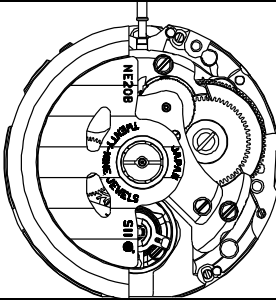
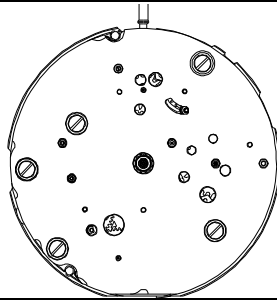


TECHNICAL GUIDE
&
PARTS CATALOGUE
CaI.NE20B

AUTOMATIC MECHANICAL

SII Products

| Item | | Cal. No. | NE20B | |
|------------------------|-----------------------|--|-------|----------------|
| Movement | |   | | |
| Movement size | Outside diameter | Φ27.40mm | | |
| | Casing diameter | Φ27.00mm | | |
| | Total height | 6.15 mm | | |
| Time indication | | 3 Hands (Hour , Minute , Second) Day-date calendar hands Power reserve hand | | |
| Basic function | | Manual winding Automatic winding with ball bearing Stop second device Day-date correction | | |
| Frequency | | 28,800 vibrations per hour | | |
| Accuracy | Static accuracy | -15~+25 seconds per day * Measurement should be done within 10~60 minutes after fully wound up. * All measurements are made without the calendar in function. | | |
| | Measurement position | Direction of 3 positions. (1) Dial up (2) 9 o'clock up (3) 6 o'clock up | | |
| | Lift angle | 52 deg. | | |
| | Measurement time | 20 seconds * Equipment to be used : Witschi WATCH EXPERT | | |
| | Posture difference | Difference is under 45 seconds within max value and min value. * Measurement should be done within 10~60 minutes after fully wound up. * Direction of 4 positions. (1) 12 o'clock up (2) 9 o'clock up (3) 6 o'clock up (4) 3 o'clock up | | |
| | Isochronisms (24h-0h) | -10~+20 seconds per day. * Direction of position. : Dial up * Difference of static accuracy of 24h and 0h | | |
| Duration time | | More than 45 hours ... Mainspring after fully wound up. * Posture to confirmation : Dial up | | |
| Winding the mainspring | | << Movements >> •Fully wound up by turning the crown min 55 times. •Fully wound up by turning the ratchet wheel screw 8 times. << Complete Watch >> A winding machine is needed to wind up the mainspring. Full wind up conditions •Rotary speed : 30 rpm •Operating time: 60 minutes | | |
| Jewels | | 29 jewels | | |
| Crown position | | Left rotation | | Right rotation |
| | Normal position | Free | | Manual winding |
| | First click | Date setting | | Day setting |
| | Second click | Hand setting | | Hand setting |



Disassembling procedures Figs. ① → ⑥⑩

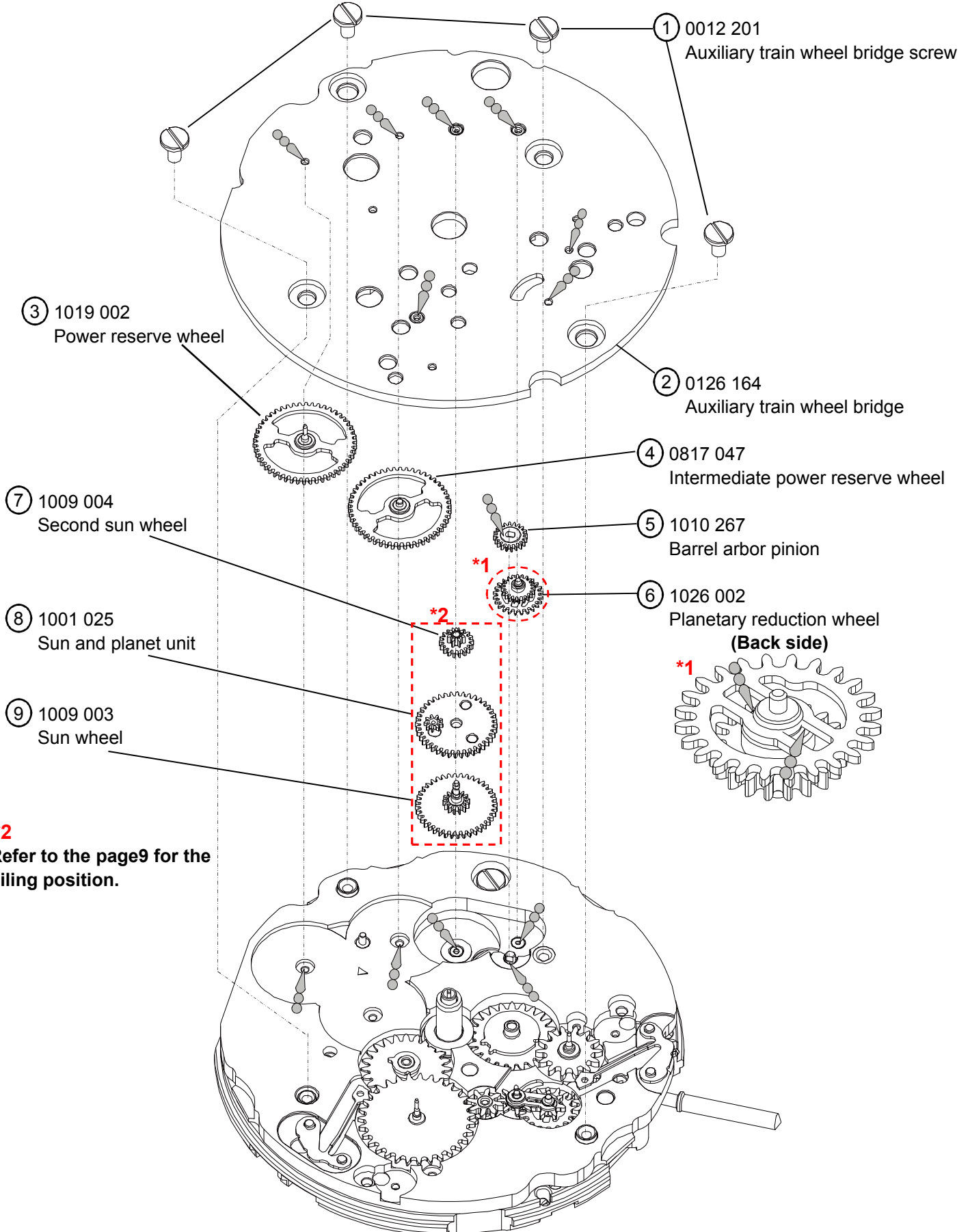
Reassembling procedures Figs. ⑥⑩ → ①

Type of oil

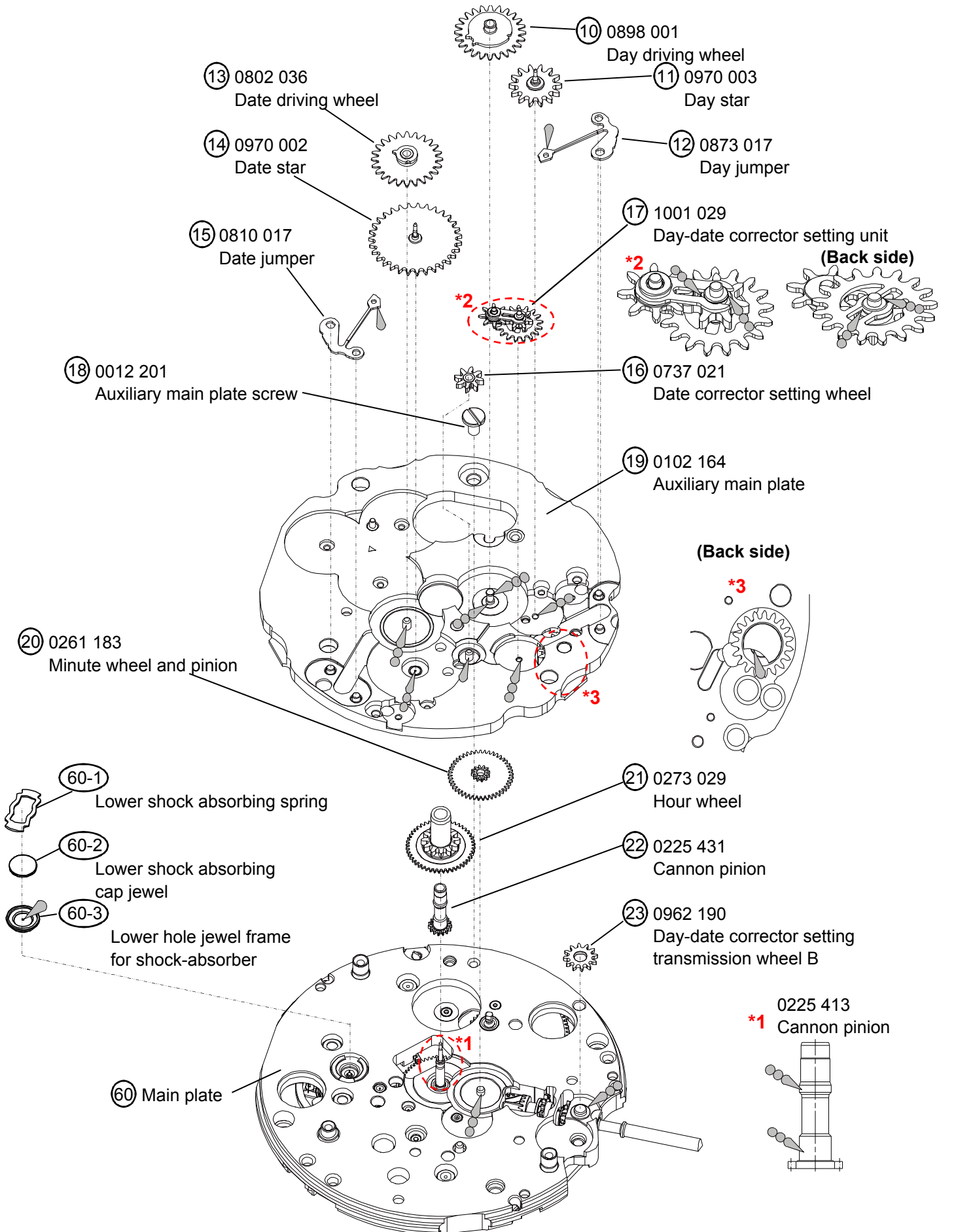
-  Moebius 9010
-  MO-4
-  MO-3

Oil quantity mark

-  NORMAL QUANTITY
-  SUFFICIENT QUANTITY



| Type of oil | | Oil quantity mark | |
|-------------|--------------|-------------------|---------------------|
| | Moebius 9010 | | NORMAL QUANTITY |
| | MO-4 | | SUFFICIENT QUANTITY |
| | MO-3 | | |

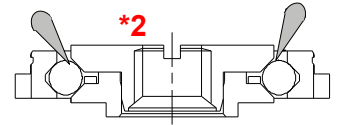
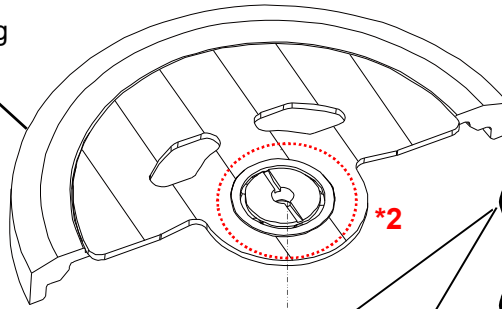


| Type of oil | | Oil quantity mark | |
|-------------|--------------|-------------------|---------------------|
| | Moebius 9010 | | NORMAL QUANTITY |
| | MO-4 | | SUFFICIENT QUANTITY |
| | MO-3 | | |

②④ 0509 089

Oscillating weight with ball bearing

*Refer to the page 11 for assembling position



②⑤ 0012 354

Automatic train bridge screw

②⑥ 0191 064

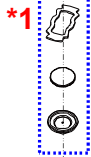
Automatic train bridge

③⑩ 0012 420

Balance bridge screw

③① 0171 349

Balance cock



whole tooth

②⑦ 0514 183

Second reduction wheel and pinion

②⑧ 0012 919

Ratchet wheel screw

②⑨ 0285 051

Ratchet wheel

③①-1 0310 048

Balance complete with stud

③② 0012 354

Pallet bridge screw

③③ 0161 310

Pallet bridge

③④ 0301 310

Pallet fork



*1

③①-2

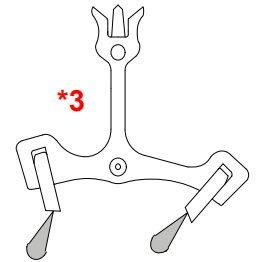
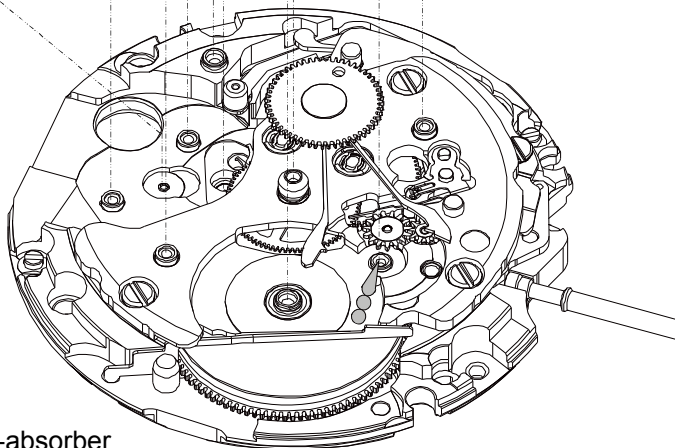
Upper shock absorbing spring

③①-3

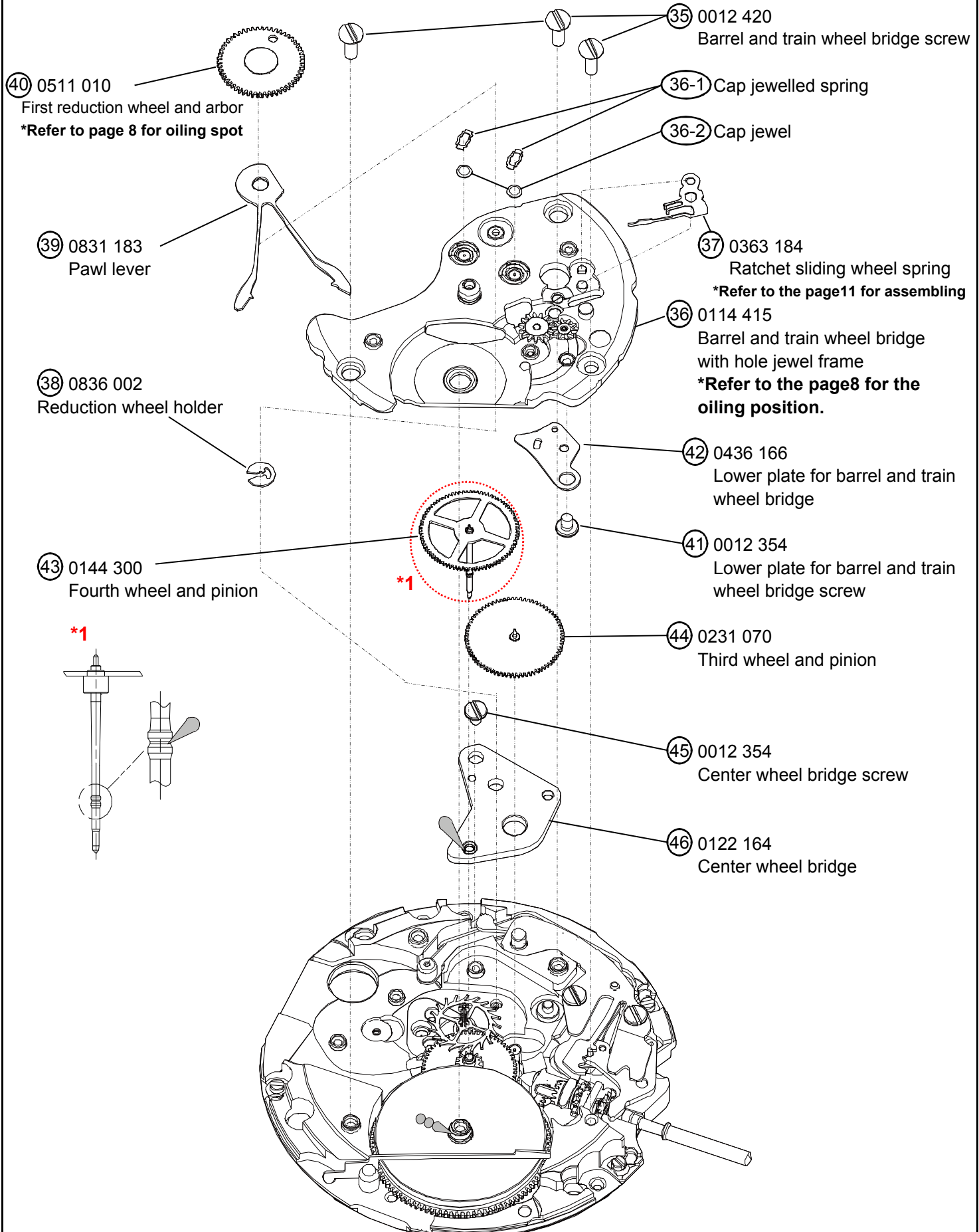
Upper shock absorbing cap jewel

③①-4

Upper hole jewel frame for shock-absorber



| Type of oil | | Oil quantity mark | |
|---|--------------|--|---------------------|
|  | Moebius 9010 |  | MO-4 |
| | |  | MO-3 |
| | |  | NORMAL QUANTITY |
| | |  | SUFFICIENT QUANTITY |

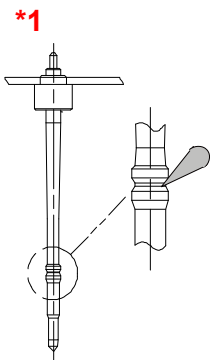


40 0511 010
First reduction wheel and arbor
*Refer to page 8 for oiling spot

39 0831 183
Pawl lever

38 0836 002
Reduction wheel holder

43 0144 300
Fourth wheel and pinion



35 0012 420
Barrel and train wheel bridge screw

36-1 Cap jewelled spring

36-2 Cap jewel

37 0363 184
Ratchet sliding wheel spring
*Refer to the page11 for assembling

36 0114 415
Barrel and train wheel bridge
with hole jewel frame
*Refer to the page8 for the
oiling position.



42 0436 166
Lower plate for barrel and train
wheel bridge

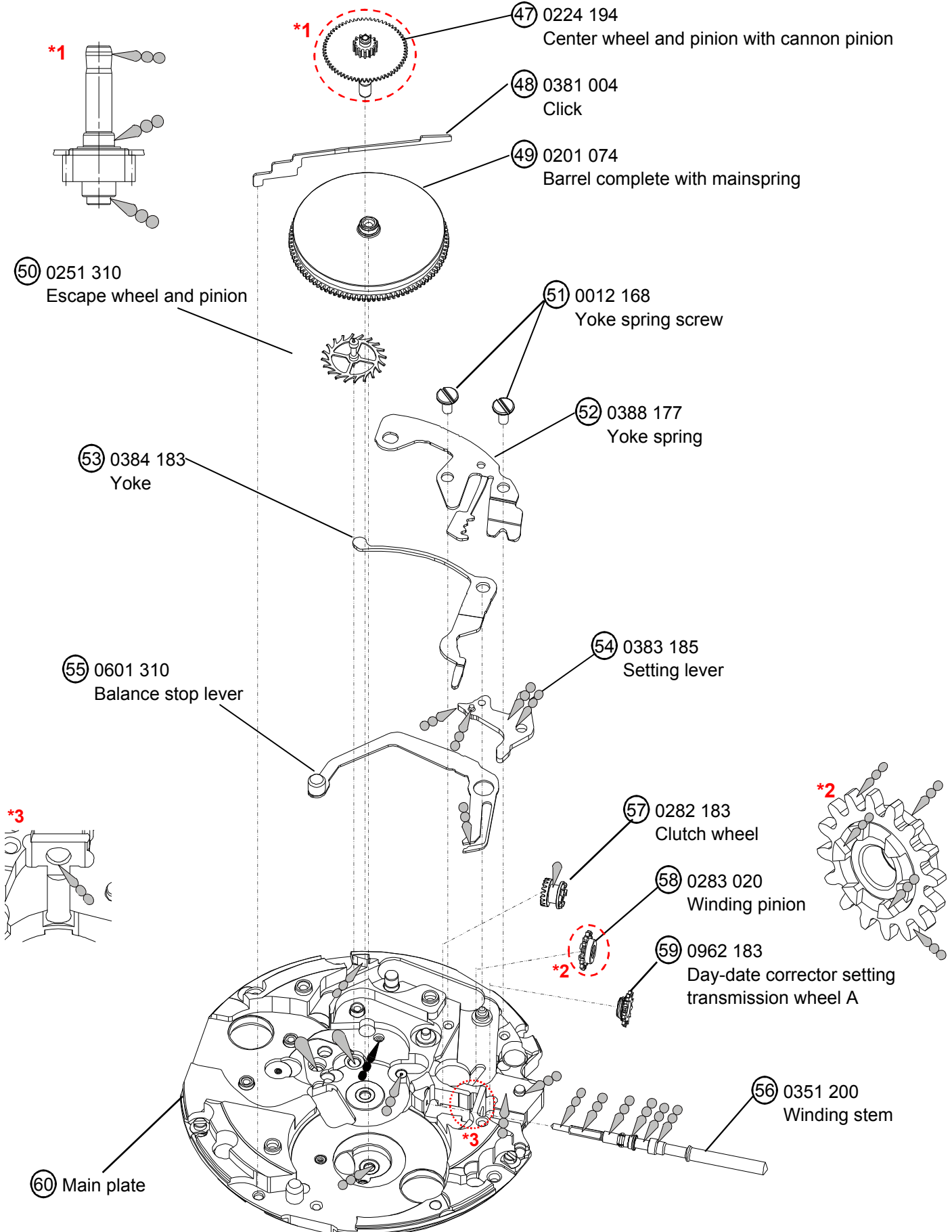
41 0012 354
Lower plate for barrel and train
wheel bridge screw

44 0231 070
Third wheel and pinion

45 0012 354
Center wheel bridge screw


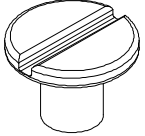
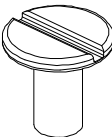
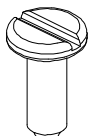
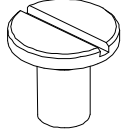
46 0122 164
Center wheel bridge

| Type of oil | | Oil quantity mark | |
|---|--------------|--|---------------------|
|  | Moebius 9010 |  | MO-4 |
| | |  | MO-3 |
| | |  | NORMAL QUANTITY |
| | |  | SUFFICIENT QUANTITY |



Remarks

● List of screws

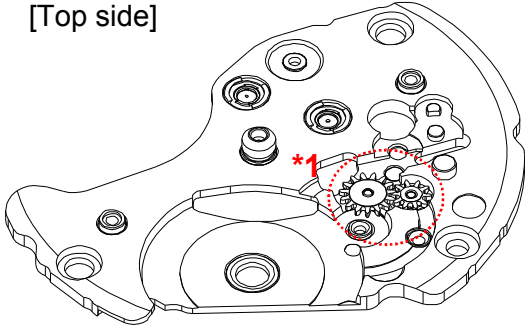
| Parts No | Name | Parts No | Name |
|---|---|---|--|
| 0012 919  | ②⑧ Ratchet wheel screw | 0012 354  | ④⑤ Center wheel bridge screw |
| 0012 168  | ⑤① Yoke spring screw (×2) | | ③② Pallet bridge screw (×2) |
| 0012 420  | ③⑤ Barrel and train wheel bridge screw (×3) | 0012 201  | ④① Lower plate for barrel and train wheel bridge screw |
| | ③① Balance bridge screw | | ②⑤ Automatic train bridge screw (×2) |
| | | | ①⑧ Auxiliary main plate screw |
| | | | ① Auxiliary train wheel bridge screw (×4) |

*All parts code are subject to change without notice.

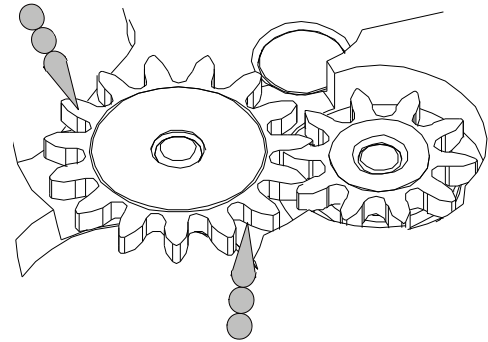
| Type of oil | | Oil quantity mark | |
|-------------|--------------|-------------------|---------------------|
| | Moebius 9010 | | NORMAL QUANTITY |
| | MO-4 | | SUFFICIENT QUANTITY |
| | MO-3 | | |

1.Oiling spot

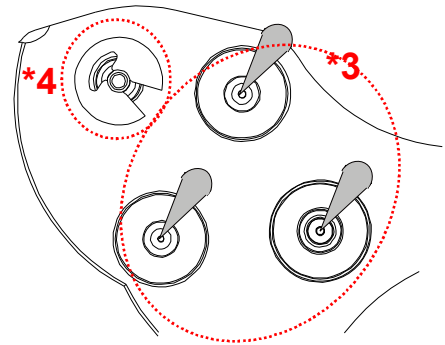
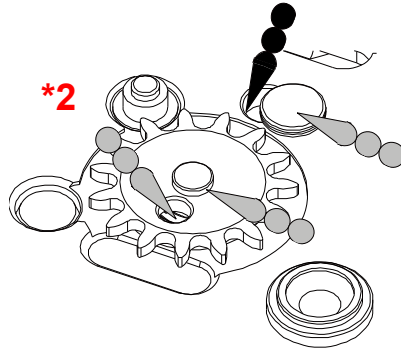
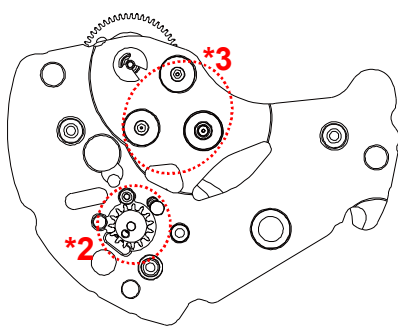
(1) ③⑥ Barrel and train wheel bridge with hole jewel frame
[Top side]



*1

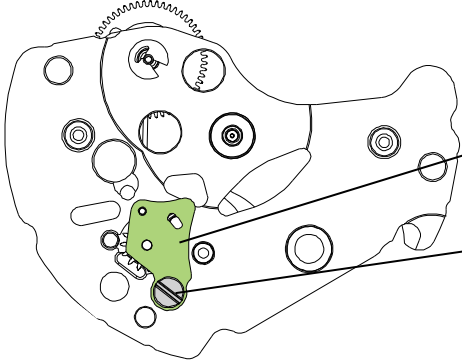


[Back side]



Note

***2 After oiling, set lower plate for barrel and train wheel bridge & screw.**

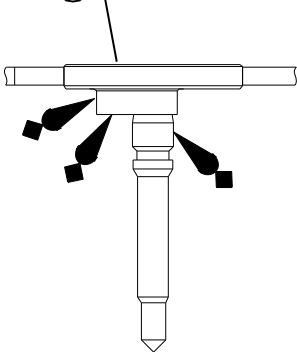


④② Lower plate for barrel and train wheel bridge

④① Lower plate for barrel and train wheel bridge screw

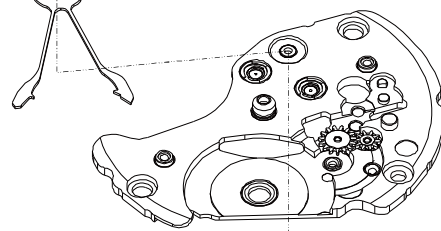
***4 After oiling, set first reduction wheel & pawl lever & reduction wheel holder.**

④① First reduction wheel



④① First reduction wheel

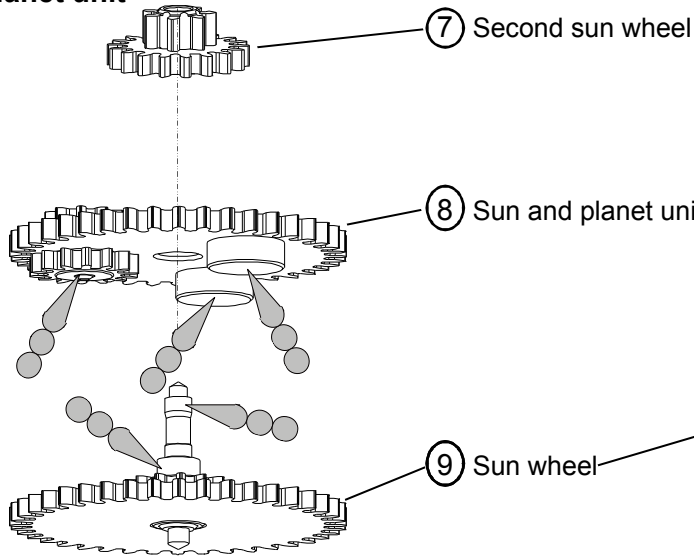
③⑨ Pawl lever



③⑧ Reduction wheel holder

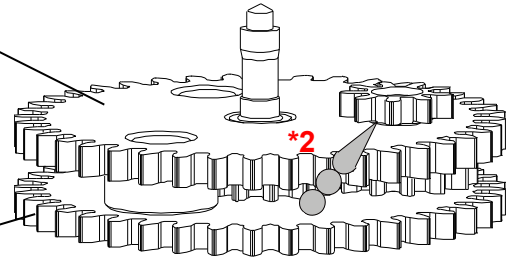
| Type of oil | | Oil quantity mark | |
|-------------|--------------|-------------------|---------------------|
| | Moebius 9010 | | MO-4 |
| | MO-3 | | NORMAL QUANTITY |
| | | | SUFFICIENT QUANTITY |

(2) Planet unit



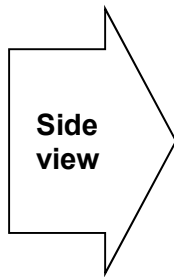
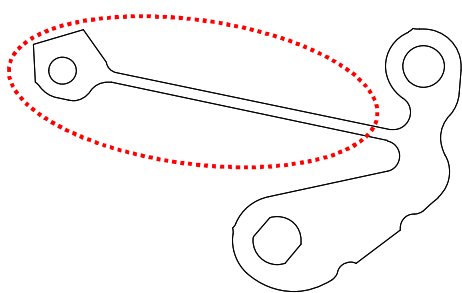
Notes:

*2 Oil to between the arbor pinion and the gear.

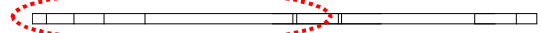


2.Method of identifying day jumper and date jumper

Day-date jumper



⑫ Day jumper



*There is no bend at the spring.

⑮ Date jumper

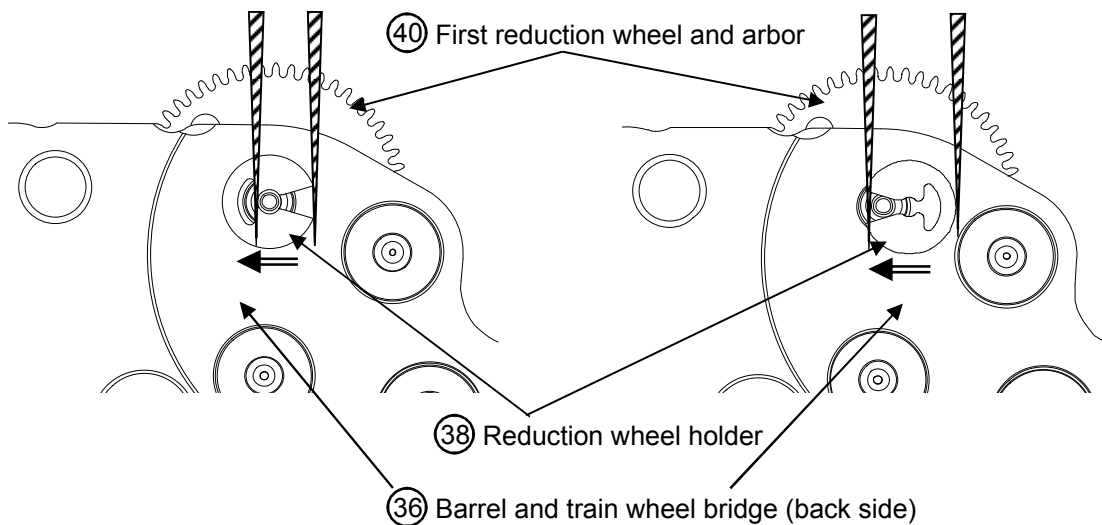


*There is a bend at the spring.

3.Disassembling / assembling of the first reduction wheel

<< Disassembling >>

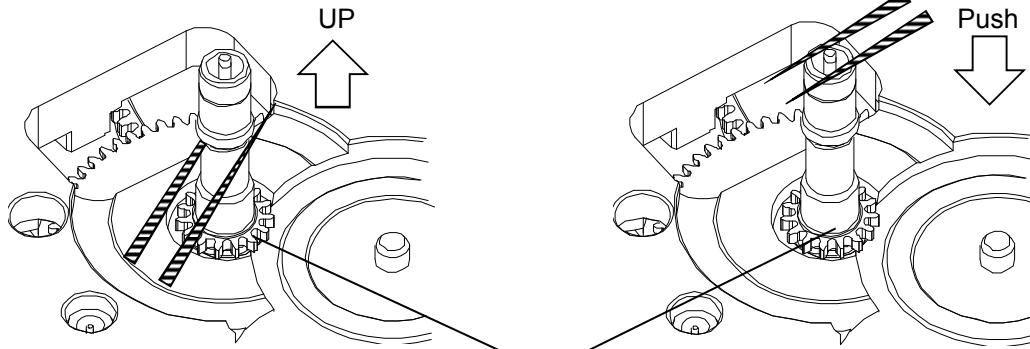
<< Assembling >>



4. Disassembling / assembling of the cannon pinion

<< Disassembling >>

<< Assembling >>

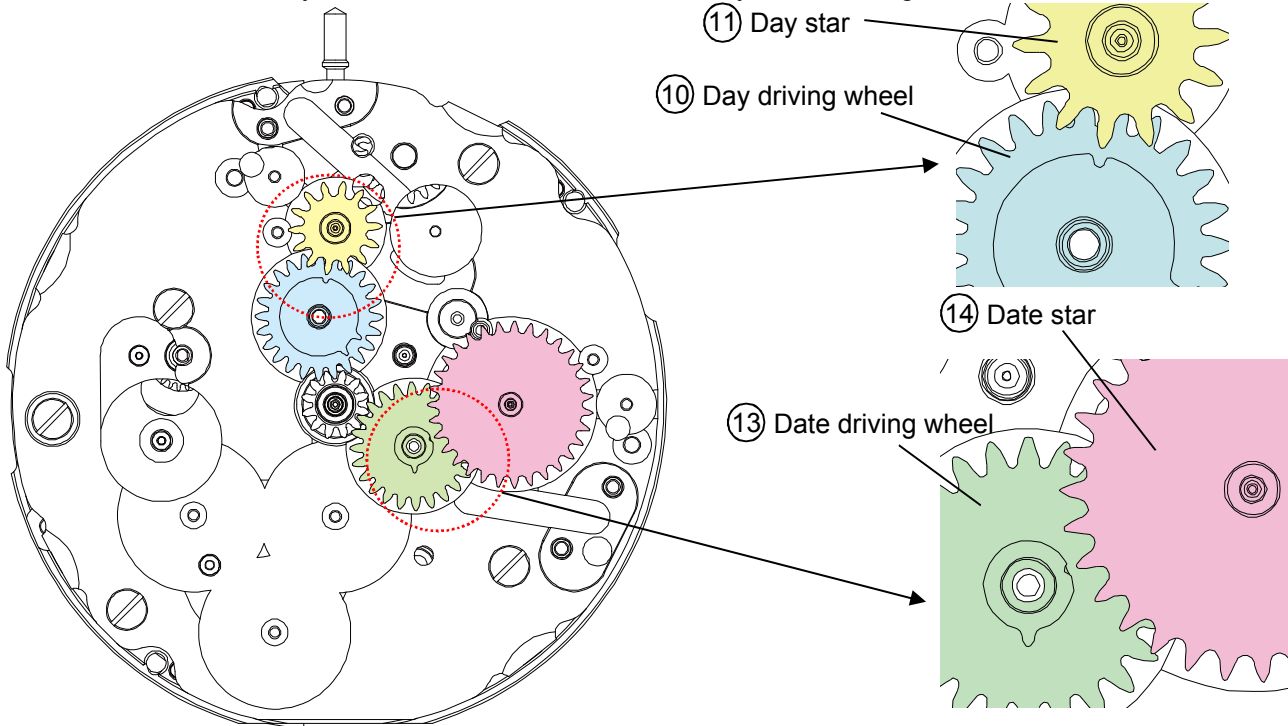


② Cannon pinion

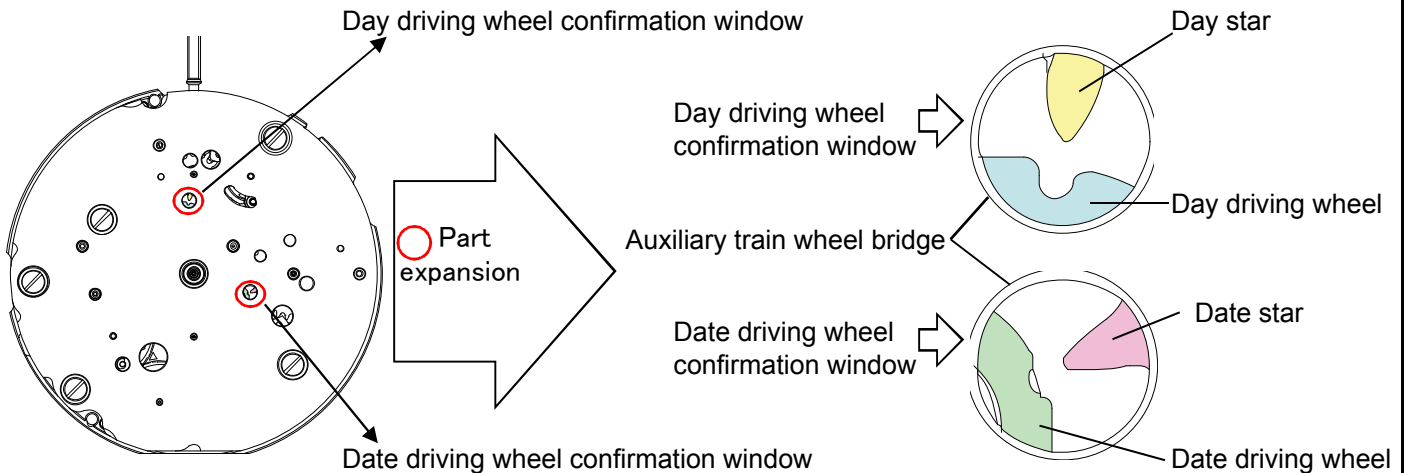
5. Setting position (Refer at the time of disassembling and reassembling)

• To Date / Day driving wheels setting position

Notes: Set a tooth of Day / Date stars toward the notch of Day / Date driving wheels.



• Position confirmation by the movement



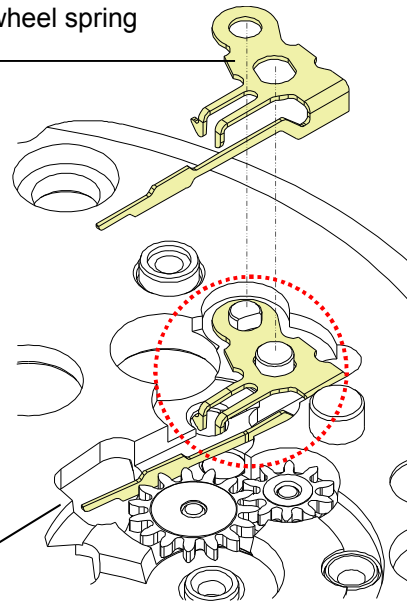
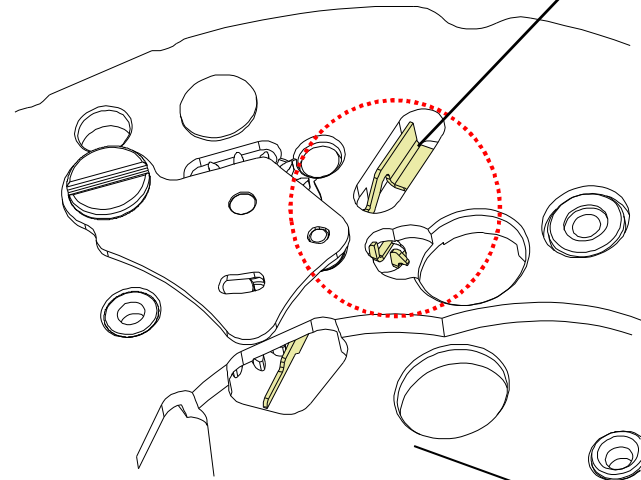
*The correct positions of Day / Date stars and Day / Date driving wheels should be confirmed from the confirmation window at the same time.

6. Disassembling / assembling of the Ratchet sliding wheel spring.

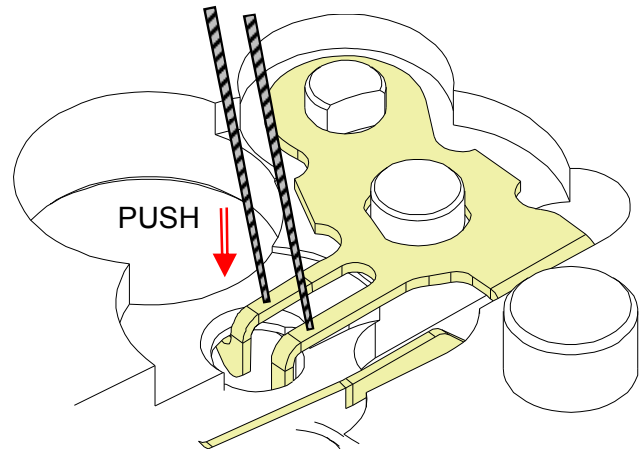
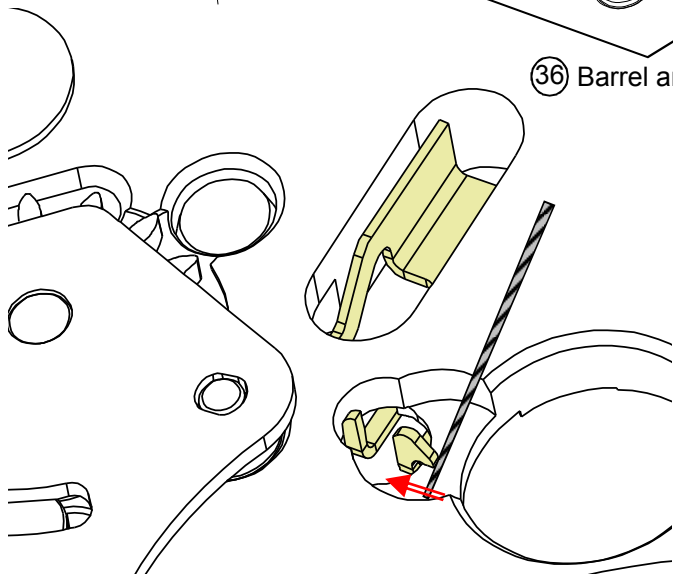
<< Disassembling >>

<< Assembling >>

③7 Ratchet sliding wheel spring



③6 Barrel and train wheel bridge



Remove the hook of the ratchet sliding wheel spring from barrel and train wheel bridge.

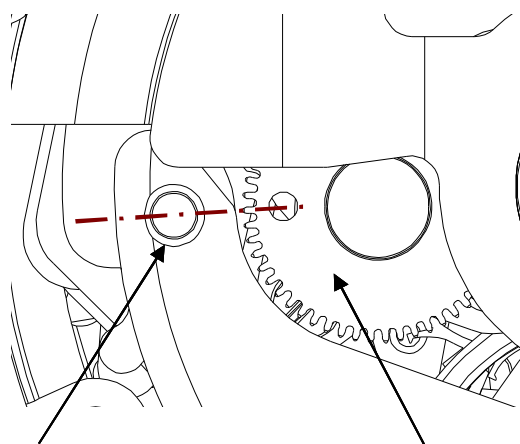
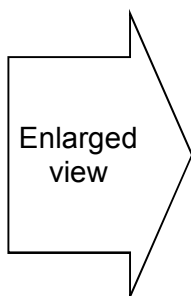
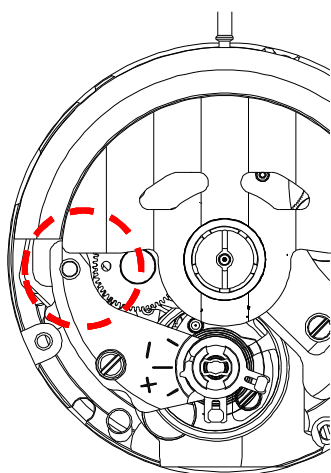
The hooks of the ratchet sliding wheel spring are hung up on barrel and train wheel bridge.

7. Assembling position of oscillating weight

• Before assembling oscillating weight.

Match the center of the oscillating weight and winding stem.

Set the hole of first reduction wheel gear on the imaginary line toward the balance bridge guide pin.

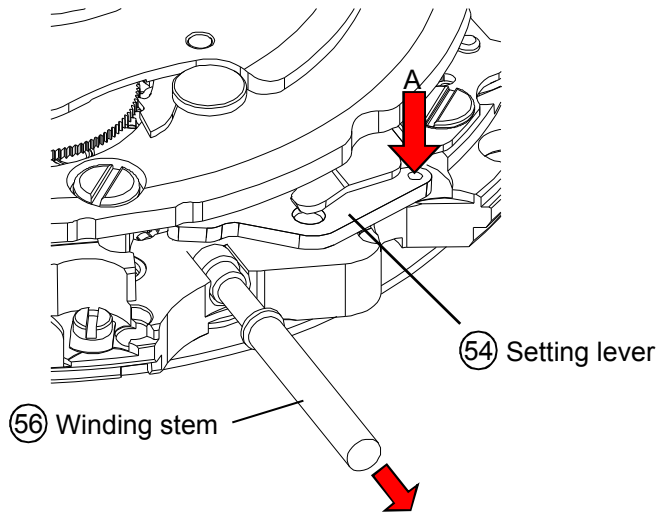


Balance bridge guide pin

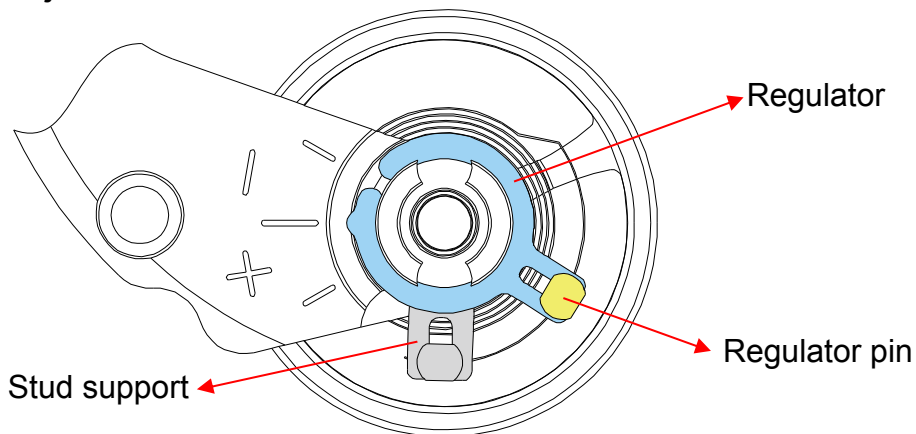
First reduction wheel gear

8.To remove the winding stem

- 1) Set the winding stem to normal position.
- 2) Pull out the winding stem, while pushing "A"



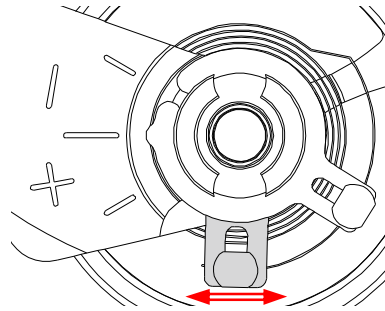
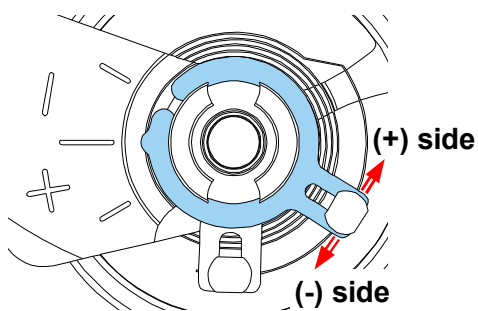
9.Accuracy adjustment



Note:

•Regulator ... Time adjustment

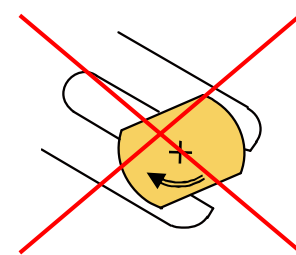
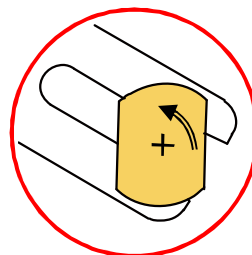
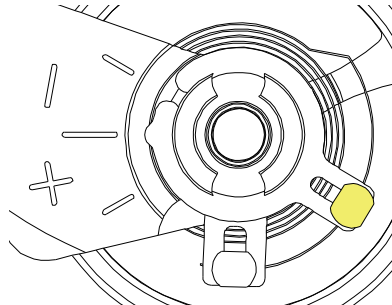
•Stud support ... Beat error adjustment



•Regulator pin ... Gap adjustment of balance spring and regulator pin

Anticlockwise rotation

No clockwise rotation

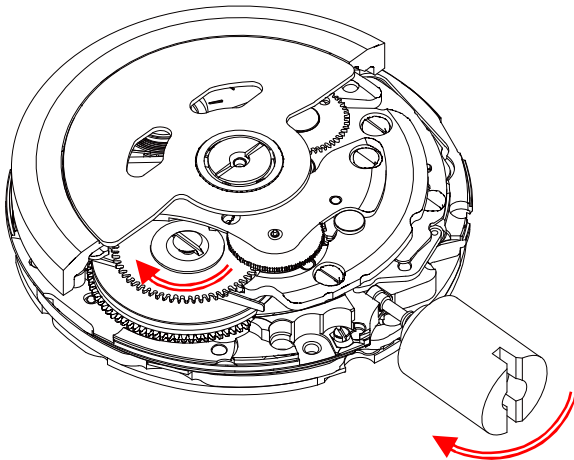


10.To wind up the mainspring

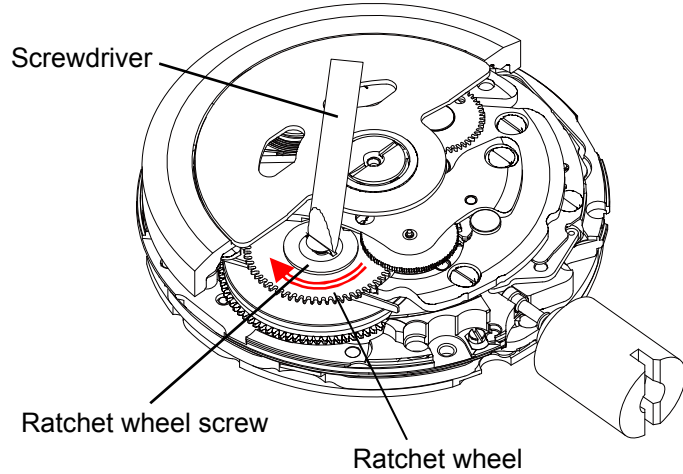
<<Movement>>

The mainspring would be fully wound up by turning the ratchet wheel screw 8 times clockwise. (Manual winding or Screwdriver)
 Manual winding ... Rotate crown clockwise at normal position by min 55 times. (Equal to ratchet wheel screw 8 times)
 Screwdriver winding ... Turn the ratchet wheel screw 8 times clockwise.

[Manual winding]

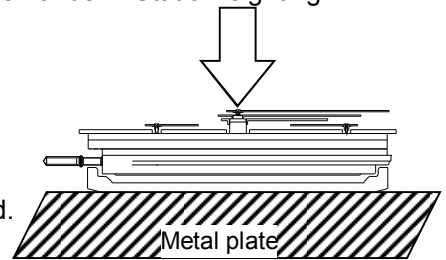


[Screwdriver winding]



11.How to attach hands

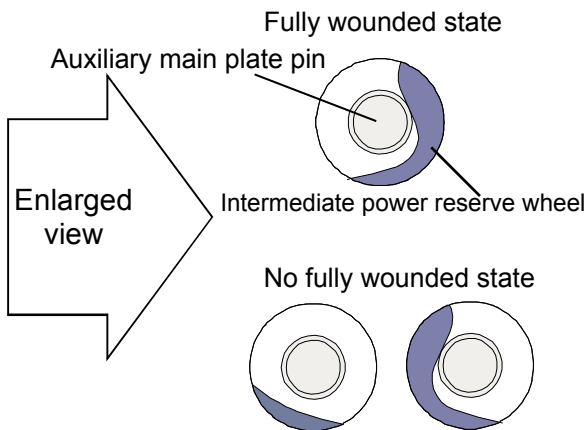
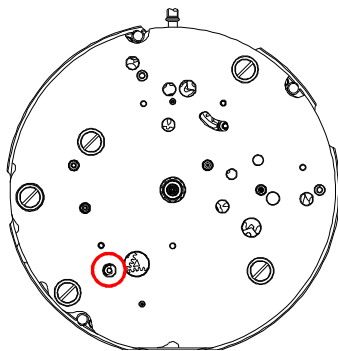
Place the movement directly on a flat metal plate or something similar to attach the hands. Static weighting
 We recommend the use of movement holder to attach hands.
 For hands attachment, please use a special equipment.
 When the movement receives a strong shock, it may be damaged.



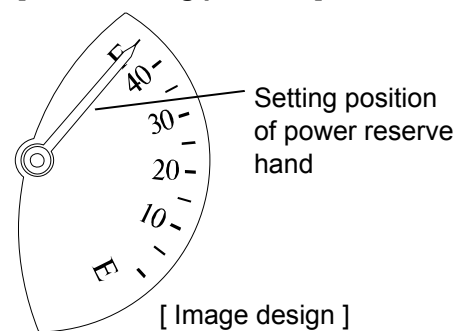
<<Note: Power reserve hand setting>>

- (1)The mainspring should be fully wound up before setting power reserve hand.
- (2)Set power reserve hand at the fully wound up position of the dial graduation.

[HOW TO CHECK]



[Hand setting position]



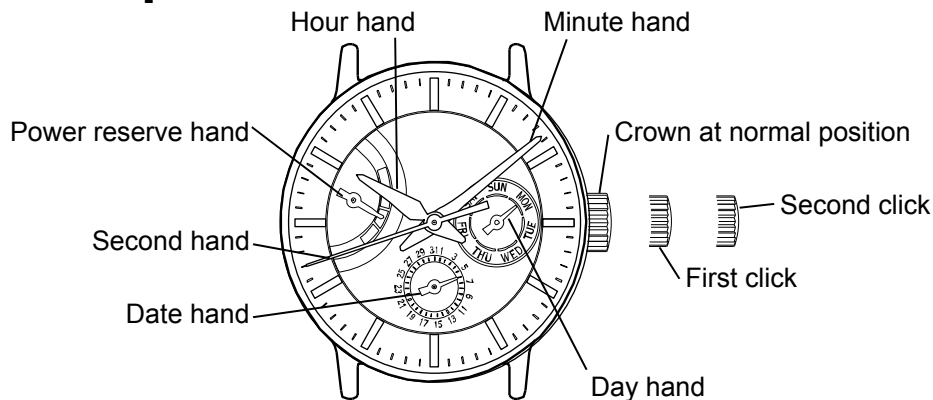
12.Accuracy measurement condition

Static Accuracy : -15~+25 seconds per day

Measurement Conditions

- 1) Measurement should be done within 10~60 minutes after fully wound up.
- 2) Lift angle : 52 deg.
- 3) Measurement position : (1) Dial up (2) 9 o'clock up (3) 6 o'clock up
- 4) Minimum measurement Time : 20 seconds
- 5) Stabilizing Time :
 Leave the watch for at least 20 seconds to stabilize after you change its measurement position.

[NE20B operation manual]



1.How to set the time

- 1) Pull out the crown to the second click position.
 - 2) Turn the crown to set hour and minute hands.
(Check that AM/PM is set correctly.)
 - 3) Push the crown back into the normal position.
- *When time setting is performed in counterclockwise, day and date hands reverses.
Please reset by day-date correction.

2.How to set the Day-date hands

- 1) Pull out the crown to the first click position.
 - 2) Turn the crown to left for date setting.
 - 3) Turn the crown to right for day setting.
- * Do not set the calendar between 9:00 P.M. and 2:00 A.M. If the setting of the calendar is made during this period, the day or date will not change to the next day or date. Please set the calendar after changing the time other than the above period.
- 4) Push the crown back into the normal position.

3.To wind up the mainspring

- a) Manual winding ... Rotate the crown clockwise at normal position.
Wind turning the ratchet wheel screw 8 times. It will start to move naturally after shaking slightly.
- b) To wind up with winding machine.
Full wind up conditions
 - Rotary speed : 30 rpm
 - Operating time : 60 minutes