TECHNICAL GUIDE
&
PARTS CATALOGUE

Cal.NE20

AUTOMATIC MECHANICAL

SII Products
## SPECIFICATION

### Cal. NE20

<table>
<thead>
<tr>
<th>Item</th>
<th>Cal. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Movement</strong></td>
<td>NE20</td>
</tr>
<tr>
<td><strong>Movement size</strong></td>
<td></td>
</tr>
<tr>
<td>Outside diameter</td>
<td>Ф27.40mm</td>
</tr>
<tr>
<td>Casing diameter</td>
<td>Ф27.00mm</td>
</tr>
<tr>
<td>Total height</td>
<td>6.15 mm</td>
</tr>
<tr>
<td><strong>Time indication</strong></td>
<td></td>
</tr>
<tr>
<td>3 Hands (Hour, Minute, Second)</td>
<td></td>
</tr>
<tr>
<td>Day-date calendar hands</td>
<td></td>
</tr>
<tr>
<td>Power reserve hand</td>
<td></td>
</tr>
<tr>
<td><strong>Basic function</strong></td>
<td></td>
</tr>
<tr>
<td>Manual winding</td>
<td></td>
</tr>
<tr>
<td>Automatic winding with ball bearing</td>
<td></td>
</tr>
<tr>
<td>Stop second device</td>
<td></td>
</tr>
<tr>
<td>Day-date correction</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td></td>
</tr>
<tr>
<td>28,800 vibrations per hour</td>
<td></td>
</tr>
</tbody>
</table>

### Accuracy

<table>
<thead>
<tr>
<th>Sub-item</th>
<th>Measurement position</th>
<th>Lift angle</th>
<th>Measurement time</th>
<th>Posture difference</th>
<th>Isochronisms (24h-0h)</th>
<th>Duration time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static accuracy</td>
<td></td>
<td>52 deg.</td>
<td>20 seconds</td>
<td>Difference is under 45 seconds within max value and min value.</td>
<td>-10~20 seconds per day.</td>
<td>More than 45 hours … Mainspring after fully wound up.</td>
</tr>
<tr>
<td>* Measurement should be done within 10~60 minutes after fully wound up.</td>
<td></td>
<td></td>
<td></td>
<td>* Measurement should be done within 10~60 minutes after fully wound up.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* All measurements are made without the calendar in function.</td>
<td></td>
<td></td>
<td></td>
<td>* Direction of 4 positions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Direction of position: Dial up</td>
<td></td>
<td></td>
<td></td>
<td>(1) 12 o'clock up (2) 9 o'clock up (3) 6 o'clock up (4) 3 o'clock up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Measurement should be done within 10~60 minutes after fully wound up.</td>
<td></td>
<td></td>
<td></td>
<td>* Difference of static accuracy of 24h and 0h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Difference of static accuracy of 24h and 0h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Posture to confirmation: Dial up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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.
- Rotary speed: 30 rpm
- Operating time: 60 minutes

### Jewels

29 jewels

### Crown position

<table>
<thead>
<tr>
<th>Normal position</th>
<th>Left rotation</th>
<th>Right rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>Manual winding</td>
<td></td>
</tr>
<tr>
<td>Date setting</td>
<td>Day setting</td>
<td></td>
</tr>
<tr>
<td>Hand setting</td>
<td>Hand setting</td>
<td></td>
</tr>
<tr>
<td>1 0012 201</td>
<td>Auxiliary train wheel bridge screw</td>
<td></td>
</tr>
<tr>
<td>2 0126 030</td>
<td>Auxiliary train wheel bridge</td>
<td></td>
</tr>
<tr>
<td>3 1019 002</td>
<td>Power reserve wheel</td>
<td></td>
</tr>
<tr>
<td>4 0817 047</td>
<td>Intermediate power reserve wheel</td>
<td></td>
</tr>
<tr>
<td>5 1010 267</td>
<td>Barrel arbor pinion</td>
<td></td>
</tr>
<tr>
<td>6 1026 002</td>
<td>Planetary reduction wheel (Back side)</td>
<td></td>
</tr>
<tr>
<td>7 1009 004</td>
<td>Second sun wheel</td>
<td></td>
</tr>
<tr>
<td>8 1001 025</td>
<td>Sun and planet unit</td>
<td></td>
</tr>
<tr>
<td>9 1009 003</td>
<td>Sun wheel</td>
<td></td>
</tr>
</tbody>
</table>

*2 Refer to the page 8 for the oiling position.
**Type of oil**
- Moebius 9010

**Oil quantity mark**
- NORMAL QUANTITY
- SUFFICIENT QUANTITY

---

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0898 001</td>
<td>Day driving wheel</td>
</tr>
<tr>
<td>0970 003</td>
<td>Day star</td>
</tr>
<tr>
<td>0873 017</td>
<td>Day jumper</td>
</tr>
<tr>
<td>0802 036</td>
<td>Date driving wheel</td>
</tr>
<tr>
<td>0970 002</td>
<td>Date star</td>
</tr>
<tr>
<td>0810 017</td>
<td>Date jumper</td>
</tr>
<tr>
<td>0012 201</td>
<td>Auxiliary main plate screw</td>
</tr>
<tr>
<td>0102 030</td>
<td>Auxiliary main plate (Back side)</td>
</tr>
<tr>
<td>0737 021</td>
<td>Date corrector setting wheel</td>
</tr>
<tr>
<td>0102 030</td>
<td>Auxiliary main plate (Back side)</td>
</tr>
<tr>
<td>1001 029</td>
<td>Day-date corrector setting unit (Back side)</td>
</tr>
<tr>
<td>0261 183</td>
<td>Minute wheel and pinion</td>
</tr>
<tr>
<td>0273 029</td>
<td>Hour wheel</td>
</tr>
<tr>
<td>0014 577</td>
<td>Lower shock absorbing spring</td>
</tr>
<tr>
<td>0011 220</td>
<td>Lower shock absorbing cap jewel</td>
</tr>
<tr>
<td>0014 295</td>
<td>Lower hole jewel frame for shock-absorber</td>
</tr>
<tr>
<td>0014 295</td>
<td>Lower hole jewel frame for shock-absorber</td>
</tr>
<tr>
<td>0225 130</td>
<td>Cannon pinion</td>
</tr>
</tbody>
</table>

---

*Image of a mechanical assembly with parts numbered and labeled.*
Type of oil
Moebius 9010

Oil quantity mark
NORMAL QUANTITY
SUFFICIENT QUANTITY

Moebius 9010
MO-4
MO-3

34-5 0511 010
First reduction wheel and arbor

34-4 0831 077
Pawl lever

34-3 0836 002
Reduction wheel holder

34-1 0015 703
Cap jewelled spring

34-2 0011 221
Cap jewel

34-8 0363 156
Ratchet sliding wheel spring
*Refer to the page 8 for the oiling position.

34-6 0436 164
Lower plate for barrel and train wheel bridge

34-7 0012 354
Lower plate for barrel and train wheel bridge screw

34-3 34-6

35 0241 216
Fourth wheel and pinion

*1

36 0231 070
Third wheel and pinion

37 0012 354
Center wheel bridge screw

38 0122 302
Center wheel bridge

*1

Barrel and train wheel bridge screw

*Refer to the page 10 for assembling

*Refer to the page 8 for the oiling position.
## Remarks

### List of screws

<table>
<thead>
<tr>
<th>Parts No</th>
<th>Name</th>
<th>Parts No</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012 919</td>
<td>26 Ratchet wheel screw</td>
<td>0012 354</td>
<td>Center wheel bridge screw</td>
</tr>
<tr>
<td>0012 168</td>
<td>43 Yoke spring screw (×2)</td>
<td></td>
<td>Pallet bridge screw (×2)</td>
</tr>
<tr>
<td>0012 420</td>
<td>33 Barrel and train wheel bridge screw (×3)</td>
<td></td>
<td>Lower plate for barrel and train wheel bridge screw (×2)</td>
</tr>
<tr>
<td></td>
<td>28 Balance bridge screw</td>
<td>0012 201</td>
<td>Automatic train wheel bridge screw (×2)</td>
</tr>
</tbody>
</table>

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

(1) Barrel and train wheel bridge (back side)

Notes:
*1 After oiling, set Lower plate for barrel and train wheel bridge and screw.

(2) Planet unit

Notes:
*2 Oil to between the arbor pinion and the gear.
1. 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
   Day driving wheel confirmation window
   Auxiliary train wheel bridge
   Date driving wheel confirmation window

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

2. Method of identifying day jumper and date jumper

   Day-date jumper
   Side view
   Day jumper
   *There is no bend at the spring.
   Date jumper
   *There is a bend at the spring.
3. Rachet sliding wheel spring setting

- **34-8** Rachet sliding wheel spring
- **34** Barrel and train wheel bridge

4. Setting 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.

5. To remove the winding stem

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

- **46** Setting lever
- **48** Winding stem
- **Enlarged view**
- **Balance bridge guide pin**
- **First reduction wheel gear**
6. Disassembling / assembling of the First reduction wheel

<< Disassembling >>

- First reduction wheel and arbor
- Reduction wheel holder
- Barrel and train wheel bridge (back side)

<< Assembling >>

7. Rotative direction of regulator pin

- Rotative direction of regulator pin: Anticlockwise only
- Hair spring can be damaged by clockwise rotation.

(Note)
Please do the following when a movement's accuracy is out of the guaranteed range, or after disassembly.

8. 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 ]
9. 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.

<<Note: Power reserve hand setting>>
(1) The mainspring should be fully wounded up before setting power reserve hand.
(2) Set power reserve hand at the fully wound up position of the dial graduation.

10. Accuracy measurement condition
Static Accuracy: -15 to +25 seconds per day
Measurement Conditions
1) Measurement should be done within 10 to 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.
1. Time setting
   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. Day-date hands setting
   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