HOW TO REPAIR THE

LE COULTRE

"Futurematic"

100% AUTOMATIC WATCH

VACHERON & CONSTANTIN-LE COULTRE WATCHES, INC.
580 FIFTH AVENUE • NEW YORK 19, N.Y.

IMPORTANT INSTRUCTIONS

TO REPAIRERS AND WATCHMAKERS

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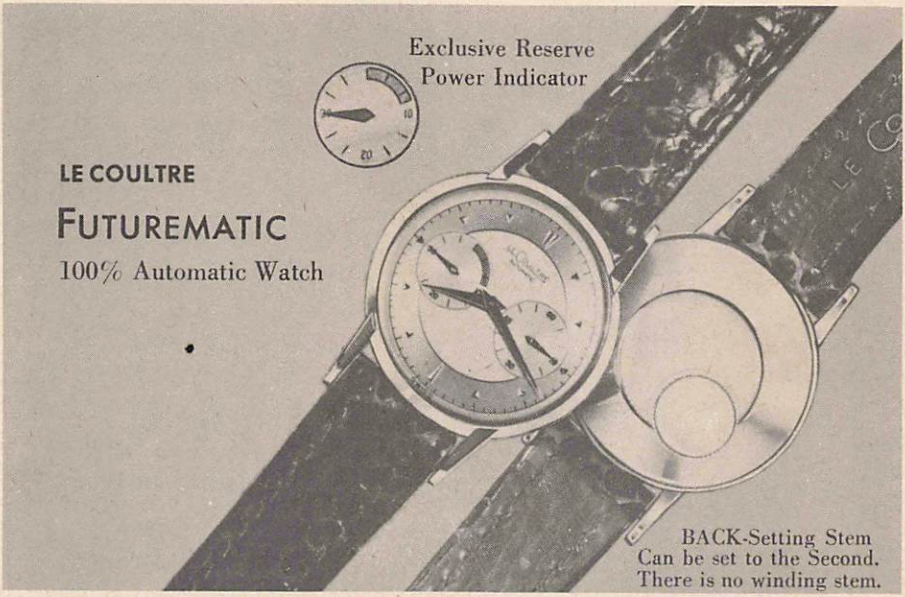
Published by

Vacheron & Constantin-LeCoultre Watches, Inc.

580 Fifth Avenue • New York 19, New York



PRINTED IN U.S.A.

IMPORTANT INSTRUCTIONS TO REPAIRERS AND WATCHMAKERS

LeCoultre "Futurematic" 100% Automatic Watch

The LeCoultre "Futurematic" is an entirely new specialty product and no attempt at repair or servicing should be undertaken without being fully acquainted with its unique construction. *Improper servicing can result in damage to the movement.*

The following differences in the LeCoultre Futurematic will be immediately apparent:

1. There Is No Winding Stem — Hand-winding is rendered unnecessary due to the ease and speed with which the movement is wound by the motions of the wrist.

2. Rear Setting Crown—The *Setting Crown* is on the back of the watch. To set, push toward center of watch. Push toward rim after setting.

3. Setting Crown Stops Balance — When the *Setting Crown* is pushed toward the center of the watch for setting, this action at the same time stops the movement. The movement starts the moment the *Crown* is pushed outward to its original position.

4. Stopwork on Mainspring — The watch is stopped before the mainspring is completely unwound by a *stopwork* on the barrel of the mainspring.

5. Reserve Power Indicator and Red Zone — The exact reserve running time of the mainspring is shown by the *Reserve Power Indicator* on the dial. The winding stops when the hand registers from 30 to 33 hours. The *Red Zone* marks the approximate last 8 hours of running time. When the Indicator has passed through

the Red Zone, the stopwork automatically stops the watch. There is a reserve of power equal to several hours of running time still left in the mainspring; consequently, the balance will start with a few motions of the oscillating weight, and the watch is fully powered for accurate running.

6. Oscillating Weight Locks For Greatest Efficiency When Watch Is Fully Wound – When the mainspring is so wound, a hook engages with it, locking it into position. When the mainspring unwinds slightly, the hook is disengaged and the weight resumes oscillating until the mainspring is again fully wound. This saves considerable wear.

7. Mainspring Attached to Arbor and Barrel — Due to the fact that the oscillating winding weight is locked when the mainspring is fully wound and the chance of overwinding is eliminated, no "clutch" arrangement or sliding brace spring is necessary. The mainspring is fixed at both ends like the conventional mainspring.

8. Large Dimensioned Parts – The balance wheel and escapement are larger than in that of any other known self-winding watch.

9. Engineered for Accuracy – All of these features contribute to the accuracy of the LeCoultre Futurematic. The driving power is restricted to the zone in which the power of the mainspring is uniform. It is possible, thus, to secure a high degree of precision and regularity in adjustment. *But, these new features require that the watch repairer or serviceman be intimately familiar with all of the mechanical differences of this watch in order that actual damage to the movement may be avoided.*

IMPORTANT SERVICE INSTRUCTIONS

10. Do Not Dismount Any Part of the Movement Before Having Unwound the Mainspring.

THIS IS VERY IMPORTANT.

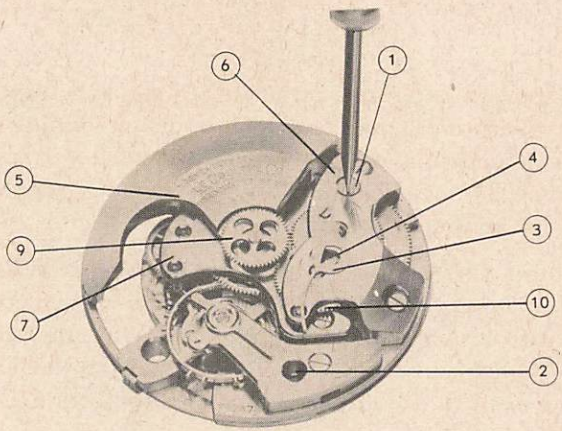


Fig. 1

To unwind the mainspring:

a) Insert screw driver into the "Winding Pinion Screw" (No. 1—Fig. 1) indicated by an arrow on the *Barrel Bridge.*

b) Release the *Click visible through the aperture (2) in the heel of the Balance Cock,* and with the screw driver held firmly on the *Winding Pinion Screw (No. 1—Fig. 1), allow* mainspring to slowly unwind.

THE ABOVE STEPS ARE ABSOLUTELY ESSENTIAL

By following the above steps, all the different stages of dismounting can be effected without any risk whatever. If these instructions are not followed, the *Mainspring may unwind abruptly and break the Barrel Arbor.*

NOTE: When the spring is completely wound and the oscillating weight hooked, it may be difficult to start unwinding. In this case, let the watch run for a little while when the weight will unhook itself. But if the watch will not run due to dirt, a broken staff or other reasons, what is to be done? In this case, the watch may be unwound by removing the *Balance Wheel* and *Pallet* and, with caution, permit the train to slowly run and, in this way, unwind the mainspring.

11. To Dismount the Barrel Completely –

a) Hold the *Barrel Arbor* with *Pin Vise* (See Fig. 2) and wind the spring slightly (1/8th of a turn) to loosen *Disc* 11 (Fig. 2).

b) Unscrew the two screws (No. 12–Fig. 2) completely.

c) Unscrew the Disc completely, turning it towards the right (NB lefthand thread 13).

d) Slowly unwind the spring until it is completely expanded

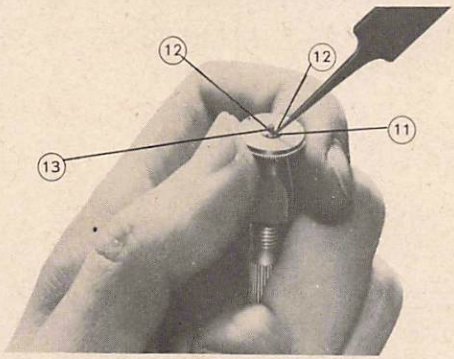


Fig. 2

12. To Mount the Barrel – Place Spring and Arbor in position; lubricate; fix cover. Then,

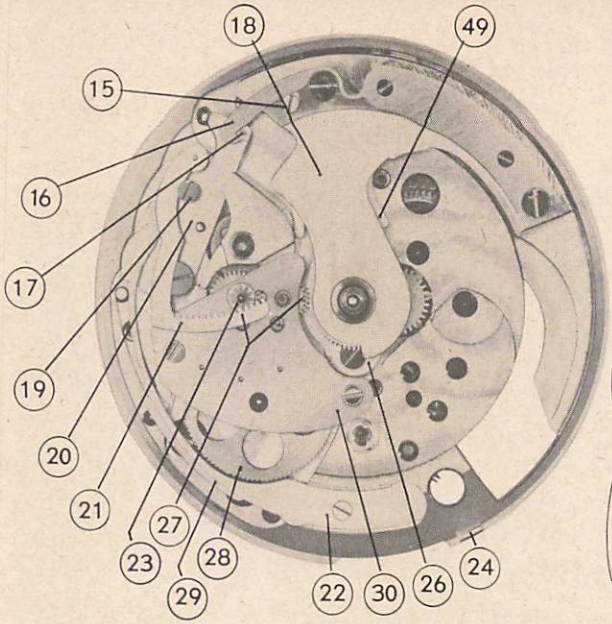
a) Hold *Barrel Arbor* in *Pin Vise* as shown in Fig. 2.

b) Wind Spring 1¼ to 1½ turns.

c) Place Disc 11 (Fig. 2) back into position by screwing up as far as it will go (turn towards left). Line up the two screw holes in the Disc with those in the cover.

d) Replace two screws 12 (Fig. 2).

The Barrel is now ready for mounting on the movement. If Lever 20 (Fig. 3 & Fig. 6) is in place, pull it outwards by Pin 50 using a fine Hook (see Fig. 6); this is to allow passage of Pivot 13 and Disc 11 over Cone 51.



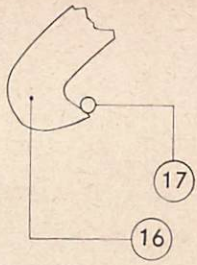


Fig. 3b

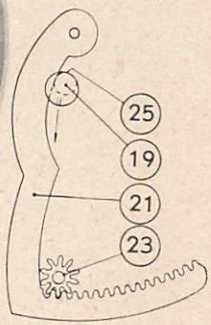


Fig. 3a

Fig. 3

13. Adjustment of Mechanism

CAUTION: The Mainspring must be unwound (see Instruction 10).

All parts of the movement must be in place except dial and hands.

a) Check if Pinion 23 (Fig. 3 & 3a) of *Reserve Indicator* is resting well against back of toothed portion of sector 21 (as in Fig. 3a).

b) Adjust *Eccentric* 19 (Fig. 3 & 3a) so that it does not rest against sector 21, but has a slight clearance (1 to 2/100ths) at point 25 in the groove of the *Eccentric.*

c) Then wind the Mainspring 4 turns at *most* by means of Screw 1 (Fig. 1).

NOTE: 16 turns of the screw is equal to 4 turns of Barrel Arbor.

CAUTION! NEVER WIND THE MAINSPRING MORE THAN 4 TURNS!

d) Adjust hook-shaped part 16 (Fig. 3) by means of the Eccentric 15 so that it just engages with Pin 17 (Fig. 3b).

THE OSCILLATING WEIGHT IS THUS LOCKED.

Now, this is important to remember: the preliminary winding of the spring was 1¼ to 1½ turns (see instruction 12B); the winding used was 4 turns (see instruction 13c), making a total of 5¼ to 5½ turns. Now the total expansion of Mainspring is 6 to 6¼ turns. Consequently, when the Oscillating weight is locked, there still remains ¾ of a turn unused as a margin of security. *THIS MARGIN IS ESSENTIAL TO ACCURATE OPERATION.*

14. Mounting of the Dial and Hands

Unwind Mainspring (see instruction 10); place dial and hands in position (the hand of the Reserve Indicator to be placed at "O"; i.e., pointing to top of red zone). After the Mainspring is wound when the oscillating weight becomes hooked, this hand will indicate 30 to 33. It will not go beyond this point.

15. Casing the Movement

a) Place *Hand-Setting Crown* 45 (Fig. 5) in pulled-out position. (31—Fig. 4).

b) Check if *Balance Stop Spring 3* (Fig. 1) is well-adjusted so that the head of the *Hand-Setting Crown Screw* 43 (Fig. 5) falls into place at the entry 4 of Lever 3 (Fig. 1).

c) Place Movement in bottom of case with fixing 24 (Fig. 3) in the corresponding entry.

d) Close case.

ASSEMBLY OF DIFFERENT PARTS OF MOVEMENT

a) Place fixing 24 and the screw in position.

b) Place plate on special support.

c) Minute wheel, hour wheel; lubricate; fix oscillating weight bridge; bridge 26 (Fig. 3) and screw.

d) Train wheels, bridge 7 (Fig. 1) and screw.

e) Unwinding pinion and screw 1.

f) Barrel, ratchet, intermediate wheel 10, barrel bridge 6 and screw.

g) Stop lever 20 (Fig. 3).

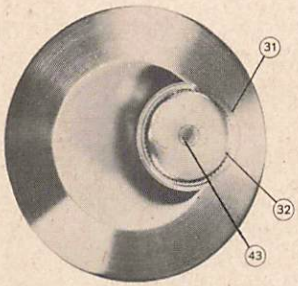


Fig. 4

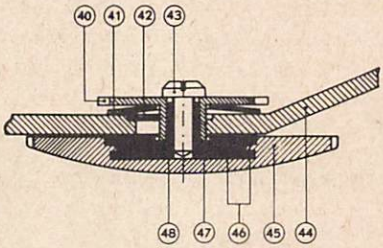


Fig. 5

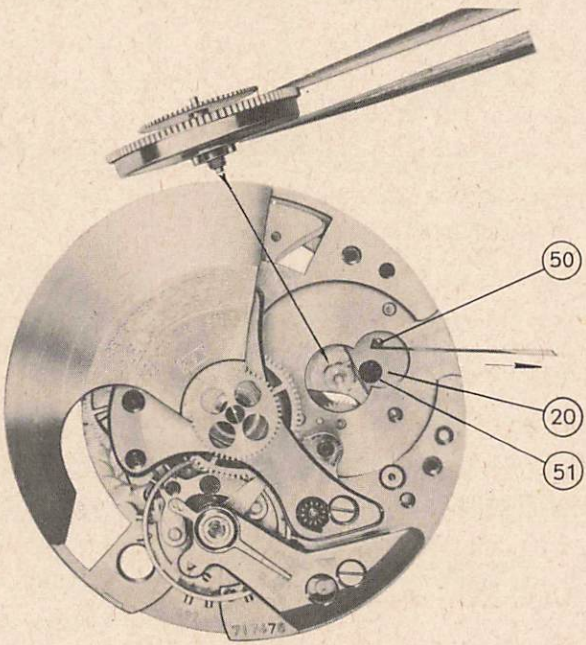


Fig. 6

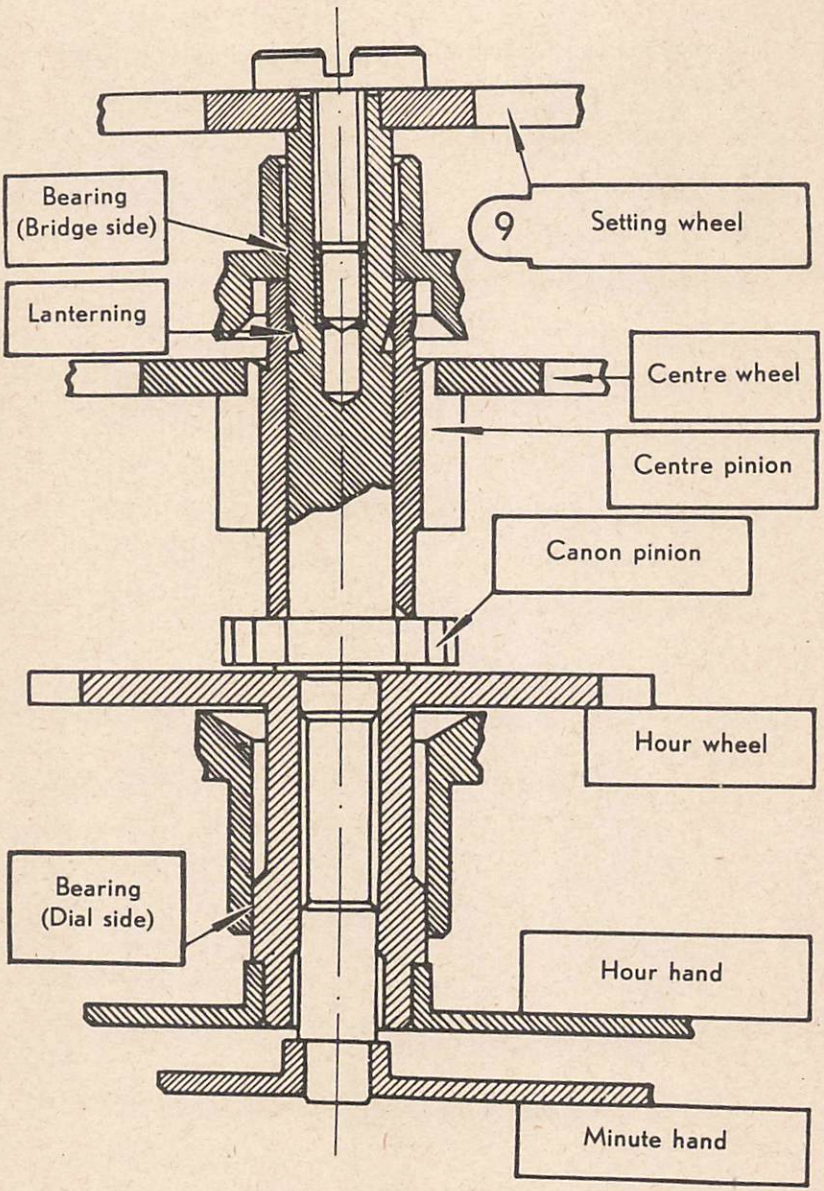


Fig. 7

h) Automatic reverser and two setting wheels 27, click spring 29, center wheel 28, pallet cock 30 and screw.

i) Sector 21 and pinion 23.

j) Stop lever spring 22.

k) Pallet-fork, pallet-cock and screw.

l) Balance cock and screw.

m) Balance stop spring 3 and screw.

n) Assemble arm of oscillating weight (18 + 49 + 16).

o) Place oscillating weight in position (5 in Fig. 1 + 18 in Fig. 3) (special screws).

p) Hand-setting wheel 9 and screw.

q) Adjust mechanism (see instruction 13 a - d).

r) Place dial and hands in position (see instruction 14).

s) Encase movement (see instruction 15).

To dismount movement, proceed in inverse order.

DO NOT FORGET TO UNWIND MAINSPRING (See instruction 10).

LUBRICATION

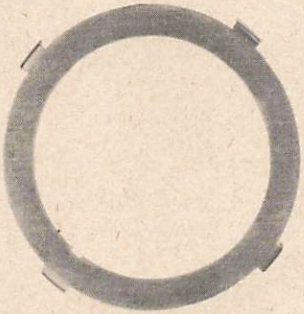
Apart from pivots and organs usually lubricated in any watch, the pinion teeth of the winding mechanism must also be *very slightly lubricated,* especially those of pinions carrying wheels 10 and 28, and the tooth of click spring 29.

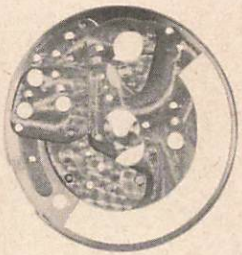
To do this, just put the pinion teeth in a piece of slightly greasy Sambucus or elder.

This *very slight* lubrication will prevent wear.

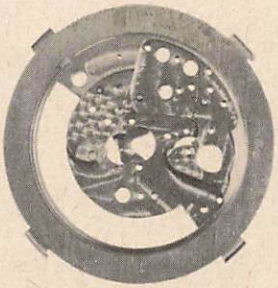
MOVEMENT REPAIR REST FOR THE LE COULTRE "FUTUREMATIC"

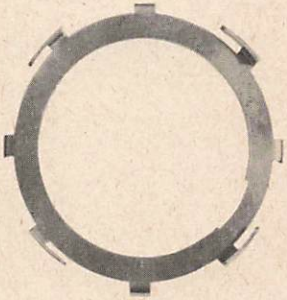
CAUTION—Always be sure to use this special movement rest when dissembling or assembling movement of the LeCoultre "Futurematic". In this way, danger of distorting the plate is eliminated.



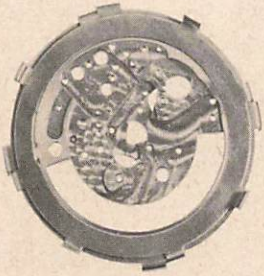


A. Watch goes into stand illustrated, dial side up. See that stud fits into slot of stand.





B. With movement on lower stand, place upper portion of stand over the movement with the wide slot exactly over the narrow slot in the lower stand.



C. Then rotate clockwise so that upper stand will hook into lower portion. You may now work on either side of movement conveniently and safely.