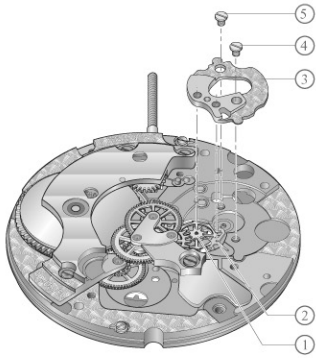


Fig. 1.0



## 1.0 Assembling of the escapement system

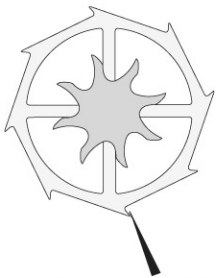
### Key points

The order of assembly must be respected (See page 11). After assembling, the escapement functions must be checked accurately with the corresponding tool.

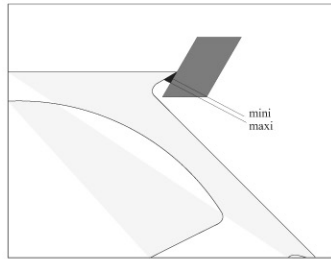
The pallet bridge positions the co-axial wheel and the pallet fork. To ensure the functioning of the escapement it is necessary to respect the following order of assembly:

1. Position the co-axial wheel.
2. Position the pallet fork.
3. Position the pallet bridge, screw no (4) must be correctly placed in their beds.
4. To position the pallet bridge, screw no (4) must be fixed first.
5. The second screw (5) fixes the bridge.

Fig. 1.1



**8x Moebius SYNT  
HP-1300 Sans Colorant**



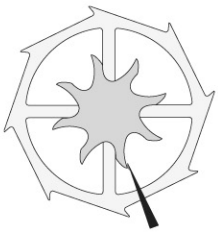
## 1.1 Lubrication of the escapement

The escapement lubrication must be checked with a microscope. We recommend lubricating the escapement directly under the microscope.

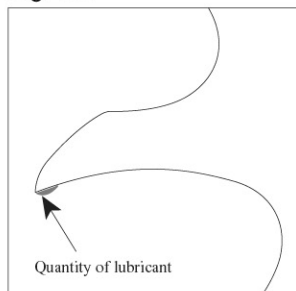
### Escape wheel:

Place a very small drop of Moebius SYNT HP-1300 Sans Colorant on the position indicated on your left side. **Repeat this procedure 8x** in order to lubricated all theeth.

Fig. 1.2



**2x Moebius SYNT  
HP-1300 Sans Colorant**



### Quantity:

The tolerances for the lubrication quantities are shown on (Fig.1.1).

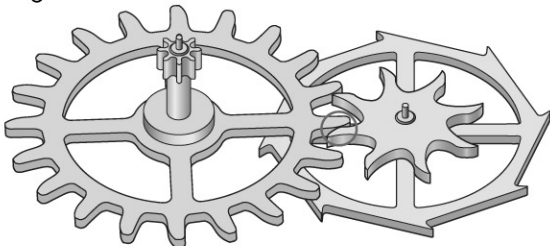
### Pinion:

Place a very small drop of Moebius SYNT HP-1300 Sans Colorant on the tip of two theeth. Move the escapement 3-4 theeth after having placed the first drop then place the second.

### Quantity:

On Fig. 1.2 the required quantity of lubricant is shown.

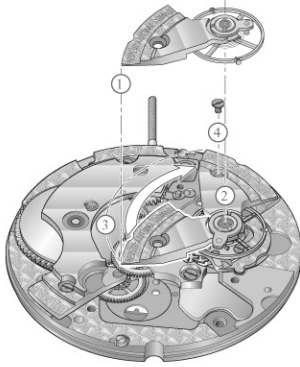
Fig. 1.3



### Important:

There must be no lubricant between thooth and pinion (see Fig. 1.3).

Fig. 2.0

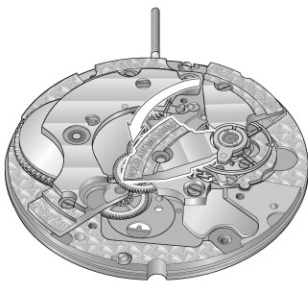


### 2.0 Assembling of the balance bridge

As the table roller is under the pallet fork, the balance must be assembled carefully.

1. Position the complete balance bridge (with balance). The bridge is pointing towards the center of the movement.
2. Check the position of the balance. The pivot of the balance-staff must be correctly placed in its bed.
3. Carefully turn the bridge to its normal position.
4. Fix the bridge with its screw.

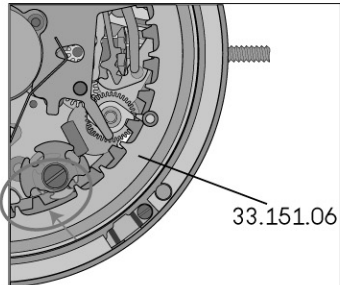
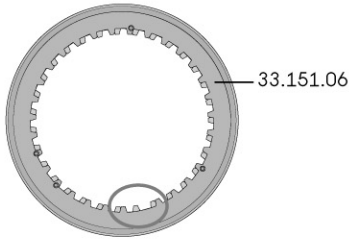
Fig. 2.1



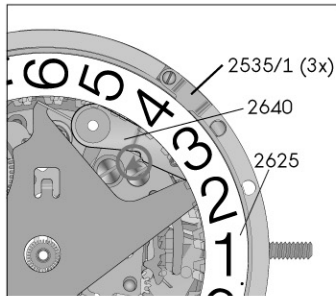
### 2.1 Disassembling of the balance bridge

The balance bridge must be disassembled by removing the parts in the opposite order of procedure 3.3. To avoid any risk of damaging the balance, the bridge has to be turned towards the center of the movement. In this position the bridge may be removed without any risk.

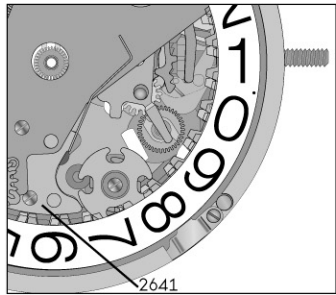
3.1



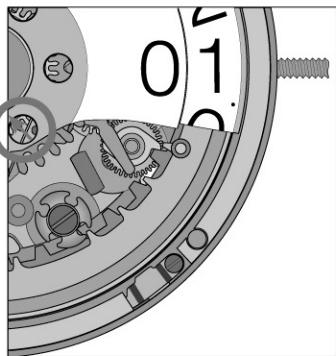
3.2



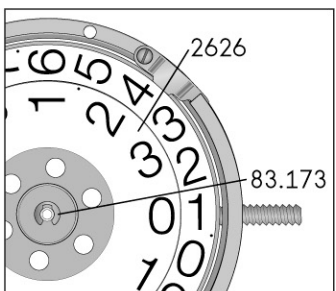
3.3



3.4



3.5



### 3.0 Synchronization of discs indicating the units and tens










#### Synchronisation procedure:

- 1) Pull the winding stem into position 2 (quick correction).
- 2) Position the cam support 33.151.06 after the missing tooth (see drawing 3.2) by turning the winding stem clockwise.
- 3) Fit the unit indicator 2625 with the number 1 at 3 o'clock. Pull the units jumper 2640 by its tongue below (see drawing 3.2), so that the disk descends into its place.
- 4) Assemble and fix the indicator maintaining small-plates 2535/1 (see drawing 3.2).
- 5) Position the tens indicator 2626 with the 0 at 3 o'clock. Push the tens jumper positioning spring 2641 gently towards the centre (see drawing 3.4).
- 6) Assemble the spring-clip 83.173 (See drawing 3.5).
- 7) Check that the tens indicator 2626 is re-centred after pushing it alternately to the left-hand or right-hand side.
- 8) Check the date jump over one turn of 31 days.

#### 4.0 Runners for hand setting and hand setting force

| Description | Movement holder | Number of hand setting runners | Minimum force (N) | Maximum force (N) | Support (jewels) |
|-------------|-----------------|--------------------------------|-------------------|-------------------|------------------|
| Hour hand   | 507 0017        | 5                              | 10                | 50                | no               |
| Minute hand |                 | 2                              | 10                | 50                | no               |
| Second hand |                 | 1                              | 10                | 30                | yes              |

#### 5.0 Components that must not be epilam-treated after cleaning

| Description                               | Reference            |   |
|---|----------------------|---|
| Balance assembled on the balance bridge * | 40055<br>+<br>10058° |    |
| Balance, complete                         | 40055                |  |
| Pallet fork                               | 40010                |  |
| In-setting, upper *                       | 70640                |  |
| In-setting, lower *                       | 70641                |  |
| Pallet bridge                             | 1005707              |  |
| Barrel, complete**                        | 20010                |  |
| Mainspring                                | 20102                |  |
| Reversing wheel                           | 32037                |  |

\* Do not treat the shock-absorber settings with epilam; the cap jewels should however be treated.

\*\* Do not treat the complete barrel with epilam, only the drum, cover and arbor separately.

Demagnetise the movement according to Working Instruction 34.

### Values to be checked

Please consult Working Instructions 5 and 28 for instructions and tolerances.

### Special parameter settings

| Instrument type  | Co-Axial 3.5 Hz calibres                | Comments   |
|--|---|--|
| <b>Former Witschi instruments</b><br>- Watch Expert (red case)<br>- Wicomètre Professionnel<br>- Chronoscope M1 (former version) | Lift angle set to 38°                   | <b>3.5 Hz calibres:</b><br>The frequency parameters (25'200 A/h) should be set manually so that the instantaneous rate is displayed correctly. |
|  | The amplitude is not measured correctly |  |
| <b>New Witschi instruments</b><br>- Watch Expert II (white case)<br>- Chronoscope M1 (updated version)<br>- Chronoscope S1       | Lift angle set to 38°                   | <b>Test mode:</b><br>Parameters must be set for «Spe1»!  |
|  | All measurements are correct            |  |

Fig. 6.0

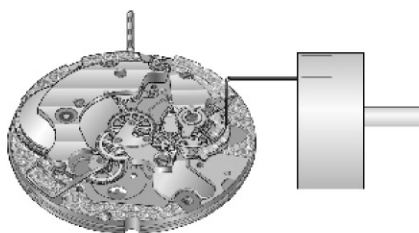
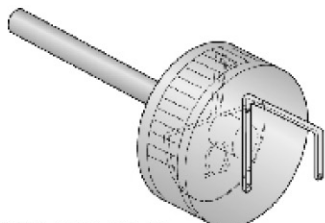
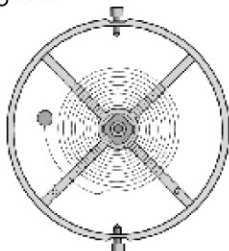


Fig. 6.1



REF. 506 0042

Fig. 6.2



## 6.0 Timing key

A special timing key tool has been developed to adjust the rate even when the movement is cased in. The rate can be corrected according to the table below by turning the two balance screws a complete turn. A scale is found on the outside of the tool. A division corresponds to a rate correction of 1 second. (according to the table below). One screw is located between two arms on the balance which are specially marked by points (see Figure 6.2) for easy identification of each screw during the correction process.

### Balance

The annular balance has two adjusting micro-screws. A slow rate deviation is corrected by tightening the micro-screws (towards the centre of the balance), which reduces its moment of inertia and makes it run faster. A fast rate deviation is corrected by loosening the micro-screws (away from the centre of the balance). This increases its moment of inertia and makes it run slower.

### Important:

The rate is always corrected using **both adjustment screws** to prevent an unbalance of the balance.

| Version A                        |
|----------------------------------|
| One correction turn = 86 seconds |
| One division = 1.5 seconds       |

