



ROLEX

TECHNICAL AND SERVICE INFORMATION

3rd Edition

TECHNICAL AND SERVICE INFORMATION

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ROLEX TECHNICAL AND SERVICE INFORMATION

The purpose of this new revised and enlarged "Technical and Service Information" booklet is to help good watchmakers to familiarize themselves with the servicing of Rolex and Tudor watches.

We have purposefully limited the contents to the points that may require special knowledge and attention, and we hope that it will be useful to the fine craftsmen who service our product.

Should you require any additional technical information, please feel free to write us.

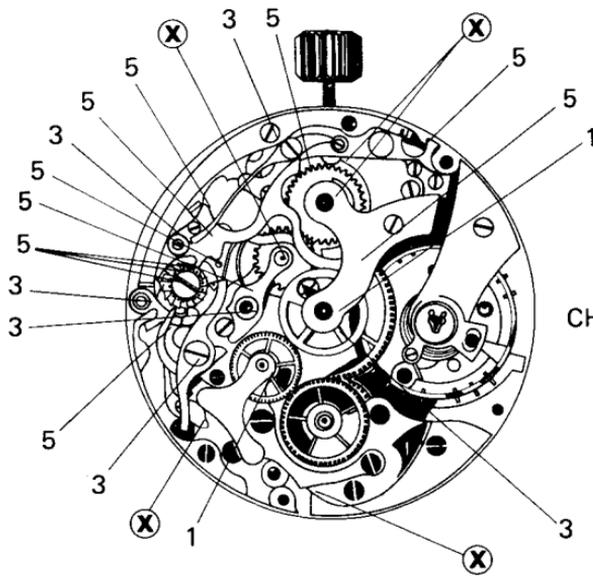
**ROLEX WATCH U.S.A., INC.
665 FIFTH AVENUE
NEW YORK, NEW YORK 10022
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IN CANADA

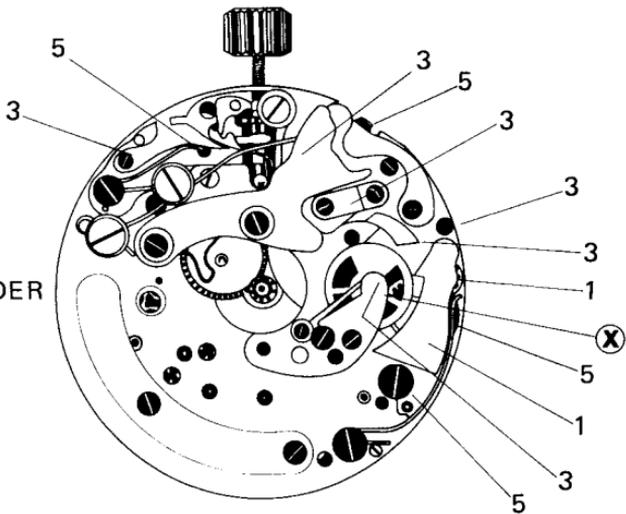
**THE ROLEX WATCH CO. OF CANADA LTD.
80 RICHMOND STREET, WEST
TORONTO, ONTARIO
Telephone: 416 364-5341**

CURRENT ROLEX CALIBRES

Caliber 1800	4¾"	Tonneau-shaped, 21,600 beat
Caliber 1400-1	6" round	21,600 beat
Caliber 1600	9¼" round	19,800 beat
Caliber 2030	7¾" round	Self-winding, 28,800 beat, sweep second hand
Caliber 2035	7¾"	Same as above with date
Caliber 1220	10½" round	Manual-winding, 21,600 beat
Caliber 1225	10½" round	Manual-winding, 21,600 beat Calendar
Caliber 1520	12½" round	Self-winding, 19,800 beat, regula- tion by regulator and inertia blocks
Caliber 1570	12½" round	Self-winding, 19,800 beat regulation by Micro-Stella sys- tems
Caliber 1556	12½" round	Same as above with day and date feature
Caliber 1575	12½" round	Same as above with date feature
Caliber 1575-GMT	12½" round	Same as above with date feature and 24- hour hand
Caliber 727	13" round	Chronograph 21,600 beat

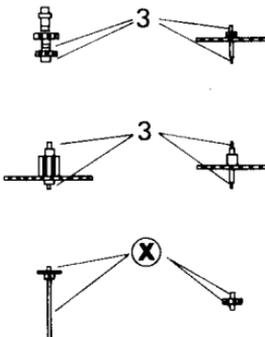


CHRONOGRAPH



HOUR RECORDER

CALIBER 2030/35



OILING CODE

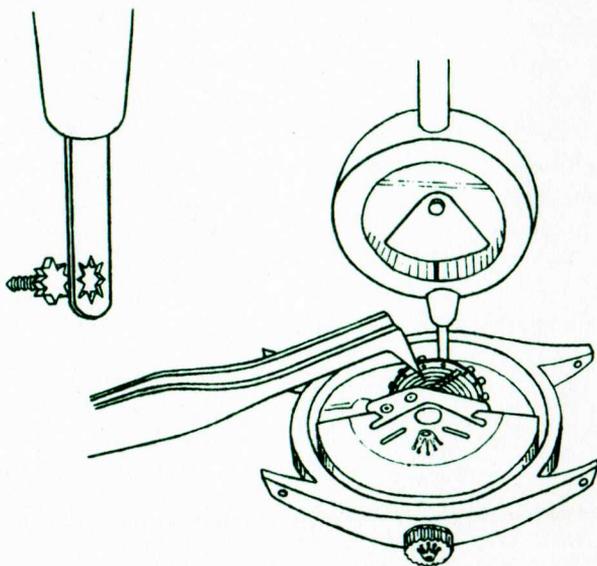
- 1 Synt-A-Lube 9010
- 2 Moebius 941
- 3 PML 163
- 4 Molybdenum bisulfide MR 1
- 5 Grease PML or KT 22

- (X) Do not oil
- (△) Do not dismantle

ROLEX REGULATING SYSTEMS

Micro-Stella

1. This system is used in all 12½" Rolex chronometers of 18,000 and 19,800 beat. The balance wheel is fitted with 18 screws including two regulating screws with slotted heads for timing adjustments when the movement is uncased.
2. Two gold Micro-Stella (star-shaped) regulating screws are provided for timing adjustments when the watch is cased.
3. The Micro-Stella wrench is comparable to a ring spanner, the tip of which fits over the Micro-Stella regulating screws on the balance wheel.
4. When performing corrections, hold balance wheel with nickel tweezers, insert the Micro-Stella tool over the screw head and screw or unscrew each one of the two Micro-Stella screws exactly the same number of degrees.
5. The Micro-Stella wrench is provided with graduations corresponding to one second each.
6. Micro-Stella wrenches are available from the Rolex Material Division.



Calibre 1400 6" Round

Because of the small size of the movement the Micro-Stella wrench cannot be used with calibre 1400 even though the basic timing principle is the same.

The balance wheel has two pairs of screws that are used for the timing of the movement. The turning of the screws is done with a fine screwdriver blade and one-quarter of one turn on one pair of diametrically-opposed screws will create a variation of about 15 seconds per 24 hours. It is possible to make corrections of up to three minutes per day by turning the timing screws.

Timing differences greater than three minutes per day must first be corrected by using timing washers in the conventional manner.

Inertia Blocks

Calibre 1520 12½" self-winding and calibre 1600 9¼" manual-wind follow a different principle.

These movements are equipped with screwless balance wheels and flat hairsprings. The balance wheel arm is fitted with two inertia blocks for fine timing. This is done by turning these two inertia blocks (one yellow, one white) using a very fine blade, such as is used for turning the collet of hairsprings. By directing the inertia blocks splits towards the center of the balance wheel a slow-down is obtained; while a gain of time will result if the splits are turned in the opposite way.

The maximum correction obtainable is approximately 10 seconds per 24 hours, from one extreme position to the other.

More substantial corrections are done by moving the regulator.

SERVICING OF SERIES 1500 CALIBER MOVEMENT

1. All movements must be disassembled carefully *starting from* balance, paying special attention to hairspring, pivots and roller jewels. Make sure the balance is true and poised.
2. Check carefully the escapement and the train while dismantling and see that all wheels have the proper amount of end shake and play between wheel teeth and pinion leaves.
3. **IMPORTANT:** Check the barrel, barrel bridge and barrel arbor, also barrel arbor plate hole. Adjust end shake and side shake to a minimum and check mainspring strength. On caliber 1530-1560 (18,000 beat) use strength 0.122 to 0.125 mm.

On caliber 1520-1570 (19,800 beat) you can use up to 0.125 or 0.128 mm.

If the barrel bridge and barrel arbor hole in the main plate are worn, they can be closed, using a flat punch on bottom and a round one on top.

The current production models are fitted with a beryllium bushing in the bridge and are unlikely to show any signs of wear. The following remarks apply therefore to those of earlier production.

If the barrel bridge hole is badly worn, then it is advisable to fit a jewel, following these instructions:

- A. Open hole slowly and carefully so that it does not drift off center. Use two reamers starting with 1.20 and finishing with 2.29, carefully cleaning away any burr that may have been raised. The jewel to use is 2.30 O.D./1.60 hole and is available from the Rolex Material Division.
- B. Insert the jewel from the lower side and leave it flush. After checking barrel arbor end shake, it may be necessary to move jewel slightly.

The barrel, end and side shake must also be adjusted to a minimum.

- C. When adjusting barrel end shake, it is advisable that a small slot be made in the lid (if not factory made) so as to make it possible to open lid with a small screwdriver blade instead of pushing the lid off by applying pressure on the arbor end. The last method often bends the barrel lid and creates an excessive amount of end shake.

DISASSEMBLING THE CALENDAR MECHANISM

1. Remove the 'date indicator' by pulling away towards the winding crown.
2. Unscrew the nut over the calendar wheel using the tip of the tweezers or preferably the special Rolex tool available free of charge from Rolex Material Division. *This is a left-hand screw.*
3. Remove the calendar wheel.
4. Remove the double toothing hour wheel.
5. Unscrew and remove the 'date' jumper.
6. Remove the calendar yoke, taking care not to lose the jewel.
7. Unscrew and remove the calendar ring.

ASSEMBLING THE CALENDAR MECHANISM

1. Fit and screw on the calendar ring being guided by the small indentation in the calendar ring groove that is located roughly at the stem position.
2. Fit the jewel over the calendar yoke, oil the pivot with light oil (very sparingly, just enough for the jewel to stick to the post while it is being assembled).
3. Fit the calendar yoke spring in its working position.
4. Fit the double tooth hour wheel.
5. Lubricate the contact between the calendar yoke and its spring.
6. Fit and screw on the 'date' jumper.
7. Lubricate the post of the calendar wheel, move back the calendar yoke with a fine point, fit the calendar wheel taking care to put the calendar wheel finger on the top.
8. Screw on the left-hand screw.
9. Fit the 'date' disc by lowering it under the jewel covers of the calendar ring and pulling back the 'date' jumper.

CALENDAR ADJUSTMENTS

Check the tension of the 'date' jumper button, half of the button should be under the 'date' indicator when it is not under tension.

If the tension is too strong the 'date' indicator will not jump completely, and if the tension is not strong enough the 'date' will jump more than one day.

DISASSEMBLING THE SELF-WINDING MECHANISM

1. Unscrew and remove the three blue screws of the automatic bridge.
2. Remove the complete automatic mechanism.
3. Unscrew and remove the two screws of the sole of the automatic mechanism, then remove the bridge.
4. Remove in succession:
 - A. The intermediate wheel
 - B. The two reversing wheels
 - C. The two drivers
5. Remove the winding up wheel.
6. Remove the "U" shape jib.
7. Remove the rotor weight.

CHECKING

Make sure the weight is tight on its axle and that the axle is not worn.

A loose weight can be riveted again if it has not become too loose.

If the axle has to be replaced, it must be cut out in the lathe from the top like a balance staff.

Check the pivots of the drivers, principally, in the 17 jewel models 1520-1530.

If the bushings are worn, they should be replaced with jewels of the same dimensions as the bushings. These jewels are available from the Rolex Material Division.

Check end shake on the reversing wheel drivers as it is sometimes too close.

ASSEMBLING THE SELF-WINDING MECHANISM

1. Fit the upper self-winding bridge on the weight taking care to oil the bearing axle.
2. Fit the "U" shaped jib.
3. Fit the winding up wheel on the upper part of the axle.
4. Assemble the two reversing wheels taking care to oil the center hole and the clicks.
5. Fit in succession:
 - A. The two reversing wheels
 - B. The intermediate wheel
6. Fit and screw on the sole.
7. Lubricate the pivots (Synt-A-Lube).
8. Check the wheels for freedom.
9. After the movement repair and the timing is completed, fit and screw on the movement, the complete self-winding mechanism, using the three blue screws.

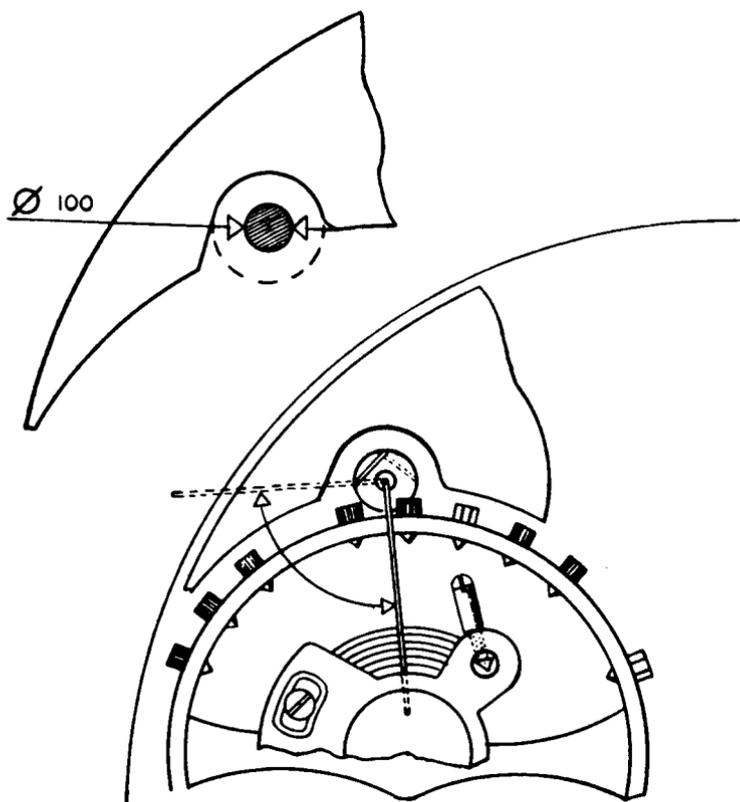
HAIRSPRING GUARDS

Most 18000 beat movements with regulators are factory-equipped with a hair-spring guard to prevent the hairspring body from becoming caught over the overcoil when the movement is subjected to a strong shock.

See diagram for proper insertion and handling of the hairspring guard and pay special attention to the following:

1. Make sure that it reaches the second or third hairspring coil from the collet.
2. Ascertain that the guard is high enough over the hairspring body so that it will not rub when the movement is in dial-up position.

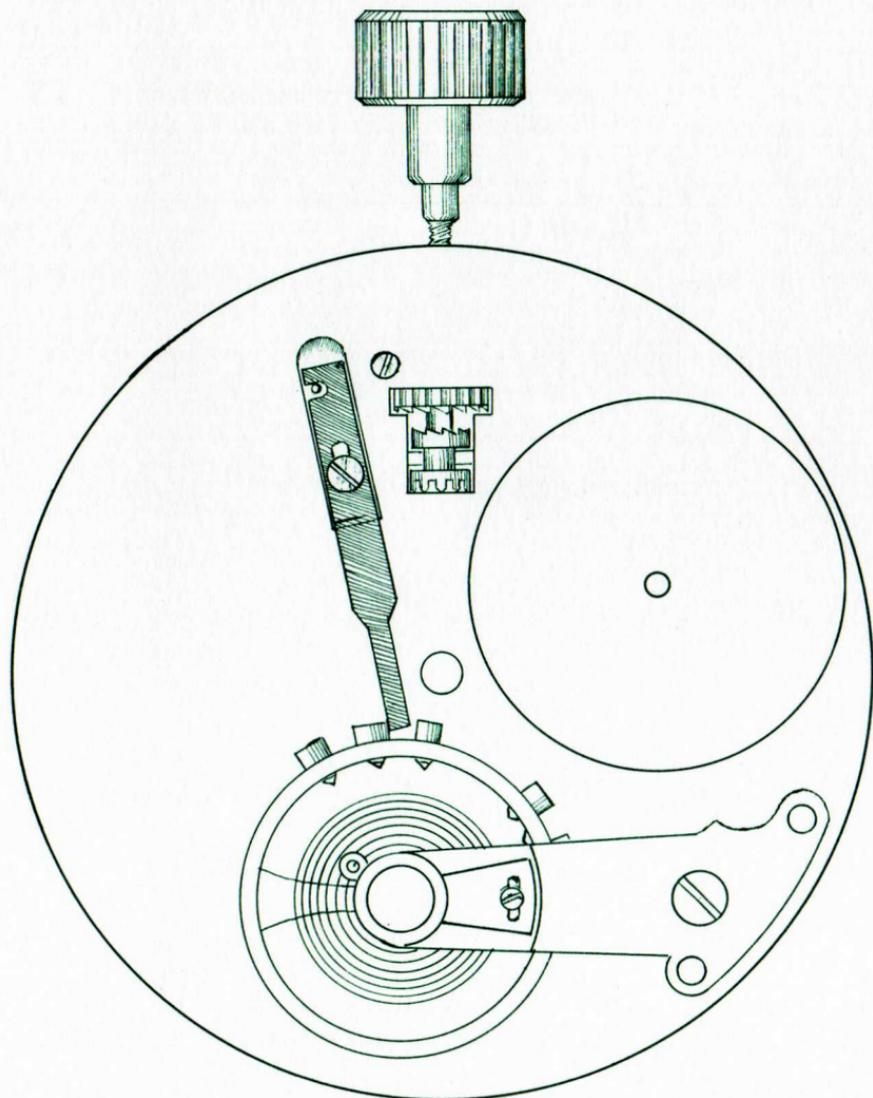
Hairspring guards are available from Rolex Material Division, free of charge.



HACK DEVICE FOR LATE 1500 SERIES MOVEMENTS

The newer models of the 1500 series movements are equipped with a hack device to facilitate the synchronization of the hands.

It is not necessary to dismantle this mechanism when cleaning the movement and this device should not be lubricated.

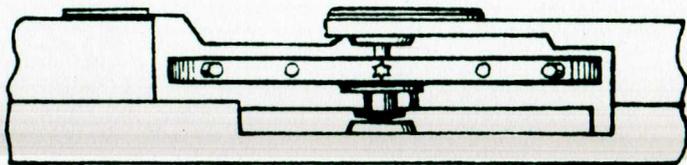
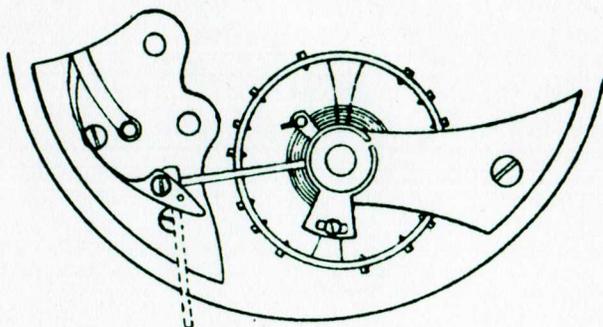
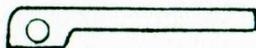


CALIBRE 13"-722 AND 722-1

Rolex Chronograph

A special type of hairspring guard is used with this calibre, and is not interchangeable with the regular hairspring guard described on Page 12.

These hairspring guards are also available free of charge from Rolex Material Division.



CALIBER 1030

Rotor Unit Repairs

This calibre has not been made for several years and was replaced by calibre 1530-1575. There are however substantial numbers of movements of this type still used today and in some early production models a correction is advisable. The sole for self-winding mechanism, part #7005 with is made of brass, and the reversing wheels, part #7018 also brass, provide a bad friction surface resulting in signs of excessive wear.

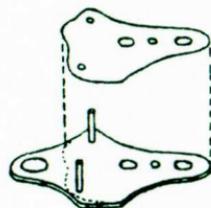
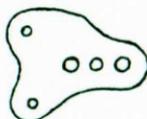
This problem was remedied in the course of production and the great majority of calibre #1030 movements have a steel sole spacer, part #7005-1 (not illustrated in material catalogue). This part which is available from the Rolex Material Division is inserted over the sole and provides a complete solution to the problem.

After having added the sole spacer, it is necessary to readjust the endshake of the intermediate rotor wheel part #7021 since it will have been increased by an amount equal to the thickness of the spacer.

SOLE
No. 7005



STEEL SPACER
No. 7005-1



CALIBRES 2030-2035

Calibre 2030, replacing calibre 1161-1166, is designed for the ROLEX LADY DATE. Its features are as follows:

Exterior diameter	20,00 mm
Total height with automatic	5,40 mm
Total height with automatic and calendar	5,90 mm
Number of jewels	28
Number of vibrations per hour (fast beat movement)	28,000
Rotor self-winding	
Sweep second with hack feature	
Shock protecting device	
Screwless balance with flat hairspring	
Movable stud holder	
Spirofin regulator with two ruby pins	
Precise timing by regulator-screw with Microstella head	
Clinergic escapement	
Escape wheel with 21 teeth	
Decentred center wheel	
Magnetic braking of the sweep second pinion	
Caliber 2035: Identical plus calendar	

SPECIAL FEATURES OF CALIBER 2030-2035

Special Features

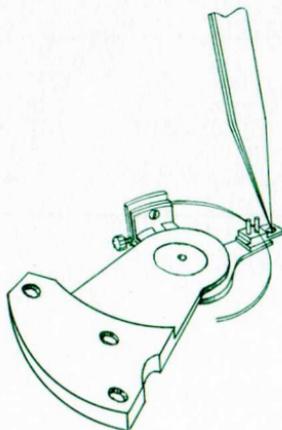
"Spirofin" regulator with 2 rubies as pins.

Fine regulating by means of a Microstella screw on the regulator.

Movable stud-holder enables immediate beat correction.

Spirofin Regulator

The regulator carries two orientable ruby pins which allow the adjustment of the hairspring between the pins. The beat of the hairspring must be adjusted before the watch is regulated, by turning the pin-holder with tweezers (clockwise to narrow the gap). Use the regulator to approach the timing as close to zero as possible and the Microstella screw for the final adjustment. The Microstella key is the same as for caliber 1570-75.



Escapement

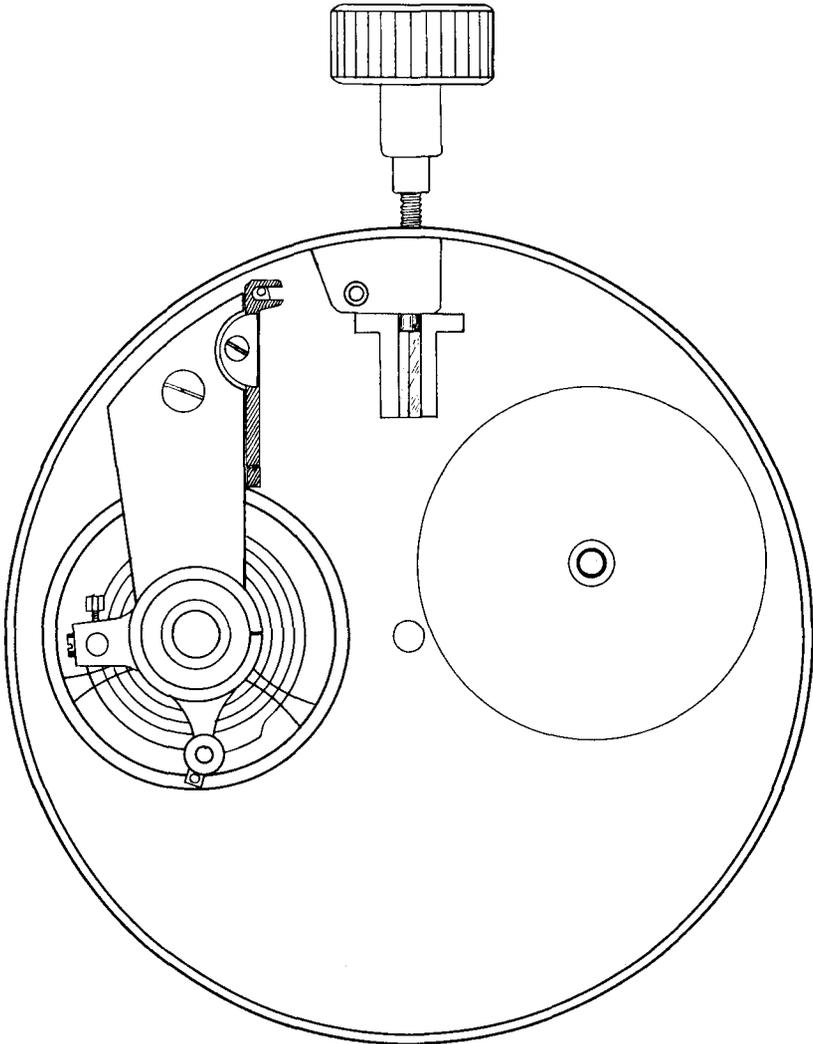
The Clinergic escapement used for fast beat movements shows very limited play and clearance which can only be correctly observed under a binocular magnifying glass. As the very delicate functions of this escapement have been accurately set in the factory by Rolex specialists, we strongly recommend not touching it unless a serious defect is noticed. The balance wheel has a special balance-spring collet that is perfectly poised and has the hairspring attached in such a manner as to eliminate the usual stress that is caused by the conventional pinning method.

HACK DEVICE FOR MOVEMENTS CALIBER 2030-2035

All caliber 2030-2035 movements are equipped with a hack device to facilitate the synchronization of the hands.

It is suggested that the device be removed when the movement is dismantled for cleaning so that it is not lost or damaged in the cleaning machine.

This device should not be lubricated.



BRAKING OF THE SWEEP SECOND PINION

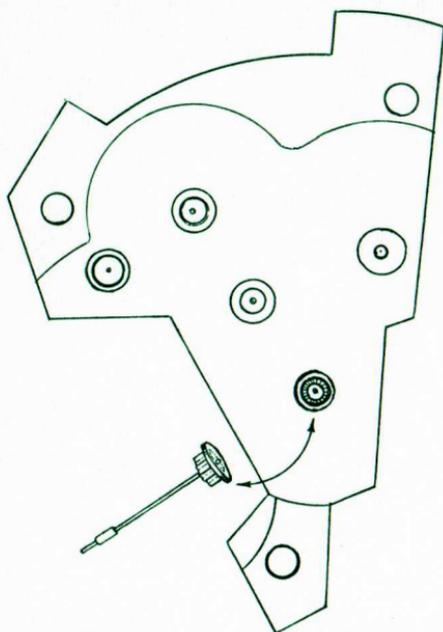
To avoid the disadvantages of the friction spring, the caliber 2030-35 is equipped with magnetic braking of the sweep second pinion. To this effect a magnetic ring is attached to the sweep second pinion. This magnet is attracted to the soft iron bushing, set into the train wheel bridge.

Because of this small permanent magnet, a slight magnetism can always be detected in the movement.

The magnetic field has no influence on the timekeeping of the watch which should not be demagnetized.

We recommend that non-magnetic tweezers be used to work on this model.

Attention: Even after a good cleaning, small metal chips attracted by the magnet may remain at the bottom of the pinion. Be careful to remove them with the cleaning paste "Rodico one touch".



OYSTER CASES

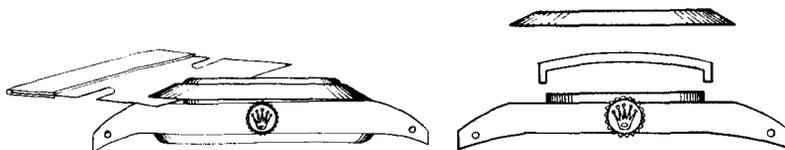
To ascertain that Rolex Oyster cases have retained their original resistance to moisture and can be guaranteed to withstand pressures equal to 50 meters or 165 feet in regular Oyster cases and 200 meters or 660 feet in Submariner cases, they should be tested in the Rolex "vacuum tank".

If it is necessary to make repairs please be guided by the following simple instructions:

Order all necessary parts from your local material house or directly for Rolex by indicating the four digit case reference number located between the case lugs at the 12 o'clock side of the case.

Replacement of Crystals

When removing the case bezel for the purpose of replacing the crystal, it is sometimes necessary to start by forcing a razor blade between the bezel and the case to make a space sufficiently wide for a knife blade.

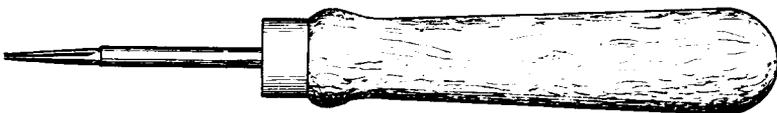
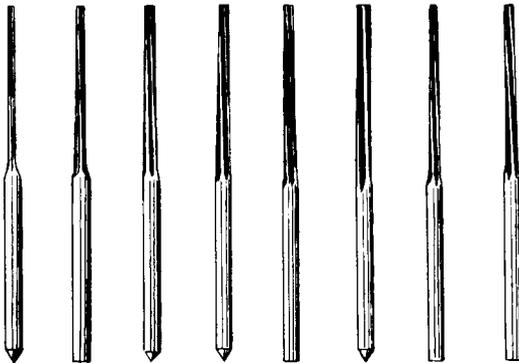
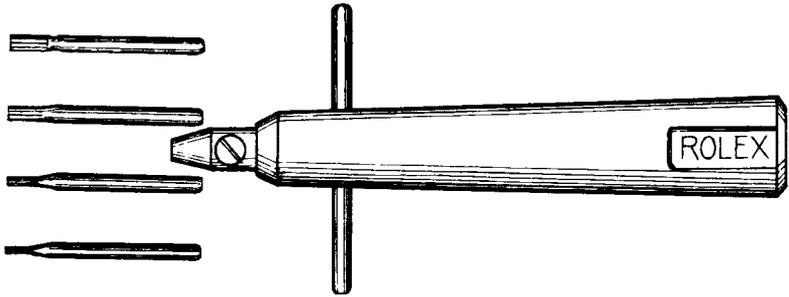


The crystal should be removed in the same careful manner, taking care not to scratch the case wall where the crystal fits. A scratch in this area could cause a leak.

REPLACEMENT OF CASE TUBES

To replace case tubes, a set of special Rolex broaches is necessary.

The broaches are available from Rolex Material Division and consist of the following:

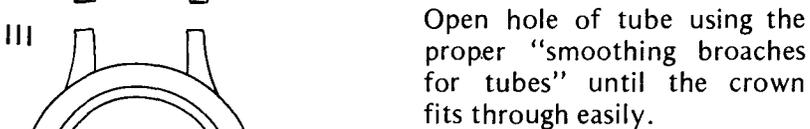
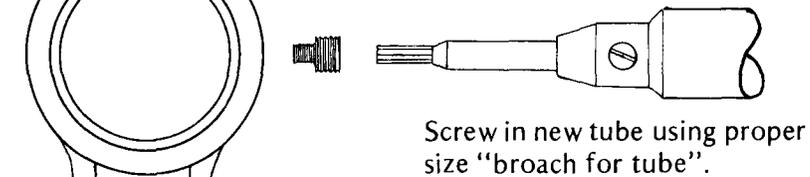
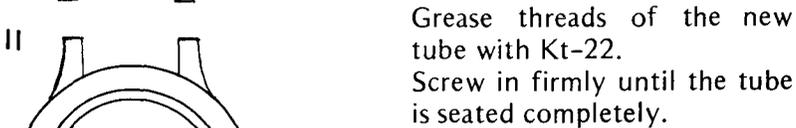
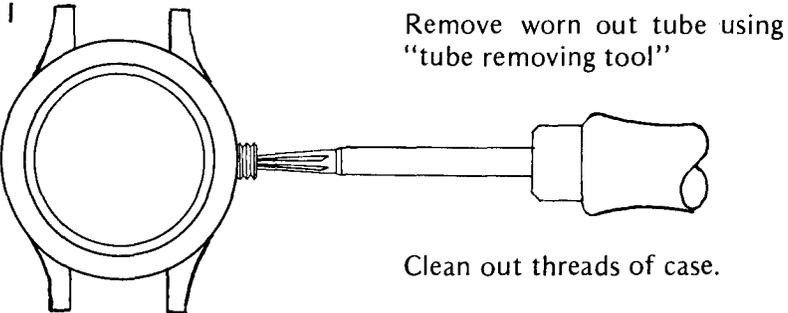


REPLACEMENT OF CASE TUBES *(continued)*

Important

Polish case after removing the bezel, but before removing the old crystal and tube to protect the crystal seat and tube threads.

After polishing case, use a triangle # 1 emery stick to restore the satin finish to the top of the case lugs.



Remove burr around tube hole.



ROLEX "TWINLOCK" AND "TRIPLOCK" CROWNS

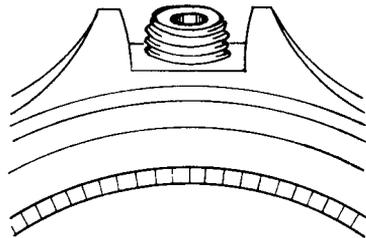
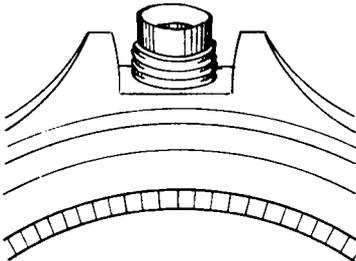
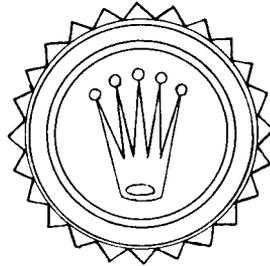
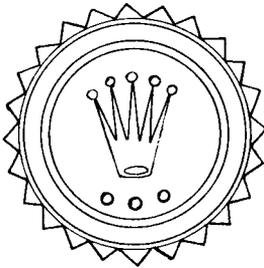
One of the most important and unique features of the Oyster case is its famous crown. The "Twinlock" crown is used on all regular models of Oyster cases.

The latest "Triplock" crown, illustrated on page 23, is used on the Rolex special purpose watches such as:

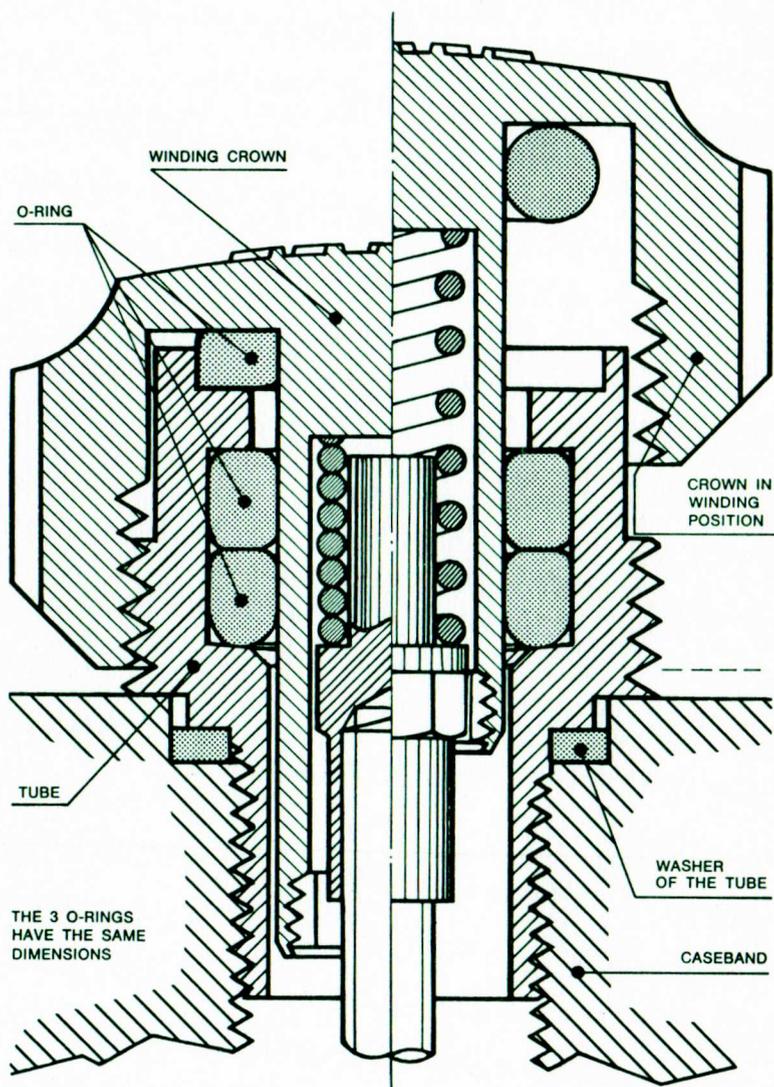
Ref. #5512-5513	Submariner
Ref. #1680	Submariner date
Ref. #1665	Sea-Dweller
Ref. #6263	Cosmograph
Ref. #6265	Cosmograph

The same crowns are used on Tudor models:

Ref. #7016	Submariner
Ref. #7021	Submariner date
Ref. #7031	Oyster date chronograph
Ref. #7032	Oyster date chronograph
Ref. #7149	Oyster date chronograph
Ref. #7159	Oyster date chronograph
Ref. #7169	Oyster date chronograph



Section of the OYSTER TRIPLOCK 701 crown and tube



N.B. — When replacing the tube, please do not fail to insert the washer between the caseband and the tube.