# TECHNICAL COMMUNICATION 22a

**ESA 9154**

**ø 28,00 mm.**

ROAMER 9,6 ?

TISSOT 431

Electronic movement with sprung balance, sweep second, calendar mechanism sunk into the plate for showing the date through an aperture in the dial, balance-stop device. 28 800 vibrations per hour.

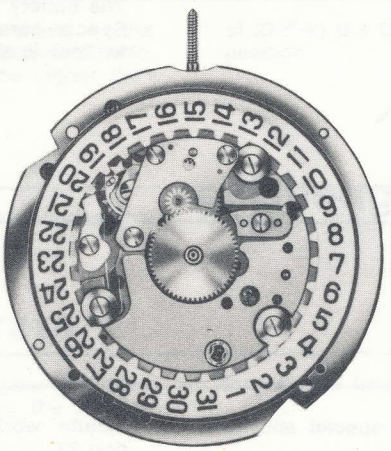


Fig. 1

Enlarged view of movement

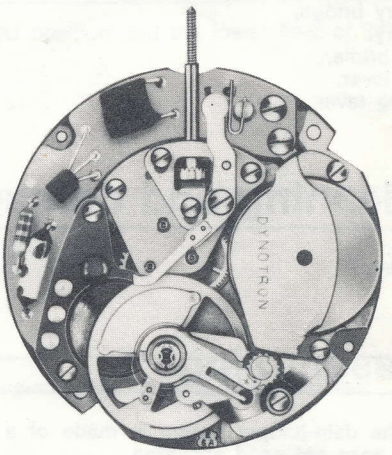



Fig. 2

EBAUCHES SA
2001 NEUCHATEL SUISSE

# 1. Introduction

Ebauches S. A. has made certain improvements to caliber ESA 9150 with a view to increasing its accuracy and reliability.

Caliber ESA 9154 has a vibration count of 28 800 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 22, 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 22.

# 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 ESA 9150, the interrupter spring is directly connected to the earth ⊕. 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 9150, 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 $270^0$ in the DU position and the lower limit of $200^0$ 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.

## 19. Final checking

Unchanged.

## 20. Checking the coils

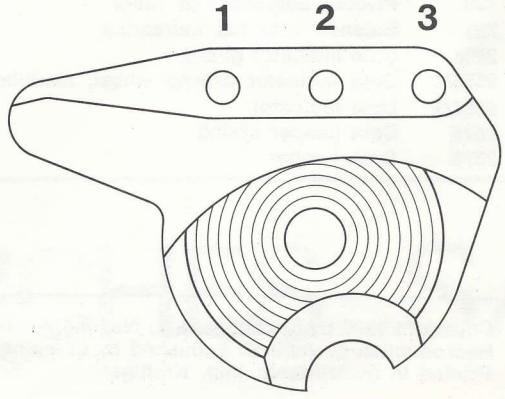
Take out the three coil-support screws.

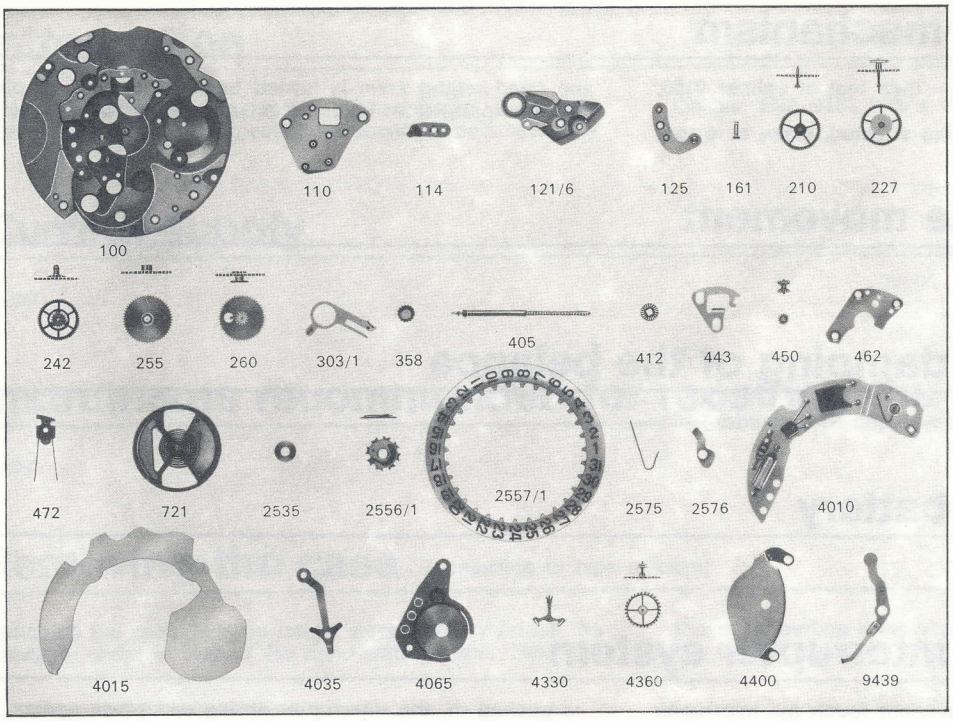
**The coils are defective if, when they are measured on the ohmmeter and according to the figure below :**

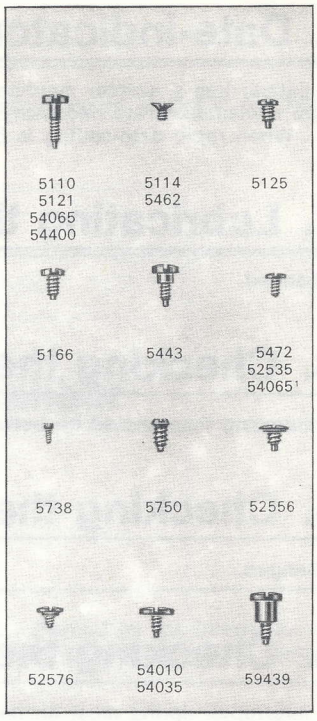
Between 1 and 2 $R = \infty$
$R = 0$

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 |
| 110 | Train wheel bridge |
| 114 | Third wheel bridge |
| 121/6 | Balance cock for regulating and shock-protecting devices, flat hairspring |
| 125 | Pallet cock |
| 161 | Center pipe |
| 210 | Third wheel |
| 227 | Sweep second wheel |
| 242 | Cannon pinion with driving wheel |
| 255 | Hour wheel |
| 260 | Minute wheel |
| 303/1 | Two-piece regulator for adjusting device, flat hairspring |
| 358 | Adjuster for regulator |
| 405 | Hand-setting stem |
| 412 | Hand-setting pinion |
| 443 | Setting lever |
| 450 | Setting wheel |
| 462 | Minute work cock |
| 472 | Double friction spring, mounted |
| 720 | Pivoted balance with roller |
| 721 | Balance with flat hairspring |
| 2535 | Date indicator guard |
| 2556/1 | Date indicator driving wheel, mounted |
| 2557/1 | Date indicator |
| 2575 | Date jumper spring |
| 2576 | Date jumper |
| 4010 | Circuit, mounted |
| 4015 | Circuit insulator |
| 4035 | Power connection |
| 4065 | Rest with coils, mounted |
| 4330 | Click lever, mounted |
| 4360 | Click wheel, pivoted |
| 4400 | Dry cell bridge |
| 5110 | Train wheel bribge screw |
| 5114 | Third wheel bridge screw |
| 5121 | Balance cock screw |
| 5125 | Pallet cock screw |
| 5166 | Casing clamp screw |
| 5443 | Setting lever screw |
| 5462 | Screw for miunte work cock |
| 5472 | Screw for double friction spring |
| 5738 | Hairspring stud screw |
| 5750 | Dial screw |
| 9439 | Balance stop lever |
| 52535 | Screw for date indicator guard |
| 52556 | Screw for date indicator driving wheel |
| 52576 | Date jumper screw |
| 54010 | Circuit screw |
| 54035 | Screw for power connection |
| 54065 | Screw for coil rest (on plate) |
| 54065¹ | Screw for coil rest (on circuit) |
| 54400 | Screw for dry cell bridge |
| 59439 | Screw for balance stop lever |