

**TECHNICAL GUIDE
&
PARTS CATALOGUE**

CaI.NE20C

AUTOMATIC MECHANICAL




SII Products

Item		Cal. No.	NE20C	
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 Quick 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 minimum 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		Counterclockwise	Clockwise	
	Normal position	Free		Manual winding
	First click	Date setting		Day setting
	Second click	Time setting		Time setting



Disassembling procedures Figs. ① → ⑥⑩

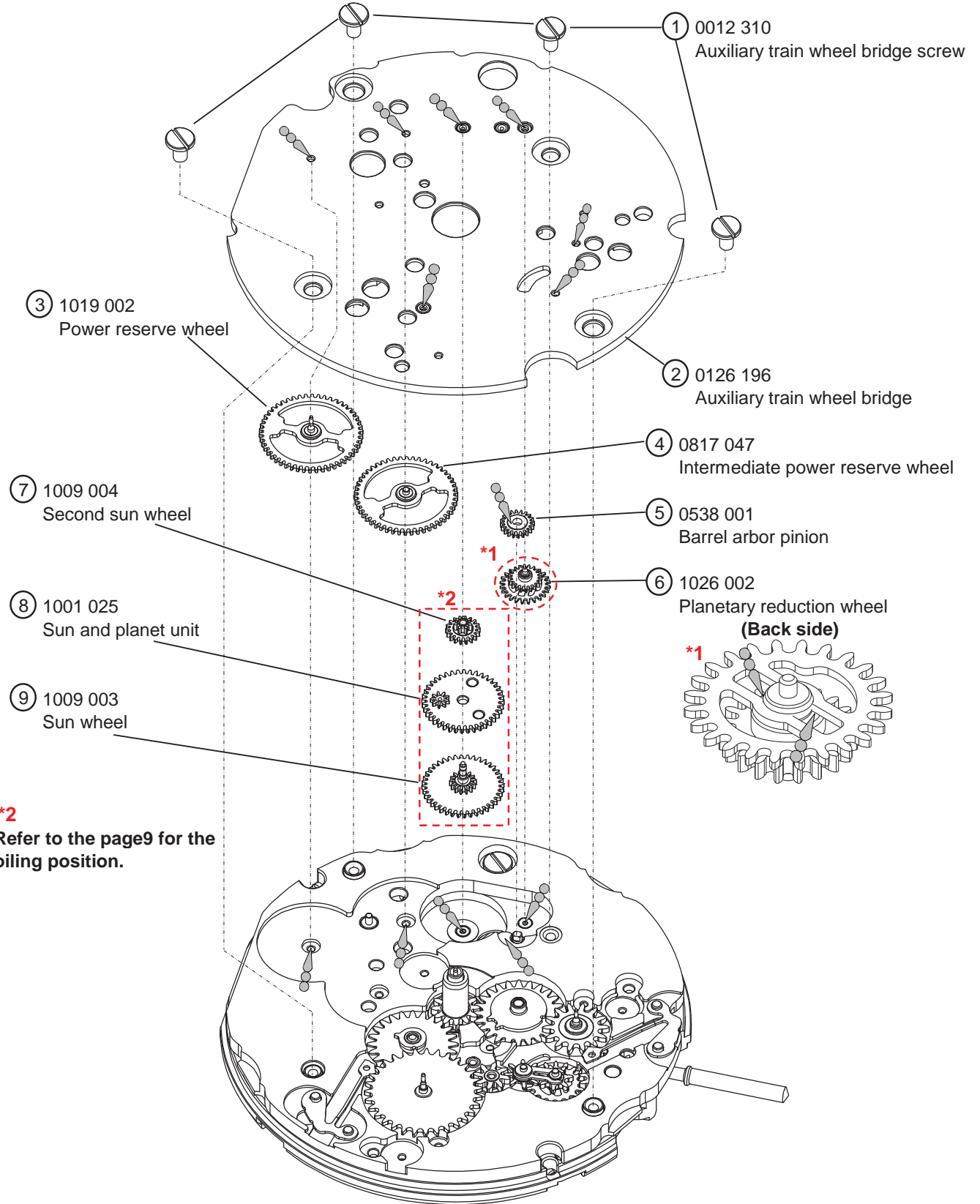
Reassembling procedures Figs. ⑥⑩ → ①

Type of oil

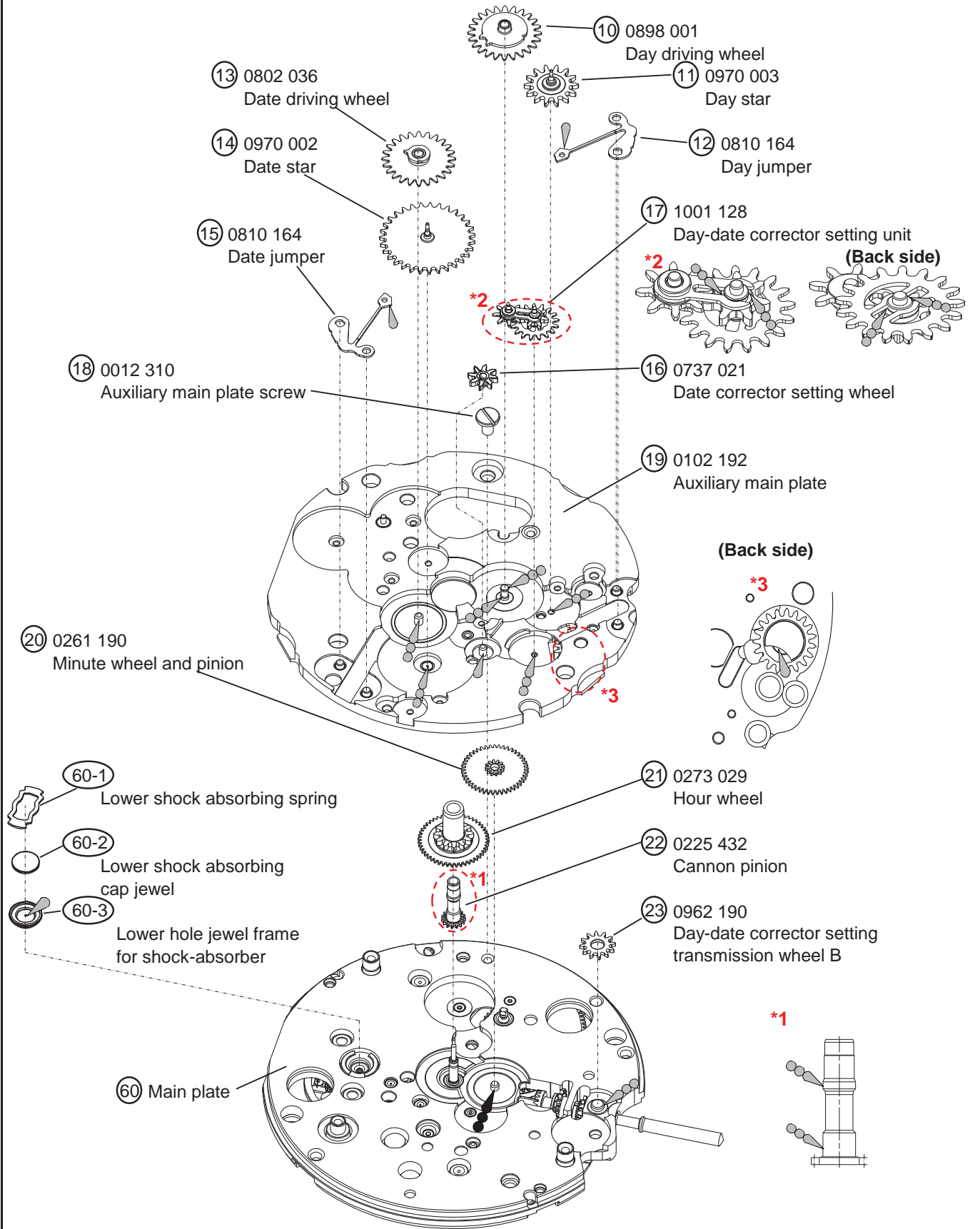
-  Moebius 9010
-  S-6
-  S-4






Oil quantity mark

-  NORMAL QUANTITY
-  SUFFICIENT QUANTITY

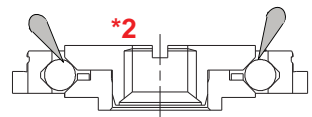
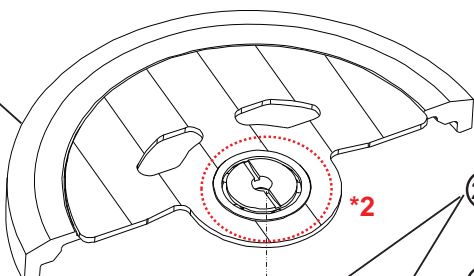


Type of oil		Oil quantity mark	
	Moebius 9010		NORMAL QUANTITY
	S-6		SUFFICIENT QUANTITY
	S-4		



Type of oil		Oil quantity mark	
	Moebius 9010		S-6
	S-4		NORMAL QUANTITY
			SUFFICIENT QUANTITY

②4 1509 089
Oscillating weight with ball bearing
***Refer to the page11 for assembling position**



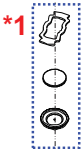
③0 0012 100
Balance bridge screw



②5 0012 354
Automatic train bridge screw

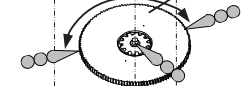
②6 0191 064
Automatic train bridge

③1 0171 349
Balance cock



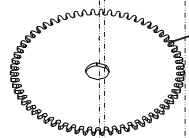
whole tooth

②7 0514 183
Second reduction wheel and pinion

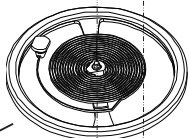


②8 0012 919
Ratchet wheel screw

②9 0285 051
Ratchet wheel



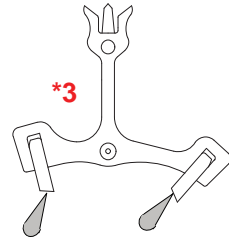
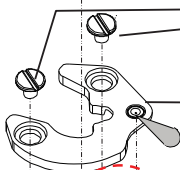
③1-1 0310 058
Balance complete with stud



③2 0012 354
Pallet bridge screw

③3 0161 310
Pallet bridge

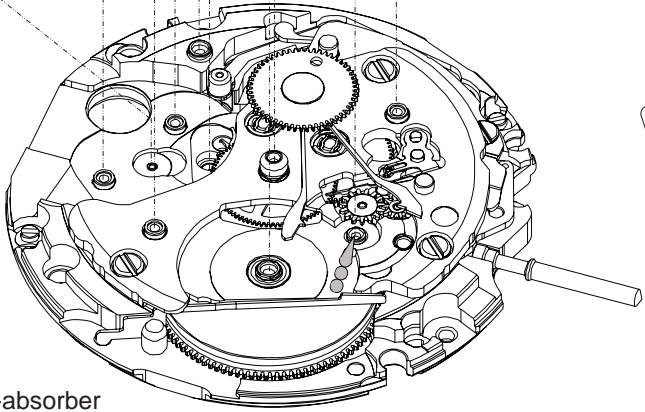
③4 0301 315
Pallet fork



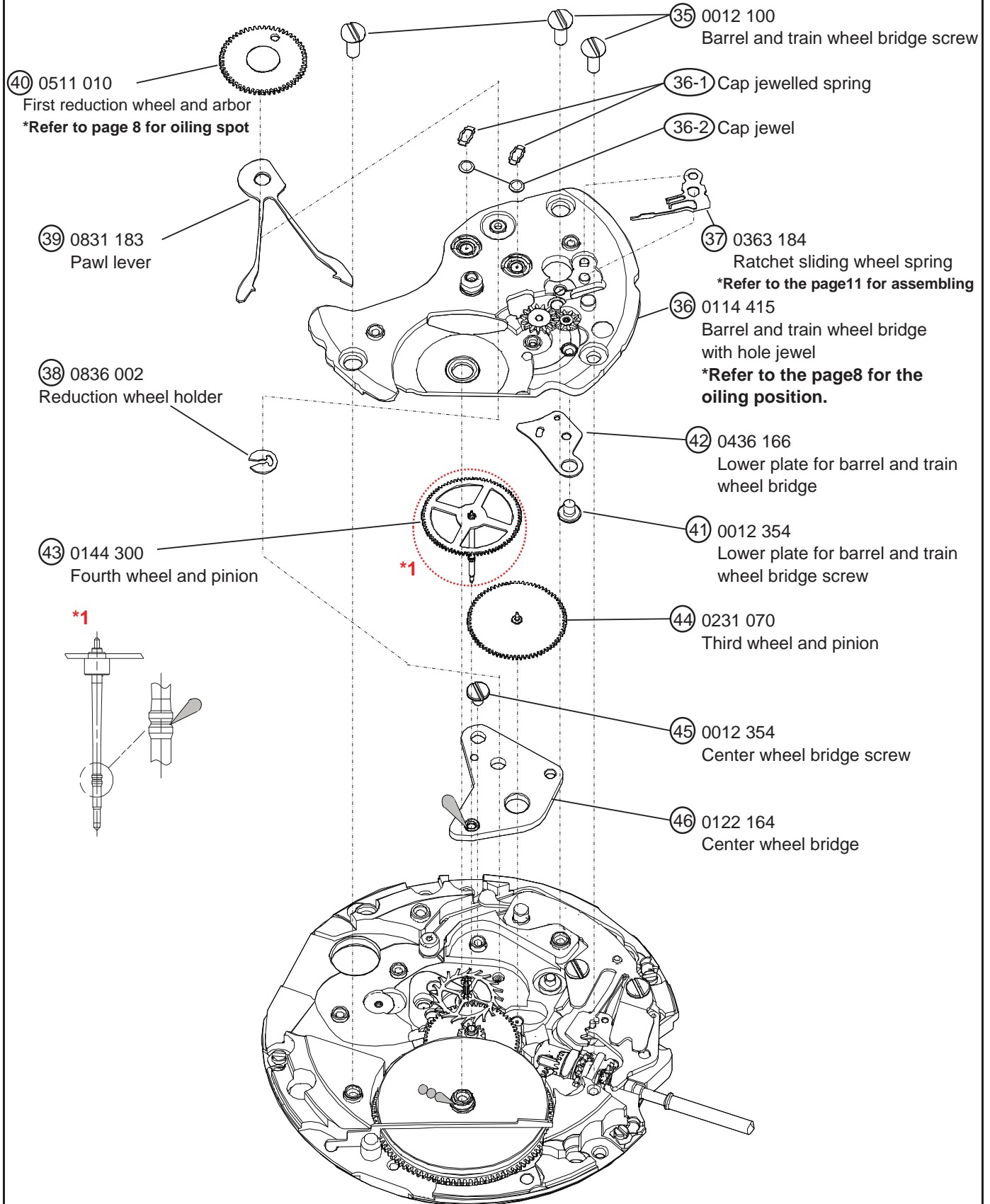
*1 ③1-2
Upper shock absorbing spring

③1-3
Upper shock absorbing cap jewel

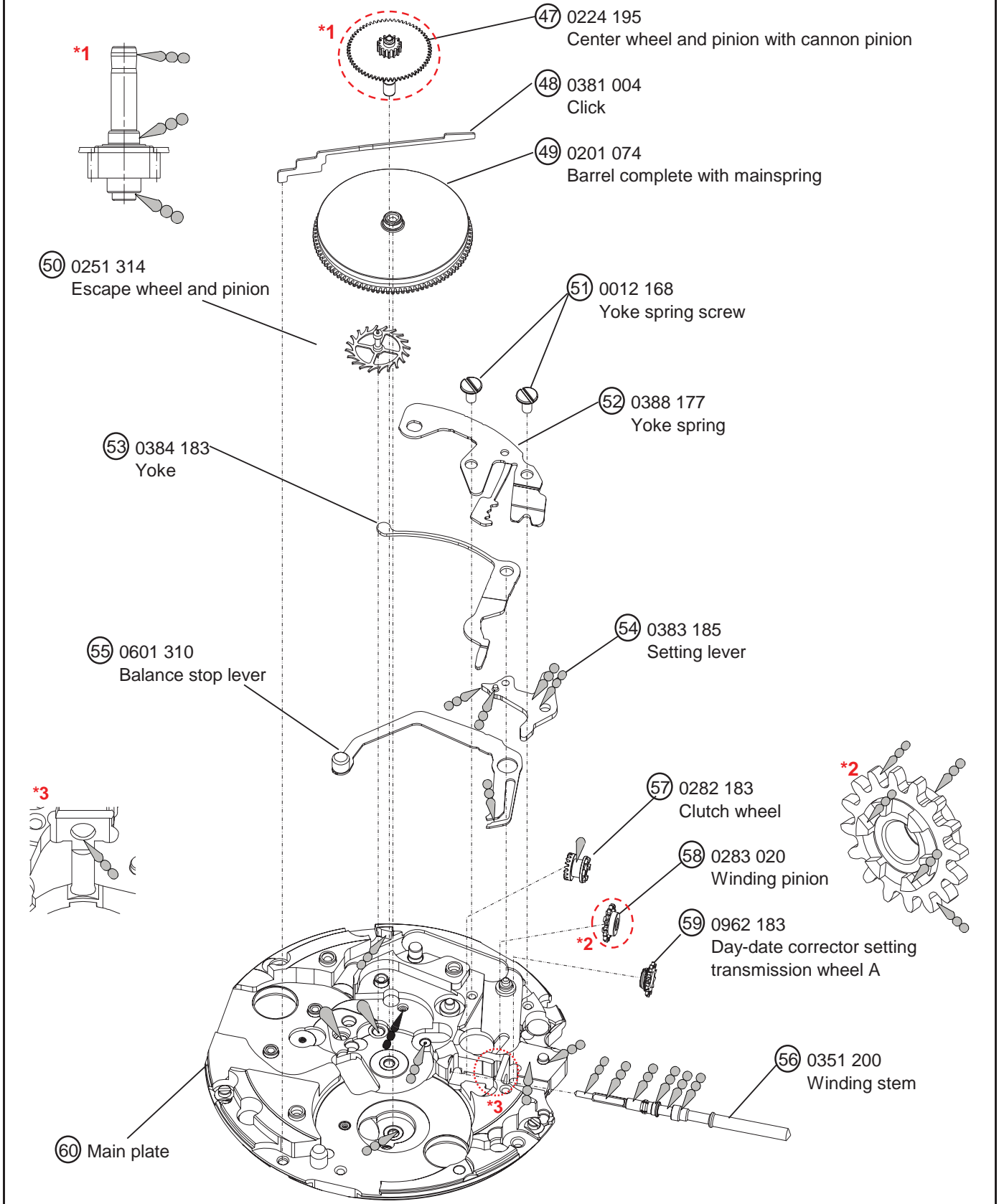
③1-4
Upper hole jewel frame for shock-absorber



Type of oil		Oil quantity mark	
	Moebius 9010		S-6
			S-4
			NORMAL QUANTITY
			SUFFICIENT QUANTITY


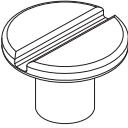
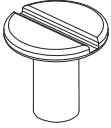
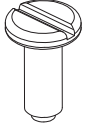



Type of oil		Oil quantity mark	
	Moebius 9010		S-6
			S-4
			NORMAL QUANTITY
			SUFFICIENT QUANTITY



Remarks

● List of screws

Parts No	Name	Parts No	Name
0012 919 	(28) Ratchet wheel screw	0012 354 	(45) Center wheel bridge screw
			(32) Pallet bridge screw (x2)
0012 168 	(51) Yoke spring screw (x2)		(41) Lower plate for barrel and train wheel bridge screw
			(25) Automatic train bridge screw (x2)
0012 100 	(35) Barrel and train wheel bridge screw (x3)	0012 310 	(18) Auxiliary main plate screw
	(30) Balance bridge screw		(1) Auxiliary train wheel bridge screw (x4)

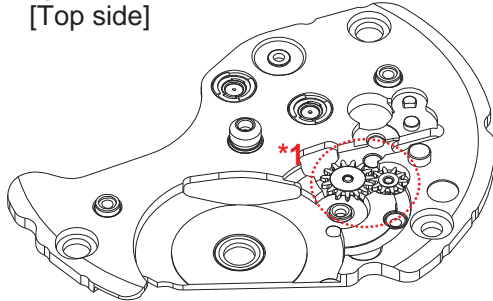
***All parts code are subject to change without notice.**

Type of oil	Oil quantity mark
 Moebius 9010	 NORMAL QUANTITY  SUFFICIENT QUANTITY
 S-6  S-4	

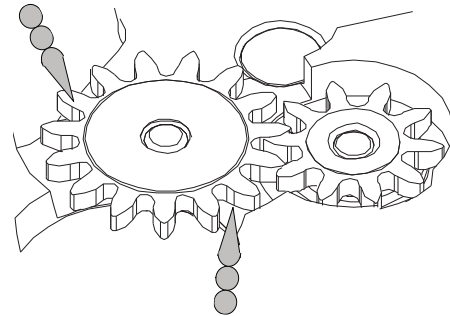
1.Oiling spot

(1) ③⑥ Barrel and train wheel bridge with hole jewel

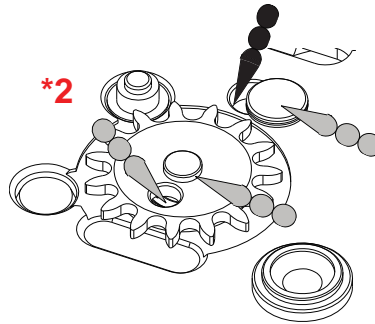
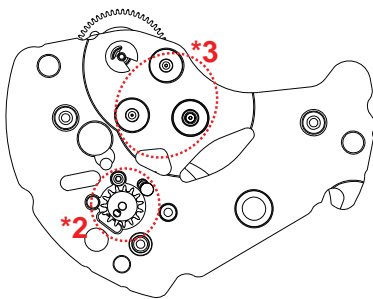
[Top side]



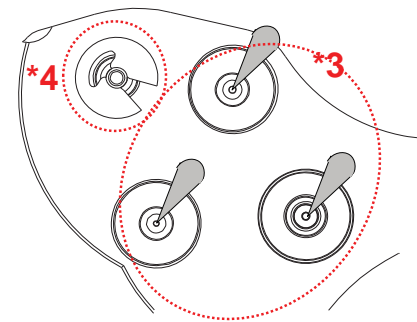
*1



[Back side]

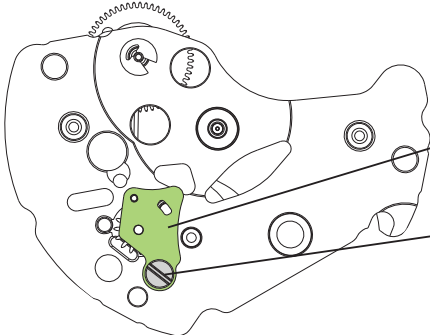


*2



Note

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

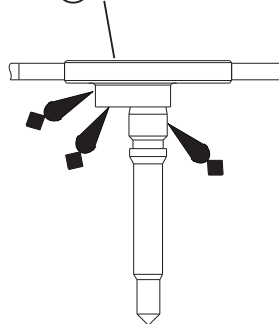


④② Lower plate for barrel and train wheel bridge

④① Lower plate for barrel and train wheel bridge screw

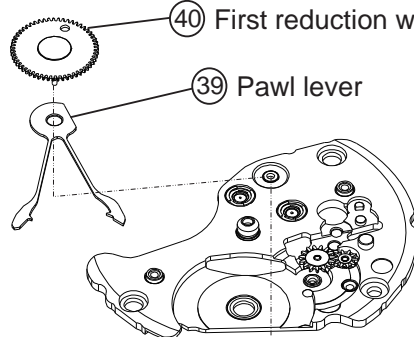
***4 After oiling, set first reduction wheel and arbor & pawl lever & reduction wheel holder.**

④④ First reduction wheel and arbor




④④ First reduction wheel and arbor

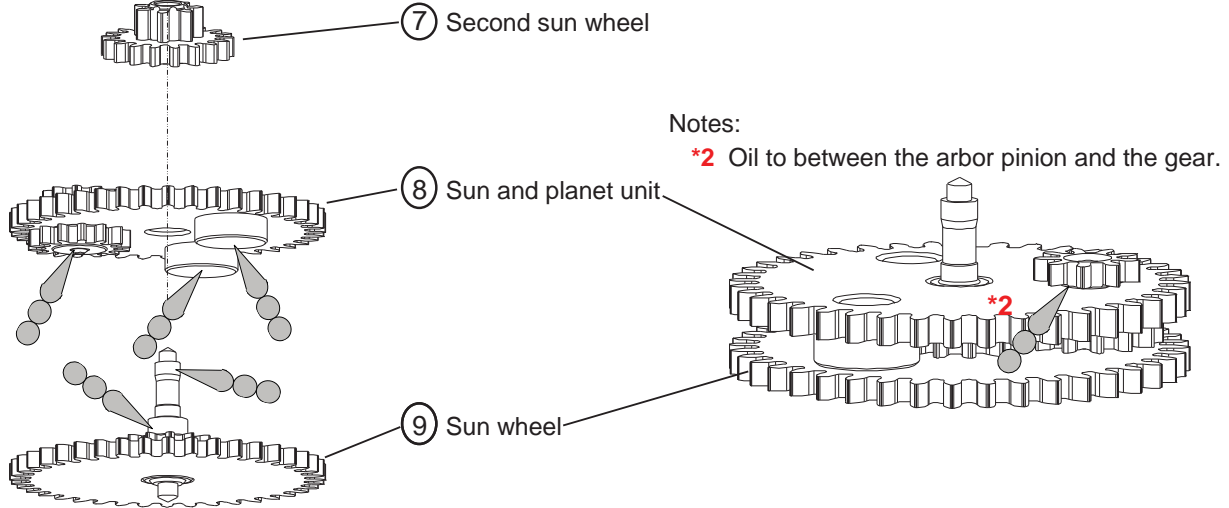
③⑨ Pawl lever



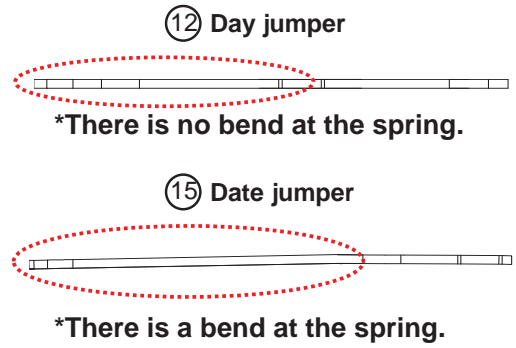
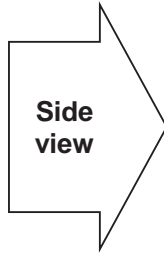
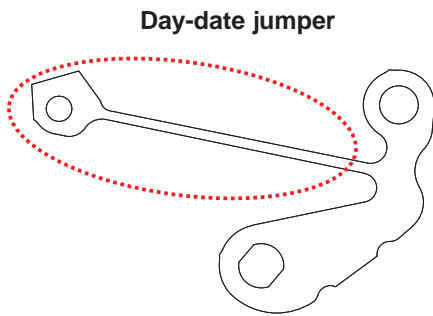
③⑧ Reduction wheel holder

Type of oil	Oil quantity mark
 Moebius 9010	 NORMAL QUANTITY  SUFFICIENT QUANTITY
 S-6  S-4	

(2) Planet unit



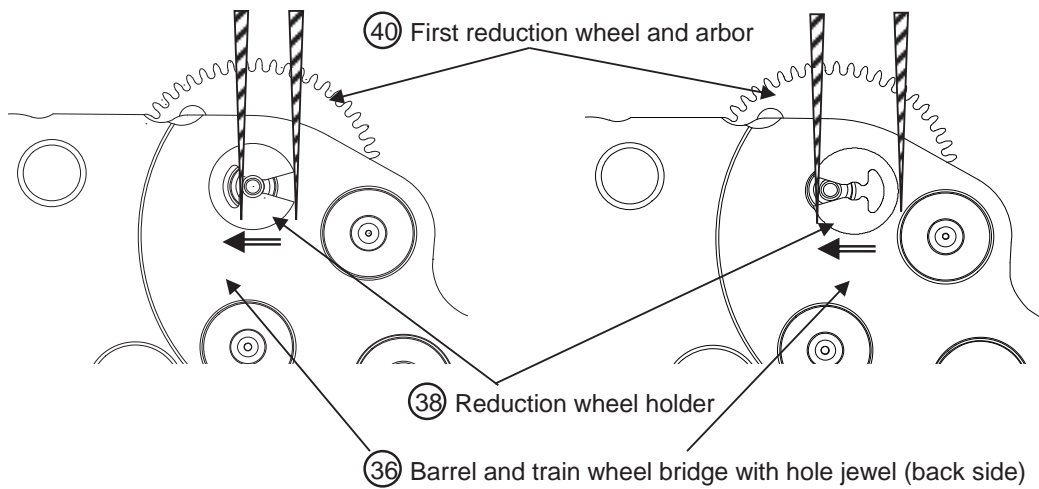
2.Method of identifying day jumper and date jumper



3.Disassembling / assembling of the first reduction wheel and arbor

<< Disassembling >>

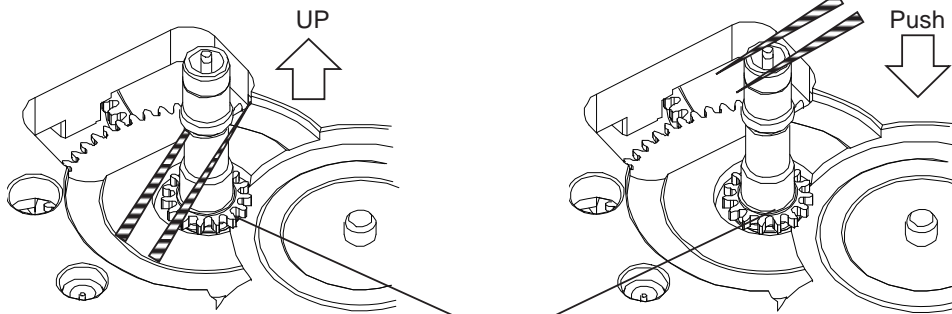
<< Assembling >>



4. Disassembling / assembling of the cannon pinion

<< Disassembling >>

<< Assembling >>

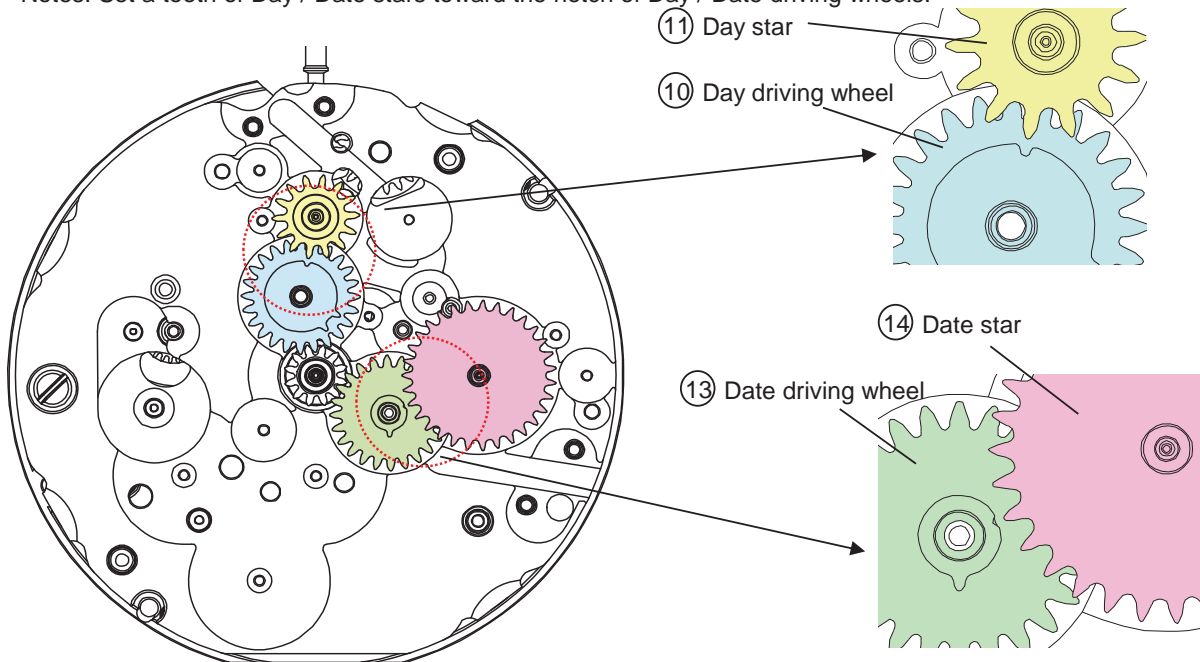


②② Cannon pinion

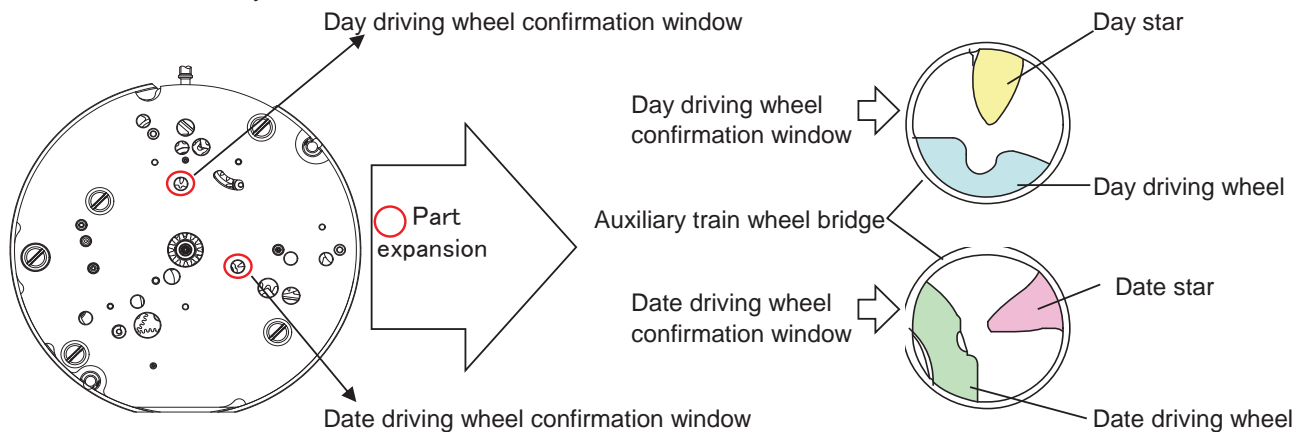
5. Setting position (Refer at the time of disassembling and reassembling)

• 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



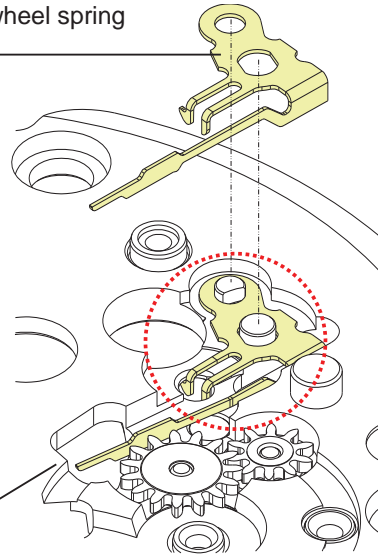
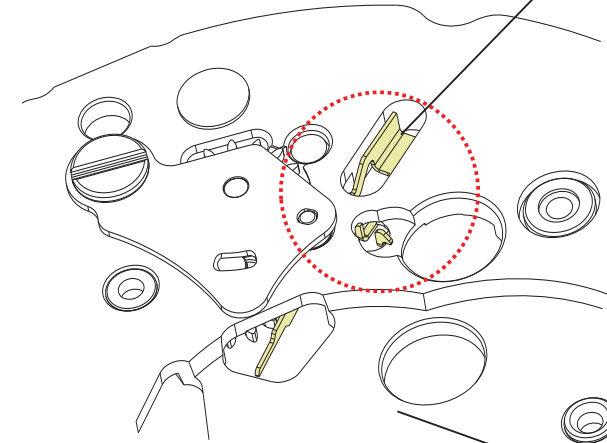
*The correct positions of Day / Date stars and Day / Date driving wheels should be confirmed from the confirmation window at the same time.

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

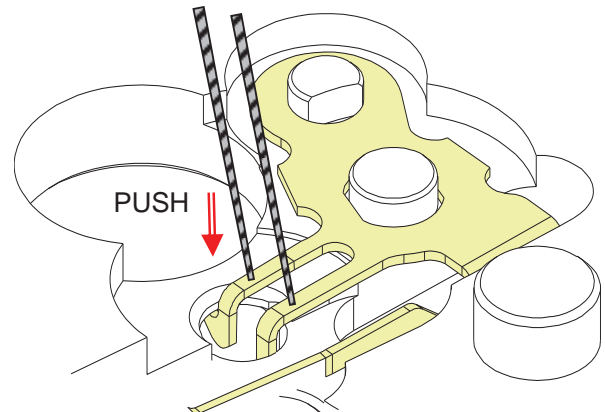
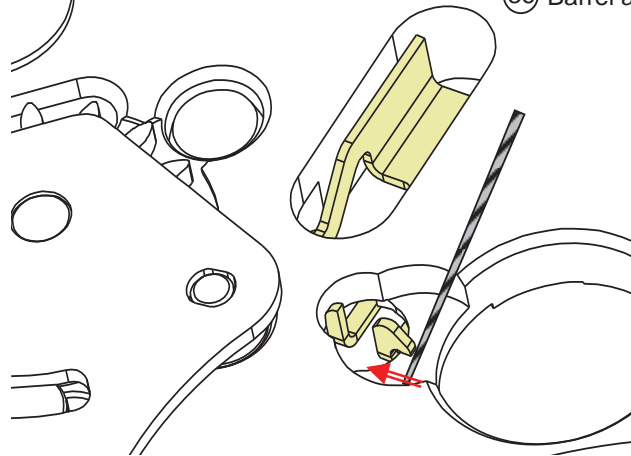
<< Disassembling >>

<< Assembling >>

③7 Ratchet sliding wheel spring



③6 Barrel and train wheel bridge with hole jewel



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

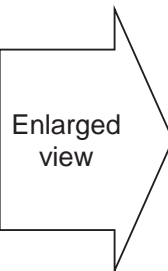
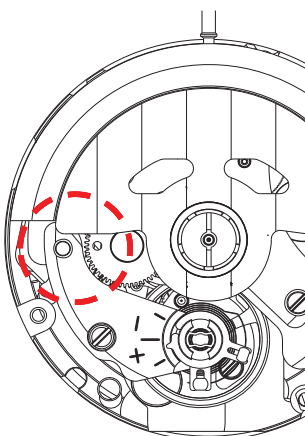
The hooks of the ratchet sliding wheel spring are hung up on barrel and train wheel bridge with hole jewel.

7. Assembling position of oscillating weight

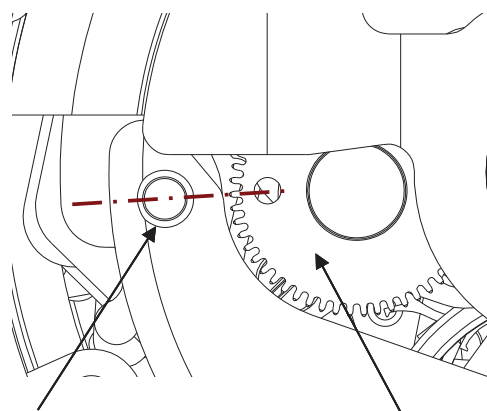
• Before assembling oscillating weight.

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.



Enlarged view

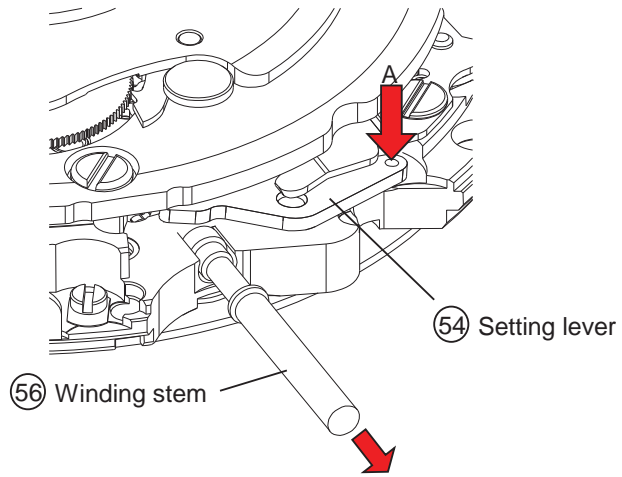


Balance bridge guide pin

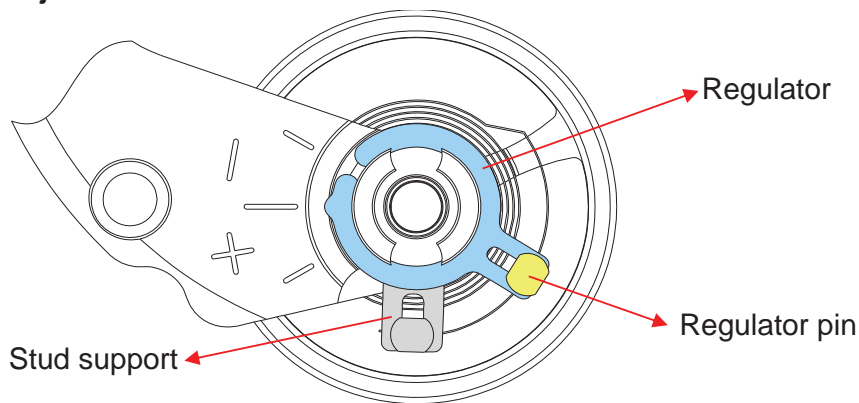
First reduction wheel gear

8.To remove the winding stem

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



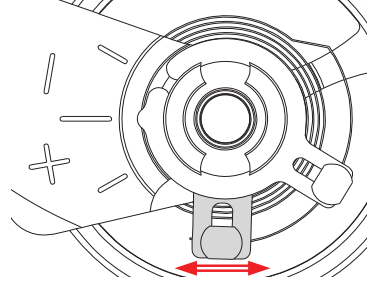
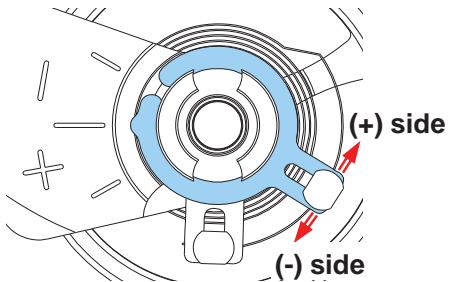
9.Accuracy adjustment



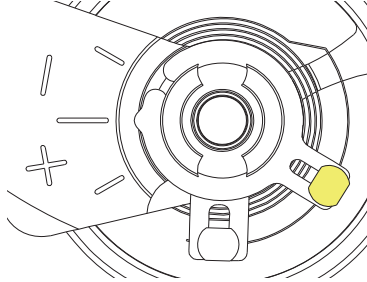
Note:

•Regulator ... Time adjustment

•Stud support ... Beat error adjustment

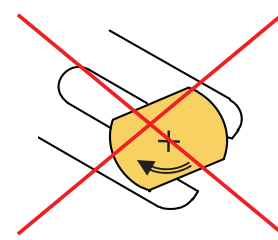
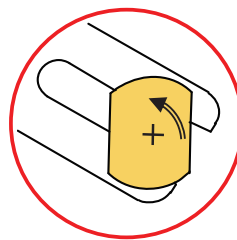


•Regulator pin ... Gap adjustment of balance spring and regulator pin



Anticlockwise rotation

No clockwise rotation



10.To wind up the mainspring

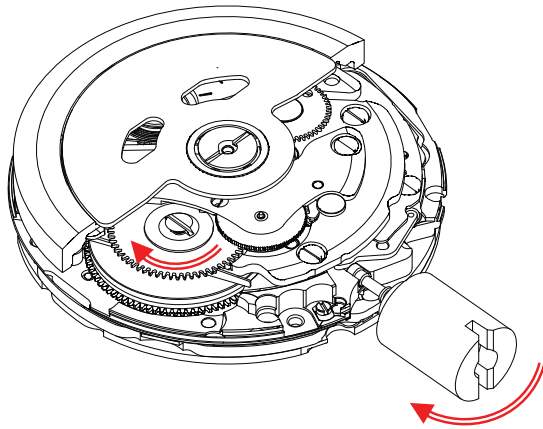
<<Movement>>

The mainspring would be fully wound up by turning the ratchet wheel screw 8 times clockwise. (Manual winding or Screwdriver)

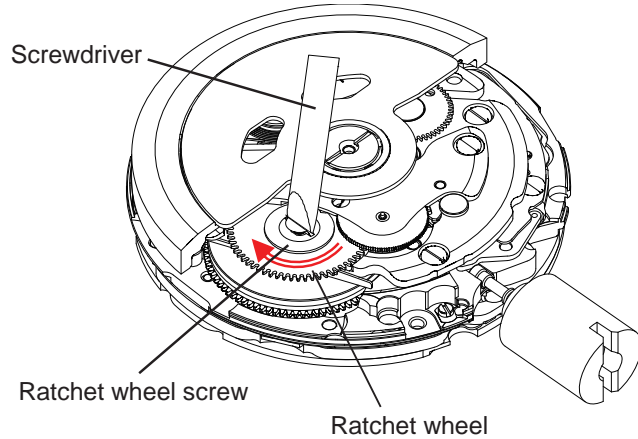
Manual winding ... Rotate crown clockwise at normal position by minimum 55 times. (Equal to ratchet wheel screw 8 times)

Screwdriver winding ... Turn the ratchet wheel screw 8 times clockwise.

[Manual winding]



[Screwdriver winding]



11.How to attach hands

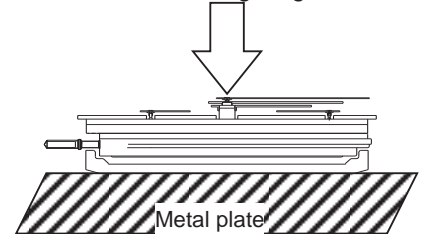
Place the movement directly on a flat metal plate or something similar to attach the hands.

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.

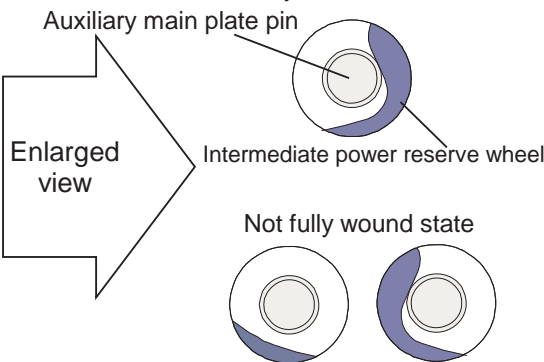
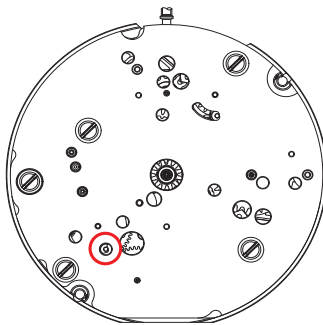
Static weighting



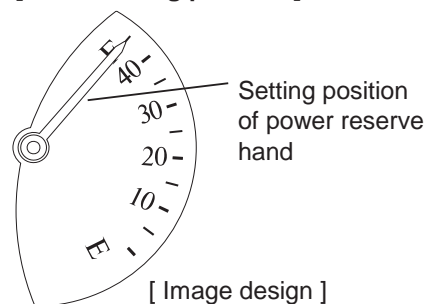
<<Note: Power reserve hand setting>>

- (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]



[Image design]

12.Accuracy measurement condition

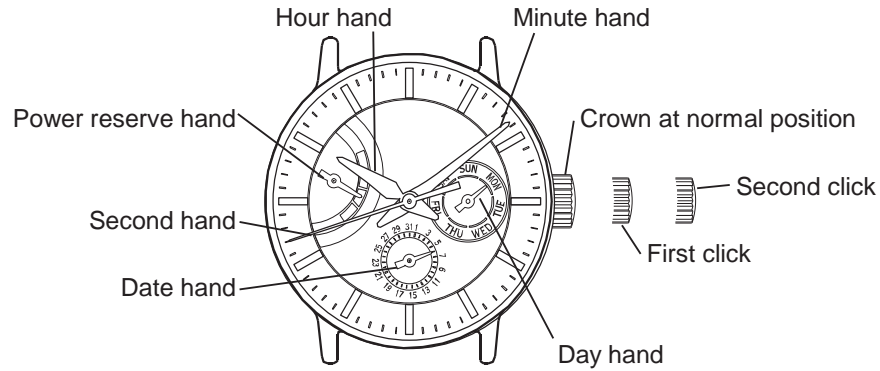
Static Accuracy : -15~+25 seconds per day

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.

[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