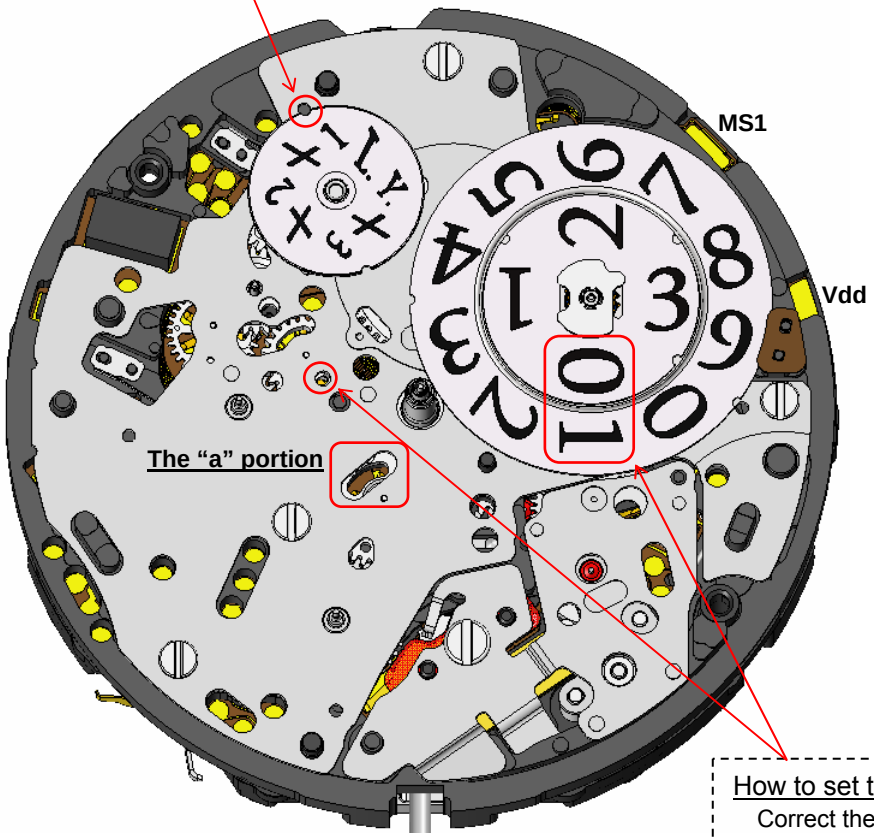
*Set the patterned side up. (See the illustration to the left.)

*Firmly press the down the point of engagement to securely set it in position.

| No. | PROSESS | ILLUSTRATIONS AND SPECIAL INSTRUCTIONS |
|---|---|---|
| | | |
| | Check the movement of the hands. | |
| | ↓ | |
| | | |
| | Check the detection of the 24 H contact point. | |
| | | |
| | ↓ | |
| | Check the calendar correction. | |
| | | |
| | ↓ | |
| | Reset the calendar to the default settings. | |
| | Reset procedure | |

How to set to a leap year

Check that the notch at the “+1” side and the hole of the train wheel bridge are aligned. If they are out of alignment, correct the calendar to adjust them.



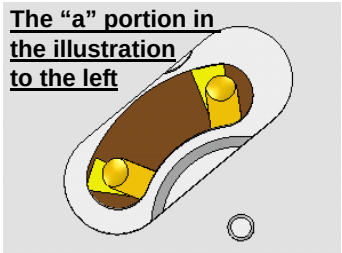

Check the movement of the hands.

*The hands should move smoothly without dropping off while rotating or without any friction.

Check the detection of the 24H contact point.

*Move the hands clockwise to rotate the detection on wheel for 24H. Then verify the continuity between MS1 and Vdd.

The “a” portion in the illustration to the left



The two springs for detection are on the pattern

Check the calendar correction.

*Ensure that the calendar is corrected smoothly without any friction.

*You will hear the click and the date should change smoothly.

Reset the calendar to the default settings. Reset procedure.

*Set to a leap year, January 1. (See the illustration to the left.)

How to set to January 1

Correct the calendar as below:

1 Align the hole of the detection on wheel for month and the hole of the train wheel bridge (January).

2 Read the date to the 3 o’clock direction to set “0 “for ten’s digit and “1” for units digit.

| No. | PROSESS | Specifications (Quality specifications, handling methods etc.) |
|---|---|---|
| | Assembling the case | |
| | | |
| | Set the movement. | Check the positions of date, month and year. (Ensure it is set to a leap year, January 1.) (See the illustration to the right.) |
| | ↓ | |
| | | |
| | | |
| | | |
| | Set the dial. | Holes for dial fixing pins: 15#, 16# |
| | ↓ | |
| | Rotate the pins for dial fixing. | Ensure that the dial is securely mounted without any clearance. |
| | | Rotate the eccentric pins clockwise to fix the legs of the dial. |
| | | |
| | | |
| | | |
| | | |
| | Detect the 24 H connection. | Check the detection of the 24H contact point to adjust the timing of date change. |
| | | -When doing this, turn the hands clockwise. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

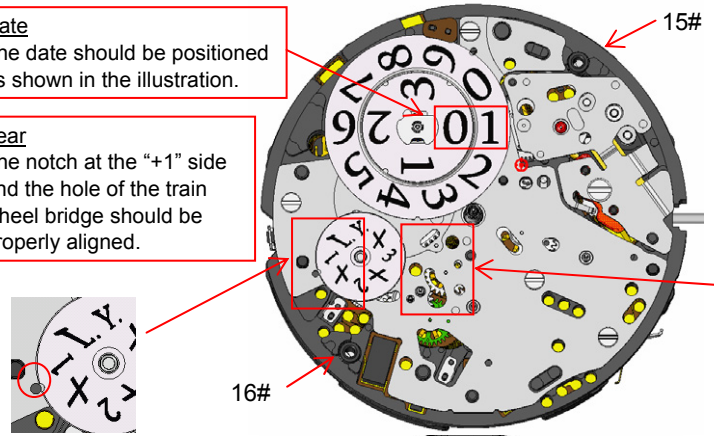
ILLUSTRATIONS AND SPECIAL INSTRUCTIONS

Set the movement.

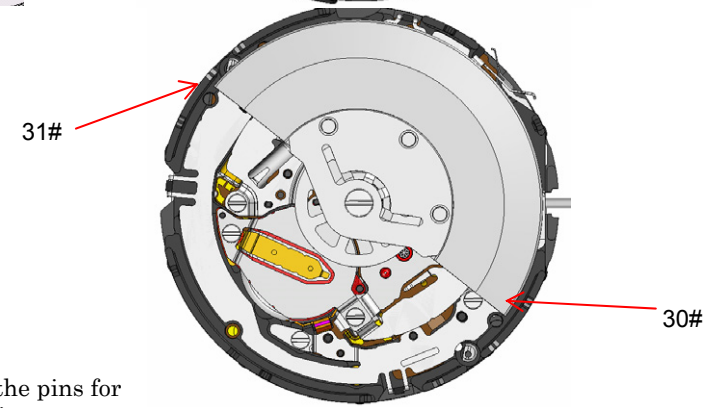
Check the positions of date, month and year. (Ensure it is set to a leap year, January 1.)

Date
The date should be positioned as shown in the illustration.

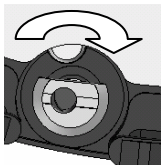
Year
The notch at the “+1” side and the hole of the train wheel bridge should be properly aligned.



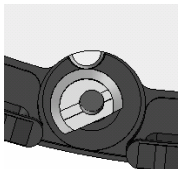

Month
The hole of the detection on wheel for month and the hole of the train wheel bridge should be properly aligned.




Rotation of the pins for dial fixing pins



Rotate



Ensure that the pins for dial fixing are securely engaged with the dial without any clearance.

| No. | PROSESS | SPECIFICATIONS (QUALITY SPECIFICATIONS, HANDLING METHODS ETC.) | ILLUSTRATIONS AND SPECIAL INSTRUCTIONS |
|---|---|---|---|
| | Set the 24 H hand. | | |
| | ↓ | | |
| | Set the month indicator. | | |
| | ↓ | | |
| | | | |
| | Set the hour hand. | | |
| | ↓ | | |
| | Set the minute hand. | | |
| | ↓ | | |
| | Set the second hand. | | |
| | ↓ | | |
| | Set the case. | When setting the case, make sure that the grounding spring is securely fitted within the case. | |
| | ↓ | | |
| | Set the winding stem. | | |
| | ↓ | | |
| | Close the case back. | | |
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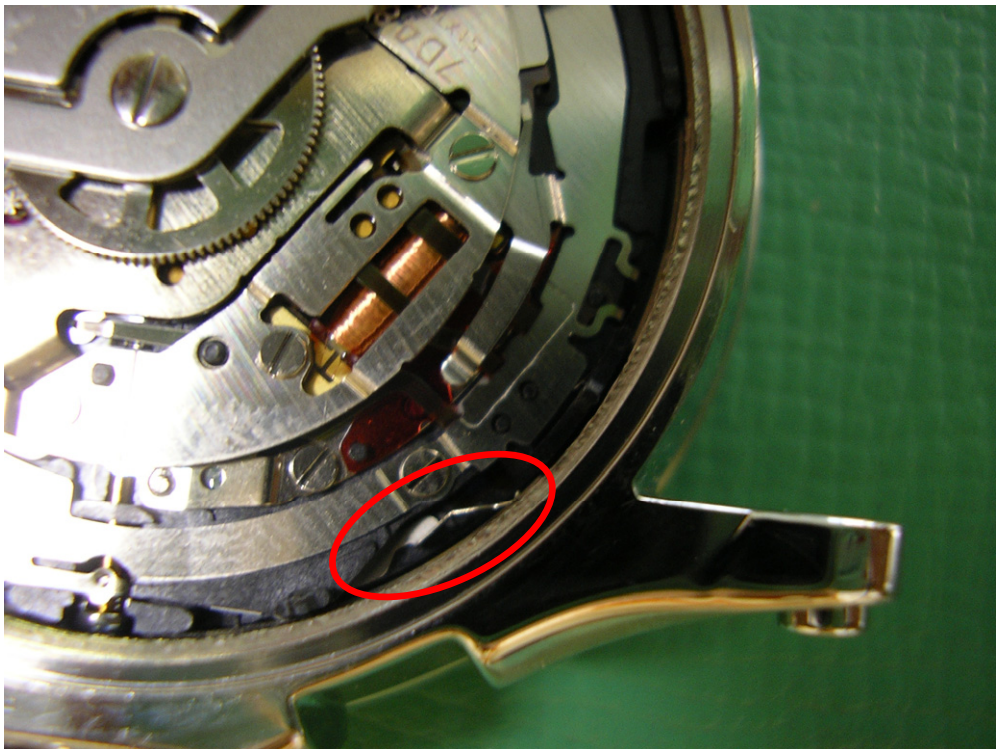
| | | | |



* The grounding spring should not be deformed or bent at all.
It should securely fit in the case.