TECHNICAL GUIDE &
PARTS CATALOGUE

Cal.NH70/71

AUTOMATIC MECHANICAL

SII Products
## SII Products

### Time indication
- 3 Hands (hour, minute, second)

### Stop-second device

### Basic function
- Manual winding
- Automatic winding with ball bearing
- Stop-second device

### Frequency
- 21,600 vibrations per hour

### Movement

<table>
<thead>
<tr>
<th></th>
<th>NH70</th>
<th>NH71</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside diameter</strong></td>
<td><strong>Φ 27.4mm</strong></td>
<td><strong>Gilt version of NH70</strong></td>
</tr>
<tr>
<td><strong>Casing diameter</strong></td>
<td><strong>Φ 27.0mm</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total height</strong></td>
<td><strong>5.32mm</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Time indication

### Basic function

#### Manual winding

### Frequency
- 21,600 vibrations per hour

### Accuracy

<table>
<thead>
<tr>
<th></th>
<th>NH70</th>
<th>NH71</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Static accuracy</strong></td>
<td><strong>-20~+40 seconds per day</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement position</strong></td>
<td><strong>Direction of 3 positions</strong></td>
<td>(1) Dial up (2) 9 o'clock up (3) 6 o'clock up</td>
</tr>
<tr>
<td><strong>Lift angle</strong></td>
<td><strong>53 deg</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement time</strong></td>
<td><strong>20 seconds</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Equipment to be used</strong></td>
<td><strong>Witschi WATCH EXPERT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Posture difference</strong></td>
<td><strong>Difference is under 60 seconds with max value and minimum value</strong></td>
<td><strong>(1) 12 o'clock up (2) 9 o'clock up (3) 6 o'clock up (4) 3 o'clock up</strong></td>
</tr>
<tr>
<td><strong>Isochronisms (24h-0h)</strong></td>
<td><strong>-20~+40 seconds per day</strong></td>
<td><strong>(1) Dial up</strong></td>
</tr>
<tr>
<td><strong>Difference of static accuracy of 24 h and 0h</strong></td>
<td><strong>Difference of static accuracy of 24 h and 0h</strong></td>
<td><strong>(1) Dial up</strong></td>
</tr>
</tbody>
</table>

### Duration time
- More than 41 hours ... Mainspring after fully wound up
- Posture to confirmation : Dial up

### Winding the mainspring

<table>
<thead>
<tr>
<th></th>
<th>NH70</th>
<th>NH71</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&lt;&lt; Movement &gt;&gt;</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fully wound up by turning the crown minimum 55 times</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fully wound up by turning the ratchet wheel screw 8 times</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>&lt;&lt; Complete Watch &gt;&gt;</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A winding machine is needed to wind up the mainspring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Full wind up conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rotary speed : 30 rpm</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating time: 60 minutes</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

### Jewels
- 24 jewels

### Crown position

<table>
<thead>
<tr>
<th></th>
<th>NH70</th>
<th>NH71</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal position</strong></td>
<td><strong>Counterclockwise</strong></td>
<td><strong>Free</strong></td>
</tr>
<tr>
<td><strong>Clockwise</strong></td>
<td></td>
<td><strong>Manual winding</strong></td>
</tr>
<tr>
<td><strong>First click</strong></td>
<td></td>
<td><strong>Time setting</strong></td>
</tr>
</tbody>
</table>
PARTS CATALOGUE

Disassembling procedures Figs.
① → ⑤
Reassembling procedures Figs.
⑤ → ①

Type of oil
- Moebius 9010
- S-6
- S-4

Oil quantity mark
- NORMAL QUANTITY
- SUFFICIENT QUANTITY

① 0012 354
Hour wheel guard screw

② Hour wheel guard
Refer to page 6 for each parts code

③ 0273 183
Hour wheel

④ 0261 190
Minute wheel and pinion

⑤ 0225 425
Cannon pinion

*1
Lower hole jewel frame for shock-absorber

*2
8-2
Lower shock absorbing spring

8-3
Lower shock absorbing cap jewel

8-4
Lower hole jewel frame for shock-absorber

SII Products
1 Oscillating weight with ball bearing
   Refer to page 6 for each parts code

2 0012 354
   Automatic train bridge screw

3 Automatic train bridge
   Refer to page 6 for each parts code

7 0012 100
   Balance bridge screw

8 Balance cock
   Refer to page 6 for each parts code

8-1 0310 184
   Balance complete with stud

8-2 Upper shock absorbing spring

8-3 Upper shock absorbing cap jewel

8-4 Upper hole jewel frame for shock-absorber

4 0514 183
   Second reduction wheel and pinion

5 0012 919
   Ratchet wheel screw

6 Ratchet wheel
   Refer to page 6 for each parts code

9 0012 354
   Pallet bridge screw

10 Pallet bridge
   Refer to page 6 for each parts code

11 0301 009
   Pallet fork

SII Products
First reduction wheel
Refer to page 7 for oiling spot

Cap jewelled spring

Cap jewel

Pawl lever

Reduction wheel holder

Fourth wheel and pinion

Barrel and train wheel bridge screw

Barrel and train wheel bridge with hole jewel frame
Refer to page 6 for each parts code
Refer to page 7 for oiling spot

Ratchet sliding wheel spring
Refer to page 9 for the assembling method

Lower plate for barrel and train wheel bridge

Lower plate for barrel and train wheel bridge screw

Third wheel and pinion

Click

Barrel complete with mainspring
Refer to page 6 for each parts code

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>Oil quantity mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moebius 9010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NORMAL QUANTITY</td>
</tr>
<tr>
<td></td>
<td>SUFFICIENT QUANTITY</td>
</tr>
</tbody>
</table>

Moebius 9010
S-6
S-4

S-6 NORMAL QUANTITY
S-4 SUFFICIENT QUANTITY
Refer to page 8 for oiling spot
1 Oscillating weight with ball bearing (P-3)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Marking</th>
<th>Cal.</th>
<th>Parts code</th>
<th>Marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>1509 195</td>
<td>Japan mark</td>
<td>NH71</td>
<td>1509 189</td>
<td>Japan mark</td>
</tr>
<tr>
<td></td>
<td>1509 196</td>
<td>Malaysia mark</td>
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<td></td>
<td></td>
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</table>

3 Automatic train bridge (P-3)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0191 183</td>
<td>NH71</td>
<td>0191 288</td>
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</tbody>
</table>

6 Ratchet wheel (P-3)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
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</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0285 051</td>
<td>NH71</td>
<td>0285 199</td>
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</table>

8 Balance cock (P-3)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0171 353</td>
<td>NH71</td>
<td>0171 295</td>
</tr>
</tbody>
</table>

10 Pallet bridge (P-3)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0161 300</td>
<td>NH71</td>
<td>0161 298</td>
</tr>
</tbody>
</table>

13 Barrel and train wheel bridge with hole jewel frame (P-4)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0114 183</td>
<td>NH71</td>
<td>0114 299</td>
</tr>
</tbody>
</table>

19 Lower plate for barrel and train wheel bridge screw

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0114 183</td>
</tr>
</tbody>
</table>

23 Barrel complete with mainspring (P-4)

<table>
<thead>
<tr>
<th>Cal.</th>
<th>Parts code</th>
<th>Cal.</th>
<th>Parts code</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH70</td>
<td>0201 083</td>
<td>NH71</td>
<td>0201 199</td>
</tr>
</tbody>
</table>

List of screw

<table>
<thead>
<tr>
<th>Page No</th>
<th>Parts code</th>
<th>Parts name</th>
<th>Parts form</th>
<th>Page No</th>
<th>Parts code</th>
<th>Parts name</th>
<th>Parts form</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-2 1</td>
<td>0012 354</td>
<td>Hour wheel guard screw (x3)</td>
<td></td>
<td>P-3 5</td>
<td>0012 919</td>
<td>Ratchet wheel screw</td>
<td></td>
</tr>
<tr>
<td>P-3 2</td>
<td></td>
<td>Automatic train bridge screw (x2)</td>
<td></td>
<td>P-3 7</td>
<td>0012 100</td>
<td>Balance bridge screw</td>
<td></td>
</tr>
<tr>
<td>P-3 9</td>
<td>0012 354</td>
<td>Pallet bridge screw (x2)</td>
<td></td>
<td>P-4 12</td>
<td>0012 168</td>
<td>Yoke spring screw (x2)</td>
<td></td>
</tr>
<tr>
<td>P-4 19</td>
<td>0012 354</td>
<td>Lower plate for barrel and train wheel bridge screw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-5 23</td>
<td>0012 168</td>
<td>Center wheel bridge screw</td>
<td></td>
<td>P-5 23</td>
<td>0012 168</td>
<td>Yoke spring screw (x2)</td>
<td></td>
</tr>
</tbody>
</table>

SII Products
1. Oiling spot

- Barrel and train wheel bridge with hole jewel frame

Note:

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

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

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>Moebius 9010</th>
<th>S-6</th>
<th>S-4</th>
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<tbody>
<tr>
<td>Oil quantity mark</td>
<td>NORMAL QUANTITY</td>
<td>SUFFICIENT QUANTITY</td>
<td></td>
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</tbody>
</table>

**Lower plate for barrel and train wheel bridge**

**Lower plate for barrel and train wheel bridge screw**

**First reduction wheel**

**Pawl lever**

**Reduction wheel holder**
2. 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.

3. To remove the winding stem
   1) Set the winding stem to normal position
   2) Pull out the winding stem, while pushing "A"
4. Disassembling / assembling of the First reduction wheel

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

**Assembling**
- The hooks of ratchet sliding wheel spring are hung up on barrel and train wheel bridge with hole jewel frame.

5. Disassembling / assembling of the Ratchet sliding wheel spring

**Disassembling**
- The hooks of ratchet sliding wheel spring are hung up on barrel and train wheel bridge with hole jewel frame.

**Assembling**
- The hooks of ratchet sliding wheel spring are hung up on barrel and train wheel bridge with hole jewel frame.
6. 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

(+) side
(-) side
7. 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 ]

8. 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.

9. Accuracy measurement condition
Static Accuracy : -20~+40 seconds per day
Measurement Conditions
1) Measurement should be done within 10~60 minutes after fully wound up
2) Lift angle : 53 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. How to set the time
   1) Pull out the crown to the first click position
   2) Turn the crown to set hour and minute hands
   3) Push the crown back into the normal position

2. 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