

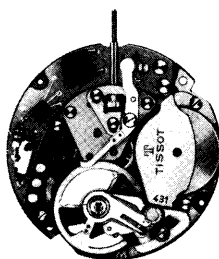


SPARE PARTS AND TECHNICAL GUIDE

CALIBER 431

Electronic movement with sprung balance, sweep second,
calendar mechanism sunk into the plate, balance-stop device

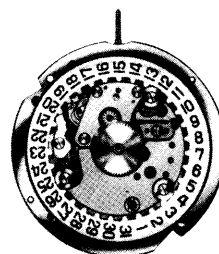
13 jewels
(Incabloc)



Diameter : 28.00 mm

Height : 5.55 mm

28 800 vibrations per hour



1. Introduction

Certain improvements have been made to caliber Tissot 430 with a view to increasing its accuracy and reliability.

Caliber 431 has a vibration count of 28 8000 per hour.

2. Current supply

Unchanged.

3. Instruments recommended for repairing the caliber

Unchanged.

4. Removing the case (according to type of case)

When removing the case, it is no longer necessary to detach the setting lever in order to extract the hand-setting stem. Take out

the outer setting-lever screw. Pushed by the interrupter spring, the setting lever will shift, releasing the hand-setting stem.

5. Dismantling

Remove in succession :

the battery bridge,
the battery,
the feed bridle,
the stop lever,
the setting lever.

Important :

The battery should not be handled with the tweezers. Special care should be taken when dismantling the circuit. Refer to Technical Communication 430, point 5, fig. 3.

6. Cleaning and demagnetizing

Unchanged.

7. Assembling

N.B. : The date-jumper spring is made of a special alloy and therefore does not need checking.
The assembly of the date-indicator mechanism and of the

minute work remains as indicated in Technical Communication 430

8. Assembling the movement

Unchanged.

9. Fitting the circuit

Unchanged.

10. Hand-setting mechanism

Fit in position :

the hand-setting pinion,
the hand-setting stem (having greased it slightly),
the setting lever, taking care to grease beforehand the portion which works with the stop-lever stud.

Important :

Unlike that of caliber 430, the interrupter spring is directly connected to the earth $\oplus$. When the hand-setting stem is pulled out, the interrupter spring should on no account touch the interrupter bridle.

Checking the action of the balance-stop spring : unchanged.

11. Date-indicator mechanism

This caliber has a simpler mechanism than that of caliber 430, and no explanations are necessary.
N. B. : When rapid date-setting is being effected, make sure that

the hand-setting stem is turned back far enough to prevent the driving spring from catching on a tooth of the date-indicator.

12. Lubricating the movement

Unchanged.

13. Checking the damping of the balance

The damping time should be between 20 and 31 seconds.

14. Checking the battery

Unchanged.

15. Checking the interrupter system

The interrupter spring must on no account touch the interrupter bridle when the stem is in the "set" position. When the stem

is pushed in, the interrupter spring will press against the interrupter bridle and will shift it slightly, thus insuring good contact.

16. Checking the balance amplitude

Owing to the high frequency and the peculiar shape of the balance used in this caliber, it is difficult to check its amplitude. Nevertheless, the amplitude should be between the higher limit

of 270° in the DU position and the lower limit of 200° in the PD position.

17. Casing up

According to the type of case. Beware of the mechanical stresses due to the casing up process.

18. Adjustment of daily rate

Unchanged. As the mechanical beat has a negligible influence in this caliber, a distance up to 5 mm between the strokes forming the timing-machine trace can be tolerated.

Adjustment of the daily rate should be effected with the movement inclined at an angle of 30° to the vertical, dial up, **crown down**, at a stabilized voltage of 1.35 V. The average will oscillate between **0 and + 10 seconds**.

The maximum variation between the positions DU, PL and PD at a voltage of 1,35 V should not exceed 20 seconds per day.

19. Final checking

Unchanged.

20. Checking the coils

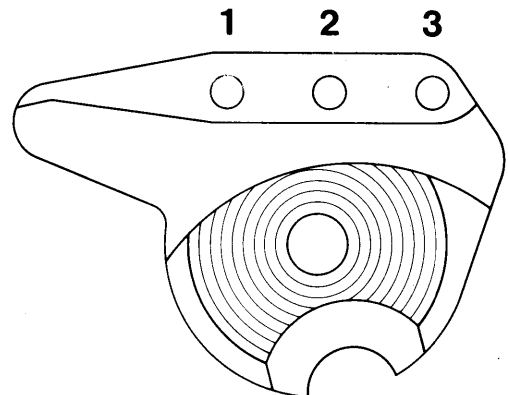
Take out the three coil-support screws.

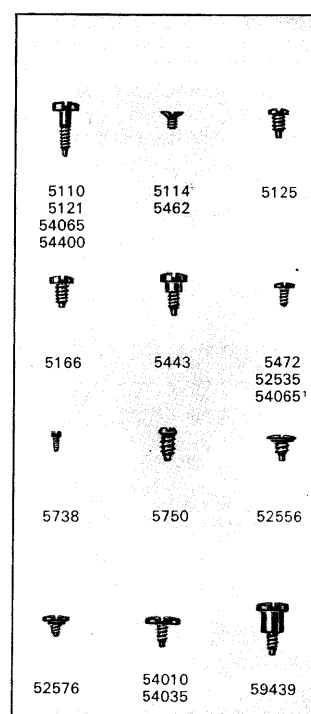
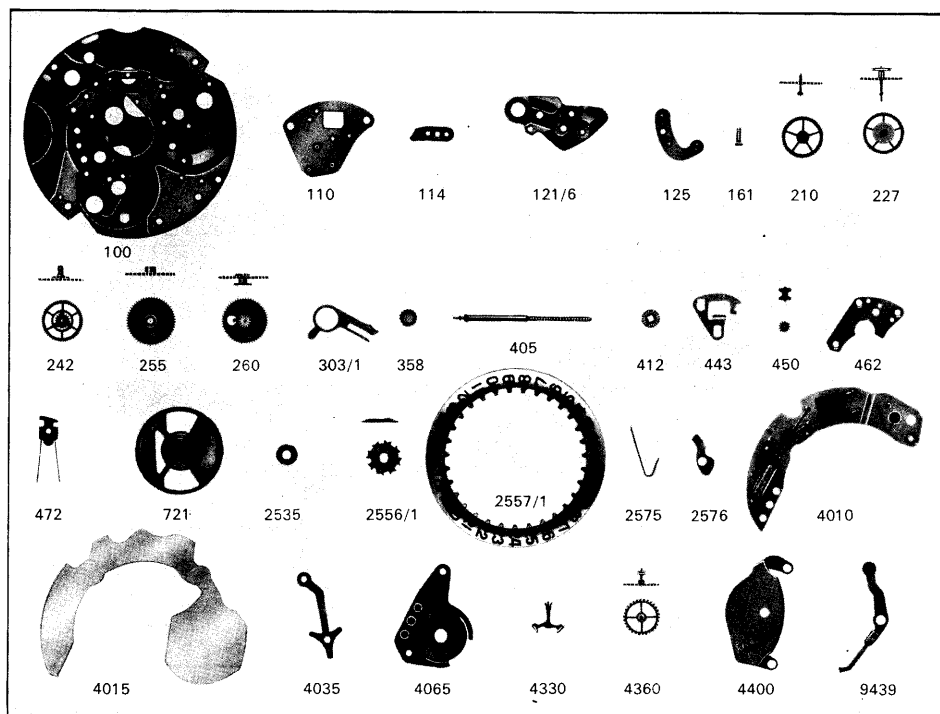
The coils are defective if, when they are measured on the ohm-meter and according to the figure below :

Between 1 and 2 $R = \infty$
 $R = 0$

Between 2 and 3 $R = \infty$
 $R = 0$

In all these cases, the support with the coils fitted must be replaced.





List of materials

100	Plate	4010	Circuit, mounted
110	Train wheel bridge	4015	Circuit insulator
114	Third wheel bridge	4035	Power connection
121/6	Balance cock for regulating and shock-protecting devices, flat hairspring	4065	Rest with coils, mounted
125	Pallet cock	4330	Click lever, mounted
161	Center pipe	4360	Click wheel, pivoted
210	Third wheel	4400	Dry cell bridge
227	Sweep second wheel	5110	Train wheel bridge screw
242	Cannon pinion with driving wheel	5114	Third wheel bridge screw
255	Hour wheel	5121	Balance cock screw
260	Minute wheel	5125	Pallet cock screw
303/1	Two-piece regulator for adjusting device, flat hairspring	5166	Casing clamp screw
358	Adjuster for regulator	5443	Setting lever screw
405	Hand-setting stem	5462	Screw for minute work cock
412	Hand-setting pinion	5472	Screw for double friction spring
443	Setting lever	5738	Hairspring stud screw
450	Setting wheel	5750	Dial screw
462	Minute work cock	9439	Balance stop lever
472	Double friction spring, mounted	52535	Screw for date indicator guard
720	Pivoted balance with roller	52556	Screw for date indicator driving wheel
721	Balance with flat hairspring	52576	Date jumper screw
2535	Date indicator guard	54010	Circuit screw
2556/1	Date indicator driving wheel, mounted	54035	Screw for power connection
2557/1	Date indicator	54065	Screw for coil rest (on plate)
2575	Date jumper spring	54065 ¹	Screw for coil rest (on circuit)
2576	Date jumper	54400	Screw for dry cell bridge
		59439	Screw for balance stop lever