Round 11½‴ movement
Manual winding
With two barrels in series
17 jewels
Lever escapement
28,800 vibrations per hour

Caliber L995.2

Sweep second
Stop-second
Instantaneous calendar showing the DATE through a window in the dial
Corrector actuated by means of a three-position multifunction stem

Caliber L996.2

Without second
Instantaneous calendar showing the DATE through a window in the dial
Corrector actuated by means of a three-position multifunction stem

Caliber L997.2

Sweep second
Stop-second

Caliber L998.2

Without second

1. Presentation

These calibers are versions, with manual winding, of the LONGINES 990 automatic caliber, with two barrels. They have the advantage of the latest theoretical and technological developments in the matter of mechanical horology, in particular:

- A sprung-balance oscillator of high regulating power, stable in time and hardly sensitive to environmental disturbances.
- Protection from shocks by means of a shock-absorbing device.
- Adjustment of the rate by means of the Spirofin system with its micrometric regulating screw.
- A motor system composed of two barrels coupled in series, whose energies and speeds of rotation are added together.

  The weaker moments of force developed by the barrels, which work at a faster rate, have the effect of reducing the forces which are transmitted and the losses due to friction.

  Being subject to slighter strain, the parts of the various mechanisms are able to work practically without wear and without fatigue.


LONGINES SWISS
L 9952
SEVENTEEN JEWELS
UNADJUSTED
35273204


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Round 11½‴ movement
Manual winding
With two barrels in series
17 jewels
Lever escapement
28,800 vibrations per hour

Caliber L995.2

Sweep second
Stop-second
Instantaneous calendar showing the DATE through a window in the dial
Corrector actuated by means of a three-position multifunction stem

Caliber L996.2

Without second
Instantaneous calendar showing the DATE through a window in the dial
Corrector actuated by means of a three-position multifunction stem

Caliber L997.2

Sweep second
Stop-second

Caliber L998.2

Without second

1. Presentation

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2. General characteristics

2.1 Casing dimensions

Diameter	25.60 mm
Overall height	2.60 mm

2.2 Balance

Annular, without screws,
protected by a shock-absorbing system
Lift angle 52°

2.3 Hairspring

Non-magnetic
Self-compensating

2.4 Mainsprings

Stainless
Self-lubricating

2.5 Power reserve

41 hours

2.6 Correction of rate

By means of the Spirofin system with its micrometric regulating screw

3. Technical description and instructions

3.1 Motor system

This consists of two barrels coupled in series, whose stainless, self-lubricating and practically unbreakable springs together develop 19 turns of wind, making 15 turns transmitted to the train. As the power is transmitted at a faster rate, the moment of force of the springs and the transmission ratio of the train are diminished by more than 50%, compared with those of a caliber which is constructed in the usual way with a single barrel.

3.2 Transmission system

The train consists of four wheels and pinions, whose arbors turn in jeweled bearings.

3.3 Escapement

The escapement is of the standard jeweled-lever type. The steel escape wheel has twenty teeth.

3.4 Regulating system

The screwless monometal balance, coupled with a self-compensating hairspring which is insensitive to normal magnetic fields, gives an excellent rate in actual wear.

The balance pivots are protected by shock-absorbers. The rate is corrected by means of the Spirofin system (see 6.1).

3.5 Winding, setting and date-corrector mechanism

The three-position stem provides the following functions:

1. In the pushed-in position:
   manual winding of the movement.
2. In the intermediate position:
   correcting the date (except between midnight and 2 a.m.) by turning anti-clockwise.
3. In the fully-extended position:
   setting and stop-second.

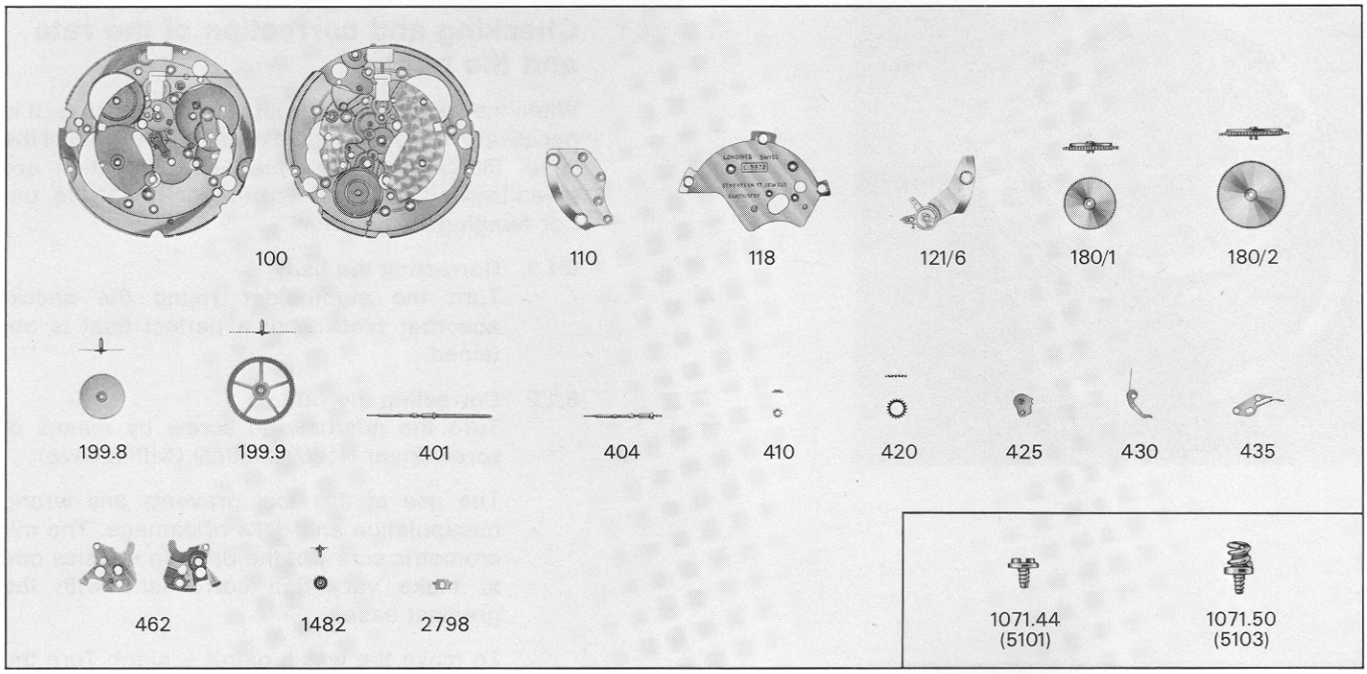
N.B.: When in the pushed-in position, the stem can be extracted by lifting the visible end of the setting lever with a screwdriver. To refit the stem, press the crown right down (see 6.2).

4. List and concordance table of components

No.	L990.1	L990.2	L992.1	L992.2	L993.1	L993.2	L994.1	L994.2	L995.2	L996.2	L997.2	L998.2	Designation
100	X	X	X	X	X	X	X	X					main plate
100									X	X	X	X	main plate
110	X	X	X	X	X	X	X	X					train bridge
110									X	X	X	X	train bridge
118	X												combined bridge
118		X											combined bridge
118			X										combined bridge
118				X									combined bridge
118					X								combined bridge
118						X							combined bridge
118							X						combined bridge
118								X					combined bridge
118									X				combined bridge
118										X			combined bridge
118											X		combined bridge
118												X	combined bridge
121.6	X	X	X	X	X	X	X	X					balance cock, mounted
121.6									X	X	X	X	balance cock, mounted
125	X	X	X	X	X	X	X	X	X	X	X	X	pallet cock
163.1	X	X	X	X	X	X	X	X	X	X	X	X	center tube
166	X	X	X	X	X	X	X	X	X	X	X	X	fixing clamp
180.1	X	X	X	X	X	X	X	X					complete small barrel – white rhodium-plated (with spring)
180.1									X	X	X	X	complete small barrel – yellow gilt (with spring)
180.2	X	X	X	X	X	X	X	X					Complete large barrel – yellow-gilt drum (with spring)
180.2									X	X	X	X	complete large barrel – white rhodium-plated drum (with spring)
199.8	X	X	X	X	X	X	X	X					arbor for small barrel
199.8									X	X	X	X	arbor for small barrel
199.9	X	X	X	X	X	X	X	X					arbor for large barrel
199.9									X	X	X	X	arbor for large barrel
201.1	X	X	X	X	X	X	X	X	X	X	X	X	center wheel
210	X	X	X	X	X	X	X	X	X	X	X	X	third wheel
220	X	X	X	X	X	X	X	X	X	X	X	X	fourth wheel
240.0					X	X	X	X		X		X	indented cannon pinion, Ht = 1.60 mm (WS)
240.1					X	X	X	X		X		X	indented cannon pinion, Ht = 1.70 mm (WS)
240.2					X	X	X	X		X		X	indented cannon pinion, Ht = 1.95 mm (WS)
240.3					X	X	X	X		X		X	indented cannon pinion, Ht = 2.15 mm (WS)
243.0					X	X	X	X		X		X	non-indented cannon pinion, Ht = 1.50 mm (hand 0 only)
243.1	X	X	X	X	X	X	X	X	X	X	X	X	non-indented cannon pinion, Ht = 1.65 mm (hands 1, 2, 3)
245.1	X	X	X	X					X		X		indented cannon pinion, Ht = 1.70 mm (SS)
245.2	X	X	X	X					X		X		indented cannon pinion, Ht = 1.95 mm (SS)
255.0					X	X	X	X		X		X	hour wheel, Ht = 0.85 mm
255.1	X	X	X	X	X	X	X	X	X	X	X	X	hour wheel, Ht = 1.00 mm
255.2	X	X	X	X	X	X	X	X	X	X	X	X	hour wheel, Ht = 1.25 mm
255.3					X	X	X	X		X		X	hour wheel, Ht = 1.45 mm
260	X	X	X	X	X	X	X	X	X	X	X	X	minute wheel
275	X	X	X	X					X		X		sweep-second pinion, Ht = 3.41 mm
307	X	X	X	X	X	X	X	X	X	X	X	X	complete device (Spirofin)
370	X	X	X	X	X	X	X	X	X	X	X	X	jeweled "Kif", upper
371	X	X	X	X	X	X	X	X	X	X	X	X	jeweled "Kif", lower
401	X	X	X	X	X	X	X	X					winding stem
401									X	X	X	X	winding stem
404	X	X	X	X	X	X	X	X					stem for water-resistant case (movement side)
404									X	X	X	X	stem for water-resistant case (movement side)
407	X	X	X	X	X	X	X	X	X	X	X	X	sliding pinion
410	X	X	X	X	X	X	X	X					winding pinion
410									X	X	X	X	winding pinion
420	X	X	X	X	X	X	X	X					crown wheel

No.	L990.1	L990.2	L992.1	L992.2	L993.1	L993.2	L994.1	L994.2	L995.2	L996.2	L997.2	L998.2	Designation
420									X	X	X	X	crown wheel
425									X	X	X	X	click
430									X	X	X	X	click-spring
435									X	X	X	X	yoke
443	X	X					X	X	X	X			three-position setting lever
443			X	X	X	X					X	X	two-position setting lever
450	X	X	X	X	X	X	X	X	X	X	X	X	setting wheel
462	X	X	X	X	X	X	X	X	X	X			minute-train bridge
462											X	X	minute-train bridge, mounted
499	X	X	X	X	X	X	X	X	X	X	X	X	dial washer No. 310
705	X	X	X	X	X	X	X	X	X	X	X	X	escape wheel
710	X	X	X	X	X	X	X	X	X	X	X	X	jeweled pallet fork and lever
721	X	X	X	X	X	X	X	X	X	X	X	X	complete balance
963	X	X	X	X	X	X	X	X	X	X	X	X	stem for water-resistant case (crown side), ident. L560
1143	X	X	X	X	X	X	X	X					complete oscillating weight
1428	X	X	X	X	X	X	X	X					stop click
1481	X	X	X	X	X	X	X	X					reduction gear
1482	X	X	X	X	X	X	X	X					ratchet-wheel driving gear
1482									X	X	X	X	ratchet-wheel driving gear
1488	X	X	X	X	X	X	X	X					pawl wheel, mounted
1561	X	X	X	X	X	X	X	X					centering ring for oscillating weight
1562	X	X	X	X	X	X	X	X					pressure spring for centering ring
2535	X	X					X	X	X	X			date-indicator maintaining plate
2543	X	X					X	X	X	X			intermediate date wheel, mounted
2556	X	X					X	X	X	X			date-indicator driving wheel
2557.1	X	X					X	X	X	X			date-indicator (window at “3 o’clock”)
2557.2	X	X					X	X	X	X			date-indicator (window at “4.30”)
2557.3	X	X					X	X	X	X			date-indicator (window at “6 o’clock”)
2557.4	X	X					X	X	X	X			date-indicator (special)
2566	X	X					X	X	X	X			date-corrector
2576	X	X					X	X	X	X			date jumper
2798	X	X	X	X	X	X	X	X					corrector maintaining plate
2798									X	X	X	X	corrector maintaining plate
9433	X	X	X	X	X	X	X	X	X	X	X	X	stop lever
5101	X	X	X	X	X	X	X	X					case screw (1071.19)
5101									X	X	X	X	case screw (1071.44)
5103									X	X	X	X	“Capofix” case screw (1071.50)
5110	X	X	X	X	X	X	X	X	X	X	X	X	train-bridge screw (1071.18)
5118	X	X	X	X	X	X	X	X	X	X	X	X	combined-bridge screw (1071.18)
5121.6	X	X	X	X	X	X	X	X	X	X	X	X	balance-cock screw (1071.18)
5125	X	X	X	X	X	X	X	X	X	X	X	X	pallet-cock screw (1060.81)
5443	X	X	X	X	X	X	X	X	X	X	X	X	setting-lever screw (1060.84)
5462	X	X	X	X	X	X	X	X	X	X	X	X	screw for minute-train bridge (1060.81)
5738	X	X	X	X	X	X	X	X	X	X	X	X	stud screw (1040.27)
5750	X	X	X	X	X	X	X	X	X	X	X	X	dial screw (1071.26)
51143	X	X	X	X	X	X	X	X					oscillating-weight screw (1060.86)
52535	X	X					X	X	X	X			screw for date-indicator maintaining plate (1060.81)

Specific components for caliber L995 and its derivatives:



5. Apparatus and tools

For the various operations at the level of the "Repair and Maintenance Center", the following equipment is necessary. It can be obtained from LONGINES S.A., Ch-2610 St-Imier.

5.1 Specific equipment for calibers of the L995 family

5.1.1 Screwdriver with sleeve (reference 6902-307/9).

5.2 Non-specific equipment

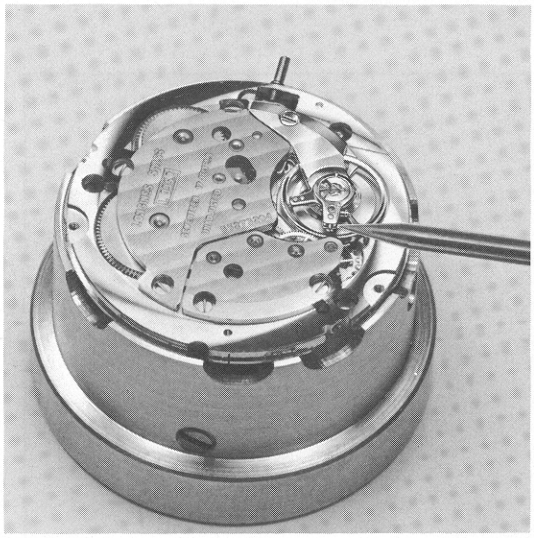
5.2.1 Watch-timing machine capable of registering a frequency of 28,800 vibrations per hour.

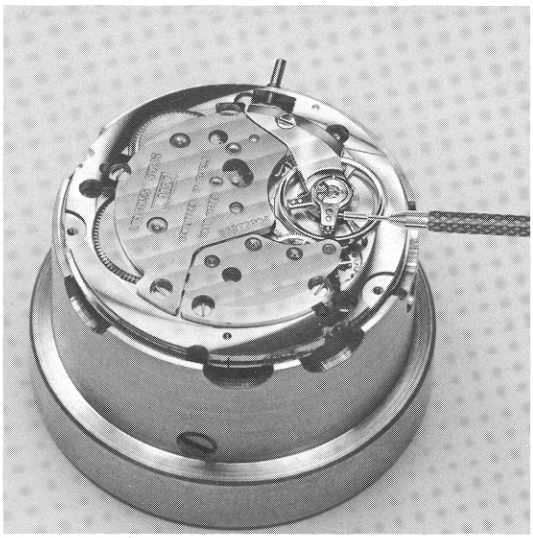
5.2.2 Adequate tools for opening and closing the various types of cases.

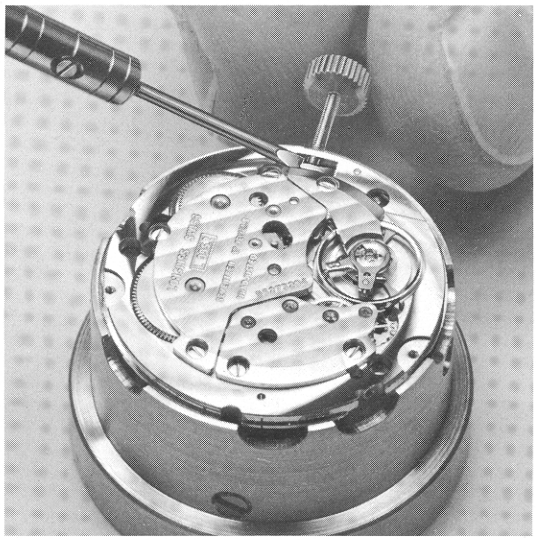
5.2.3 Tools for replacing the various types of glasses.

5.2.4 Apparatus for water-resistance tests.

5.2.5 Cleaning machine.







6. Ordinary operations

6.1 Checking and correction of the rate and the beat

When the watch is fitted with a one-piece case, it is necessary first of all to take the movement out of the case. Indications concerning this operation are given in our "Technical information No. 1" file, under heading 2, "Exterior".

6.1.1 Correcting the beat
Turn the stud-holder round the shock-absorber block until a perfect beat is obtained.

6.1.2 Correcting the rate
Turn the micrometric screw by means of screwdriver No. 6902-307/9 (with sleeve).

The use of this tool prevents any wrong manipulation and risks of damage. The micrometric screw of the Spirofin enables one to make very fine corrections with the greatest ease.

To make the watch **gain** (+ sign): Turn the micrometric screw clockwise (increasing the distance between the stud and the curb-pins).

To make the watch **lose** (− sign): Turn the micrometric screw anti-clockwise (reducing the distance between the stud and the curb-pins).

6.1.3 Limits of regulation

- The measurement should be made with the maximum balance amplitude (full wind less half an hour).
- Positions observed: DU – PD – PL.
- Instantaneous rate: −6 +14 s/d.

6.2 Replacing the winding stem

To withdraw the winding stem:

- Push it right down in the wind position. **Caution:** The stem cannot be withdrawn in any other position.
- Lift the visible end of the setting lever with a screwdriver and withdraw the stem.

To refit the winding stem:

- Fit the stem into its hole and push it home.

6.3 Replacing the glass

Detailed indications concerning the replacement of glasses are given in our "Technical Information No. 1" file, under heading 2, "Exterior".

7. Standard exchange of movements

This operation consists in replacing a movement that needs repairing by a reconditioned "standard-exchange" movement. The movement is reconditioned as described in section 8.

7.1 Removing the case

Detailed indications concerning the removal of the case are given in our "Technical Information No. 1" file, under heading 2, "Exterior". To extract the stem, follow the instructions given in § 6.2.

7.2 Removing the dial and hands

7.3 Exchanging the movement

Before fitting the "standard-exchange" movement, check its rate and beat ont the timing machine as indicated in §§ 6.1.1 to 6.1.3.

7.4 Fitting the dial

7.5 Fitting the hands

A simple movement-holder is sufficient for all the calibers of the L995 family.

For calibers with a calendar mechanism, make sure, when fitting the hands, that the date indication changes at midnight.

7.6 Casing up the movement

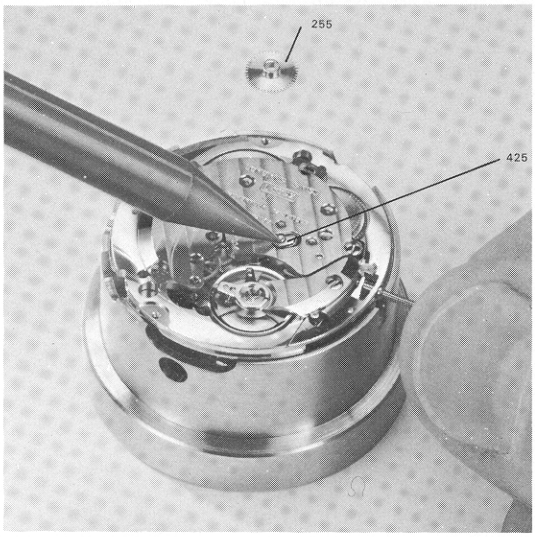
Detailed indications concerning the casing of movements are given in our "Technical Information No. 1" file, under heading 2, "Exterior". For water-resistant cases, make sure that the crown, the glass and the joints are in such a state that water-resistance is ensured.

7.7 Correcting the rate and beat

Follow the indications given in §§ 6.1.1 to 6.1.3.

7.8 Testing of water-resistance

Detailed information concerning the testing of water-resistance are given in our "Technical Information No. 1" file, under heading 1, "General technical information", part 1.5, "Water-resistance".



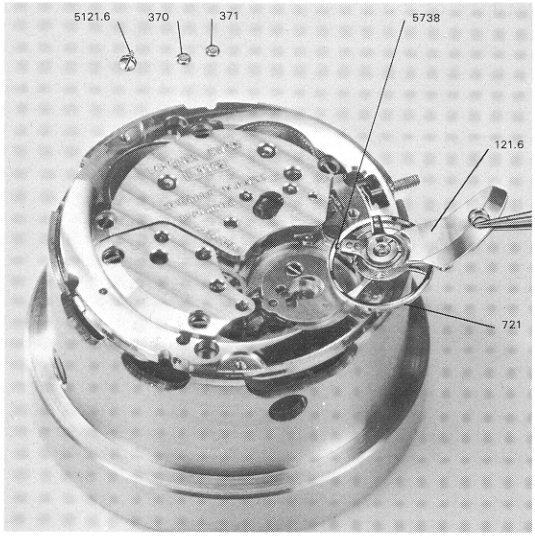
8. Reconditioning the movement

8.1 Complete dismantling

8.1.1 Remove the hour wheel 255 and the dial washer 499.

8.1.2 Let down the mainsprings after having disengaged the click 425.

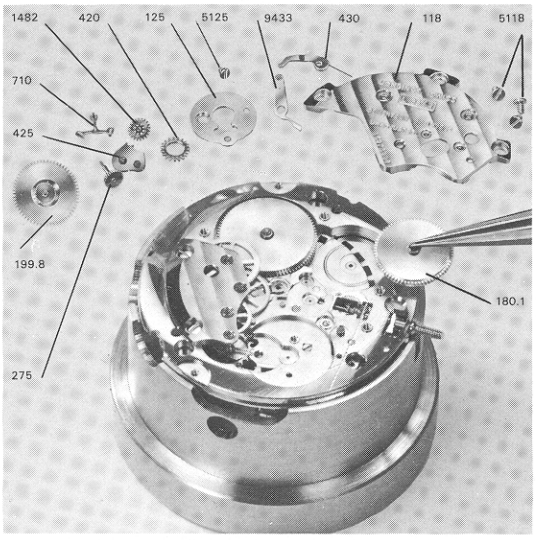
N.B.: In the case of watches equipped with two-piece stems (one-piece cases), slow down the unwinding action by holding back the winding stem with a pair of pincers.



8.1.3 Take out the endstones and the jewel-settings of the shock-absorbers 370 and 371.

8.1.4 Remove the mounted balance cock 121.6.

8.1.5 Loosen the screw (5738) and take the stud out of its holder. Turn the boot and remove the sprung balance 721.

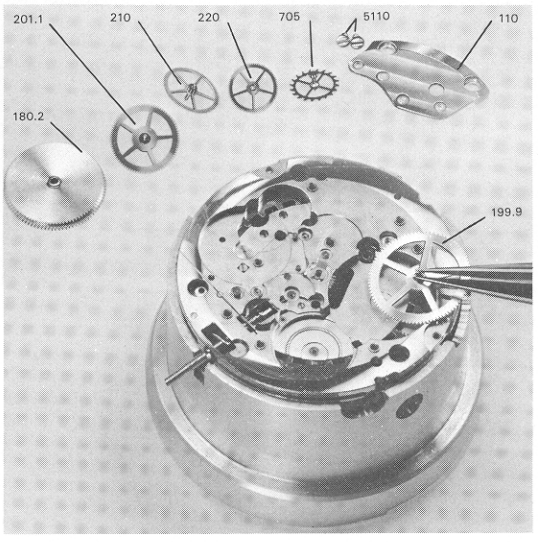


8.1.6 Take out the screw (5125). Remove the pallet cock 125 and the pallets 710.

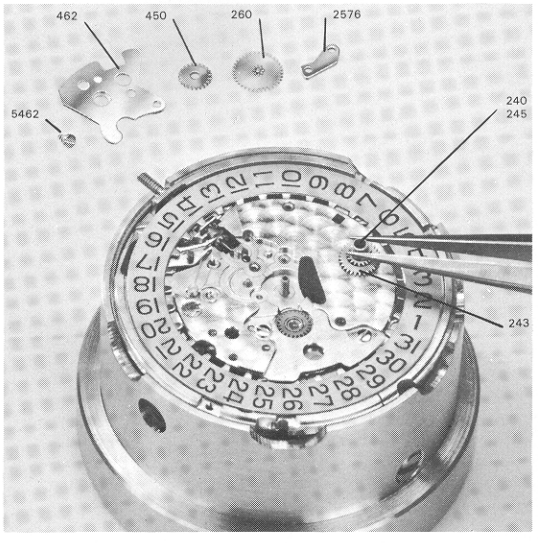
8.1.7 Take out the three screws (5118). Remove the combined bridge 118, the ratchet-wheel driving gear 1482, the crown wheel 420, the click 425, the click-spring 430, the stop lever 9433, the sweep-second pinion 275, the small barrel arbor 199.8 and the complete small barrel 180.1.

8.1.8 Take out the two screws (5110). Remove in order the train bridge 110, the fourth wheel 220, the escape, wheel 705, the center wheel 201.1, the third wheel 210, the complete large barrel 180.2 and the large barrel arbor 199.9.

N.B.: The two complete barrels 180.1 and 180.2 must not be taken to pieces.

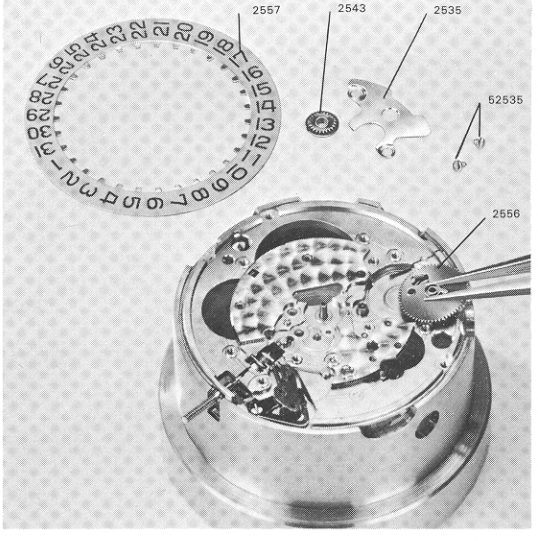


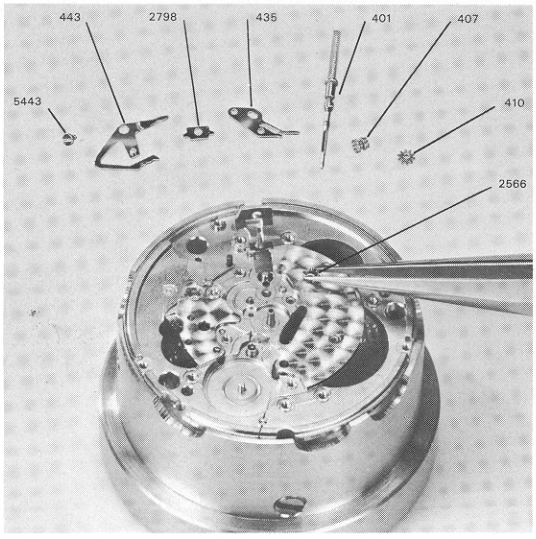
8.1.9 Take out the screw (5462). Remove in order the minute-train bridge 462, the minute wheel 260, the setting wheel 450, the date jumper 2576 and the indented cannon pinion 240 or 245 mounted on the non-indented cannon pinion 243.



8.1.10 Take out the two screws (52535). Remove in order the date-indicator maintaining plate 2535, the date-indicator 2557, the intermediate date wheel 2543 and the date-indicator driving wheel 2556.

N.B.: The driving wheel 2556 must not be taken to pieces.





8.1.11 Take out the screw (5443). Remove in order the yoke 435, the setting lever 443, the sliding pinion 407, the winding pinion 410, the date-corrector maintaining plate 2798, the date-corrector 2566 and the winding stem 401 or 404.

N.B.: The four screws permanently fitted in the main plate, namely

– the friction spring for the sweep-second pinion,

– the date-corrector spring,

– the spring for retaining the date-indicator driving wheel,

– the date-jumper spring,

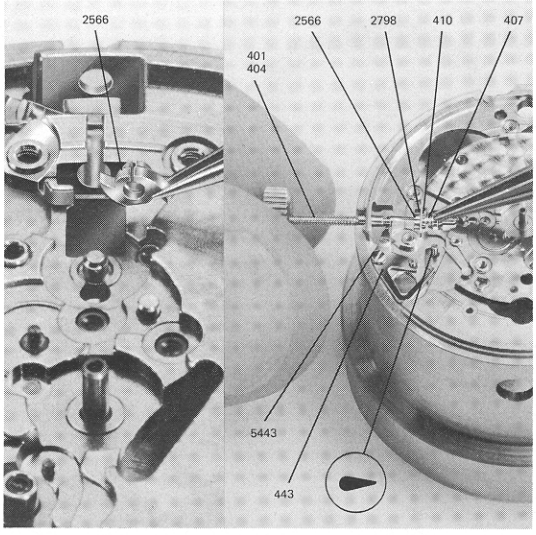
must not be removed.

8.2 Cleaning

Detailed indications concerning cleaning are given in our "Technical Information No. 1" file under heading 1, "General technical information", part1.1, "Cleaning".

8.3 Lubrication

Refer to the lubrication plan on page 18 and use the recommended lubricants.



8.4 Assembling

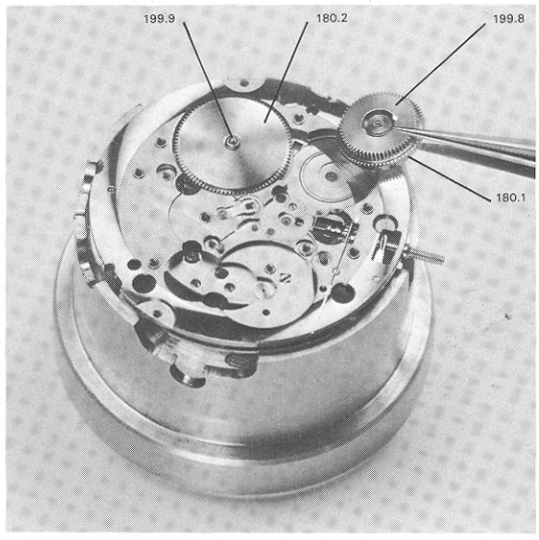
8.4.1 Lubricate the pivot hole of the setting lever 443. Fit the lever and fix it by means of its screw (5443).

8.4.2 Hold the date-corrector 2566 by one of its arms, in the position indicated in the illustration, and insert its cylindrical part into the recess provided for the purpose in the hole for the winding stem. Lubricate and fit the date-corrector maintaining plate 2798.

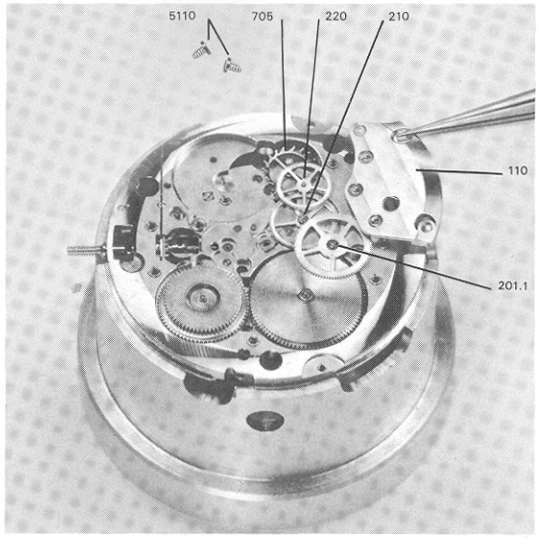
8.4.3 Lubricate and fit conjointly the winding stem 401 or 404, the winding pinion 410 and the sliding pinion 407. Push the winding stem home.

8.4.4 Fit the large barrel 180.2 upon its arbor 199.9. Turn it until the groove engages with the hollow of the arbor (the arbor pivot should appear completely).

Fit them in position with the large ratchet wheel underneath. Repeat the same operation with the small barrel 180.1 and its arbor 199.8. Fit them in position with the small ratchet wheel on the top.



8.4.5 Fit in order the escape wheel 705, the third wheel 210 (with the pinion upwards), the fourth wheel 220 (with the pinion downwards), the center wheel 201.1 and the train bridge 110, fixing it by means of its two screws (5110). Check the endshake of the arbors.

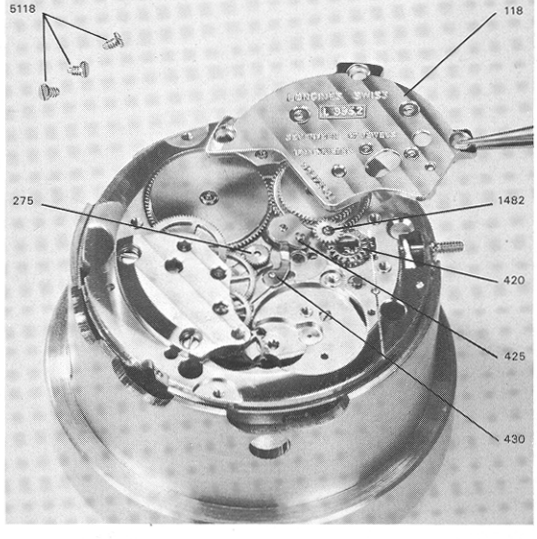


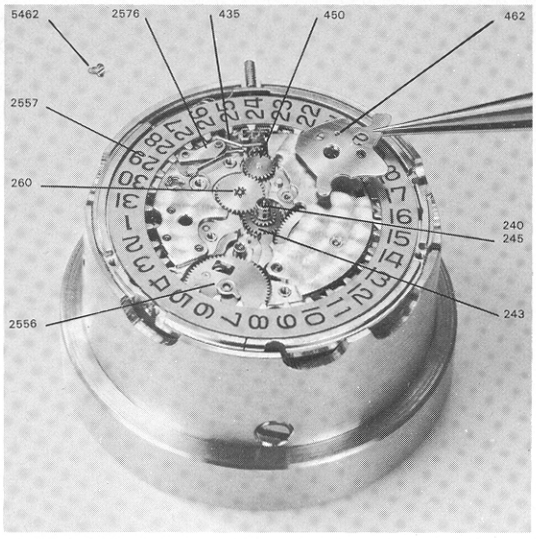
8.4.6 Lubricate (long pivot + tip of short pivot) and fit the sweep-second pinion 275.

8.4.7 Fit in order and lubricate:

- the click-spring 430 (its drawback spring should be placed on the balance side of the stop pin),
- the click 425,
- the crown wheel 420 (which should first be lubricated on the inside of the bore, engaged in the teeth of the winding pinion and centered on the sliding pinion),
- the ratchet-wheel driving gear 1482,
- the combined bridge 118, fixing it by means of its three screws (5118).

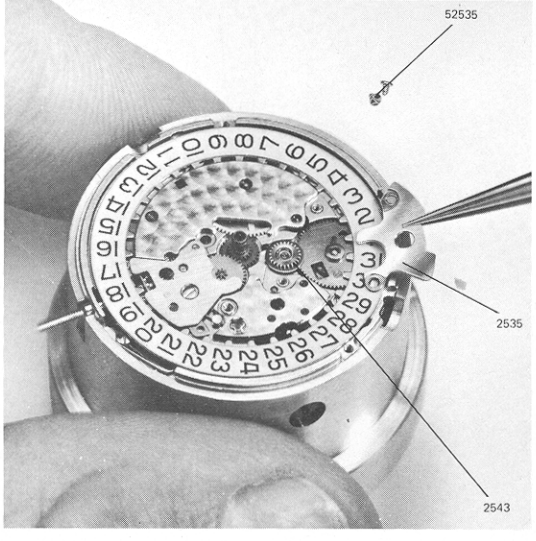
8.4.8 Check the endshake of the arbors and free action of the gears, and lubricate the pivoting points as indicated in the lubrication plan.





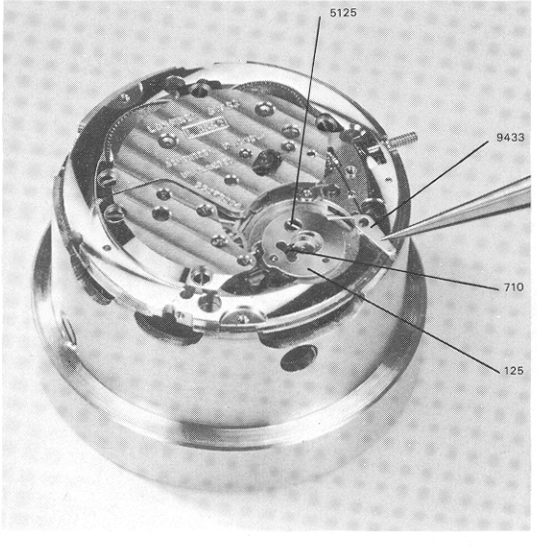
8.4.9 Lubricate and fit in order:

- the yoke 435,
- the non-indented cannon pinion 243,
- the indented cannon pinion 240 or 245.
- the minute wheel 260,
- the setting wheel 450,
- the date-indicator driving wheel 2556 (slant it slightly when inserting it, so that the drawback spring fixed in the main plate rests against the periphery, and not underneath the cam),
- the date jumper 2576,
- the date-indicator 2557,
- the minute-train bridge 462, fixing it by means of its screw (5462).



8.4.10 Lubricate the stud and fit the intermediate date wheel 2543. Fit the date-indicator maintaining plate 2535, fixing it by means of its two screws (52535).

8.4.11 Check the working of the winding, setting and rapid date-corrector mechanisms.



8.4.12 Fit the pallets and the pallet cock 125, fixing it by means of its screw (5125). Make sure that the pallet cock is perfectly planted on the main plate.

8.4.13 Lubricate the escapement (wheel teeth and pallet stones).

8.4.14 Lubricate the pivoting point and fit the stop-second lever 9433, tilting it slightly so that it can be inserted under the combined bridge. Make sure that the stud engages correctly in the hole of the yoke 435.

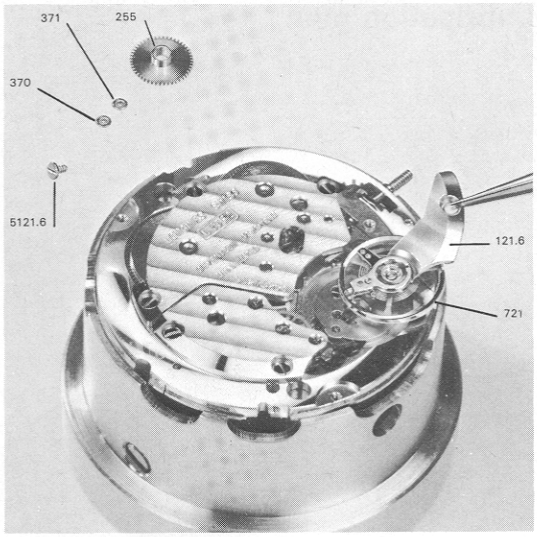
8.4.15 Mount the sprung balance 721 on the balance cock 121.6. Tighten the stud screw and reclose the boot.

8.4.16 Fit the cock with the sprung balance and fix it by means of its screw (5121.6).

8.4.17 Oil the balance endstones and fit them into the jewel settings of the shock-absorbers 370 and 371.

8.4.18 Mount the jewel settings (with the oiled endstones) into the shock-absorbers 370 (top) and 371 (bottom). Lock the fixing springs.

8.4.19 Lubricate the outer fitting of the cannon pinion, fit the hour wheel 255 and the dial washer 499.



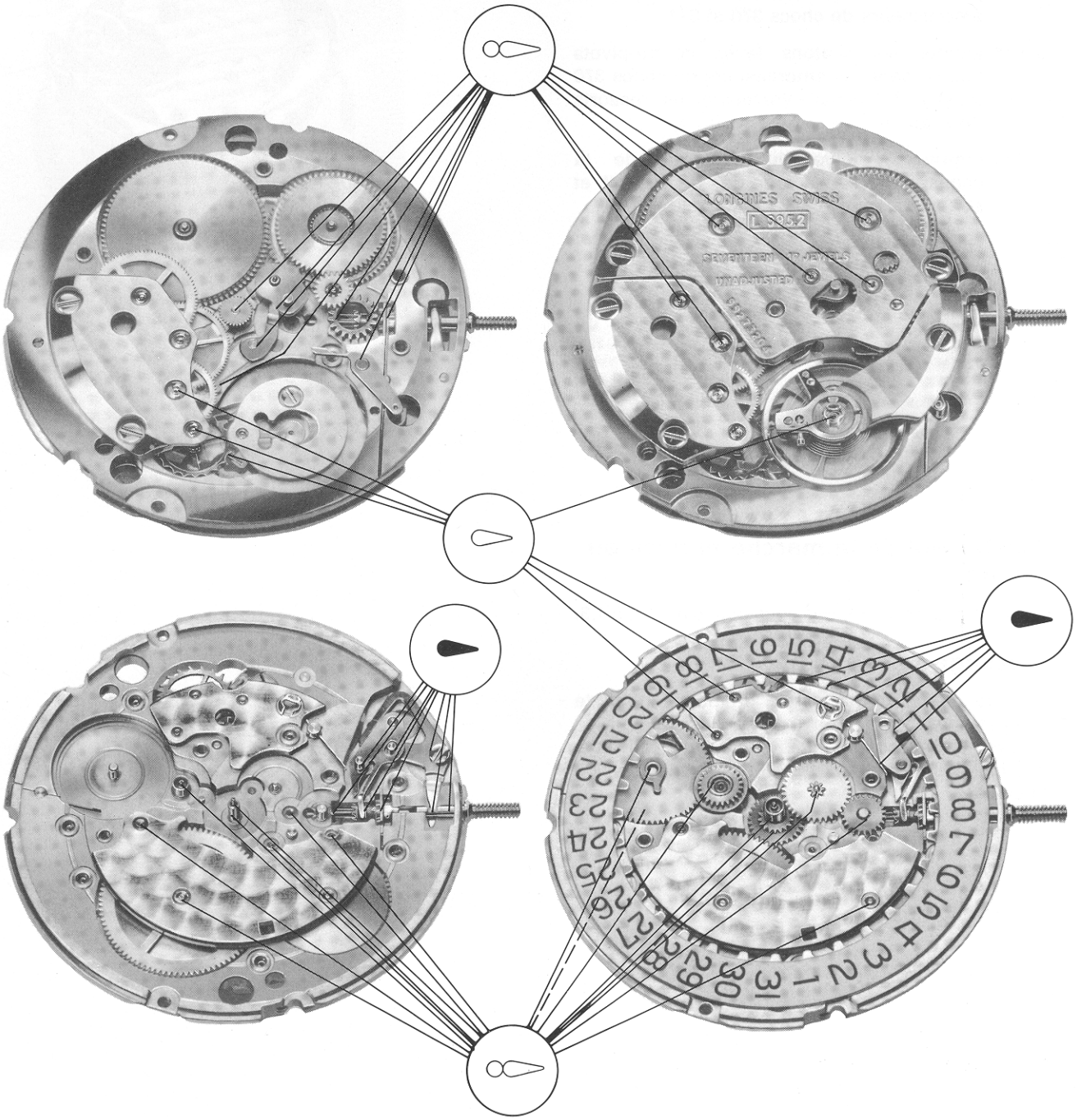
8.5 Correction of rate and beat

According to the indications given in paragraphs 6.1.1 to 6.1.3.

8.6 Stocking

In order to avoid any risk of pollution or premature aging of the lubricants, reconditioned movements should be stocked in closed protective containers, away from heat and damp.

Plan de graissage



Lo 125

Synta-Visco-Lube

Microtime Watch

——— Lubrifier sous (le ressort de retenue travaillant contre la came de la roue entraîneuse)