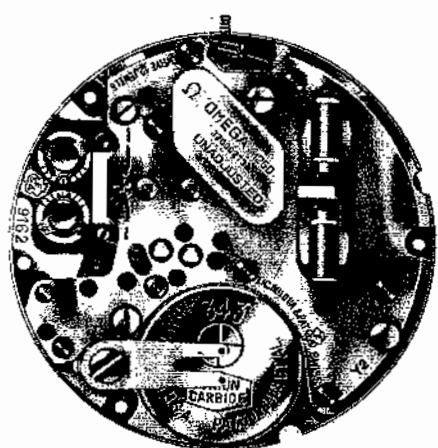


# Technical guide

Calibre **125C**

## Index

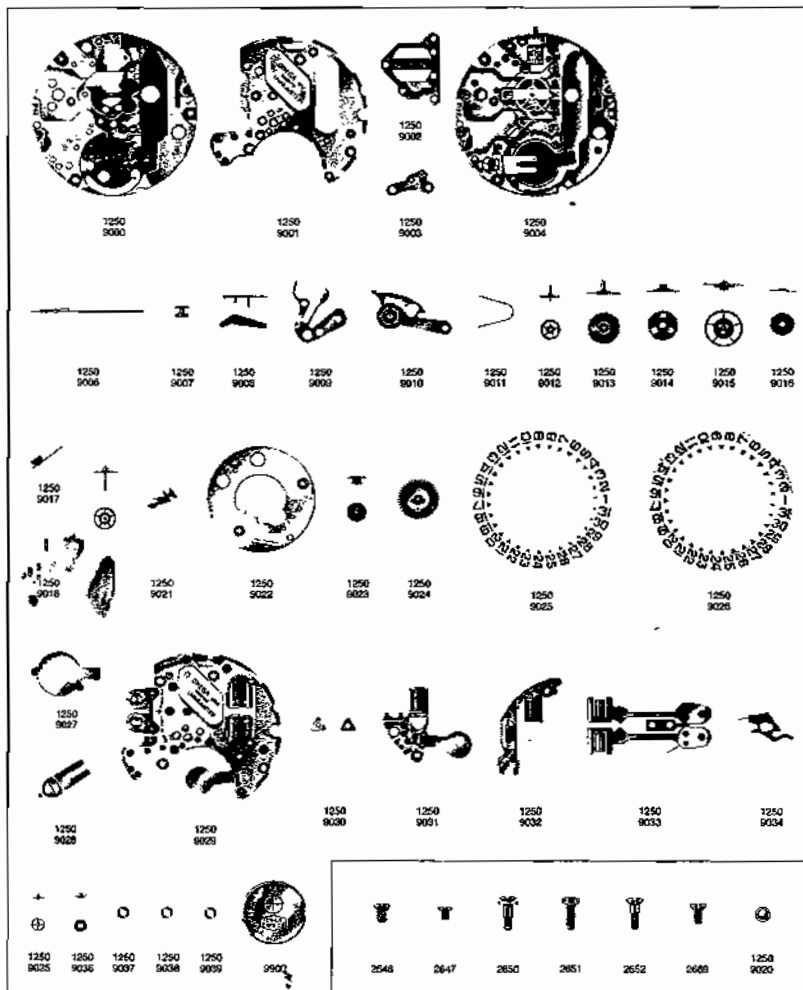




Lic. Balnear Pat. USA

- Folder 0: Description and performance.**
- Folder 1: Replacement of the power cell.**
- Folder 2: Adjustment of the rate.**
- Folder 3: Standard exchange of the movement or the modules.**
- Folder 4: Disassembling, Cleaning, Reassembling and Lubricating of the movement.**
- Diagnostic.**
- Folder 5: Application of Deltatest.**
- Folder 6: Application of Alitest.**

# Omega 1250

## Ersatzteil-Übersicht (Originalteile-Nummern)



Funktionen	Stellen 	Anzeige 
12 Stunden	Kronen-Stellung 3 (Stop)	Kronen-Stellung 1 permanente Analog-Anzeige (Std.-, Min.-, Sek.-Zeiger) Digital d. Datumsring
Minuten	Kronen-Stellung 3 (Stop)	
Sekunden	Kronen-Stellung 3 (Stop)	
Datum	Kronen-Stellung 2	

**Achtung:** Das Nachstellen der Omega 1250 sollte so rasch wie möglich ausgeführt werden, um eine unnötige Entladung der Batterie zu vermeiden.



RUDOLF FLUME · BERLIN · ESSEN · PFORZHEIM

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Marke:

**Omega**

Kaliber:

**1250**

**O**

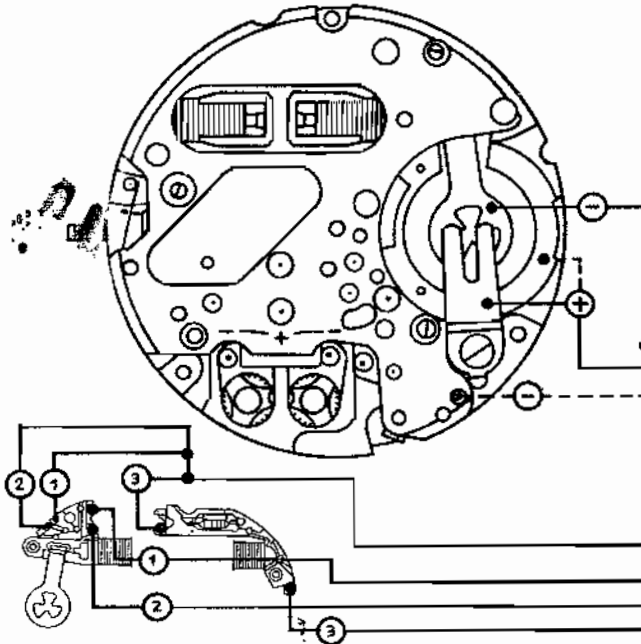


Abb. Vorderseite



Abb. Rückseite

----- mit eingesetzter Batterie  
----- Speisung mit Wagutest



Werkgröße:

Ø 29 mm  
H 4,8 mm

Motorfrequenz:

**300 Hz**

Antriebsart:

**Stimmgabelschwinger**

Zusatzeinrichtungen:

**Kalender (GLD)**

Batterie: **1,35 V**

SSIH 9900

Nennspannung:

**1,35 V**

Belastung der Batterie  
mit Widerstand:

**1000 Ω**

Stromverbrauch:

**max. 8,5 µA**

Spannung am E-Block:

Spulenwiderstand: ca. "

- 1. Steuerspule 1500 Ω
- 2. Motorspule I 7000 Ω
- 3. Motorspule II 8000 Ω

FLUME-ELECTRONIC SERVICE-SYSTEM

Elektronischer Teil, Besonderheiten:

\* Zum Messen der Spulen-Widerstände obere Werkplatte abnehmen (4 Schrauben)  
und Spulen abschrauben (3 Schrauben).

Mechanischer Teil, Besonderheiten:

Die Montage und das Richten der Klippen sollten vornehmlich  
nach der Montage-Anleitung der Fabrik vorgenommen werden.

(Achtung! Spezialwerkzeuge)

©  
ges. gesch.



# Technical guide

Folder **0-1250**

## Description and performance

### 1. THE RESONATOR

The performance of a watch, whether it be mechanical or electronic, depends above all else on the type of its resonator (balance-hairspring, audible resonator, quartz) and the quality factor of same.

The watch ELECTRONIC f 300 is fitted with an audible resonator in the shape of a "μ". This latter, by comparison with an ordinary resonator, presents two essential qualities: positional error is theoretically nil, and sensibility to acceleration encountered during wear is very weak.

Here are the reasons:

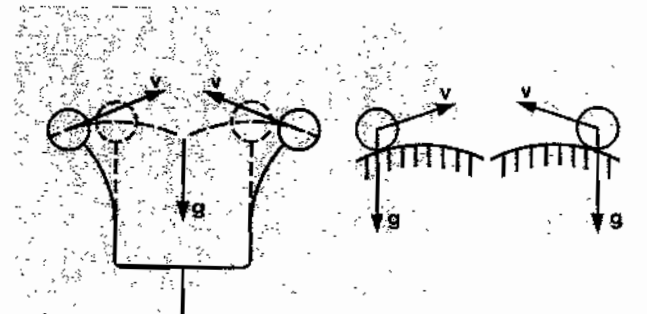
#### Positional error nil

One may liken the weights of the resonator to two ball-bearings moving on two convex surfaces or two concave surfaces.

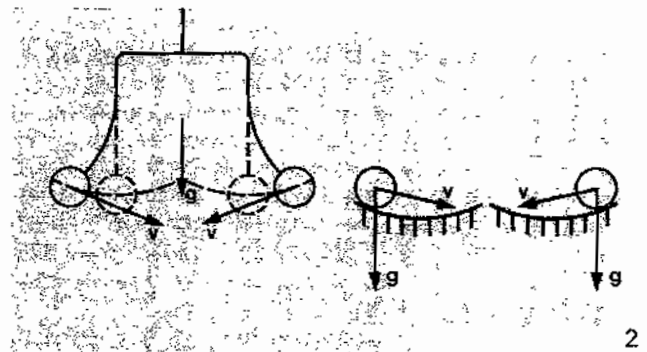
- The influence of gravitation ( $g$ ) reduces the speed ( $v$ ) and causes a loss of about:  $-4$  s/d. (Fig. 1).
- The influence of gravitation increases the speed and causes a gain of about:  $+4$  s/d. (Fig. 2).

The extent of this variation depends on the frequency and the length of the resonator.

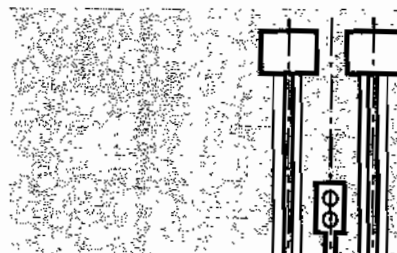
The resonator ELECTRONIC f 300 com-



1



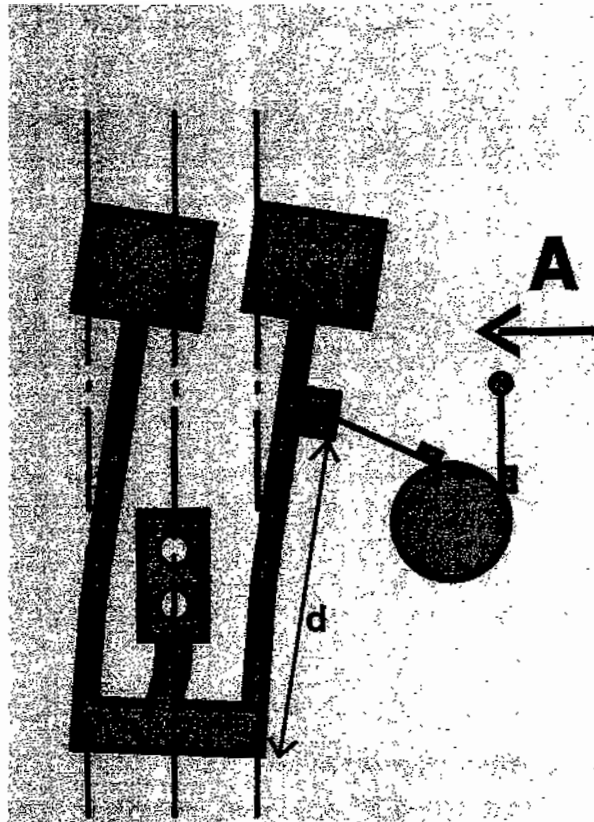
2



### Effect of acceleration due to wear

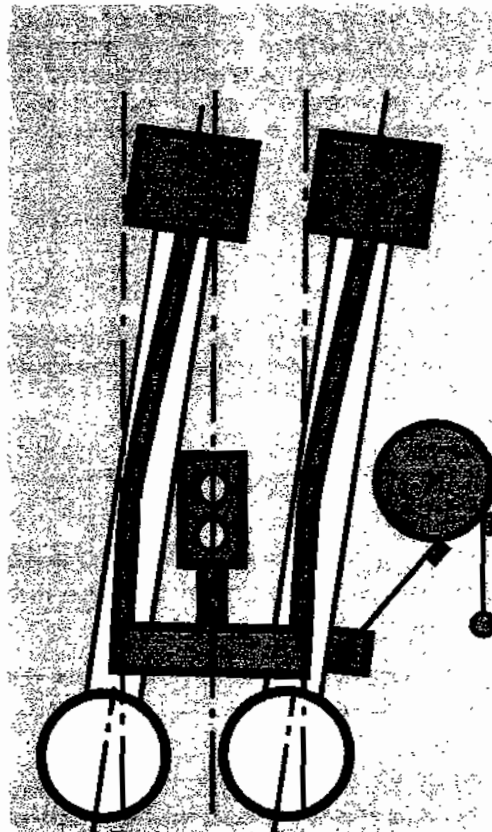
In the case of an ordinary resonator, the driving click must necessarily be placed sufficiently high on the prong of the fork (d) (Fig. 4).

Thus, when acceleration takes place, the resonator will bend about its foot, the driving click will be out of its place with the index wheel, and the moment will come when the indexing no longer functions normally.



4

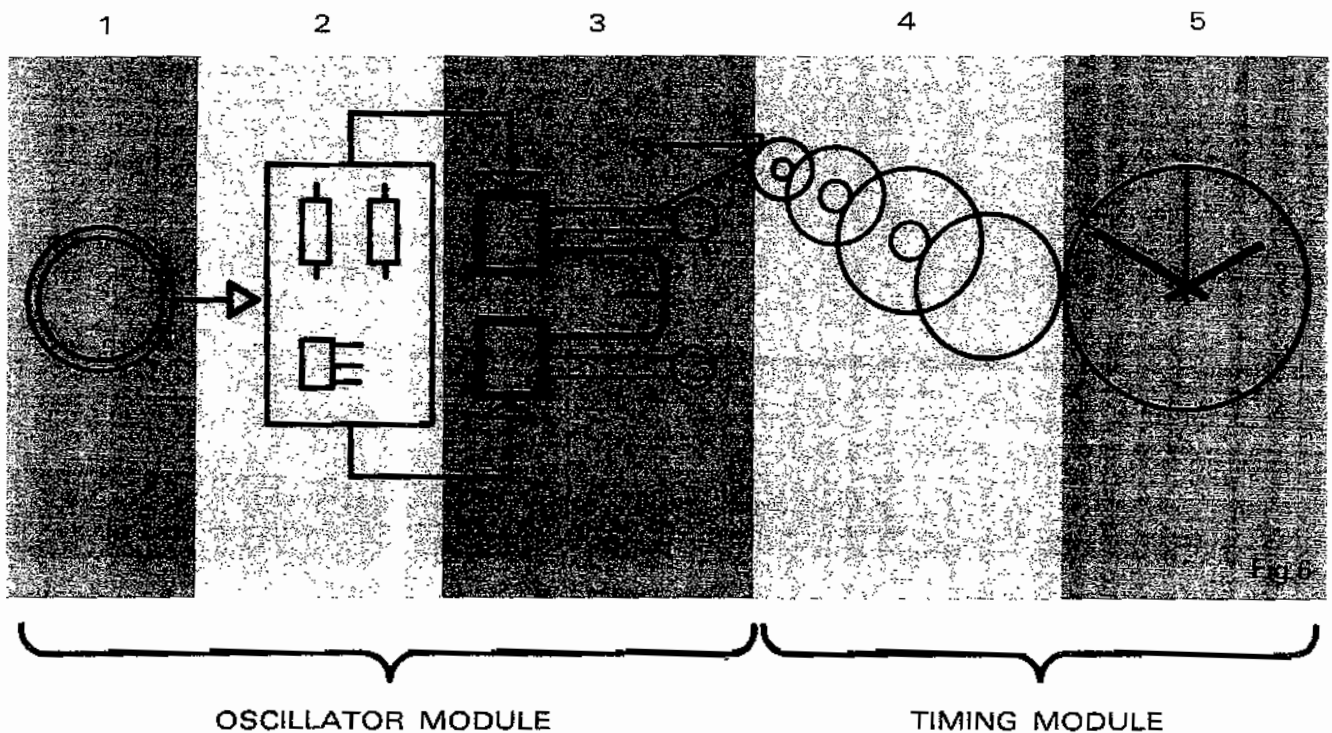
In the resonator 1250, the driving click is placed on the compensating prong for positional error at a point where there is sufficient amplitude under normal circumstances but where, in the event of acceleration, the average position of this point remains stationary in relation to the watch plate. Thus, the distance between the driving click and the stationary click is not altered thereby. (Fig. 5).



5

## 2. WORKING PRINCIPLE

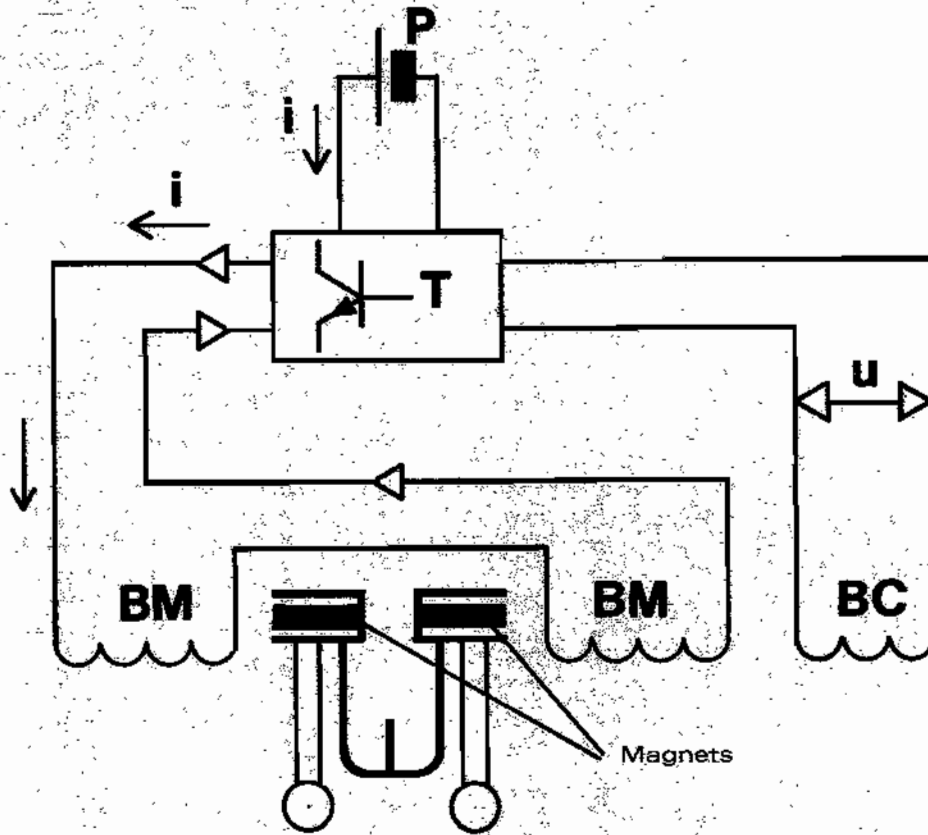
The resonator in the shape of a "μ" oscillates 300 times per second (300 Hertz). The power cell furnishes through the circuit and the electrodynamic transducer the impulses required to maintain the motion of the resonator. This unit is called the oscillator. (Fig. 6).



- 1) Source of energy
- 2) Maintenance circuit
- 3) Resonator — Indexing mechanism
- 4) Reduction wheel-train
- 5) Indicator

A click blade fitted on the resonator pushes, tooth by tooth, the index wheel — first in the wheel-train. This wheel has 300 teeth. It thus accomplishes one revolution per second. A second click is stationary; it checks the position of the wheel while operating.

## The maintenance circuit



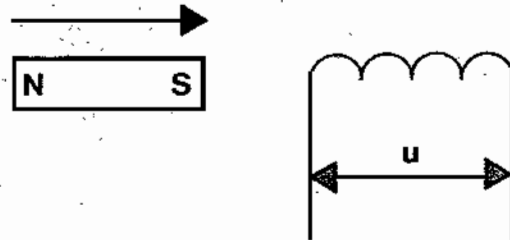
7

In its elementary form, the maintenance circuit (Fig. 7) functions in the following manner:

The vibrating action of the magnet, borne by the right-hand blade, induces a slight electric tension ( $u$ ) in the captor coil (BC). This tension, which depends on speed, reaches its maximum when the vibrating blade is in the same position as when at

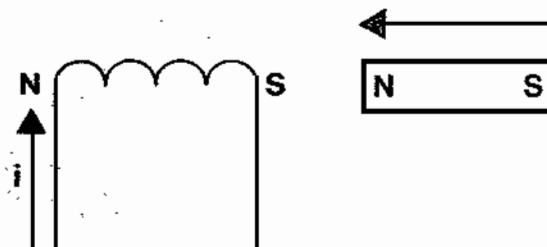
rest. This peak tension controls the opening of the transistor (T), which then allows the motive electric impulse furnished by the power cell (P) to pass through. This impulse going through both the left and right-hand (BM) coils will provide said motor with the required energy to maintain the resonator. This commutation of energy takes place at the rate of 300 times per second.

We know, in fact, that when a magnet moves inside a coil, it induces an electric tension ( $u$ ) at the ends of such coil. (Fig. 8). (Case with BC coil).



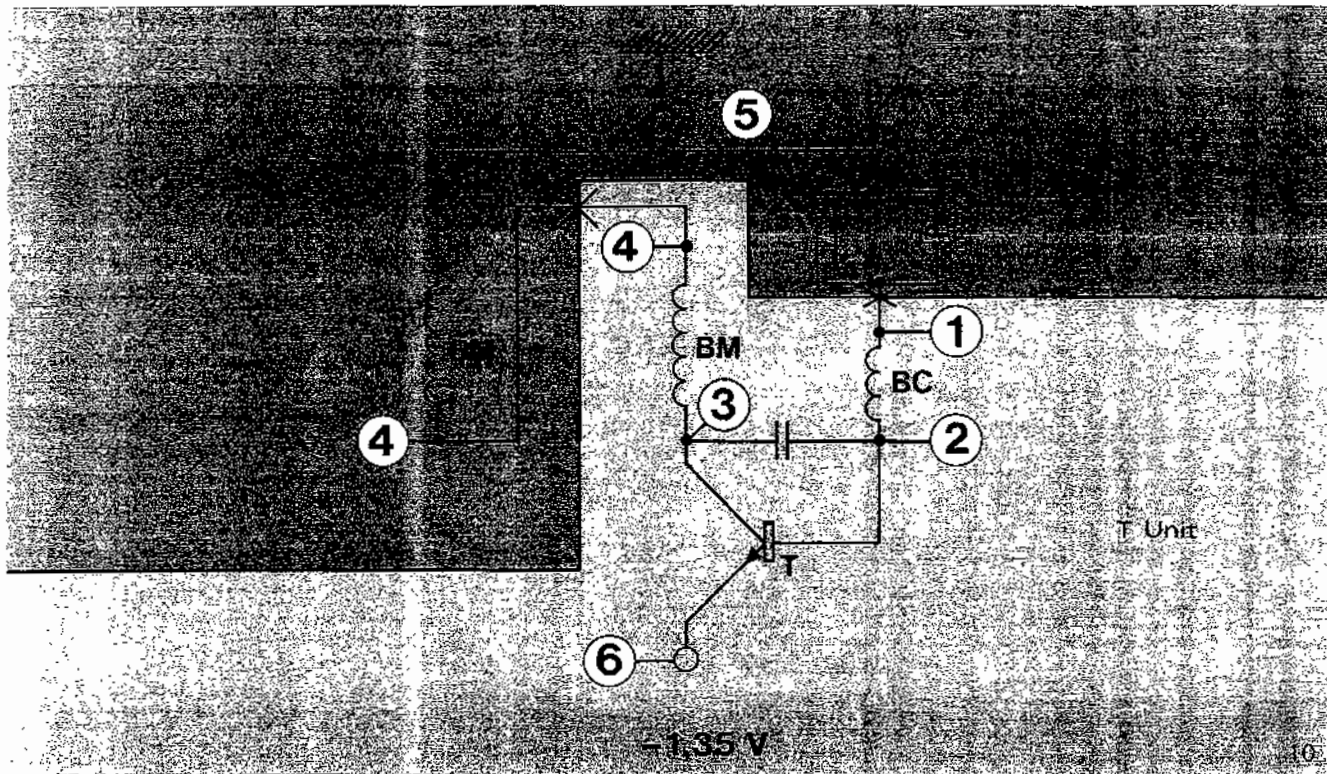
8

Inversely, when an electric current ( $i$ ) runs through a coil, a magnetic field becomes apparent in the latter, capable of removing a magnetic object (for example, a magnet placed nearby). (Fig. 9) (Case with BM coils).

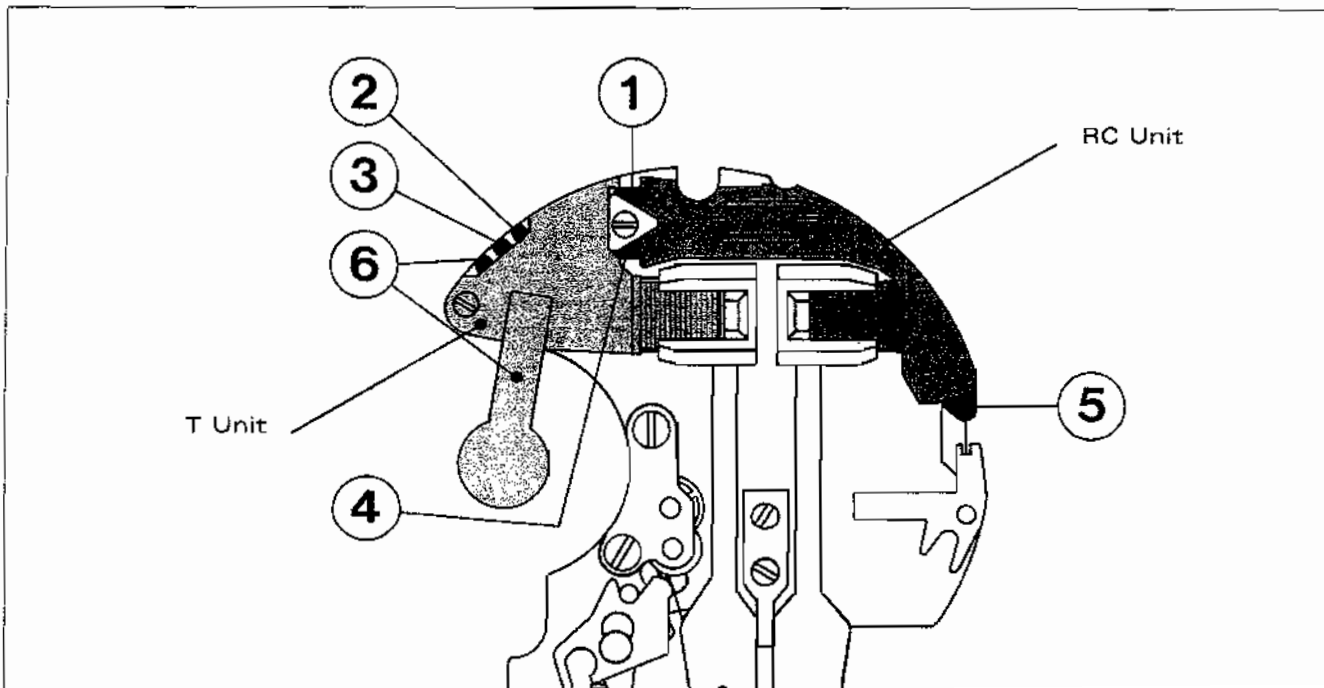


9

In Fig. 10 we see the circuit in its true form. The separation indicates the manner in which the components are distributed in the RC unit (resistance-condenser) and the T unit (transistor).



The oscillator module is shown in Fig. 11. The numbered circuit points refer to the points of the diagram.





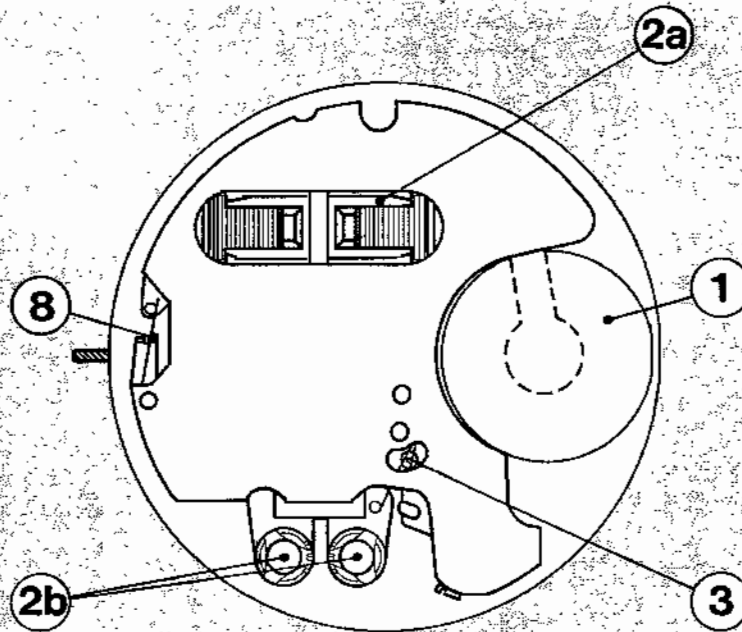
### 3. DESCRIPTION OF MOVEMENT

The movement consists of 2 modules.

1. The oscillator module comprising the resonator and its maintenance circuit.

2. The timing module, comprising the wheel train, the setting mechanism, the date indicator.

This modular conception facilitates maintenance of the movement.

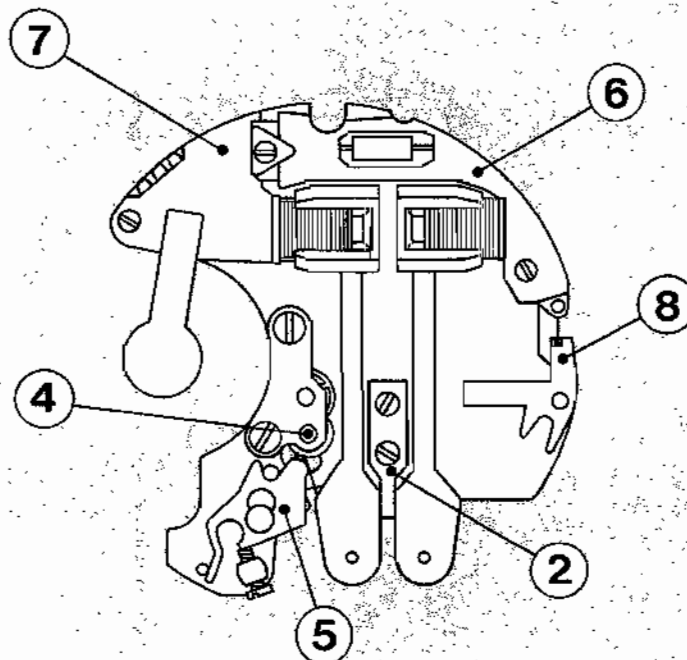


12

#### Oscillator module (Fig. 12 and 13)

The resonator contains in its upper part the "pots" of the transducer (2a), and in its lower part the poise-adjusting weights (2b). The electronic units 6 (resistance-condenser) and 7 (transistor), ensure maintenance of the resonator through the

energy supplied by the power cell (1). The indexing of the oscillations is effected by the driving click (3) working jointly with the resonator, the index wheel (4) and the stationary click fitted on its support (5). The interrupter (8) enables the power cell to be put out of service.



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### Timing module (Fig. 14)

This module comprises on one side the two remaining wheels of the reduction wheel train. A brake-spring, acting on the axle of the fourth wheel, ensures regular movement of the hand and indexing mechanism.

On the dial side of this module is the date mechanism. This latter comprises a corrector device (1) enabling rapid alteration of the date without stopping the movement – that is, without affecting the time. This correction may be effected in both directions. The date indicator driving mechanism (2)

functions on a differential system. Two independent wheels are mounted on the same axle. They are linked by a spring. As both have a different number of teeth, the upper wheel will turn more slowly under influence of the pinions (3), and thus wind the spring. This same wheel has a section without teeth. Thus, when the spring is completely wound, this wheel becomes free of its pinion and propels the date indicator by means of its driving finger (4).

The jumper (5) holds the date indicator in its resting position.

### Correction of the date and re-setting

The stem has three positions. The sequence of these positions is such that the date may be changed without interfering with the time.

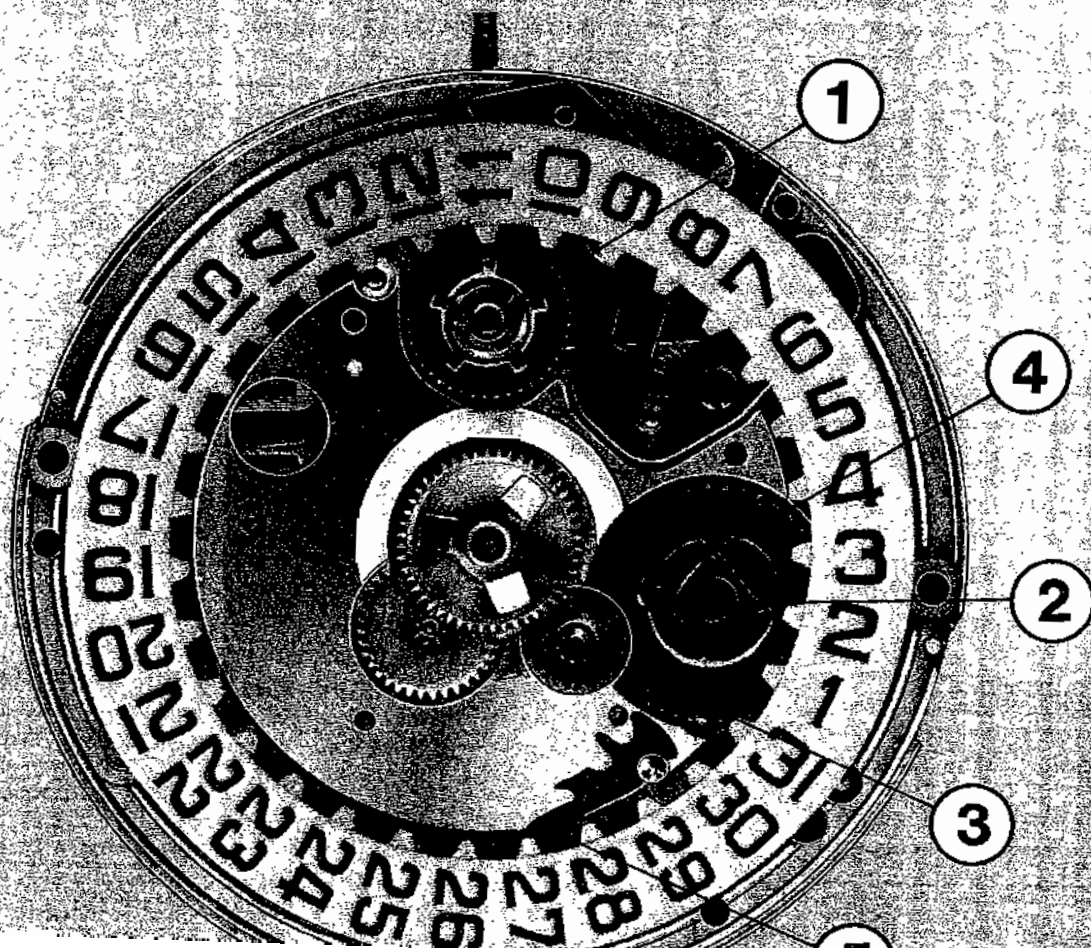
Position I: neutral

Position II: rapid adjustment of date  
(turning in both directions)

Position III: re-setting of time to the second

### Note

The second hand may be stopped by putting the oscillator out of action. This is achieved by means of the interrupter in the electronic circuit. The loss incurred when stopping and re-starting the second hand, due to manipulation of the setting stem, is about 1,0 second.



#### 4. TECHNICAL DATA AND PERFORMANCE OF CALIBER 1250

Dimensions: diameter	29,0 mm
height	4,8 mm
Frequency of resonator	300 Hz
Quality factor	2700
Position error	< 1 s/d
Thermic coefficient	< $\pm 0,25$ s/d/ $^{\circ}$ C
Isochronism $\frac{dV}{V} = 10\%$	1,5 s/d
Acceleration max. disturb.	$\sim 100$ g
Residual effect (H=60 Oe)	$\sim 1$ s/d
Consumption	< 9 $\mu$ A
Running time	$\sim 15$ months
Rate variation during wear	better than 1 minute/month

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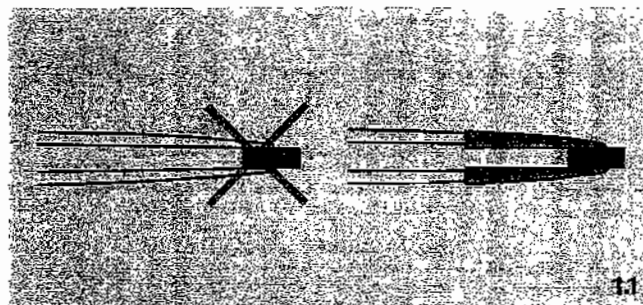


# Folder **1-1250**

## Replacement of the power cell

### Important warning!

- Do not uncase the movement. This would disturb the accurate adjustment of the indexing mechanism. Only persons possessing the necessary qualifications and equipment may carry out this operation.
- The watch should in no case be demagnetized.
- Handling of the new power cell should only be effected by means of tweezers with insulated tips. (Fig. 1.1).



Equipment

Insulated tweezers

# Replacement of the power cell

**1.1** Remove case-back.

**1.2** Unscrew and remove the power cell brace No. 1250.9028 (Fig. 2.1).

**1.3** Remove defective power cell by turning the watch over.

**1.4** Check condition and cleanliness of the power cell braces. Clean, if necessary. Should the gilding on the contact points of the cell braces be corroded:

- replace in the case of upper cell brace (positive pole) brace No. 1250.9028.
- in the case of lower cell brace (negative pole) return the watch to the general agent.

If the power cell has leaked inside its

seating return the watch to the general agent.

**1.5** Lodge the new power cell No. 9900 positive pole (+) uppermost (Fig. 3.1). Check condition of power cell. Only cells in perfect condition are to be utilized.

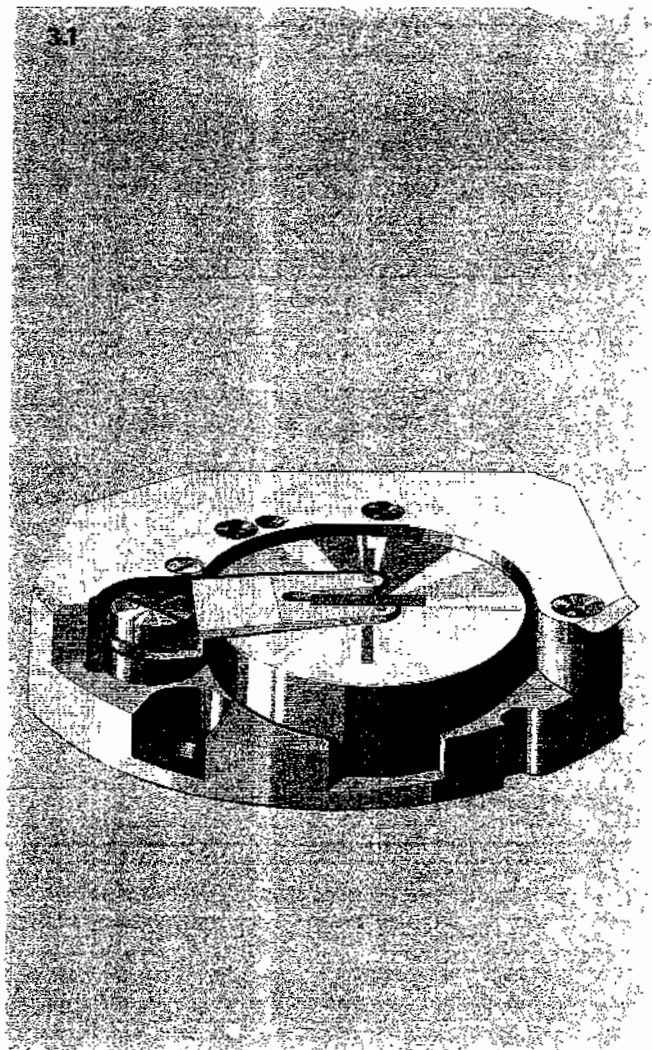
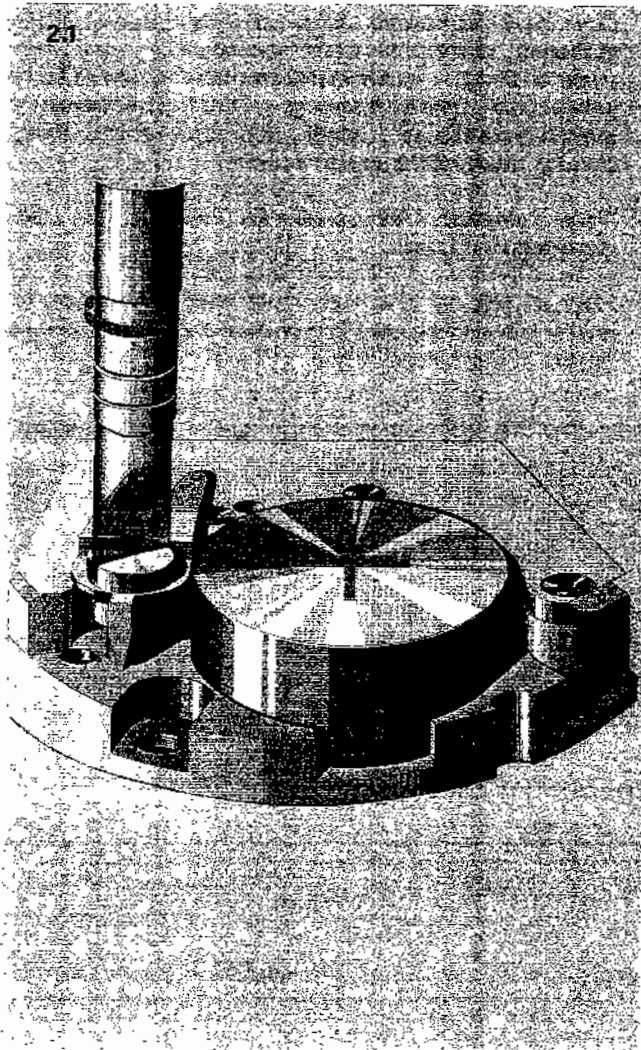
**1.6** Replace and screw on upper cell brace.

**1.7** Tighten case-back.

## COMPONENTS:

No. 1250.9028 power cell brace with screw mounted

No. 9900 power cell, tension 1.35 V.





# Folder **2-1250**

## Adjustment of the rate

### **Important warning !**

- Do not uncase the movement. This would disturb the accurate adjustment of the indexing mechanism. Only persons possessing the necessary qualifications and equipment may carry out this operation.
- The watch should in no case be demagnetized.

### **Equipment**

**Key for frequency corrector.**

**Omega-adapter for normal timing machines, or timing machine with circuit for 300 Hz, or Deltatest.**

# Adjustment of the rate

## Remarks

- An adjustment can only be effected if the daily rate is inferior to the regulating possibilities offered by the frequency correctors.

If the correctors are centred (Fig. 1.2), the limit for a possible adjustment is  $\pm 8$  seconds in 24 hours. If the daily rate exceeds this possibility, the watch should be returned to the general agent.

- The tightening of the case-back will cause the watch to lose 1 to 2 seconds in 24 hours.

A frequency correction might produce a slight temporary modification of the rate. This effect, however, disappears after a few hours.

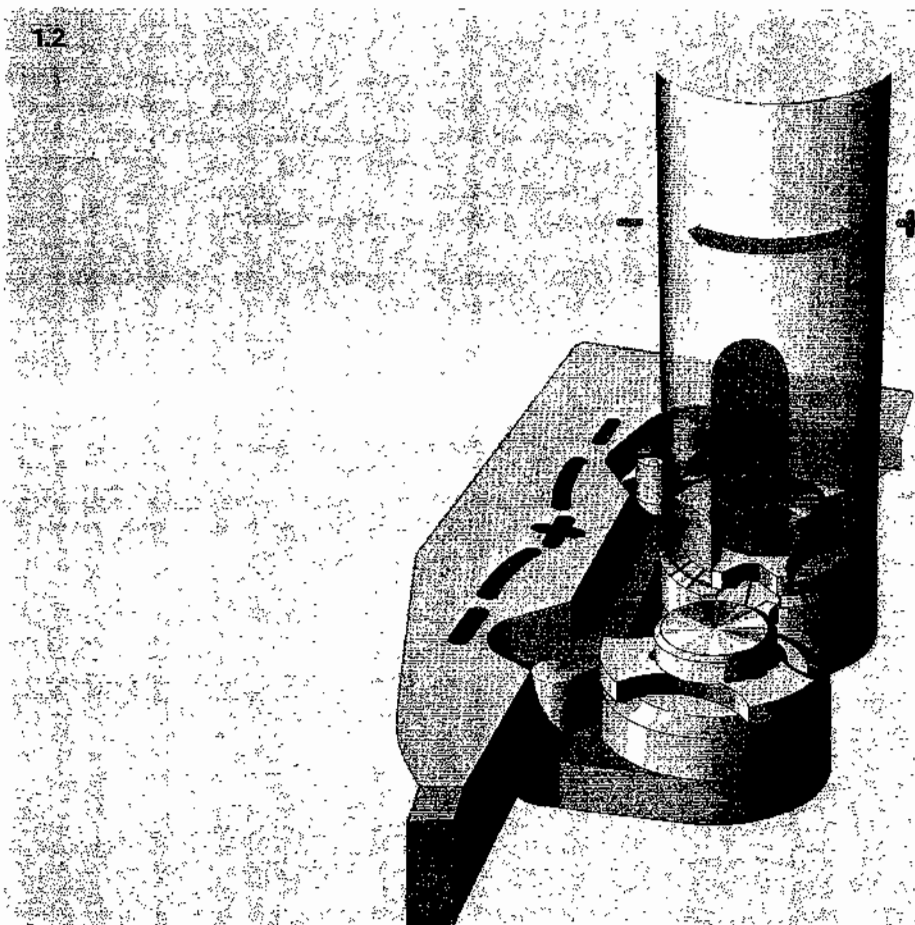
## 2.1 Unscrew the case-back.

**2.2** If an adjustment of the daily rate is possible, a frequency correction can be made by means of the special key created for that purpose (Fig. 1.2). Care should be taken not to deform the resonator during this operation.

By turning the frequency correctors towards the resonator, the watch will be losing. A gaining rate is obtained by turning the frequency correctors away from the resonator (Fig. 1.2). Each division represents one second.

An adjustment can be made independently on one or the other corrector, or on both at the same time, avoiding as much as possible too great a dissymmetry.

## 2.3 Close the case, tighten the back.





# Folder **3-1250**

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## **Standard exchange of the movement or the modules**

---

### **Important warning**

- Before uncasing the movement, remove the oscillator module.
- Never case up the complete movement; this operation is effected without the oscillator module being in position.
- The wheel train should in no case be turned manually, either in one direction or the other.
- For all handling operations it is advisable to use tweezers with insulated tips.

### **Equipment**

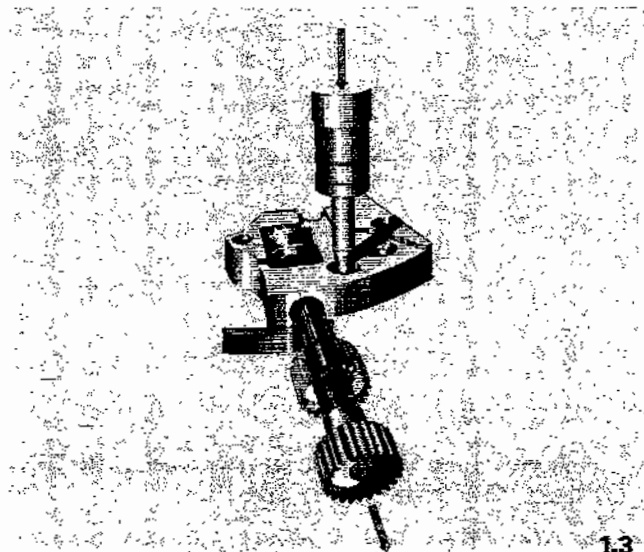
**Movement holder**  
**Power cell substitute**  
**Key for frequency correctors**  
**Control apparatus ALITEST**  
**Measuring apparatus DELTATEST**  
**Microscope**



# Standard exchange of the movement or the modules

**3.1** After removal of the case-back and power cell, one is obliged to remove the oscillator module No. 1250.9029 by unscrewing its four screws No. 2652 before uncasing the movement. (In order to avoid serious damage to the indexing mechanism, the hands should in no case be moved before this operation).

**3.2** Remove the hand-setting stem No. 1250.9006 by pressing the setting lever (Fig. 1.3).



**3.3** Remove the three screws No. 2646 and the casing clamps.

**3.4** Extract the movement from the case.

**3.5** Replace the hand setting stem by pushing it in completely so that the stud of the setting lever is caught in the groove of the stem.

**3.6** After having removed the hands, the dial and the three dial rests, reassemble the two modules of the defective movement.

**3.7** On the new movement, separate the two modules by unscrewing the four screws.

**3.8** Assemble on the timing module the three dial rests, the dial and the hands.

**3.9** Remove the hand setting stem by pressing the setting lever.

**3.10** Place the timing module in the case.

**3.11** Replace the hand setting stem, lubricate the packing of the crown.

**3.12** Place in position the three clamps and the casing clamp screws.

**3.13** Place in position, and fix by means of its four screws, the oscillator module.

**3.14** Check the indexing mechanism.

It is simply necessary to power-feed the watch on variable tension, using the substitute cell (see application of ALITEST).

— first of all, check that the rotation of the wheel train is normal for the low tension fixed at 1,05 V. This is done by operating the adjusting-screw of the retaining click corrector-plate in either one direction or the other until the wheel train turns continuously.

— the rotation of the wheel train should then be checked with the higher tension fixed at 1,65 V.

— if the wheel train turns continuously with the tensions of 1,05 V, 1,65 V, 1,35 V, the adjustment of the indexing mechanism is completed.

**3.15** Measure the current (see application of ALITEST). Consumption must be lower than 9  $\mu$ A.

**3.16** Fit the power cell (see Folder 1-1250 and application of ALITEST).

**3.17** Check the instant rate and carry out rate adjustment (see Folder 2-1250 and application of DELTATEST).

**3.18** Place washer in position and close the case.

**3.19** Check the instant rate and then after 24 hours.

## Note:

In order to effect the standard exchange of one or the other module, the following procedure should be adopted:

## Exchange of the oscillator module:

follow operations in the order

3.1

3.13 to 3.19

## Exchange of the timing module:

follow operations as for standard exchange of the movement.

## Components:

Complete movement	1250.9005
Timing module	1250.9004
Oscillator module	1250.9029
Hand setting stem	1250.9006
Clutch wheel	1250.9007
Screw for oscillator module	2652
Screw for casing clamp	2646



Folder **4-1250**

---

**Disassembling,  
Cleaning,  
Reassembling and  
Lubricating  
of the Movement.  
Diagnostic**

---

**Important —  
To be observed strictly!**

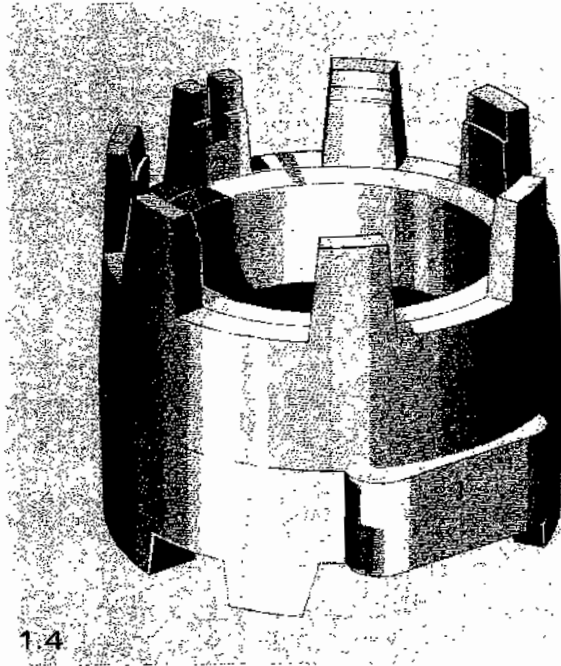
- The watch should in no case be demagnetized.
- Never handle the index wheel with tweezers other than by its pinion.
- The cleaning of the index wheel, resonator and adjuster plate for retaining click must take place when mounted on the upper plate.
- The power cell **MUST NOT** be handled with metal tweezers.
- The cleanliness of the resonator magnets **MUST BE CHECKED** very thoroughly.
- **DO NOT** clean the T unit, RC unit, date indicator and power cell in the usual baths.
- **BEFORE** uncasing the movement, remove the oscillator module.
- **NEVER** case-up the complete movement; this operation takes place without the oscillator module being in position.
- The wheel train must **IN NO CASE** be turned manually, either in one direction or the other.
- For all handling operations, the use of non magnetic tweezers is recommended.

# Disassembling, Cleaning, Reassembling and Lubricating of the Movement. Diagnostic

## Equipment

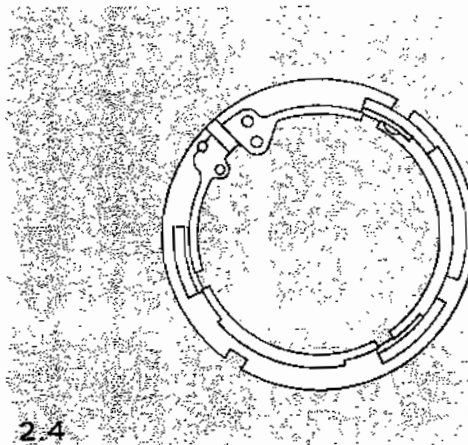
### - Movement holder

The above is construed in such a manner as to allow the oscillator module to be placed on one side and, on the other side, the movement in both positions (fig. 1.4).



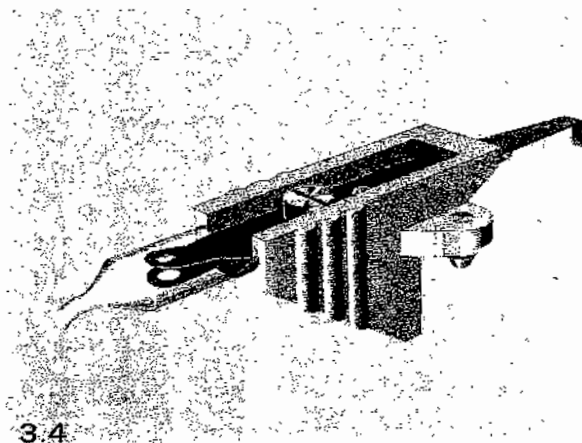
### - Fixing ring for oscillator module

This has one purpose only – that of ensuring easier adjustment of the clicks (fig. 2.4).



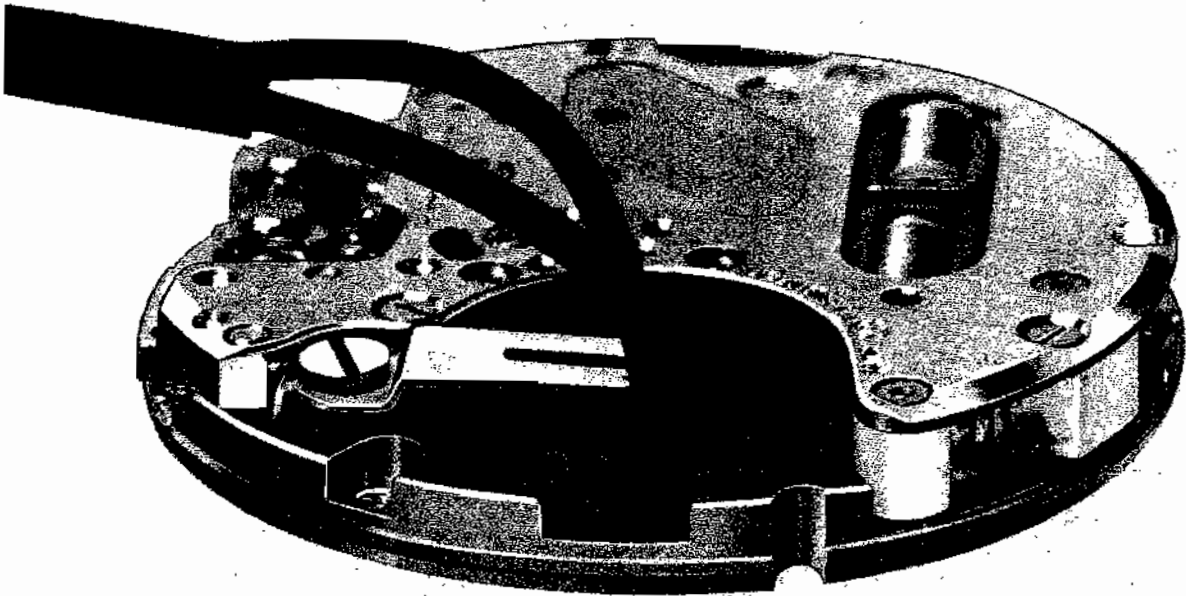
### - Feeding clip for movement holder

The feeding clip is only used for the oscillator module placed on the movement holder. The plug is connected with the ALITEST, whilst the other end is attached to the movement holder (fig. 3.4).

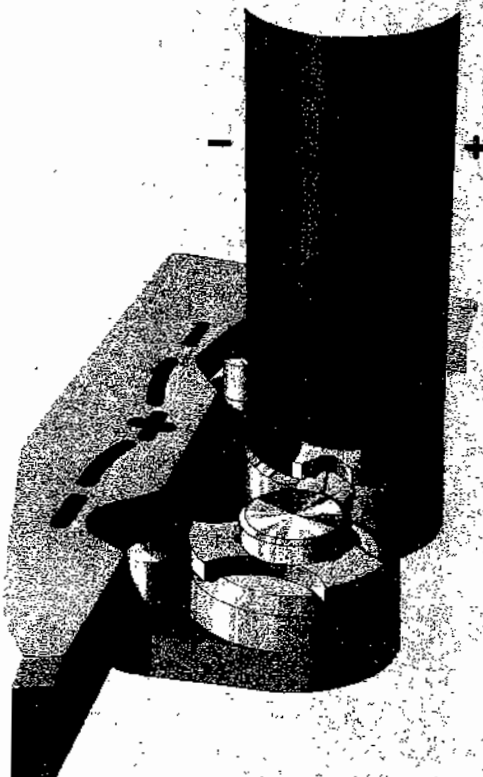


- **Feeding by substitute cell**

This system allows feeding of the movement placed on the movement holder (fig. 4.4) or cased-up, the plug being connected with the ALITEST.



4.4



- **Key for adjusting the frequency**

- **Tool for adjusting the indexing mechanism**

This tool offers two possibilities: either to adjust the passage between clicks and index gauge (fig. 6.4), or to correct the adjustment of the indexing mechanism, movement cased-up, by operating the screw for corrector plate (fig. 7.4).

- **ALITEST control apparatus**

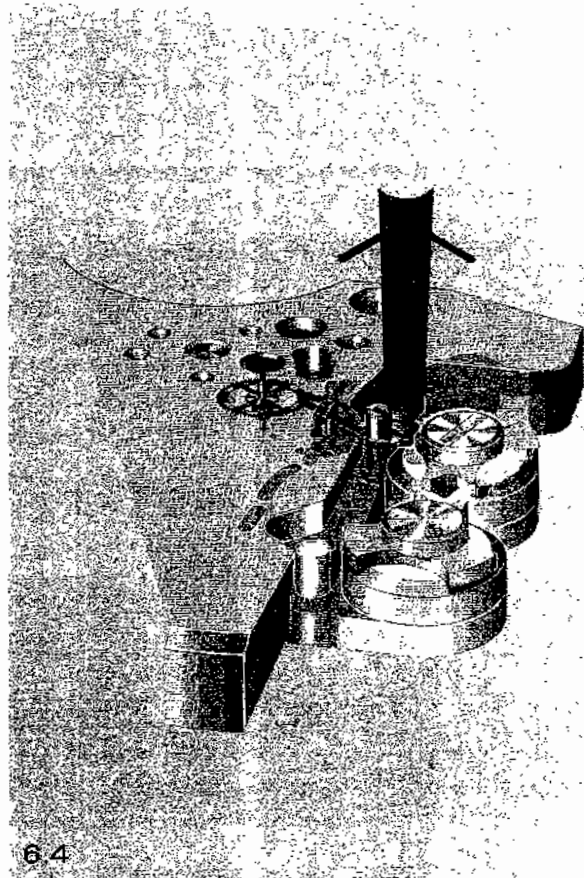
This allows for the provision of a fixed or variable power supply, as well as all necessary tests for diagnostic purposes (see folder 6-1250, application of ALITEST).

- **DELTATEST measuring apparatus**

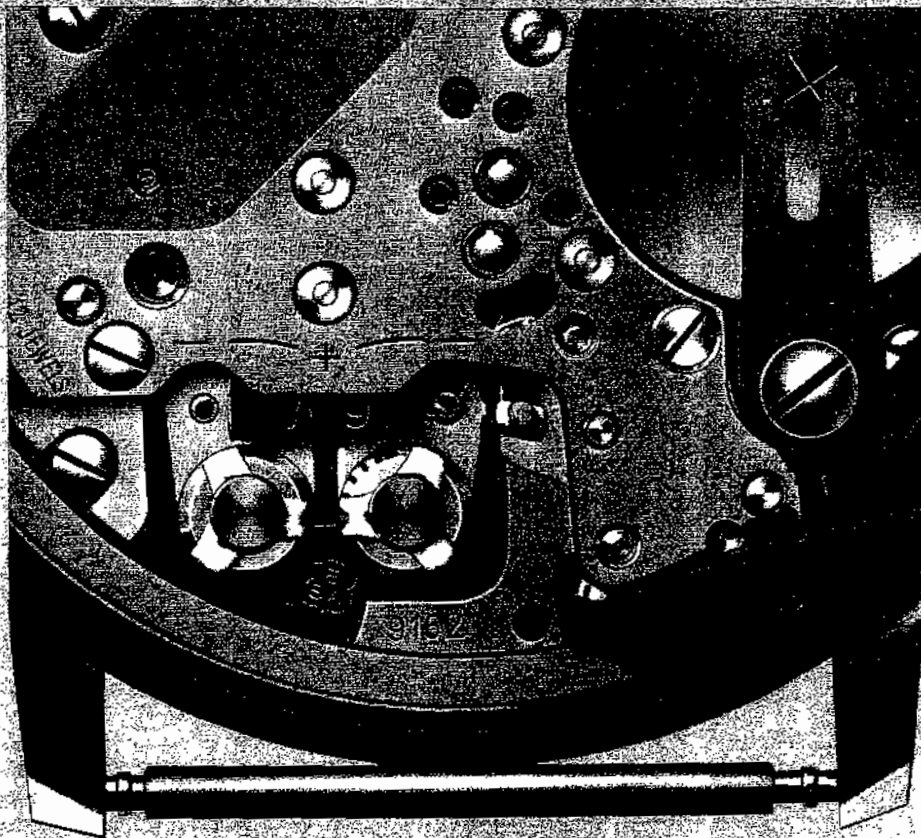
The above apparatus enables the instant rate of the watch to be accurately determined (see folder 5-1250, application of DELTATEST).

- **Microscope**

This is used when adjusting the clicks and checking the indexing mechanism.



6.4



7.4

## OPERATIONS

### Disassembling

**4.1** Open the case.

**4.2** Remove the power cell brace No. 1250.9028 by unscrewing its screw, and extract the power cell No. 9900.

**4.3** Remove the oscillator module No. 1250.9029 by unscrewing its four screws No. 2652.

**4.4** Remove the hand setting stem No. 1250.9006 by pressing the setting lever, and extract the clutch wheel No. 1250.9007.

**4.5** Uncase the timing module No. 1250.9004 by removing the three casing clamp screws No. 2646 and the casing clamps.

**4.6** Fix the timing module on the movement holder.

**4.7** Remove the hands, loosen with a screwdriver the two locking bolts for dial (fig. 8.4), extract the dial and the hour wheel No. 1250.9014, remove the three dial rests.

**4.8** Remove the date indicator guard No. 1250.9022 by unscrewing its three screws

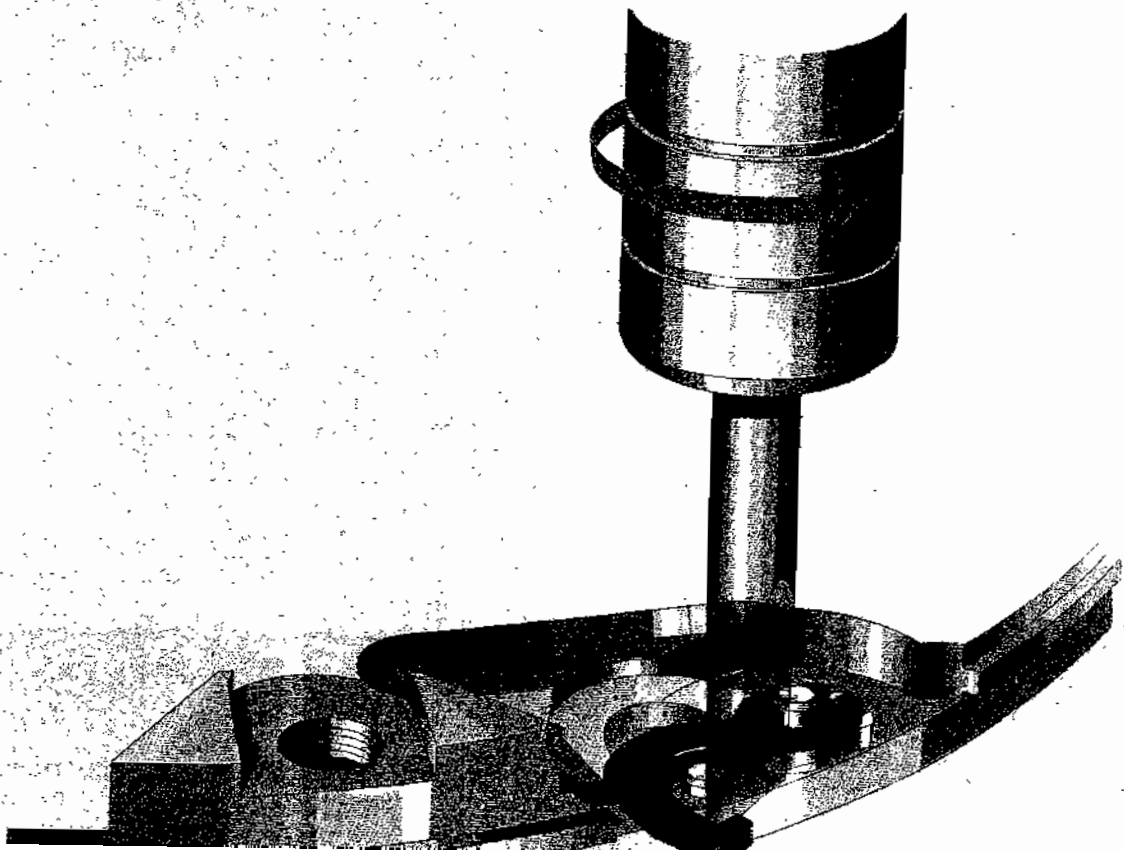
No. 2647, and extract the date jumper No. 1250.9021, the date indicator No. 1250.9025 or 9026, the date connecting wheel No. 1250.9023 and the date indicator driving wheel No. 1250.9024.

**4.9** Remove the minute wheel No. 1250.9016 and the center wheel with pinion No. 1250.9013.

**4.10** Remove the setting lever spring No. 1250.9009 by unscrewing its two screws No. 2647, and extract the yoke spring No. 1250.9011, the yoke No. 1250.9010 and the setting lever No. 1250.9008.

**4.11** Turn over the timing module and once again fix it on the movement holder.

8.4.



**4.12** Loosen the friction spring for center second wheel No. 1250.9017 by making it turn 1/8th revolution clockwise (fig. 9.4).

**4.13** Remove the wheel train bridge No. 1250.9002 by unscrewing its three screws No. 2669, and loosen the center second wheel No. 1250.9019 and the friction wheel No. 1250.9015.

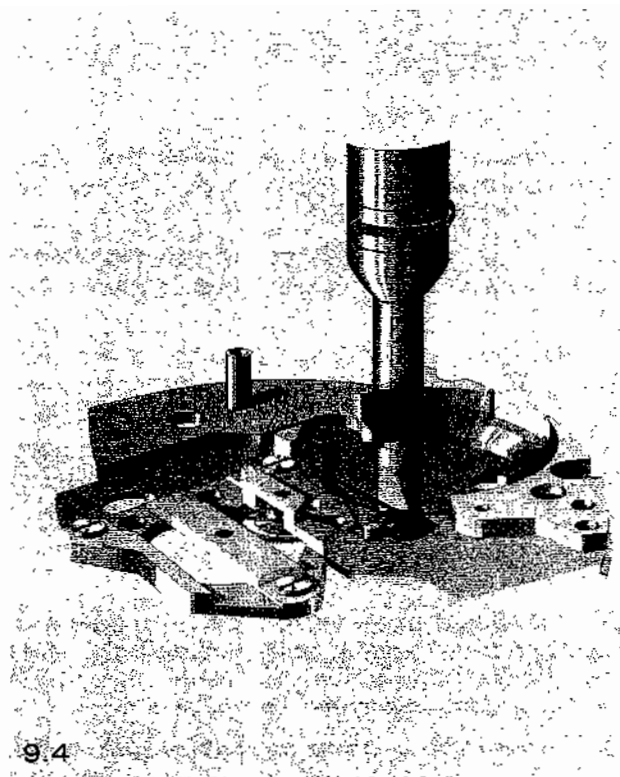
**4.14** Remove the insulator blade for contact bridle No. 1250.9027.

**4.15** Remove the lower plate No. 1250.9000 from the movement holder.

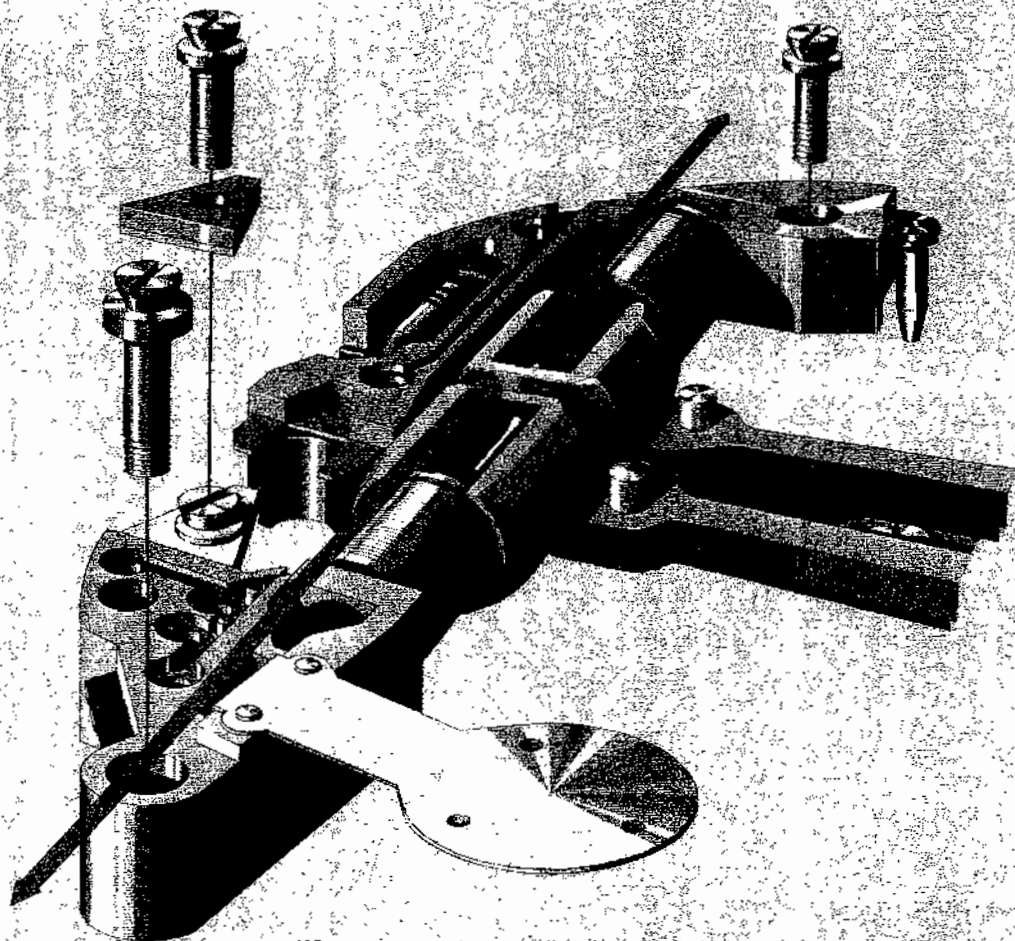
**4.16** Fix the oscillator module on the movement holder.

**4.17** Remove the connecting plate No. 1250.9030 and its insulator by unscrewing the relevant screw No. 2650.

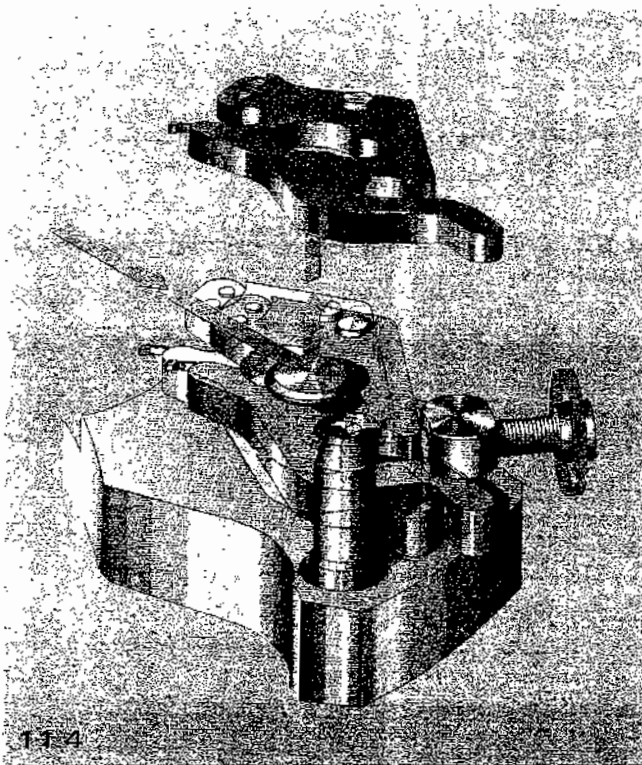
**4.18** Remove very carefully, in order to avoid any possible damage to the coils, the RC unit No. 1250.9032 and the T unit No. 1250.9031 by unscrewing their screws No. 2650 (fig. 10.4).



9.4



10.4



**4.19** Remove the adjuster plate for retaining click No. 1250.9034 by partly unscrewing its screw No. 2651 (fig. 11.4).

**4.20** Remove the index wheel bridge No. 1250.9003 by unscrewing its two screws No. 2669. Extract the transmission wheel No. 1250.9012 and the index wheel No. 1250.9035, taking care to handle it by its pinion.

**4.21** Remove the resonator No. 1250.9033 by unscrewing its two screws No. 2669.

**IMPORTANT:** If resonator foils No. 1250.9037, 9038 or 9039 have been used, they should be removed without being mixed together.

**4.22** Replace the index wheel, the index wheel bridge and its two screws.

**4.23** Remove the upper plate No. 1250.9001 from the movement holder.

## Cleaning

### Recommendations:

It is essential to use an efficient cleaning machine; the baths must be very clean.

### IMPORTANT – to be observed **strictly!**

- The following are not to be cleaned in the cleaning machine:
  - the two electronic units,
  - the date indicator,
  - the power cell.
- These components may be dry-cleaned (brush, selvyt, air jet).
- In order to avoid damaging of the index wheel teeth, cleaning should be effected with the wheel mounted on the upper plate.
- The clicks may be cleaned by using elder-pith dipped in one of the usual cleaning products. A microscope should be used for this operation.
- If the state of the resonator and the adjuster plate for retaining click is such that the baths of the cleaning machine are necessary, these two components must be mounted on the upper plate in order not to damage the clicks.
- The cleaning baths must be very clean and contain no particles of metal whatsoever, as these would obviously be drawn to the resonator magnets.
- The cleaning of the resonator magnets should be carried out with the utmost care, and a check on their cleanliness made after they have passed through the baths. Particles remaining on the magnets may be removed either with sticky paper or by means of a jet of compressed air applied in such a manner as not to damage the driving click.

**Note:** Particles of metal present in the baths can be removed easily by means of a permanent magnet placed in the baths prior to cleaning operations.



## Lubricating

Oil 1.03

- Wheel train.
- Hand setting mechanism.
- Date mechanism.

Lubricant Molybdene 2.06

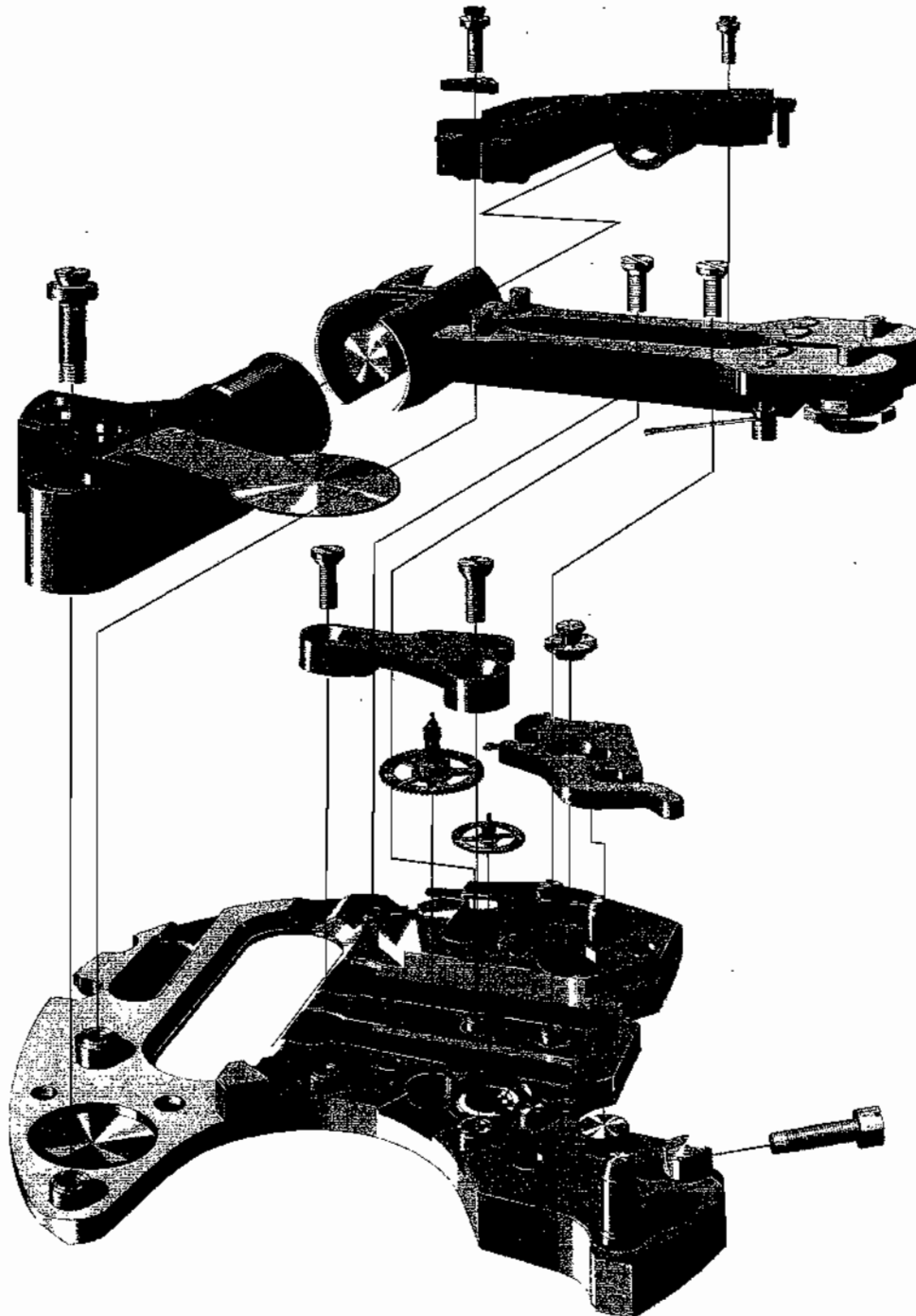
- Friction wheel (op. 4.42).
- Date jumper (op. 4.53).

## Assembling

The assembling is carried out in two parts:

### Assembling of the oscillator module (fig. 12.4)

**4.24** Fix the upper plate on the movement holder.



**4.25** Check the endshake of the index wheel (0.03 to 0.04 mm); this latter must only be manipulated by its pinion. When this operation is completed, remove the bridge and wheel.

**4.26** After having checked the cleanliness of the magnets and driving click, place in position, if required, the foil for centering the resonator, fix the resonator on the plate by means of its two screws, well-tightened (the outer screw first).

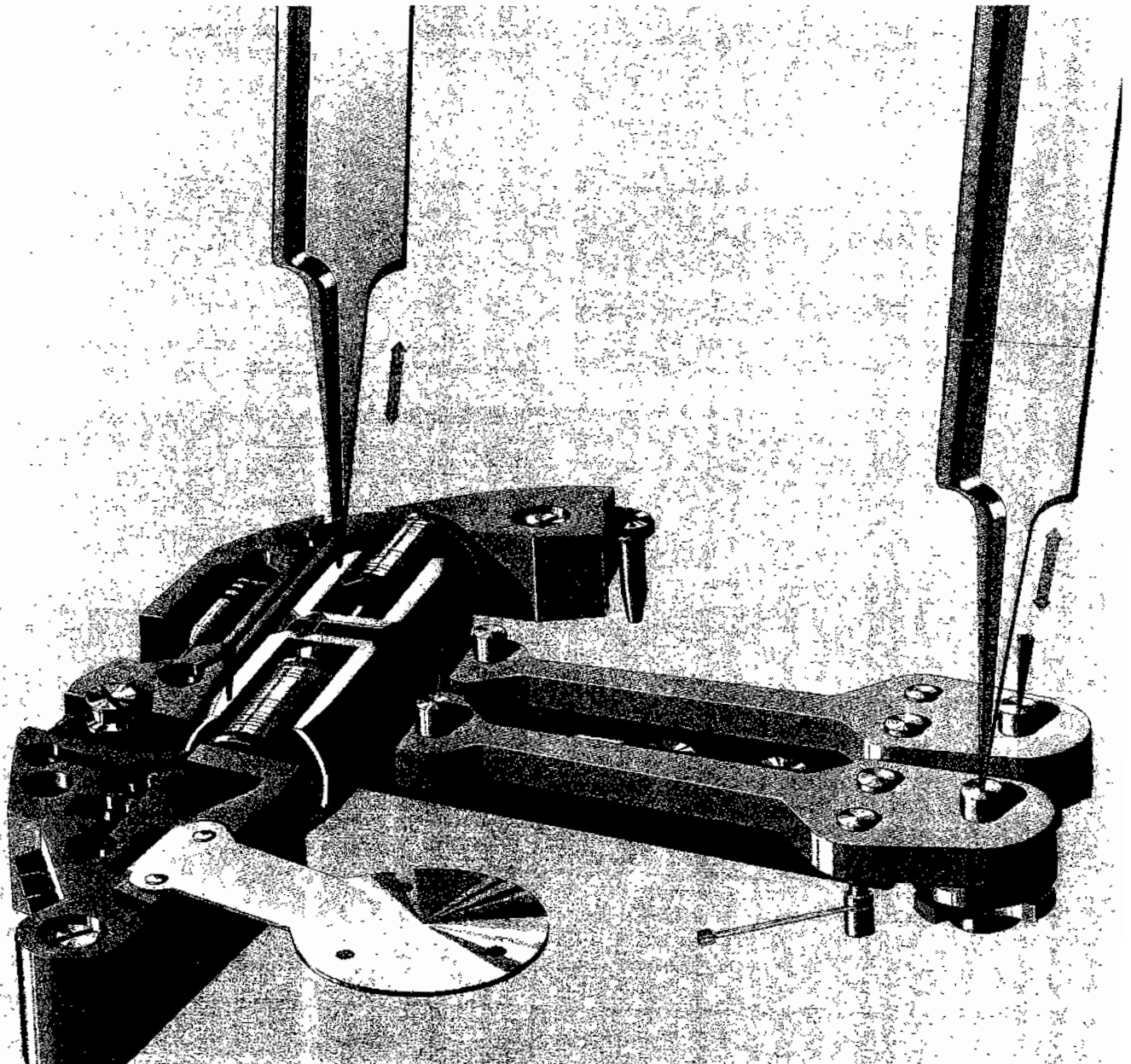
**4.27** Place in position and screw the T unit, carefully inserting the coil in the cup of the resonator.

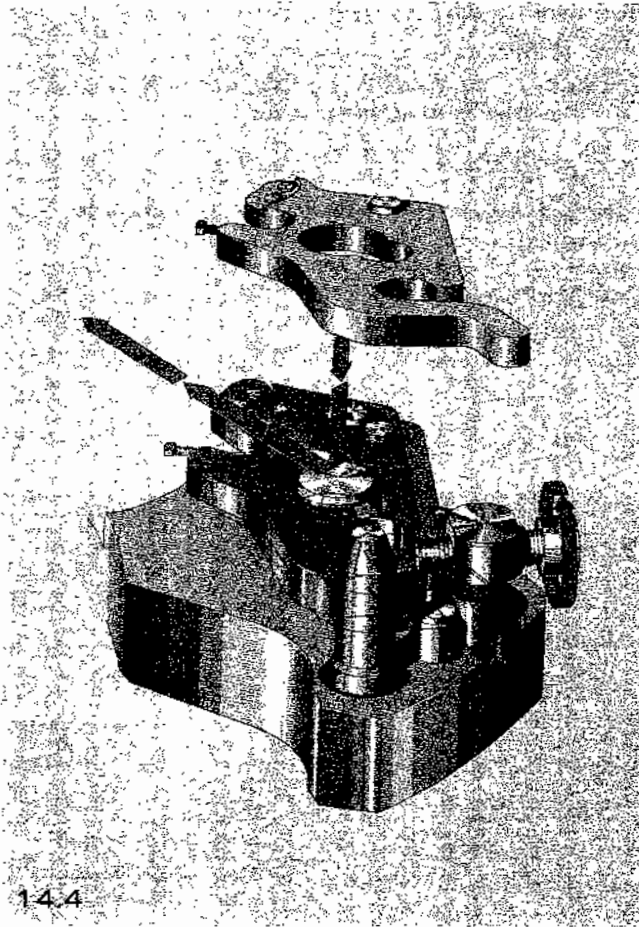
Place in position and screw the RC unit,

carefully inserting the coil in the cup of the resonator.

**4.28** Fix, by means of its screw, the connecting plate and insulator.

**4.29** Check if the resonator is free (fig. 13.4); in no case must its arms enter into contact with any part whatsoever of the movement. If necessary, center the resonator by using the foil specially devised for this purpose.

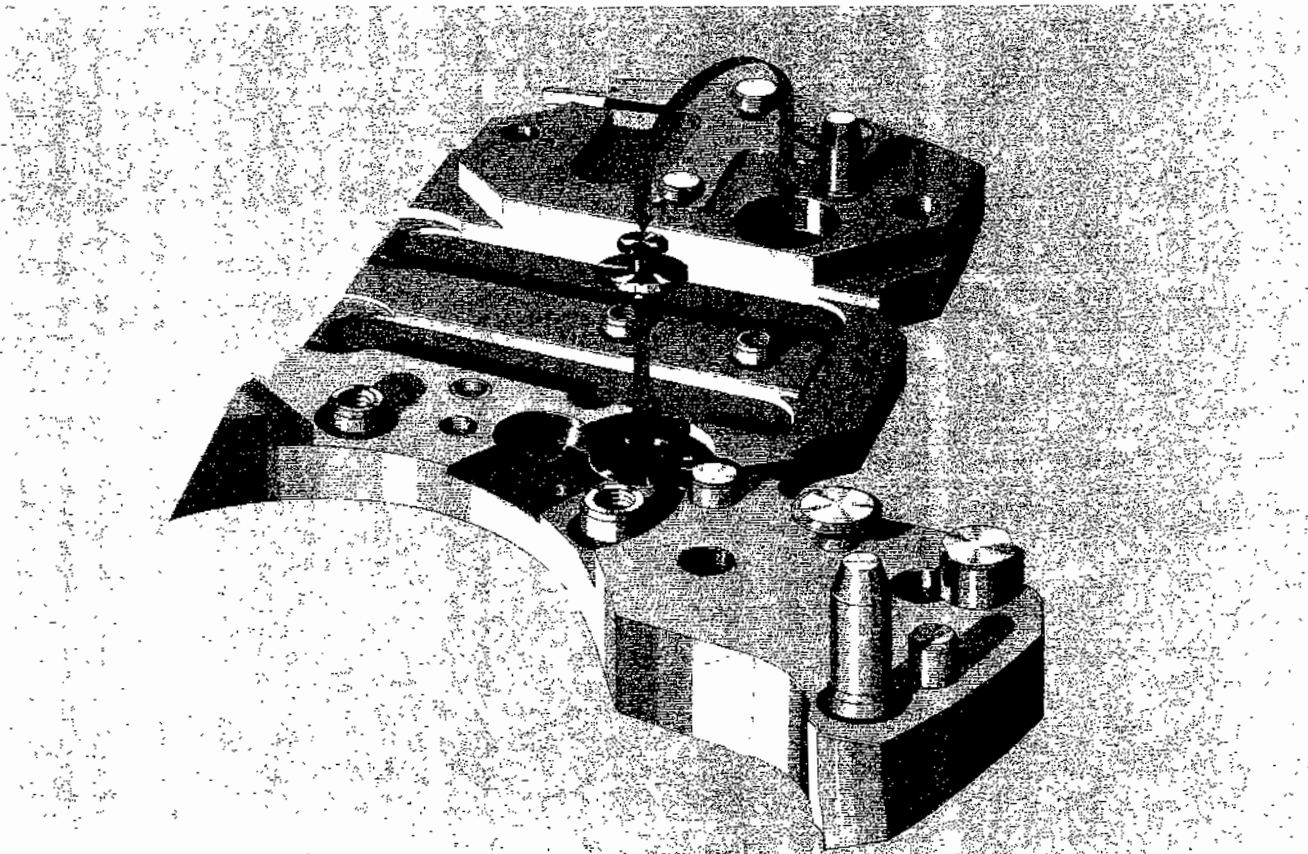




**4.30** Place in position, by sliding it carefully, the adjuster plate for retaining click (fig. 14.4). Tighten the screw in order to eliminate sideshake of the adjuster plate. Then give the screw another turn.

**4.31** Measure the current by means of the feeding clip for movement holder (fig. 3.4) (see folder 6-1250, application of ALITEST); the consumption must be lower than  $6.5 \mu\text{A}$ .

**4.32** Place in position the checking gauge for clicks No. 1250.9036 (fig. 15.4).



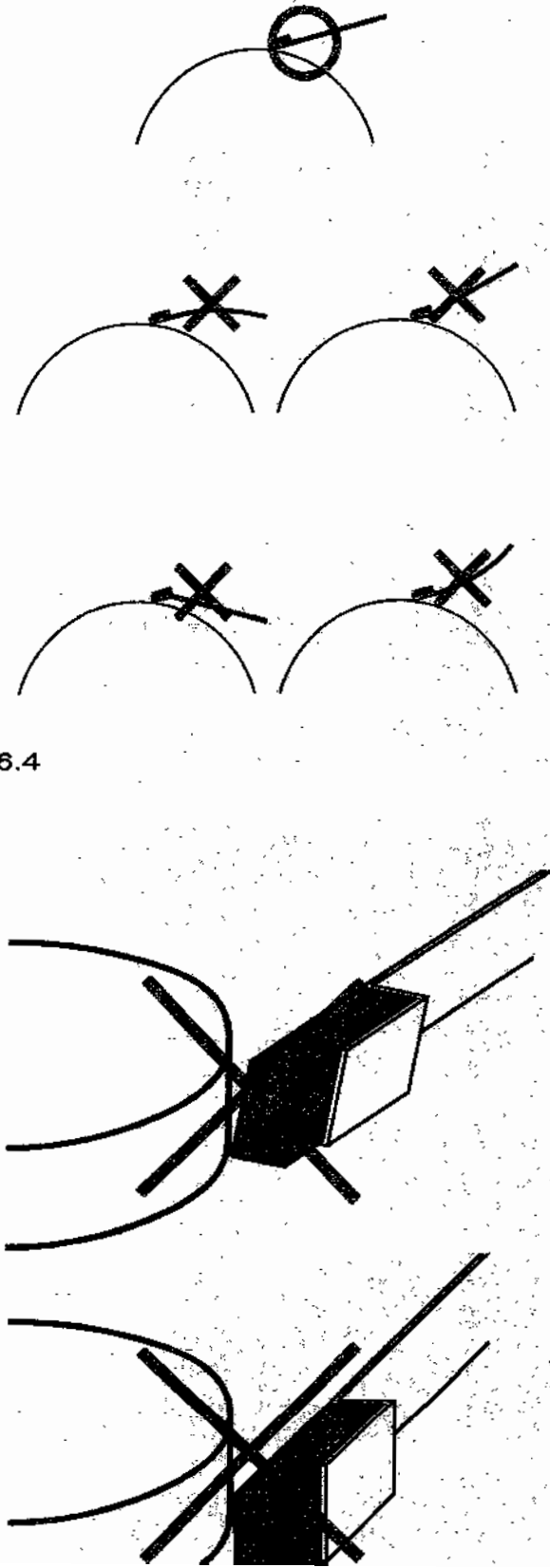
15.4

**4.33** Adjustment of the position and level of the clicks. This adjustment is effected by means of the special gauge created for such purpose.

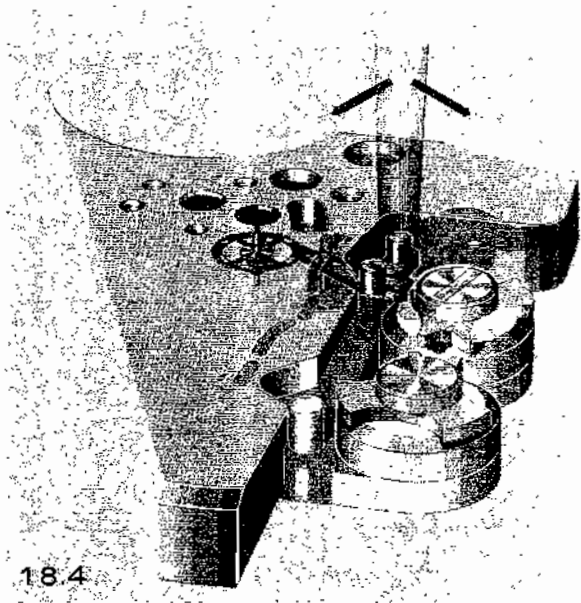
- The blades of the two clicks must be as straight as possible, and must in no case touch the studs. The clicks must be in extension of the blades. Correct, if necessary, by means of tweezers (fig. 16.4).

16.4

- The click jewels must be perpendicular to the plan of the gauge. If this is not the case, modify the position by manipulating the click-bearing blades as near as possible to the fixing pin (fig. 17.4).



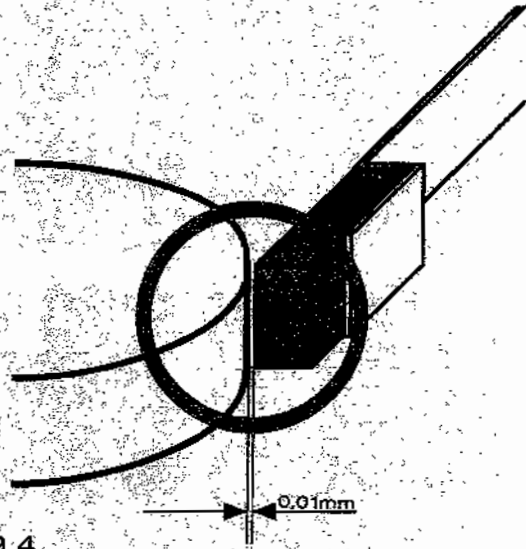
- The height of the outer crown of the gauge has been calculated to take the jewel completely within this distance. In the event of correction being necessary (fig. 17.4), proceed by means of the special tool and manipulate the click pins (fig. 18.4).



18.4

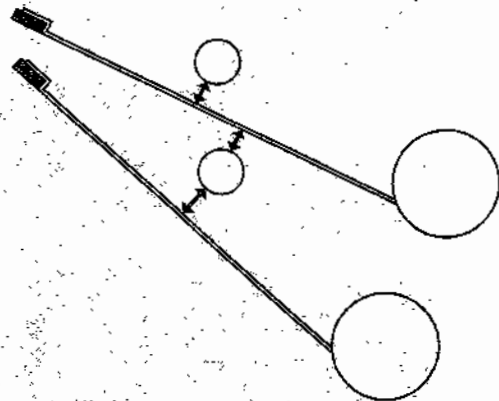
- The diameter of the gauge has been calculated to determine the optimum spring tension of the clicks. These latter must in no case rest against the gauge; a maximum space of 0.01 millimeter must exist (fig. 19.4).

**IMPORTANT:** The last correction given to the click blades must be of a tension-reducing character. In this way, the subsequent effect of relaxation is avoided.



19.4

- Ensure that the click blades do not touch the studs (fig. 20.4).
- All corrections are carried out by manipulating the click blades with tweezers, as near as possible to the fixing pin.



20.4

**Note:** Special care must be taken when placing the index wheel in position so that, on the one hand, the above adjustment is not impaired and, on the other hand, damage to teeth is avoided.

**4.34** Remove the checking gauge and lubricate the pivoting points of the index wheel and transmission wheel.

**4.35** Place in position the index wheel, taking care not to damage the adjustment of the clicks. Also place in position the transmission wheel.

**4.36** Fix the index wheel bridge by means of its two screws.

**4.37** Check the working limits of the indexing mechanism.  
It is simply necessary to use the variable tension (see folder 6-1250, application of ALITEST).

- one checks first of all that the rotation of the wheel train is normal for the lower tension fixed at 1.05 V. In order to do this, one manipulates the adjusting screw of the corrector plate for retaining click in either one direction or the other until the wheel train turns continuously.
- one should then check the rotation of the wheel train when power-fed on the higher tension fixed at 1.65 V.
- if the wheel train turns continuously on the tensions 1.05 V, 1.65 V, 1.35 V, the adjustment of the working limits of the indexing mechanism is completed.

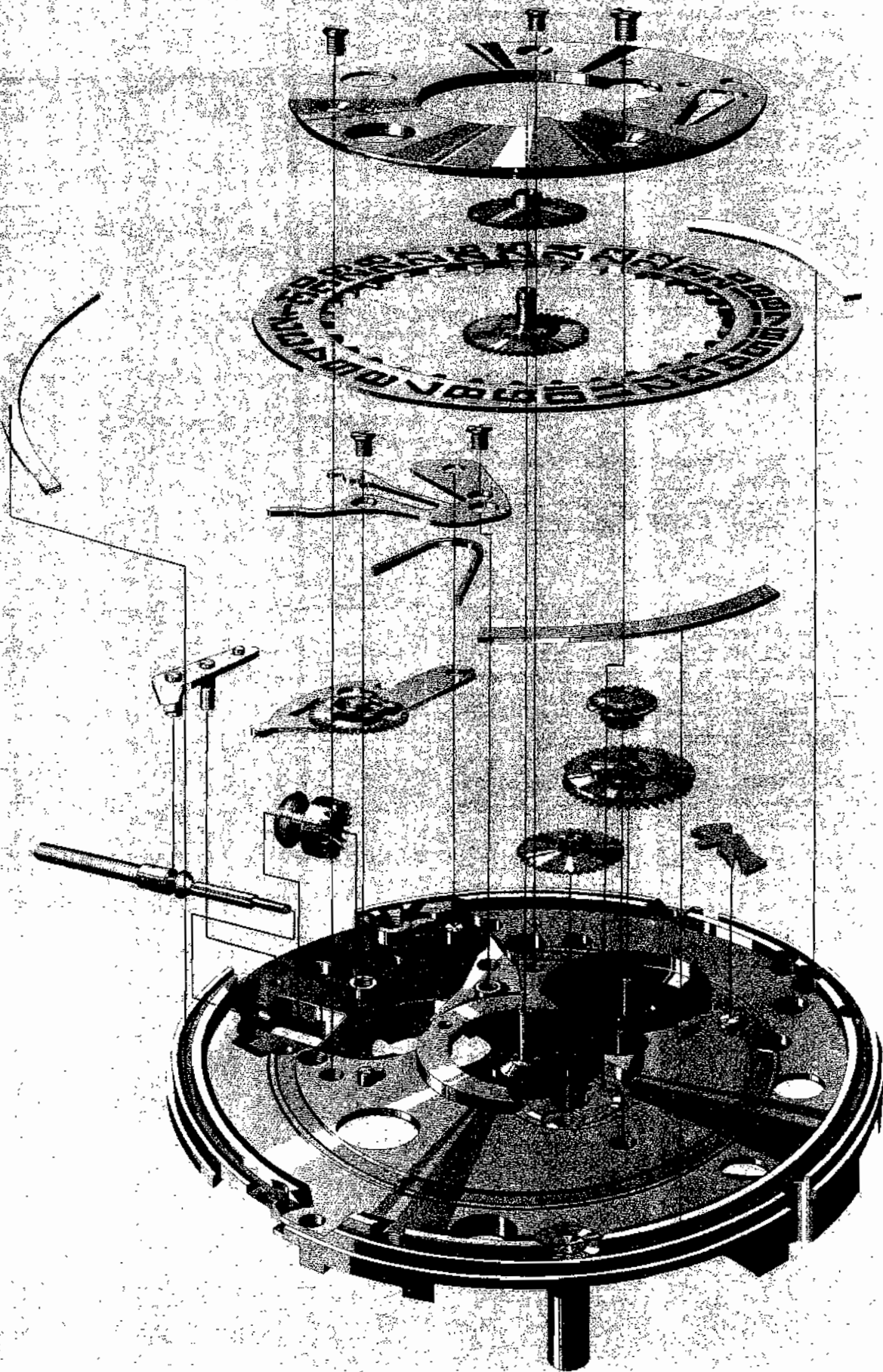
#### **Assembling of the timing module** (fig. 21.4)

**4.38** Fix the lower plate on the movement holder.

**4.39** Fix the insulator of the contact bridle.

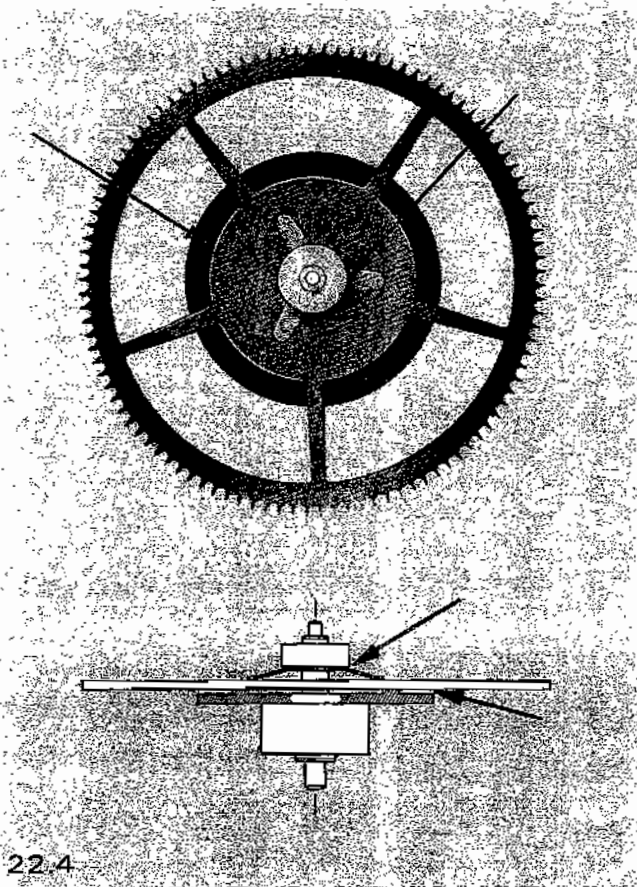
**4.40** Oil the cap jewel (dial side) of the transmission wheel.

**4.41** Check the tension of the friction spring for center second wheel by turning its screw as far as the stop pin. The spring must be parallel to the plate and lie directly over the hole of the center tube; it should then be disengaged before assembling the wheel train.



**4.42** Place in position the friction wheel, having taken care to oil it with Molybdene lubricant (fig. 22.4); the tension of this friction must in no case be modified. Place in position the center second wheel.

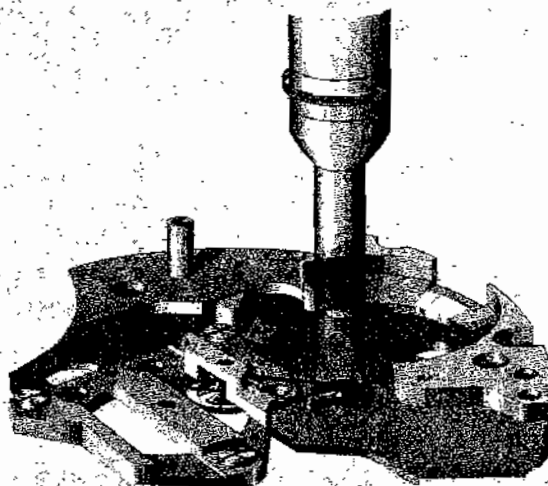
**4.43** Fix, by means of its three screws, the wheel train bridge, and check the endshake of the two mobiles.



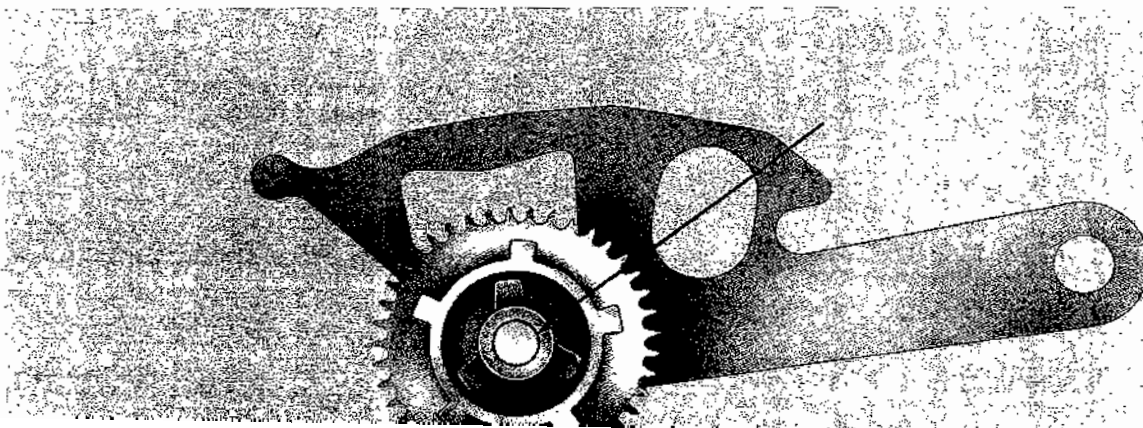
**4.46** Turn the plate over. Lubricate the pivoting points of the center second wheel and friction wheel, as well as the axles of the setting lever and yoke.

**4.44** Lubricate the two jewels of the wheel train bridge.

**4.45** Fit the friction spring of the center second wheel by turning its screw as far as the stop pin. Check that the spring is in the groove of the wheel (fig. 23.4).



**4.47** Lubricate the setting wheel for hand-setting mechanism mounted on the yoke (fig. 24.4), and the functional parts of the hand-setting stem.





**4.48** Place in position the clutch wheel, hand-setting stem, setting lever, yoke and yoke spring. Fix the setting lever spring by means of its two screws.

**4.49** Lubricate the setting lever pin, groove of the yoke for clutch wheel and active point of yoke spring.

**4.50** Lubricate the center tube, minute wheel post, stud for date connecting wheel, stud for date indicator driving wheel, stud for date jumper.

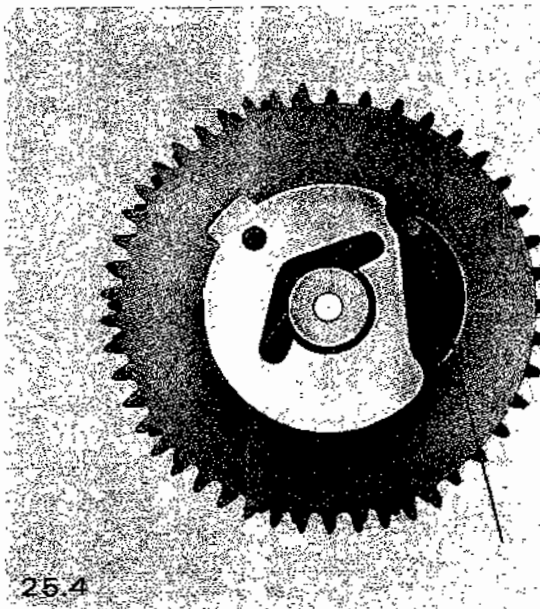
**4.51** Lubricate the date indicator driving wheel (fig. 25.4).

**4.52** Place in position the center wheel with cannon pinion, minute wheel, date indicator driving wheel, date connecting wheel, date indicator, date jumper; fix the date indicator guard by means of its three screws and place the date jumper spring in position (before the date indicator guard is in position, this spring must be parallel to the outer edge of the clearance). Lubricate the active point for date jumper spring.

**4.53** Lubricate very slightly the active part of the date jumper (Molybdene lubricant).

**4.54** Check, by means of the hand-setting stem, that the date mechanism is working correctly. Place the hand-setting stem in its intermediate position. Make the indicator turn one complete revolution. The date must change without hesitation.

**4.55** Fit the hour wheel and dial rests (see their positions in fig. 26.4).



**4.56** Fix the dial by pushing the two locking bolts as far as the casing diameter.

**4.57** Place the hands in position.

**4.58** Check the jump of the date indicator when the hands are at midnight.

**4.59** Remove the hand-setting stem.

**4.60** Case-up the timing module.

**4.61** Replace the hand-setting stem, pushing it in completely.

**4.62** Fix the timing module by means of the three fixing clamps, tighten the screws well.

**4.63** Fix the oscillator module with its four screws, taking care to insert, beforehand, the pivot of the transmission wheel in the hole of the jewel.

**4.64** Check the endshake of the transmission wheel **AVOIDING AT ALL COSTS** to make the wheel turn.

**4.65** Check the working limits of the indexing mechanism (see op. 4.37). For this operation use feed by substitute power cell.

**4.66** Place the power cell in position, as well as the power cell brace; fix the latter by means of its screw (see folder 1-1250).

**4.67** Check the functioning of the switch (when the stem is in its final position, the watch should stop).

**4.68** Close the case.

**4.69** Check the instant rate.

**4.70** If necessary, proceed with adjustment of the rate (see folder 2-1250).

**4.71** Check the rate during a few days.

**Note:** If the center second hand moves while the hand-setting operation is in progress, check the following points and correct if necessary:

- Insufficient lubrication of the friction wheel (see op. 4.42 and fig. 22.4).
  - Faulty friction wheel (friction too great).
  - Insufficient tension of the clicks (see op. 4.33 and fig. 19.4).
  - Faulty index wheel (teeth).
-



# Technical guide

## Folder **5-1250**

### Application of Deltatest

#### 5.1 Generalities

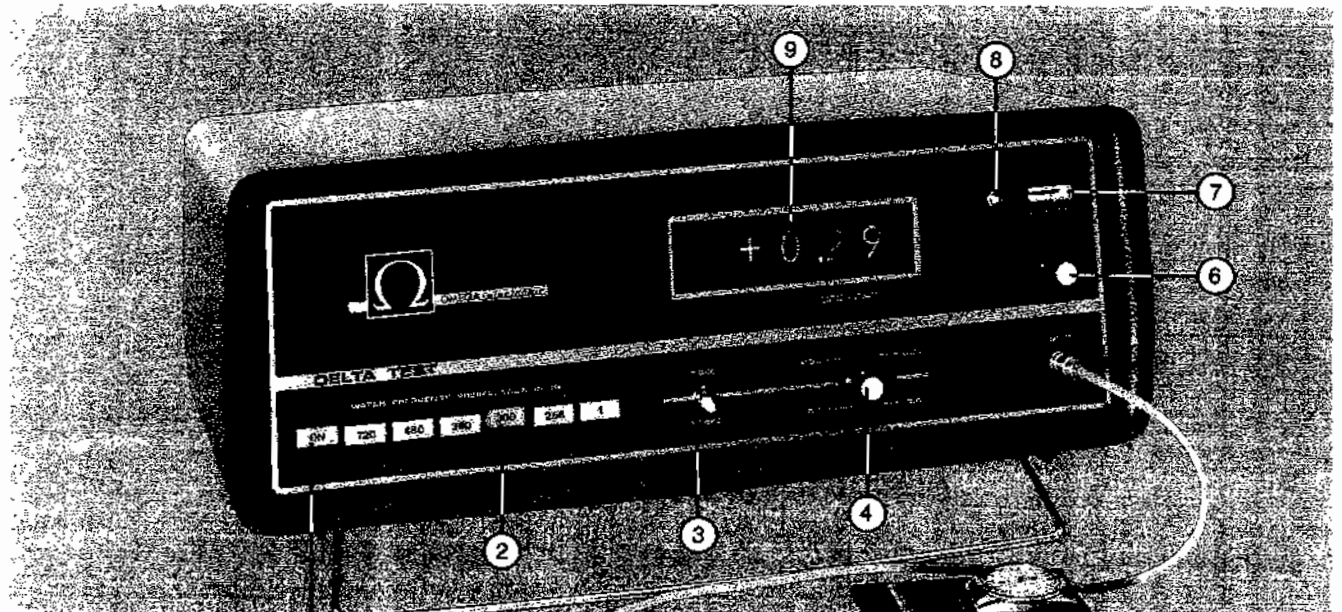
The apparatus (fig. 1.5) is intended for the checking of the instant rate of electronic watches.

The frequency of the watch, ascertained by means of a magnetic captor, is compared to the reference frequency of a quartz.

The difference is converted in order to give

the rate error in seconds and fractions of seconds per day.

The result is screened digitally (9), with its sign (+) or (-) and indication in the case of capacity (overflow). It is also possible to measure and screen the frequency of the watch.



## 5.2 Measurement of the rate

**Remark:** The apparatus must remain constantly connected (plug 110 V or 220 V) in order that the quartz may be thermostatic. If this were not the case, it would be necessary to wait 30 minutes after connecting with the power so as to secure sufficient stability.

The switch on the back of the apparatus must be on "off".

- Press button "on" (1).
- Place the watch on the captor (5).
- Press the button of the keyboard "300 Hz" (2) relating to the watch.
- Move the watch in order to obtain the maximum signal.
- Adjust the amplification (6) taking into account the level control provided by the hand of the voltmeter (7) and the lamp (8). The optimum adjustment is obtained when the hand is at the beginning of the green zone.

- Select the measuring time 1 or 10 seconds (3).
- Select the accuracy of measurement desired (4).

### Remark:

As a general rule, one will use:  
1 second, reading to 1/10th  
or possibly:  
10 seconds, reading to 1/100th

## 5.3 Measurement of the frequency

Put the switch on the back of the apparatus in the "on" position. The frequency is given with its three significant figures in full.

## 5.4 Measurement of the rate or frequency by power-feed

See folder 6-1250, application of ALITEST.

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# Folder **6-1250**

## Application of Alitest

### 6.1 Generalities

The apparatus (fig. 1.6) fulfils 2 functions:  
1) power-feed  
2) measuring instrument

#### Power-feed function

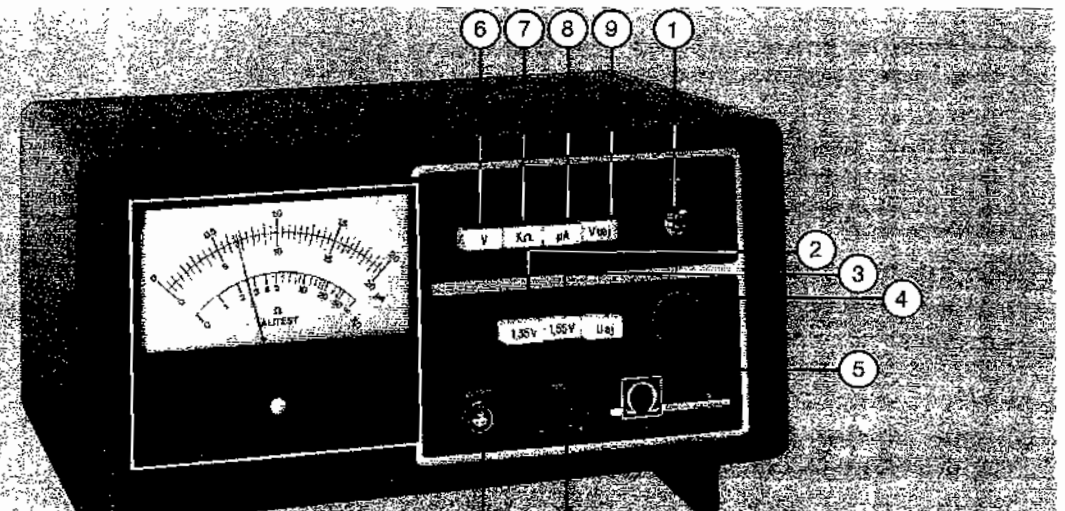
Allows the movement to be fed by an auxiliary source. The apparatus comprises a fixed tension equivalent to the power cell (1.35 V) and an adjustable feed of 0 to 2 V for the purpose of observing the working of the indexing mechanism.

#### Measuring instrument function

For measuring tensions of 0 to 2 volts (V) with a precision of 2 hundredths of a volt (checking of power cells).

Measuring of current consumed by the watch. Scale of 0 to 20 micro-amperes ( $\mu A$ ).

Measuring of resistances of the electronic circuit, enabling possible faults to be detected. Measuring from 0 to 50 kilohms ( $K\Omega$ ).



## 6.2 Measuring the tension of the power cell

- Press button V (6).
- Plug the cables with pointed probes into INPUT (11) (black: –; red: +).
- The power cell being placed on the table, connect the black pointed probe with the top of the power cell (–) and the red pointed probe with its case (+).
- The tension must be around 1.35 V; if lower than 1.25 V, the power cell must be replaced.

## 6.3 Measuring of the current

- This measuring can be effected either with the substitute power cell on the complete movement, or with the feeding clip for movement holder on the oscillator module only.
- The apparatus is put under tension. Press the switch (1).
- Connect the substitute cell or feeding clip for movement holder with OUTPUT (10).
- Press button 1.35 V (2), representing the feed-tension of the watch.
- Press button  $\mu\text{A}$  (8) in order that the instrument shows the amount of current consumed by the watch. This current must not exceed 9  $\mu\text{A}$ .
- To start off the movement, it may be necessary to give it a slight shake.

## 6.4 Variable tension feed for checking of the indexing mechanism

- This measuring can be effected either with the substitute power cell on the complete movement, or with the feeding clip for movement holder on the oscillator module only.
- The apparatus is put under tension. Press the switch (1).
- Connect the substitute cell or feeding clip for movement holder with OUTPUT (10).
- Press button  $U_{aj}$  (4) representing the variable tension feed.
- Press button  $V_{uaj}$  (9) in order that the instrument shows the amount of variable tension applied to the watch.
- The required variable tension is obtained by turning the knob (5).

## 6.5 Measuring of the rate or frequency on the DELTATEST with feed from ALITEST

- Connect by means of the special cable the outlet on the back of ALITEST with INPUT of DELTATEST.
- Proceed in identical manner to "6.3 Measuring of the current".
- Place the switch on the back of ALITEST in position 1.
- Adjust the level on DELTATEST if necessary.

## 6.6 Analysis of circuit – Measuring of resistance

**Note:** This measuring is carried out on the oscillator module only.

- The apparatus is put under tension; press the switch (1).
- Press button  $K\Omega$  (7).
- Plug the cables with pointed probes into INPUT (11) (black: –; red: +).

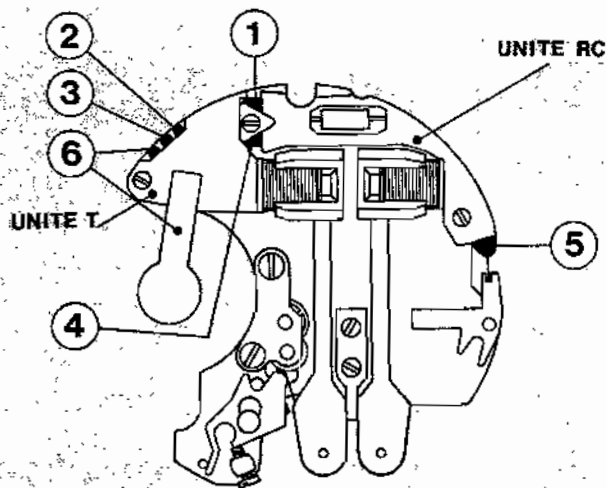
**Measuring of resistance R between points 1 and 4 (fig. 2.6)**

Connect black probe (-) with point 1 and red probe (+) with point 4:

- If  $\infty$   $\rightarrow$  insulation in order.
- If short-circuit  $\rightarrow$  remove the connecting plate and insulator.

Repeat the measuring between points 1 and 4 while pressing with the probes in order to ensure contact between the ends of the two electronic units:

- If  $\infty$   $\rightarrow$  replace the connecting plate and insulator.
- If short-circuit  $\rightarrow$  replace T unit.



2.6

**ANALYSIS OF CIRCUIT**

**Note:**

For measuring operations Nos. 4-5-6-7, polarities must be taken into consideration.

	Resistance measurements between points Nos.	Limits for a correct circuit	Components to be replaced if value not within limits
1	4 and 5	between 5 and 10 K $\Omega$	RC unit
2	3 and 4	between 5 and 10 K $\Omega$	T unit
3	1 and 2	between 1 and 2 K $\Omega$	T unit
4	+2 and -3	between 2 and 10 K $\Omega$	T unit
5	+2 and -6	between 2 and 10 K $\Omega$	T unit
6	-2 and +3	$\infty$	T unit
7	-2 and +6	$\infty$	T unit

If the abovementioned measurements fall with-

ELECTRONIC

OMEGA

# Technical guide

## FOLDER 0-6-1250

Complement of folders 1250

### Index

Folder 0: Description and performance  
Complement of folder  
0-1250

Folder 1: Replacement of the power  
cell

See folder 1-1250

Folder 2: Adjustment of the rate

See folder 2-1250

Folder 3: Standard exchange of the  
movement or the modules

Folder 4: Operations of: disassembling,  
cleaning, reassembling and lubrication  
of the chronograph module

Diagnostic

Complement of folder  
4-1250

See folder 5-1250



# CALIBRE 1255

29.8 RS CHRO C12 CALD  
CORR CORJ STS 12P



PIECES DE RECHANGE · SPARE PARTS · PIEZAS DE RECAMBIO · ERSATZTEILE · PEZZI DI RICAMBIO

**Pièces de rechange différent de celles du calibre :**

4.75

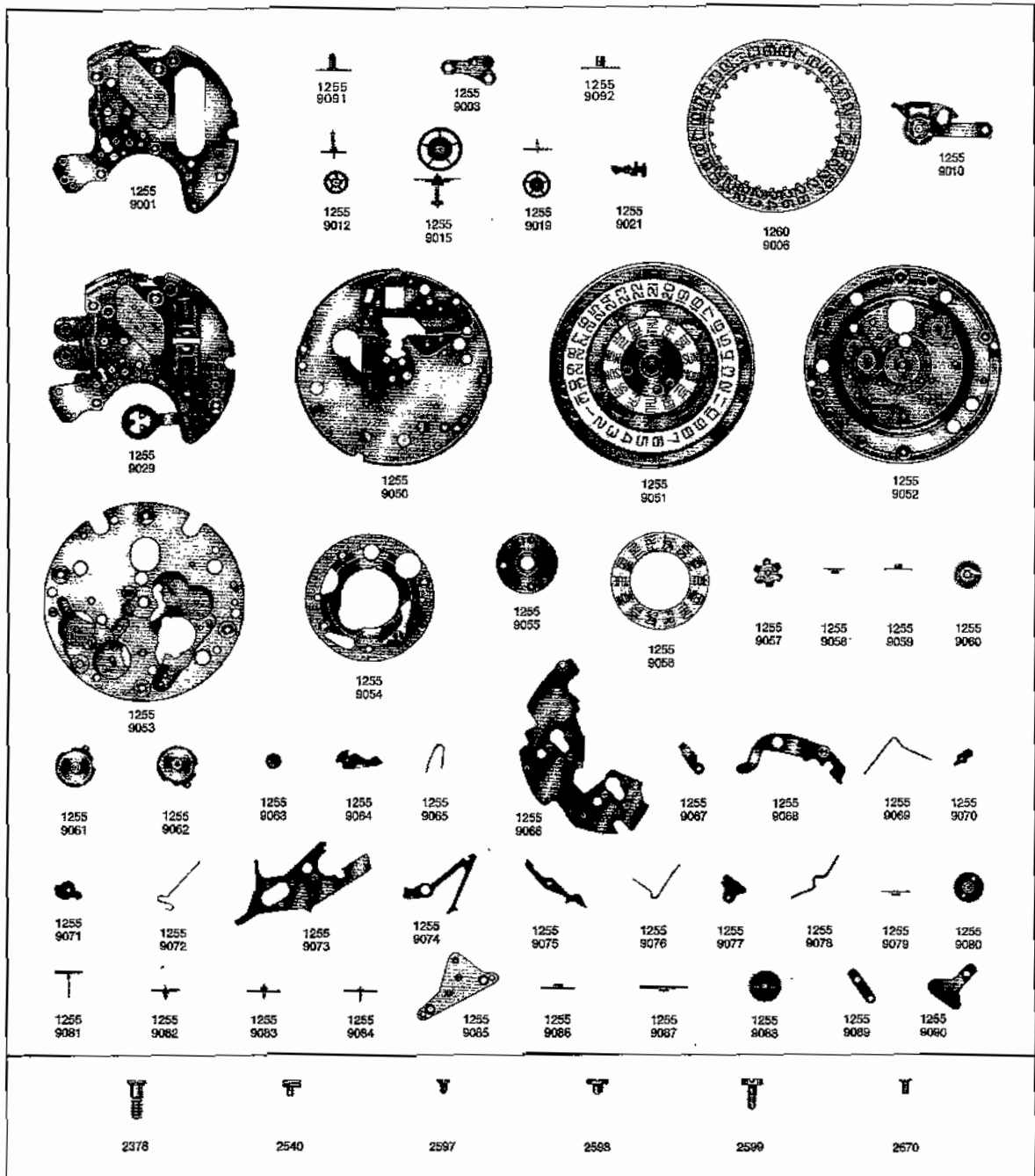
Spare parts which differ from those of the calibre:

**Piezas de recambio que difieren de las del calibre :**

Ersatzteile, die sich von denjenigen des Kalibers unterscheiden:

**Pezzi di ricambio differenti di quelli del calibre :**

## 1250 (29 RS SC CAL CORR STS 12p)



N°	DÉSIGNATION	DESIGNATION	DESIGNACIÓN	BEZEICHNUNG	DESIGNAZIONE
1255.9001	Platine supérieure Le N° du mouvement se trouve sur cette pièce	<i>Upper plate</i> <i>The movement No. is on this piece</i>	Platina superior El N.º de máquina se encuentra en esta pieza	<i>Obere Werkplatte</i> <i>Die Werknummer befindet sich auf diesem Stück</i>	Piastra superiore Il numero del movimento si trova su questo pezzo
1255.9091	Roue de centre avec chaussée, H3	<i>Center wheel with cannon pinion, H3</i>	Rueda de centro con cañón de minutos, H3	<i>Minutenrad mit Minutenrohr, H3</i>	Ruota di centro con rocchetto dei minuti, H3
1255.9003	Pont combiné	<i>Index wheel bridge</i>	Puente combinado	<i>Klinkenradbrücke</i>	Ponte combinato
1255.9092	Roue des heures, H3	<i>Hour wheel, H3</i>	Rueda de horas, H3	<i>Stundenrad, H3</i>	Ruota delle ore, H3
1260.9006	Indicateur de quantième, T = 3 h - G = 3 h	<i>Date indicator, T = 3 h - G = 3 h</i>	Indicador de fecha, T = 3 h - G = 3 h	<i>Datumanzeiger, T = 3 h - G = 3 h</i>	Indicatore del calendario, T = 3 h - G = 3 h
1255.9010	Bascule	<i>Yoke</i>	Báscula	<i>Wippe</i>	Bascula
1255.9012	Roue intermédiaire	<i>Intermediate wheel</i>	Rueda intermedia	<i>Zwischenrad</i>	Ruota intermedia
1255.9015	Roue friction	<i>Friction wheel</i>	Rueda-fricción	<i>Friktionsrad</i>	Ruota a frizione
1255.9019	Roue de seconde au centre	<i>Sweep second wheel</i>	Rueda de segundero central	<i>Zentrumsekundenrad</i>	Ruota dei secondi al centro
1255.9021	Sautoir de quantième	<i>Date jumper</i>	Muelle flexible de fecha	<i>Datumspere</i>	Scatto del calendario
1255.9029	Module oscillateur Le N° du mouvement se trouve sur cette pièce	<i>Oscillator module</i> <i>The movement No. is on this piece</i>	Modulo oscilador El N.º de máquina se encuentra en esta pieza	<i>Oszillatormodul</i> <i>Die Werknummer befindet sich auf diesem Stück</i>	Modulo oscillatore Il numero del movimento si trova su questo pezzo
1255.9050	Platine de mécanisme	<i>Mechanism plate</i>	Platina de mecanismo	<i>Werkplatte für Mechanismus</i>	Piastra del meccanismo
1255.9051	Module chronographe	<i>Chronograph module</i>	Módulo de cronógrafo	<i>Chronographmodul</i>	Modulo di cronografo
1255.9052	Planche de calendrier	<i>Calendar plate</i>	Placa del calendario	<i>Kalenderplatte</i>	Tavola del calendario
1255.9053	Planche de chronographe	<i>Chronograph plate</i>	Placa del cronógrafo	<i>Chronographplatte</i>	Tavola del cronografo
1255.9054	Plaque de maintien de quantième	<i>Date indicator guard</i>	Placa de sujeción del indicador de fecha	<i>Halteplatte für Datumanzeiger</i>	Placca di guardia del calendario
1255.9055	Plaque de maintien de l'indicateur des jours	<i>Day indicator guard</i>	Placa de sujeción del indicador de los días	<i>Halteplatte für Tagesanzeiger</i>	Placca di guardia del indicatore dei giorni
1255.9056	Indicateur des jours (Indiquez la langue désirée)	<i>Day indicator</i> <i>(Indicate the desired language)</i>	Indicador de los días (Indiquen el idioma deseado)	<i>Tagesanzeiger</i> <i>(Geben Sie die gewünschte Sprache an)</i>	Indicatore dei giorni (Indicate la lingua desiderata)
1255.9057	Correcteur double	<i>Double corrector</i>	Corrector doble	<i>Doppelkorrektor</i>	Correttore doppio
1255.9058	Première roue intermédiaire de quantième	<i>First intermediate date wheel</i>	Primera rueda intermedia de indicador de fecha	<i>Erstes Datum-Zwischenrad</i>	Prima ruota intermedia del calendario
1255.9059	Deuxième roue intermédiaire de quantième	<i>Second intermediate date wheel</i>	Segunda rueda intermedia de indicador de fecha	<i>Zweites Datum-Zwischenrad</i>	Seconda ruota intermedia del calendario
1255.9060	Roue entraîneuse de calendrier	<i>Calendar driving wheel</i>	Rueda de arrastre del calendario	<i>Kalender-Mitnehmerad</i>	Ruota conduttrice del calendario

## Calibre 1255

N°	DÉSIGNATION	DESIGNATION	DESIGNACIÓN	BEZEICHNUNG	DESIGNAZIONE
1255.9062	Mobile de compteur de minutes	<i>Minute-recording runner</i>	Móvil del contador de minutos	<i>Minutenzählrad</i>	Mobile del contatore dei minuti
1255.9062	Mobile de compteur d'heures	<i>Hour-recording runner</i>	Móvil del contador de horas	<i>Stundenzählrad</i>	Mobile del contatore delle ore
1255.9063	Ressort-friction du mobile de compteur de minutes	<i>Friction spring for minute-recording runner</i>	Muelle-fricción del móvil del contador de minutos	<i>Friktionsfeder für Minutenzählrad</i>	Molla a frizione del mobile del contatore dei minuti
1255.9063	Ressort-friction du mobile de compteur d'heures	<i>Friction spring for hour-recording runner</i>	Muelle-fricción del móvil del contador de horas	<i>Friktionsfeder für Stundenzählrad</i>	Molla a frizione del mobile del contatore delle ore
1255.9064	Marteau de secondes	<i>Second hammer</i>	Martillo de segundos	<i>Sekundenherzhebel</i>	Martello dei secondi
1255.9064	Marteau de minutes	<i>Minute hammer</i>	Martillo de minutos	<i>Minutenherzhebel</i>	Martello dei minuti
1255.9064	Marteau d'heures	<i>Hour hammer</i>	Martillo de horas	<i>Stundenherzhebel</i>	Martello delle ore
1255.9065	Ressort de marteau de secondes	<i>Second hammer spring</i>	Muelle del martillo de segundos	<i>Sekundenherzhebelfeder</i>	Molla del martello dei secondi
1255.9065	Ressort de marteau de minutes	<i>Minute hammer spring</i>	Muelle del martillo de minutos	<i>Minutenherzhebelfeder</i>	Molla del martello dei minuti
1255.9065	Ressort de marteau d'heures	<i>Hour hammer spring</i>	Muelle del martillo de horas	<i>Stundenherzhebelfeder</i>	Molla del martello delle ore
1255.9066	Bascule de remise à zéro	<i>Lever for zero action</i>	Báscula de vuelta a cero	<i>Nullsteller</i>	Bascula di rimessa a zero
1255.9067	Verrou de bascule de remise à zéro	<i>Bolt of lever for zero action</i>	Tirete de báscula de vuelta a cero	<i>Nullstellerriegel</i>	Paletto della bascula di rimessa a zero
1255.9068	Commande	<i>Operating lever</i>	Mando	<i>Schalthebel</i>	Comando
1255.9069	Ressort de commande	<i>Operating lever spring</i>	Muelle de mando	<i>Schalthebelfeder</i>	Molla di comando
1255.9070	Bascule d'inversion	<i>Reversing lever</i>	Báscula de inversión	<i>Umschalterwippe</i>	Bascula di inversione
1255.9071	Valet de bascule d'inversion	<i>Reversing lever valet</i>	Siete de báscula de inversión	<i>Hilfshebel für Umschalterwippe</i>	Valetto della bascula di inversione
1255.9072	Ressort de bascule d'inversion	<i>Reversing lever spring</i>	Muelle de báscula de inversión	<i>Umschalterwippenfeder</i>	Molla della bascula di inversione
1255.9073	Commande d'embrayage	<i>Operating lever of coupling system</i>	Mando de embrague	<i>Kupplungssteuerung</i>	Comando d'innesto
1255.9074	Sautoir de commande d'embrayage	<i>Spring for operating lever of coupling system</i>	Muelle flexible de mando de embrague	<i>Kupplungssteuerungshebelfeder</i>	Scatto del comando d'innesto
1255.9075	Bloqueur	<i>Blocking lever</i>	Bloqueador	<i>Blockierhebel</i>	Leva di blocco
1255.9076	Ressort de bloqueur	<i>Blocking lever spring</i>	Muelle del bloqueador	<i>Blockierhebelfeder</i>	Molla della leva di blocco
1255.9077	Sautoir de bascule de remise à zéro	<i>Jumper of lever for zero action</i>	Muelle flexible de báscula de vuelta a cero	<i>Nullstellerwippenhebel</i>	Scatto della bascula di rimessa a zero
1255.9078	Ressort de sautoir de bascule de remise à zéro	<i>Spring of lever for zero action</i>	Muelle de saltador de báscula de vuelta a cero	<i>Nullstellerwippenhebelfeder</i>	Molla dello scatto della bascula di rimessa a zero
1255.9079	Roue entraîneuse de chronographe	<i>Chronograph driving wheel</i>	Rueda de arrastre de cronógrafo	<i>Chronograph-Mitnehmerad</i>	Ruota conduttrice del cronografo
1255.9080	Roue intermédiaire de seconde	<i>Intermediate fourth wheel</i>	Rueda intermedia de segundos	<i>Sekunden-Zwischenrad</i>	Ruota intermedia dei secondi
			Rueda de	<i>Sekundenrad</i>	Ruota dei secondi

N°	DÉSIGNATION	DESIGNATION	DESIGNACIÓN	BEZEICHNUNG	DESIGNAZIONE
1255.9082	Première roue intermédiaire du compteur de minutes	<i>First intermediate wheel for minute recorder</i>	Primera rueda intermedia del contador de minutos	<i>Erstes Minuten-zähler-Zwischenrad</i>	Prima ruota intermedia del contatore dei minuti
1255.9083	Deuxième roue intermédiaire du compteur de minutes	<i>Second intermediate wheel for minute recorder</i>	Segunda rueda intermedia del contador de minutos	<i>Zweites Minuten-zähler-Zwischenrad</i>	Seconda ruota intermedia del contatore dei minuti
1255.9084	Troisième roue intermédiaire du compteur de minutes	<i>Third intermediate wheel for minute recorder</i>	Tercera rueda intermedia del contador de minutos	<i>Drittes Minuten-zähler-Zwischenrad</i>	Terza ruota intermedia del contatore dei minuti
1255.9085	Pont de roues intermédiaires du compteur de minutes	<i>Bridge of intermediate wheels for minute recorder</i>	Puente de ruedas intermedias del contador de minutos	<i>Minutenzähler-Zwischenradbrücke</i>	Ponte delle ruote intermedie del contatore dei minuti
1255.9086	Première roue intermédiaire du compteur d'heures	<i>First intermediate wheel for hour recorder</i>	Primera rueda intermedia del contador de horas	<i>Erstes Stunden-zähler-Zwischenrad</i>	Prima ruota intermedia del contatore delle ore
1255.9087	Deuxième roue intermédiaire du compteur d'heures	<i>Second intermediate wheel for hour recorder</i>	Segunda rueda intermedia del contador de horas	<i>Zweites Stunden-zähler-Zwischenrad</i>	Seconda ruota intermedia del contatore delle ore
1255.9088	Troisième roue intermédiaire du compteur d'heures	<i>Third intermediate wheel for hour recorder</i>	Tercera rueda intermedia del contador de horas	<i>Drittes Stunden-zähler-Zwischenrad</i>	Terza ruota intermedia del contatore delle ore
1255.9089	Plaque de maintien de la troisième roue intermédiaire du compteur d'heures	<i>Guard of third intermediate wheel for hour recorder</i>	Plaquita de sujeción de la tercera rueda intermedia del contador de horas	<i>Halteplatte für drittes Stunden-zähler-Zwischenrad</i>	Placchetta di guardia della terza ruota intermedia del contatore delle ore
1255.9090	Plaque de maintien de roues intermédiaires du compteur d'heures	<i>Guard of intermediate wheels for hour recorder</i>	Plaquita de sujeción de ruedas intermedias del contador de horas	<i>Halteplatte für Stundenzähler-Zwischenrad</i>	Placchetta di guardia delle ruote intermedie del contatore delle ore
2378	Vis de bride de fixation	<i>Screw for casing clamp</i>	Tornillo de brida de fijación	<i>Schraube für Werkbefestigungsbügel</i>	Vite della brida di fissaggio
2540	Clef de cadran	<i>Dial key</i>	Tornillo de sujeción de esfera	<i>Zifferblatt-Schlüssel</i>	Chiave del quadrante
2597	Vis de pont de roues intermédiaires du compteur de minutes	<i>Screw for bridge of intermediate wheels for minute recorder</i>	Tornillo de puente de ruedas intermedias del contador de minutos	<i>Schraube für Minutenzähler-Zwischenradbrücke</i>	Vite del ponte delle ruote intermedie del contatore dei minuti
2598	Vis de plaque de maintien de la troisième roue intermédiaire du compteur d'heures	<i>Screw for guard of third intermediate wheel for hour recorder</i>	Tornillo de plaquita de sujeción de la tercera rueda intermedia del contador de horas	<i>Schraube für Halteplatte für drittes Stunden-zähler-Zwischenrad</i>	Vite della placchetta di guardia della terza ruota intermedia del contatore delle ore
2598	Vis de plaque de maintien de roues intermédiaires du compteur d'heures	<i>Screw for guard of intermediate wheels for hour recorder</i>	Tornillo de plaquita de sujeción de ruedas intermedias del contador de horas	<i>Schraube für Halteplatte für Stundenzähler-Zwischenrad</i>	Vite della placchetta di guardia delle ruote intermedie del contatore delle ore
2599	Vis de planche de chronographe	<i>Screw for chronograph plate</i>	Tornillo de placa del cronógrafo	<i>Schraube für Chronographplatte</i>	Vite della tavola del cronografo
2670	Vis de plaque de maintien de l'indicateur des jours	<i>Screw for day indicator guard</i>	Tornillo de placa de sujeción del indicador de los días	<i>Schraube für Halteplatte für Tagesanzeiger</i>	Vite della placca di guardia del indicatore dei giorni



# *Technical guide*

Folder **3-1255**

## Standard exchange of movement or modules

IMPORTANT-To be observed strictly.

Before uncasing the movement, remove oscillator module.

Never case up the complete movement; this operation is effected without the oscillator module in position.

Fit hands with chronograph in RESET TO ZERO position.

For assembling of the chronograph and mechanism modules, set chronograph in START position, pull stem into hand-setting position.

## EXCHANGE OF CHRONOGRAPH MODULE

3.1 After having removed the case-back and power cell, the oscillator module No. 1255.9029 must necessarily be removed by unscrewing its four screws No. 2652 before uncasing is effected.

IMPORTANT: To avoid destruction of the indexing mechanism, the hands must in no way be manipulated before the said operation.

3.2 Remove hand-setting stem No. 1250.9006 by pressing the setting lever.

3.3 Remove the three screws No. 2378 and fixing bridles.

3.4 Extract movement from case.

3.5 Replace hand-setting stem in position by pushing it in completely so that the setting lever pin enters into the groove of the stem.

3.6 Remove mechanism module by opening the two bolts.

3.7 Set chronograph module on the hand-fitting tool and remove the six hands.

3.8 Fix chronograph module on movement holder, dial side down. Tighten the two dial keys No. 2540 so that their slits face towards the center. Remove the dial.

3.9 Fit dial on new chronograph module No. 1255.9051 and fix same on movement holder, dial down, then unscrew by 90° the two dial keys.

pinion, turn this stem clockwise and make the calendar discs jump.

3.11 Put chronograph in RESET TO ZERO position.

3.12 Fit the six hands.  
Warning: The mobiles must be supported.

3.13 Assemble chronograph and mechanism modules. Open bolts of mechanism module. Set chronograph in START position and stem in HAND-SETTING position. These precautions must be taken to avoid damaging the upper pivot of the chronograph mobile whose pivoting point is at the mechanism plate. Once these precautions have been taken, it is simply necessary to turn the hand-setting stem and the two modules take their position without trouble. Close the bolts.

3.14 Place these two modules on the movement holder, with pushers, and check passage of the hands as well as the chronograph functions. Move the recorder hands by means of a pegwood - chronograph in START position, then check return to zero.

3.15 Put chronograph in RESET TO ZERO position, push stem into NEUTRAL position and remove it by pressing the setting lever.

3.16 Case up the two modules.

3.17 Refit the hand-setting stem and grease crown gasket.

3.18 Fit the three bridles and

- 3.19 Place oscillator module in position and fix it by means of its four screws.
- 3.20 Check functioning limits of the indexing mechanism, chronograph in ZERO position, making sure that the wheel train is turning continuously at 1.05V to 1.65V. If necessary, adjust phase by turning the screw of the corrector plate for retaining click. (For further details please refer to folder 4-1250).
- 3.21 Measure current. Consumption should not exceed 10  $\mu$ A with the chronograph. (See application of ALITEST).
- 3.22 Fit power cell. (See folder 1-1250).
- 3.23 Check instant rate and carry out rate adjustment (see folder 2-2150 and application of DELTATEST). The variation in different recordings on DELTATEST between the various chronograph functions must not exceed 2 seconds.
- 3.24 Grease and fit the water-resistance gasket. Close the case.
- 3.25 Check the instant rate, and then over a period of 24 hours.

#### COMPONENTS

Oscillator module	1255.9029
Chronograph module	1255.9051
Hand-setting stem	1250.9006
Clutch wheel	1250.9007
Screw for oscillator module	2652
Fixing screw	2378
Dial key	2540

#### EXCHANGE OF MOVEMENT

Follow operations as for exchange of chronograph module.

#### EXCHANGE OF OSCILLATOR MODULE

Follow operations in the order  
3.19 to 3.25 to 3.25

ELECTRONIC

# Technical guide

Folder **4-1255**

**Operations of:  
disassembling,  
cleaning,  
reassembling and  
lubrification of the  
chronograph module.  
Diagnostic**

Complement of folder 4 - 1250

**Important –**

**To be observed strictly**

**IMPORTANT - To be observed strictly.**

Before uncasing of the movement,  
remove oscillator module.

Never uncase the complete move-  
ment; this operation is effected  
without the oscillator module  
being in position.

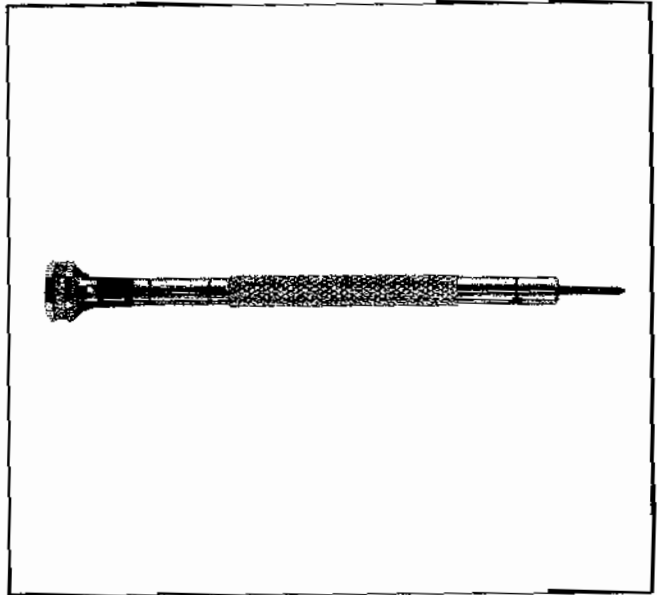
Fit hands with chronograph in  
RESET TO ZERO position.

For reassembling of the chrono-  
graph and mechanism modules, set  
chronograph in START position,  
pull stem into hand-setting posi-  
tion.

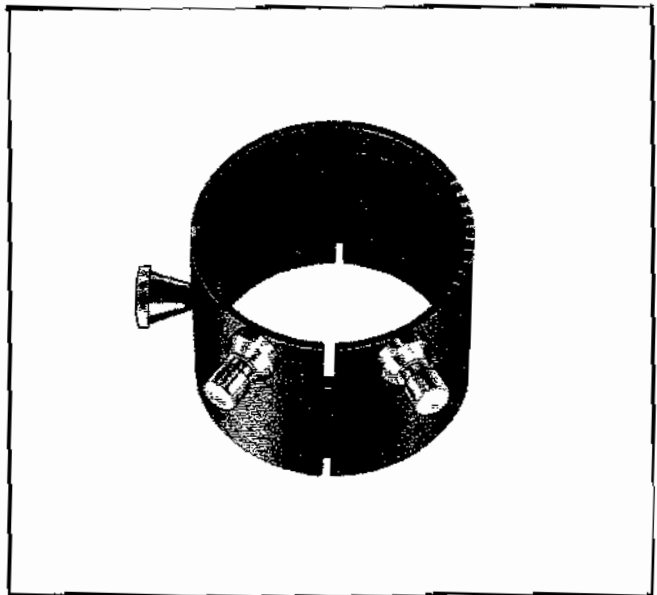


EQUIPMENT

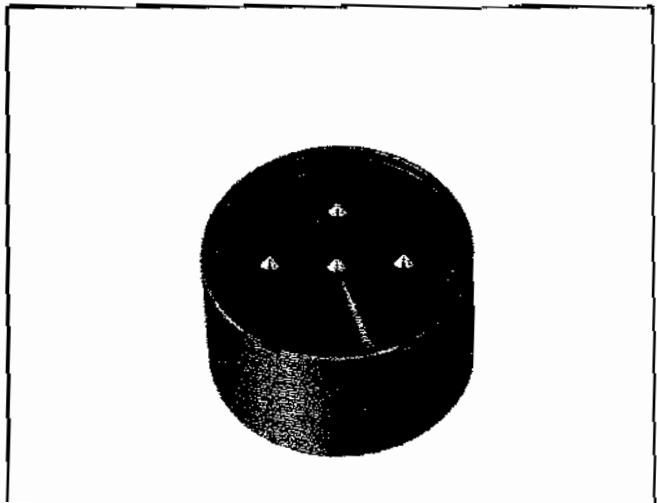
Same as for caliber 1250 +



- Driving stem for calendar



- Movement holder with pushers



**Operations of:  
disassembling,  
cleaning,  
reassembling and  
lubrication of the  
chronograph module.**

- 4.1 Open the case.
- 4.2 Remove the power cell bridle No. 1250.9028 by unscrewing its screw and extract power cell No. 9900.
- 4.3 Remove oscillator module No. 1255.9029 by unscrewing its four screws No. 2652.
- 4.4 Remove hand-setting stem No. 1250.9006 by pressing the setting lever and extract clutch wheel No. 1250.9007.
- 4.5 Uncase the modules by removing the three fixing screws No. 2378 and bridles.
- 4.6 Remove mechanism module by opening the two bolts.
- 4.7 Set chronograph module on the hand-fitting stand and remove the six hands.
- 4.8 Fix chronograph module on movement holder, dial down. Screw the two dial-keys No. 2540 in such a manner that the key slits point towards the center. Remove the dial.
- 4.9 Fix chronograph module on movement holder, calendar facing downwards. Remove second wheel No. 1255.9081 by pressing with tweezers the pivot located at 12 h. No. 1255.9080 (place tweezer points in holes of wheel and pull vertically).
- 4.11 Set the chronograph in RESET TO ZERO position. Remove by means of small levers the chronograph driving wheel No. 1255.9079. Be careful with the tothing!
- 4.12 Unscrew the two screws No. 2597 of minute-recorder wheel train bridge No. 1255.9085.
- 4.13 Remove bridge, first intermediate wheel No. 1255.9082, third intermediate wheel No. 1255.9084 and second intermediate wheel of minute recorder No. 1255.9083.
- 4.14 Unscrew the screw No. 2598 of fixing-plate for hour recorder wheels No. 1255.9090.
- 4.15 Remove fixing-plate, second intermediate wheel No. 1255.9087 and first intermediate wheel of hour recorder No. 1255.9086.
- 4.16 Unscrew the screw No. 2598 of fixing-plate for third wheel of hour recorder No. 1255.9089, remove plate and third intermediate hour wheel No 1255.9088.
- 4.17 Set chronograph in START position. Unscrew the four screws for chronograph plate No 2599.
- 4.18 Remove chronograph plate No 1255.9053.
- 4.19 Remove blocking-lever spring No 1255.9076. Release blocking-lever. Remove spring of reversing-lever No 1255.9072.

- 4.20 Remove chronograph mobile No 1255.9061 by turning it in such manner that the heart is in the countersink of the coupling lever; lift module vertically.
- 4.21 Remove jumper of coupling lever No. 1255.9074, coupling lever No. 1255.9073 and blocking-lever No 1255.9075.
- 4.22 Remove operating lever spring No 1255.9069, operating lever No 1255.9068 with reversing-lever No 1255.9070 and bolt of zero action lever No 1255.9067.
- 4.23 Using a buff, press heavily the zero action lever No 1255.9066. Remove jumper spring No. 1255.9078 of zero action lever, and jumper No 1255.9077 of zero action lever. Slowly release the zero action lever.
- 4.24 Remove friction springs of hour and minute recorder mobiles No 1255.9063.
- 4.25 Remove zero action lever No 1255.9066, turn it over and remove the two hour and minute recorder mobiles No 1255.9062. Turn the hearts so that they can negotiate the countersinks.
- 4.26 Remove springs for hammers No 1255.9065 and hammers No 1255.9064.
- 4.27 Turn over calendar plate No 1255.9052 on movement holder and unscrew the two screws of the day indicator guard No 2670. Remove day indicator guard No 1255.9055, day indicator No 1255.9056,

- 4.28 Unscrew the three screws of the date indicator guard No 2647, remove date indicator guard No 1255.9054, date jumper No 1255.9021, calendar driving wheel No 1255.9060, date indicator No 1260.9006, double corrector No 1255.9057, first intermediate wheel No 1255.9058 and second intermediate date wheel No. 1255.9059.

#### Lubrication

Lubricant 1.10      1.10 = 1  
 - Wheel train      2.06 = 2  
 Lubricate sufficiently:

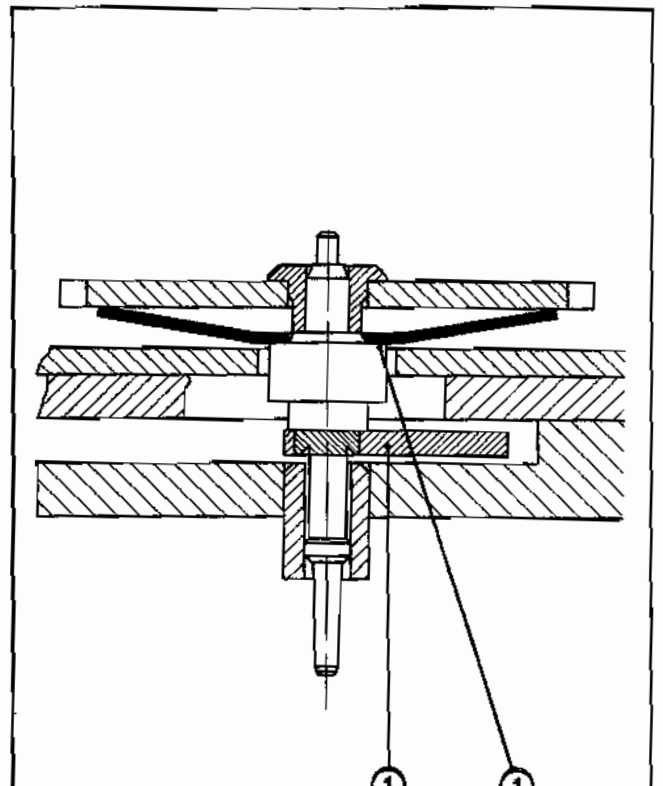
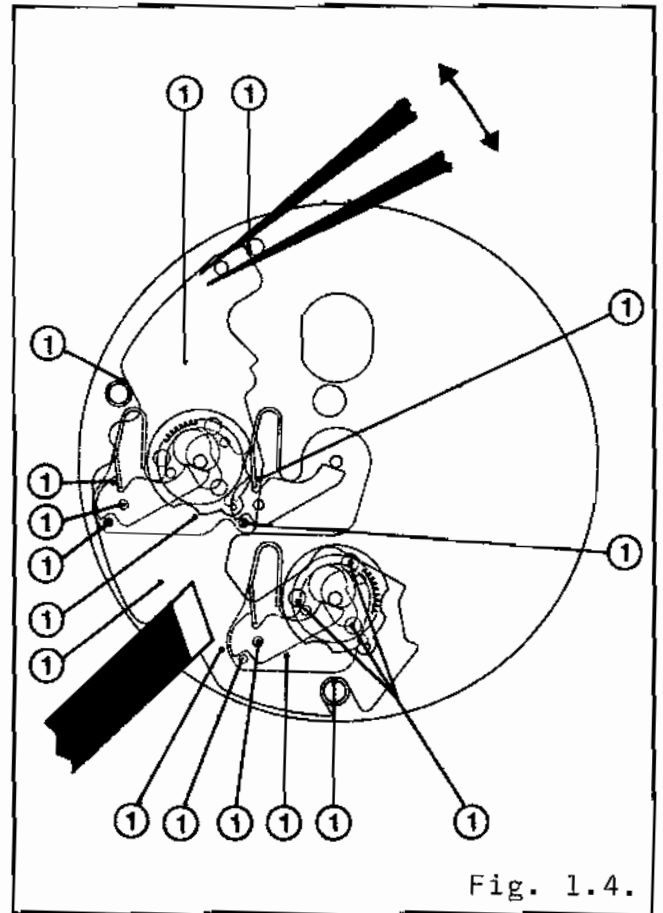
- Levers
- Springs

Grease 2.06:

- Points where there is great friction

## ASSEMBLING OF CHRONOGRAPH MODULE

- 4.29 Fix calendar plate on movement holder, chronograph mechanism side uppermost.
- 4.30 Fit the three hammer springs and hammers. Lubricate functions, (fig.1.4).
- 4.31 Lubricate friction of hour and minute recorder mobiles. Lubricate hearts (Fig. 2.4).
- 4.32 Hold zero action lever between thumb and index. Underneath, lubricate the three hammer driving pins and put a few drops of lubricant on lever surface. On top, lubricate the six coupling pins and put a few drops of lubricants on lever surface (fig. 1.4.) Insert pivots of hour and minute recorder mobiles through the lever and turn mobiles so as to allow hearts to negotiate counter-sinks of lever.
- 4.33 Fit zero action lever with mobiles on calendar plate. Insert mobile staffs in the tubes. With a buff, press lever between the two mobiles and, using tweezers, carry out a few coupling-uncoupling operations. This will enable the hammers to take their position with the hearts (fig. 1.4.).



4.34 Fit jumper of zero action lever and its spring. Grease functions (fig. 3.4).

4.35 Fit operating lever, bolt of zero action lever and operating lever spring. Lubricate functions (fig. 3.4).

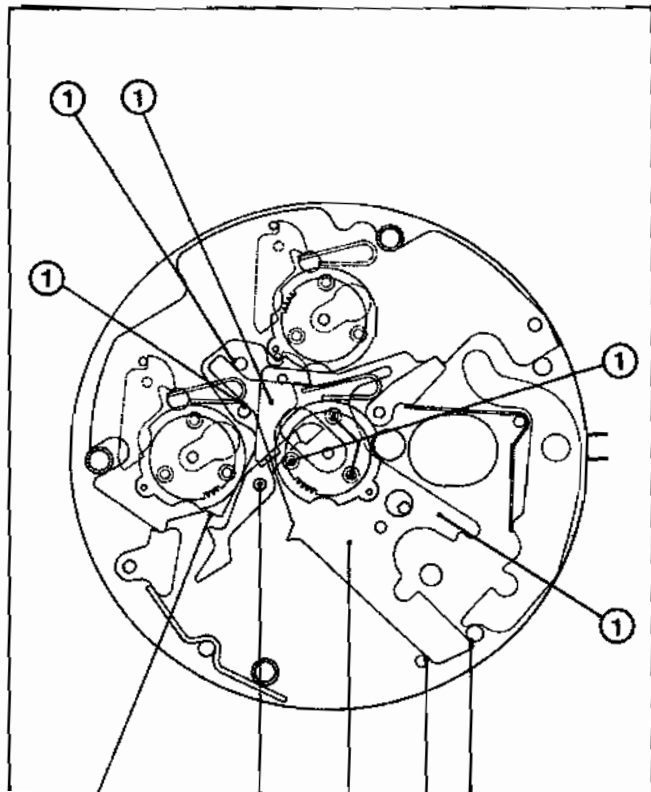
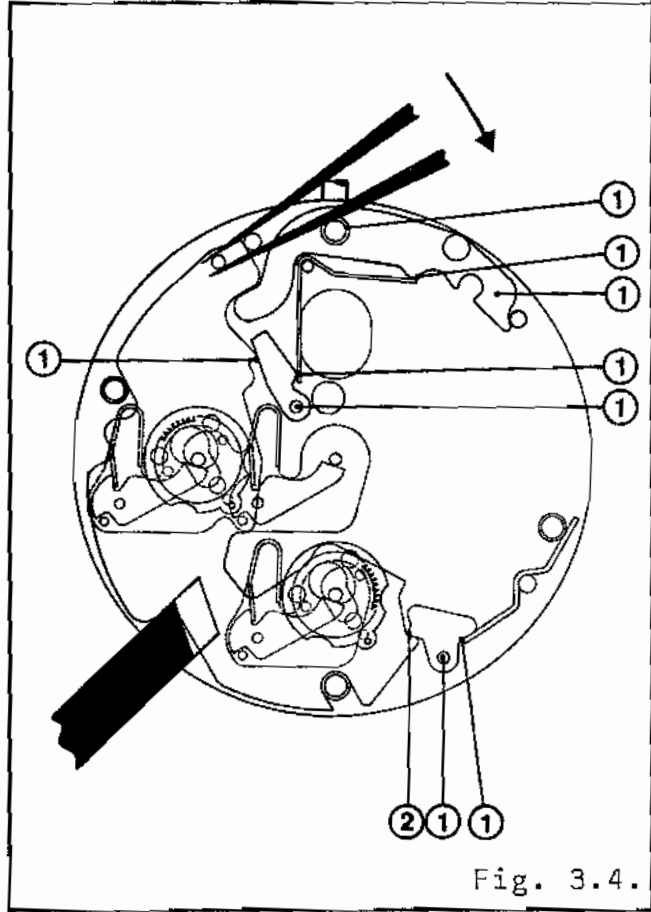
4.36 Using a buff, press zero action lever (fig. 3.4) and with tweezers put the lever in coupled position (fig. 4.4).

4.37 Turn the two coupling plates of the mobiles so as to be able to insert the pins in the holes of these plates.

4.38 With tweezers, press plate of recorder mobiles and oil the underside of shoulder which is in contact with the plate. Fit the two friction springs of the mobiles.

4.39 Lubricate underside of coupling lever. Set blocking-lever in position, also coupling lever (fig. 4.4). Lubricate coupling pins and top side of coupling lever.

4.40 Grease heart of chronograph mobile. DO NOT oil the friction spring. Insert staff of chronograph mobile in center pipe and turn said mobile in such manner that the heart penetrates into the opening of the coupling lever.



4.41 Turn coupling plate of chronograph mobile in such manner as to be able to insert the pins in plate holes.

4.42 Press plate of chronograph mobile and oil top of coupling pipe. Release the plate, press again and oil underpart of coupling pipe (fig. 5.4).

4.43 Fit the coupling lever jumper, fixing it in the START position (fig. 6.4). Lubricate according to figure.

4.44 Fit reversing-lever, valet for reversing-lever, spring for reversing-lever and blocking-lever spring. Lubricate the functions (fig.6.4).

4.45 Oil setting for chronograph plate and fix latter on calendar plate by means of its four screws.

Warning: Place in position the coupling plates and pivots of the mobiles. Operations must be carried out with chronograph in START position. Check functions of pushers.

4.46 Oil posts of intermediate wheels for hour recorder (3 posts) (fig. 7.4).

4.47 Fit third intermediate wheel, shoulder downwards. Screw the fixing-plate for third wheel. Center this latter plate.

4.48 Fit first intermediate wheel, second intermediate wheel and screw the fixing-plate. Check freedom of this wheel-train - chronograph in START position.

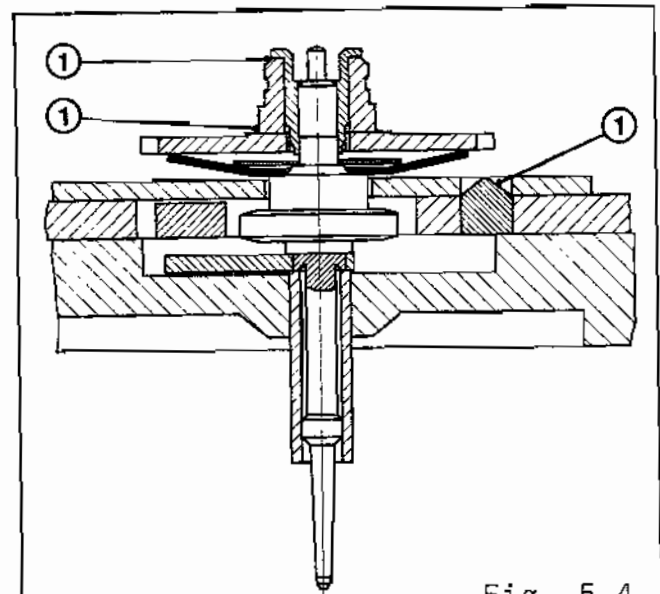


Fig. 5.4.

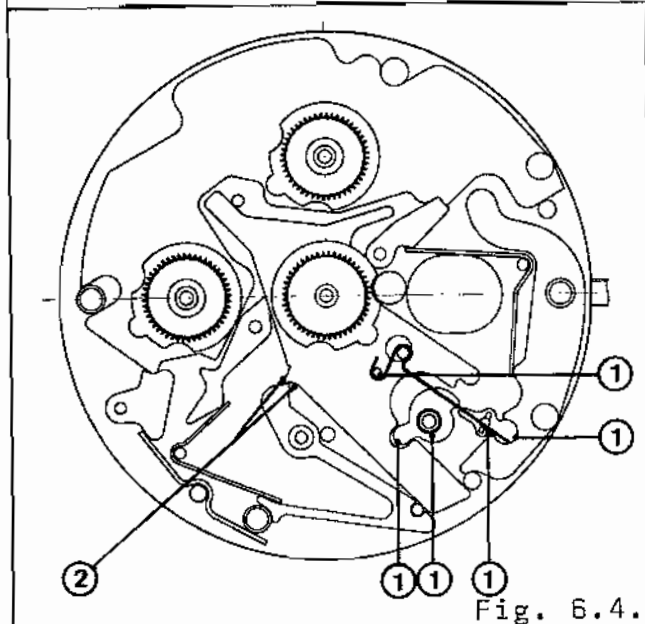
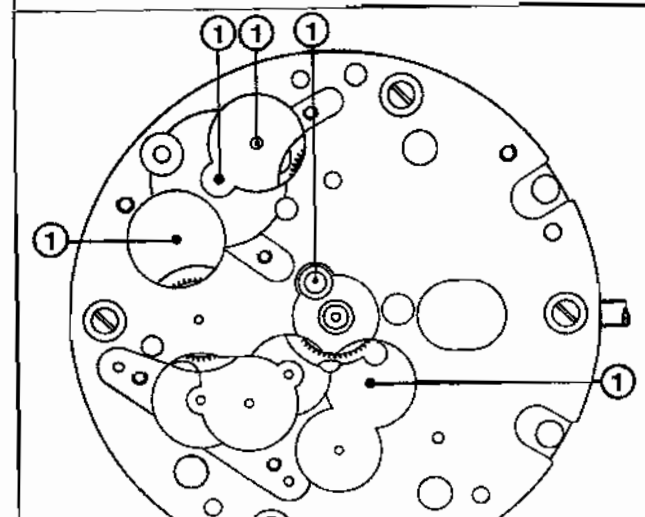


Fig. 6.4.



4.49 Fit second intermediate wheel, first intermediate wheel and third intermediate wheel of minute recorder.

4.50 Fit and screw the bridge of minute recorder intermediate wheels. Check freedom of chronograph wheel-train in START position.

4.51 Set chronograph in RESET TO ZERO position. Fit chronograph driving wheel with plastic tool for hand-fitting.

4.52 Set chronograph in START position. Oil post of intermediate second wheel (fig. 7.4) Fit intermediate second wheel by pressing it with a plastic tool, centrally drilled side uppermost.

4.53 Lubricate second wheel at base of pivot and place in position by pressing it down. Take care with the tothing!

4.54 Oil the four pivots of the minute recorder mobiles and the pivot of the hour recorder mobile (fig. 8.4).

4.55 Remove, turn over and fix the module on the movement holder.

4.56 Oil pivots of the four minute recorder mobiles (fig. 9.4), pivot of the hour recorder mobile, pivot of small second, pivot of chronograph mobile and pivots of calendar mobiles (fig. 10.4).

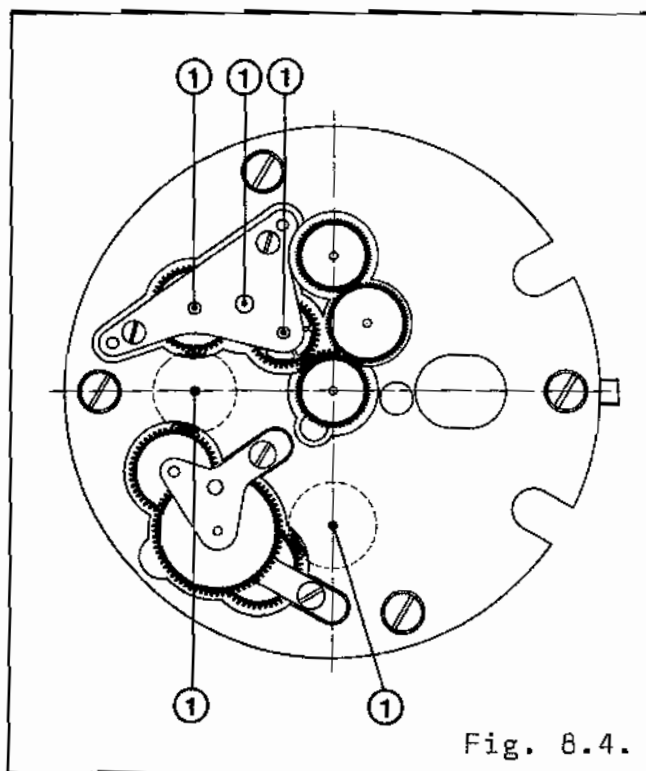


Fig. 8.4.

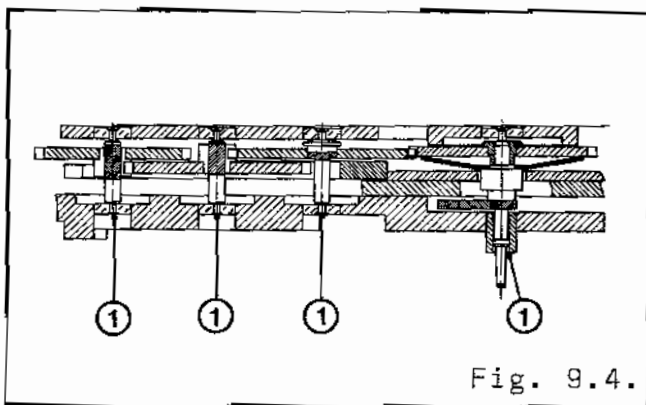


Fig. 9.4.

4.57 Fit the second and first intermediate date wheels. Fit date indicator, calendar driving wheel and double corrector.

4.58 Grease lightly the active parts of date jumper, fit the latter as well as the date indicator guard, tighten its three screws (fig. 11.4)

4.59 Oil center pipe, fit center wheel with cannon pinion, minute wheel and hour wheel.

4.60 Grease active parts of day disc jumper. Fit day disc, day disc guard, and tighten its two screws.

4.61 Oil pivoting point of friction wheel located at day indicator guard (3 h) (fig. 11.4.).

4.62 Fit dial on chronograph module, fix latter on movement holder, dial down, and unscrew the two dial keys by  $90^{\circ}$ .

4.63 Set chronograph module on movement holder for hand fitting. Fit driving stem for calendar on the cannon pinion. Turn this stem clockwise and make the calendar discs jump.

4.64 Set Chronograph in RESET TO ZERO position.

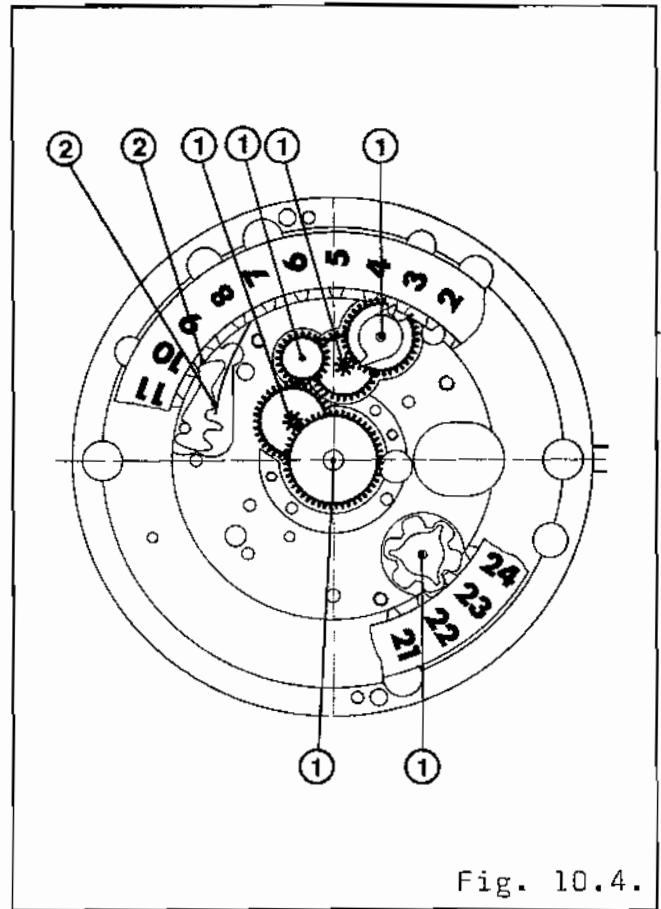
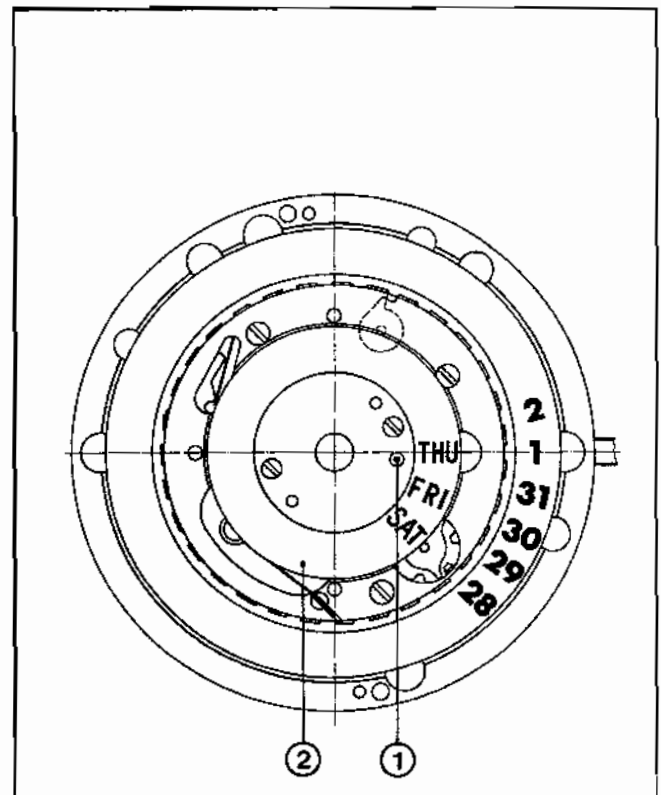


Fig. 10.4.





- 4.65 Fit the six hands.  
Warning: the mobiles must be supported.
- 4.66 Oil the small center pipe of mechanism plate.
- 4.67 Assemble chronograph module and mechanism module. Open the bolts of mechanism module. Set chronograph in START position and stem in HANDSETTING position. These precautions must be taken in order to avoid damaging the upper pivot of the chronograph mobile which has its pivoting point at the mechanism plate. Once these precautions have been taken, it is simply necessary to turn the handsetting stem and the two modules position themselves without any trouble. Close the bolts.
- 4.68 Set these two modules on the movement holder, with pushers, and check passage of the hands as well as chronograph functions. Move recorder hands by means of a wooden centering-pin, chronograph in START position, check return to zero.
- 4.69 Set chronograph in RESET TO ZERO position, push in stem to NEUTRAL position and remove it by pressing the setting lever.
- 4.70 Case-up these two modules.
- 4.71 Refit hand-setting stem, grease crown gasket.
- 4.72 Fit the three bridles and fixing screws.
- 4.73 Place in position, and fix by its four screws. the
- 4.74 Check working limits of indexing mechanism, with chronograph in ZERO position, taking care to ensure that the wheel-train turns continuously at 1.05V to 1.65V. If necessary, adjust the phase by turning the screw of the corrector plate for retaining click. (For further details, see Folder 4-1250).
- 4.75 Measure the current. Consumption should not exceed 10  $\mu$ A with the chronograph. (See application of Alitest).
- 4.76 Fit power cell (See Folder 1-1250).
- 4.77 Check instant rate and carry out adjustment of the rate (See Folder 2-1250 and application of Deltatest). The variation in the different recordings on Deltatest between various chronograph functions should not exceed 2 seconds.
- 4.78 Grease and fit water-resistance gasket. Close the case.
- 4.79 Check instant rate, and then over a period of 24 hours.

# CALIBRE 1260

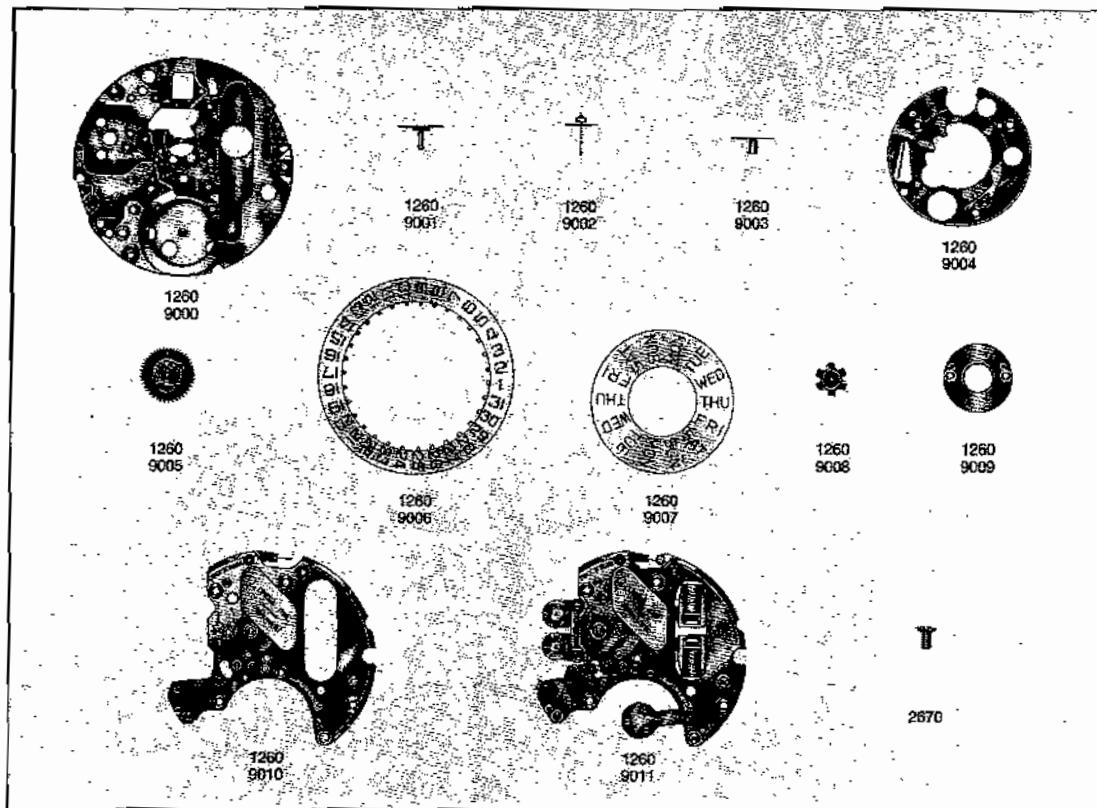
(29 RS SC CALD CORR CORJ STS 12 P)



PIECES DE RECHANGE · SPARE PARTS · PIEZAS DE RECAMBIO · ERSATZTEILE · PEZZI DI RICAMBIO

Pièces de rechange différant de celles du calibre:  
Spare parts which differ from those of the calibre:  
Piezas de recambio que difieren de las del calibre:  
Ersatzteile, die sich von denjenigen des Kalibers unterscheiden:  
Pezzi di ricambio differenti di quelli del calibre:

## 1250 (29 RS SC CAL CORR STS 12p)



----- 28.00 mm

# 1260

1972  
Folio 2

## Calibre 1260

N°	DÉSIGNATION	DESIGNATION	DESIGNACIÓN	BEZEICHNUNG	DESIGNAZIONE
1260.9000	Platine inférieure	<i>Lower plate</i>	Platina inferior	<i>Untere Werkplatte</i>	Piastra inferiore
1260.9001	Roue de centre avec chaussée, H 2	<i>Center wheel with cannon pinion, H 2</i>	Rueda de centro con cañón de minutos, H 2	<i>Minutenrad mit Minutenrohr, H 2</i>	Ruota di centro con rochetto dei minuti, H 2
1260.9002	Roue de seconde au centre, H 2	<i>Sweep second wheel, H 2</i>	Rueda de segundero central, H 2	<i>Zentrumsekundenrad, H 2</i>	Ruota dei secondi al centro, H 2
1260.9003	Roue des heures, H 2	<i>Hour wheel, H 2</i>	Rueda de horas, H 2	<i>Stundenrad, H 2</i>	Ruota delle ore, H 2
1260.9004	Plaque de maintien de quantième	<i>Date indicator guard</i>	Placa de sujeción del indicador de fecha	<i>Halteplatte für Datumanzeiger</i>	Placca di guardia del calendario
1260.9005	Roue entraîneuse de quantième	<i>Date indicator driving wheel</i>	Rueda de arrastre del indicador de fecha	<i>Datumanzeiger- mitnehmerrad</i>	Ruota conduttrice del calendario
1260.9006	Indicateur de quantième, T = 3 H - G = 3 H	<i>Date indicator T = 3 H - G = 3 H</i>	Indicador de fecha T = 3 H - G = 3 H	<i>Datumanzeiger T = 3 H - G = 3 H</i>	Indicatore del calendario T = 3 H - G = 3 H
1260.9007	Indicateur des jours (Indiquez la langue désirée)	<i>Day indicator (Indicate the desired language)</i>	Indicador de los días (Indiquen el idioma deseado)	<i>Tageskalender (Geben Sie die gewünschte Sprache an)</i>	Indicatore dei giorni (Indicate la lingua desiderata)
1260.9008	Correcteur double	<i>Double corrector</i>	Corrector doble	<i>Doppelkorrektor</i>	Correttore doppio
1260.9009	Plaque de maintien de l'indicateur des jours	<i>Day indicator guard</i>	Placa de sujeción del indicador de los días	<i>Halteplatte für Tageskalender</i>	Placca di guardia del- l'indicatore dei giorni
1260.9010	Platine supérieure	<i>Upper plate</i>	Platina superior	<i>Obere Werkplatte</i>	Piastra superiore
1260.9011	Module oscilateur	<i>Oscillator module</i>	Modulo oscilador	<i>Oszillator Module</i>	Modulo oscillatore
2670	Vis de plaque de maintien de l'indicateur des jours	<i>Screw for day indicator guard</i>	Tornillo de placa de sujeción del indicador de los días	<i>Schraube für Halteplatte für Tageskalender</i>	Vite della placca di guardia dell'indicatore dei giorni

**1260**1972  
Folio 2**Calibre 1260**

N°	DÉSIGNATION	DESIGNATION	DESIGNACIÓN	BEZEICHNUNG	DESIGNAZIONE
1260.9000	Platine inférieure	<i>Lower plate</i>	Platina inferior	<i>Untere Werkplatte</i>	Piastra inferiore
1260.9001	Roue de centre avec chaussée, H 2	<i>Center wheel with cannon pinion, H 2</i>	Rueda de centro con cañón de minutos, H 2	<i>Minutenrad mit Minutenrohr, H 2</i>	Ruota di centro con rochetto dei minuti, H 2
1260.9002	Roue de seconde au centre, H 2	<i>Sweep second wheel, H 2</i>	Rueda de segundo central, H 2	<i>Zentrumsekundenrad, H 2</i>	Ruota dei secondi al centro, H 2
1260.9003	Roue des heures, H 2	<i>Hour wheel, H 2</i>	Rueda de horas, H 2	<i>Stundenrad, H 2</i>	Ruota delle ore, H 2
1260.9004	Plaque de maintien de quantième	<i>Date indicator guard</i>	Placa de sujeción del indicador de fecha	<i>Halteplatte für Datumanzeiger</i>	Placca di guardia del calendario
1260.9005	Roue entraîneuse de quantième	<i>Date indicator driving wheel</i>	Rueda de arrastre del indicador de fecha	<i>Datumanzeiger- mitnehmerad</i>	Ruota conduttrice del calendario
1260.9006	Indicateur de quantième, T = 3 H - G = 3 H	<i>Date indicator T = 3 H - G = 3 H</i>	Indicador de fecha T = 3 H - G = 3 H	<i>Datumanzeiger T = 3 H - G = 3 H</i>	Indicatore del calendario T = 3 H - G = 3 H
1260.9007	Indicateur des jours (Indiquez la langue désirée)	<i>Day indicator (Indicate the desired language)</i>	Indicador de los días (Indiquen el idioma deseado)	<i>Tageskalender (Geben Sie die gewünschte Sprache an)</i>	Indicatore dei giorni (Indicate la lingua desiderata)
1260.9008	Correcteur double	<i>Double corrector</i>	Corrector doble	<i>Doppelkorrektor</i>	Correttore doppio
1260.9009	Plaque de maintien de l'indicateur des jours	<i>Day indicator guard</i>	Placa de sujeción del indicador de los días	<i>Halteplatte für Tageskalender</i>	Placca di guardia del l'indicatore dei giorni
1260.9010	Platine supérieure	<i>Upper plate</i>	Platina superior	<i>Obere Werkplatte</i>	Piastra superiore
1260.9011	Module oscillateur	<i>Oscillator module</i>	Modulo oscilador	<i>Oszillator Module</i>	Modulo oscillatore
2670	Vis de plaque de maintien de l'indicateur des jours	<i>Screw for day indicator guard</i>	Tornillo de placa de sujeción del indicador de los días	<i>Schraube für Halteplatte für Tageskalender</i>	Vite della piastra di guardia dell'indicatore dei giorni

# CALIBRE 1260

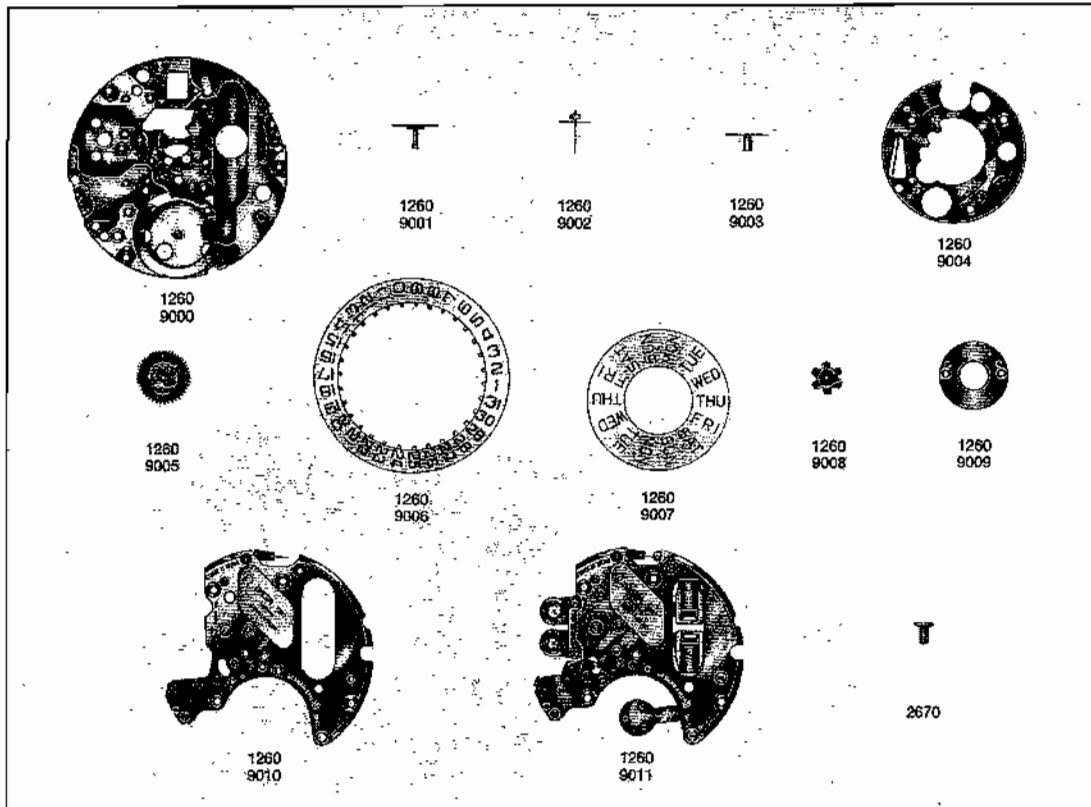
(29 RS SC CALD CORR CORJ STS 12 P)



PIECES DE RECHANGE · SPARE PARTS · PIEZAS DE RECAMBIO · ERSATZTEILE · PEZZI DI RICAMBIO

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 Ersatzteile, die sich von denjenigen des Kalibers unterscheiden:  
 Pezzi di ricambio differenti di quelli del calibre:

## 1250 (29 RS SC CAL CORR STS 12p)



▷ in bad con

Complete stoppage

No

Yes



Remove and check the power cell, see application of ALITEST

▷ in good co

1250

▽  
Resonator works, but stoppage of all hands

no

yes



Check the hand assembly



not in order, remove oscillator module



in order



Remove and che

▽  
Only the center second hand turns

no

yes



Remove the oscillator module, uncase the movement, check the freedom of the hour wheel, check the date mechanism.

▽  
Rate variation

no

yes



Instant rate good but variation during wear



Instant rate bad, not adjustable by means of the frequency correctors

▽  
Intermittent stoppage

no

yes



Check the power cell contacts, the interrupter and connecting plate

▽  
Faulty working of the date



Remove oscillator module, uncase movement and check the date mechanism

Page

#1

Correct or replace

pose

Measure the current I, see application of ALITEST

I = Normal

Power cell worn-out

Replace

Intermittent short-circuit

check ti

I > Normal

Measure R between 1 and 4, see application of ALITEST

R = 0, s

R = Nor

Measure the current I, see application of ALITEST

I = 0

Check the power cell contacts

and uncage movement

put hand assembly in order.

power cell, see application of ALITEST

in bad condition

Replace power cell.

in good condition

Measure the current I, see application of ALITEST

in order

replace the friction wheel.

not in order

replace defective part or clean the timing module.

Check indexing mechanism according to op. 4.33 and 4.37

in order

clean t

not in order

adjust

clean the movement; if the instant rate is still bad, replace the resonator or the two electronic units.

in order

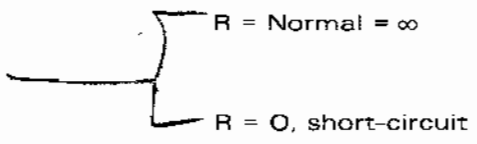
replace the two electronic units.

not in order

correct or clean.

#2

between 1 and 4 by  
two ends



replace the connecting plate

replace T unit

fer — Analyse the circuit, see application of ALITEST

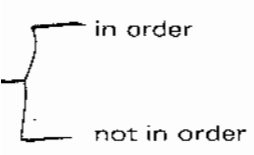
replace faulty unit.

in order (faulty contact)



clean or alter.

replace defective part  
or clean.



check the working limits of the indexing mechanism  
according to op. 4.37: if necessary, replace index wheel

adjust the clicks.

correct or clean the movement

# DIAGNOSTIC

LEGEND:

investigate

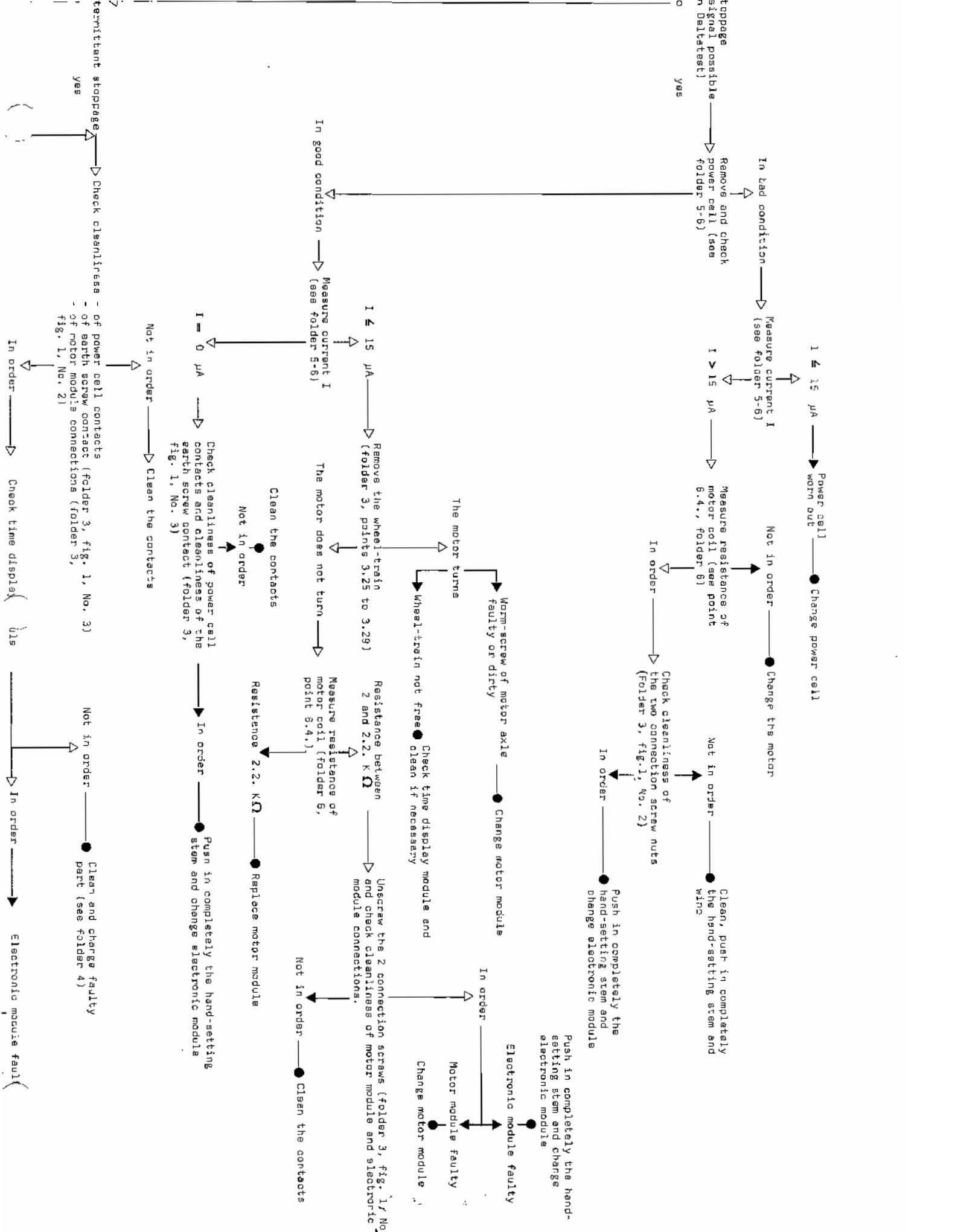
fault detected

correction

#4







In bad condition → Measure current I (see folder 5-6)

$I \leq 15 \mu A$  → Power cell worn out → Change power cell

$I > 15 \mu A$  → Measure resistance of motor coil (see point 6.4., folder 6)

Not in order → Change the motor

In order → Check cleanliness of the two connection screw nuts (Folder 3, fig. 1, No. 2)

Not in order → Clean, push in completely the hand-setting stem and wind

In order → Push in completely the hand-setting stem and change electronic module

The motor turns → Warm-screw of motor axle → Change motor module

Wheel-train not free → Check time display module and clean if necessary

Resistance between 2 and 2.2.  $K \Omega$  → Unscrew the 2 connection screws (folder 3, fig. 1, No. 2) and check cleanliness of motor module and electronic module connections.

Measure resistance of motor coil (Folder 6, point 6.4.) → Resistance 2.2.  $K \Omega$  → Replace motor module

Not in order → Clean the contacts

In good condition → Measure current I (see folder 5-6)

$I \leq 15 \mu A$  → Remove the wheel-train (folder 3, paints 3.25 to 3.29)

The motor does not turn → Clean the contacts

Not in order → Check cleanliness of power cell contacts and cleanliness of the earth screw contact (folder 3, fig. 1, No. 3)

$I = 0 \mu A$  → Clean the contacts

Not in order → Clean the contacts

Check cleanliness of power cell contacts

Not in order → Check time display

In order → Electronic module faulty

Not in order → Clean and change faulty part (see folder 4)

In order → Electronic module faulty