HOW TO REPAIR THE
LE COULTRE
"Futurematic"
100% AUTOMATIC WATCH

VACHERON & CONSTANTIN-LE COULTRE WATCHES, INC.
DIVISION OF
LONGINES-WITTNAUER WATCH CO., INC.
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IMPORTANT INSTRUCTIONS
TO REPAIRERS AND WATCHMAKERS

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LE COULTRE
FUTUREMATIC
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Back Setting Lever
Can be set in the Sound.
There is no winding stem.

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LeCoultre "Futuristic"
100% Automatic Watch

The LeCoultre "Futuristic" 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 Futuristic 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.


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 of sliding brace spring is necessary. The mainspring is fixed at both ends like the conventional mainspring.

8. Large Dimensioned Parts — The balance wheel and escape ment 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 LoConline Paramecian. 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 Disassemble Any Part of the Movement Before Having Unwound the Mainspring.

THIS IS VERY IMPORTANT.
To unwind the mainspring:

a) Insert screw driver into the "Winding Pinion Screw" (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 lightly on the Winding Pinion Screw (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 affected 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 (1/16th of a turn) to loosen Disc II (Fig. 2).

b) Unscrew the two screws (Fig. 2) completely.

c) Unscrew the Disc completely, turning it towards the right (NB lefthand thread 15).

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 1 1/4 to 1 1/2 turns.

c) Place Disc II (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 29 using a fine Hook (see Fig. 6); this is to allow passage of Pivot 13 and Disc II over Cone 51.
13. Adjustment of Mechanism

CAUTION: The mainspring must be unwound (see Instruction 6).

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 section 21 (as in Fig. 3a).

b) Adjust Eccentric 19 (Fig. 3 & 3a) so that it does not rest against section 21, but has a slight clearance (1 to 2/100ths) at point 23 in the groove of the Eccentric.

c) Then unwind 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 13 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 1\(\frac{1}{4}\) to 1\(\frac{1}{2}\) turns (see instruction 8); the winding was 4 turns (see instruction 9), making a total of 5\(\frac{1}{4}\) to 5\(\frac{1}{2}\) turns. Now the total expansion of mainspring is 6 to 6\(\frac{1}{4}\) turns. Consequently, when the oscillating weight is locked, there still remains 3\(\frac{1}{4}\) of a turn unused as a margin of security. THE MARGIN IS ESSENTIAL TO ACCURATE OPERATION.

14. Mounting of the Dial and Hands

Unwind mainspring (see instruction 6); 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 39 to 33. It will not go beyond this point.

15. Going the Movement

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

b) Check if Balance Stop Spring 3 (Fig. 1) is well adjusted so that the hand 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 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. 5) and screw.

d) Train wheel, 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. 5).
h) Automatic reverter and two setting wheels 27, click spring 29, center wheel 28, pallet cock 30 and screw.
i) Section 21 and pinion 25.
j) Lever spring 22.
k) Escape wheel, escape wheel bridge and screw.
l) Balance wheel, cock and screw.
m) Balance wheel stop spring 3 and screw.
n) Assemble arm of oscillating weight (18 + 43 + 15).
o) Place oscillating weight in position (5 in Fig. 1 + 18 in Fig. 5) (special screw).
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) Engrave 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 always lubricated in any watch, the pinion teeth of the winding mechanism must also be very slightly lubricated, especially those of pinions carrying wheels 19 and 28, and the teeth of click spring 29.

To do this, it suffices to prick the pinion teeth in a drop of slightly greasy solidified vegetable oil (lamb's ears or elder).

This very slight lubrication will prevent wear.
CAUTION—Always be sure to use this special movement rest when disassembling 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.