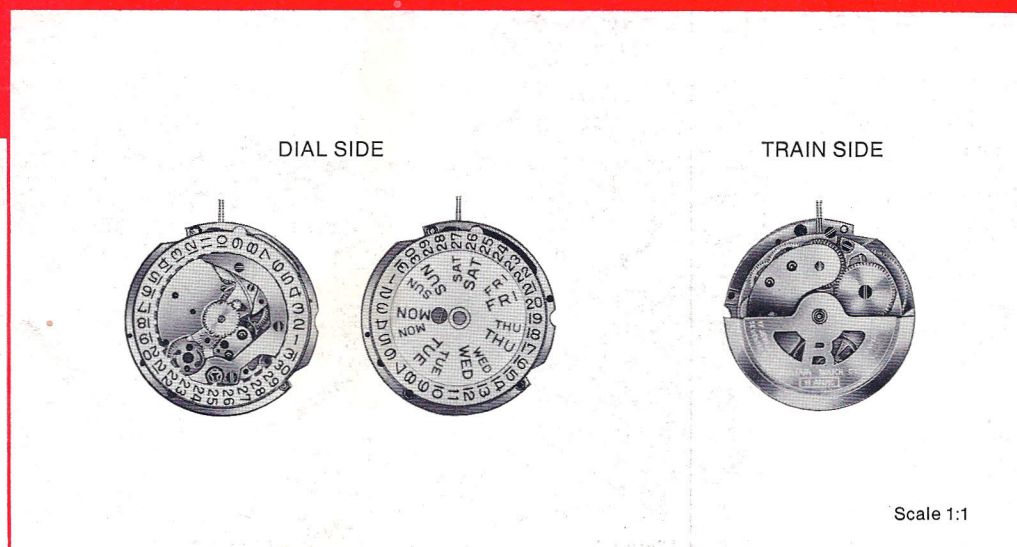


BULOVA WATCH COMPANY

TECHNICAL BULLETIN

FOR BULOVA CALIBERS 11 ANAC - 11 ANACD - 11 ANACB
AUTOMATIC, AUTOMATIC CALENDAR AND
AUTOMATIC DAY AND DATE WATCH MOVEMENTS



Specifications

Movement

11½ Ligne, lever escapement
Diameter of the plate 25.60 mm
Unbreakable and self-lubricated mainspring
Total running time: 42 hours
Screwless beryllium balance
Compensating alloy hairspring
21,600 beats per hour
Adjustable stud holder
Kif Elastor shock-resistant device
Angle of Lift (Pallet contact): 51°

Automatic mechanism

The oscillating weight, held down by a screw gib and made of antimagnetic alloy, is mounted on its axle located in the center of the movement and is free to swing in either direction. Whether the weight turns clockwise or counter-clockwise, winding of the mainspring occurs. Mounted on the train bridge, named for this reason, «combined bridge», the automatic mechanism consists of the oscillating weight and its gear, two reversing gear units which transmit winding to the crown and ratchet wheels by the intermediary of a reverser converting wheel, a reduction gear and a driving gear for crown wheel. Each reversing gear unit consists of a reversing gear and a reversing gear pinion, the latter being held in position by a spring. Whichever way the weight turns, the reversing gear meshes with the automatic train while the other slips. In any case, a fairly continuous self-winding action will follow. Should the watch be wound by stem and crown, the crown wheel will make the automatic train turn, but both reversing gear pinions will slip, therefore causing no interference with the automatic mechanism.

DESIGNATION OF TYPES

Caliber	Description	Height
11 ANAC	automatic, with center sweep-second	4.50 mm
11 ANACD	automatic, calendar with center sweep-second	4.50 mm
11 ANACB	automatic, day and date with center sweep-second	5.20 mm

Characteristics 11 ANAC

1. The oscillating weight arbor is **soldered** to the combined bridge. In the rare case that it might be necessary to replace it, a new combined bridge is required.
2. The minute wheel spring has been **riveted** to the pillar plate in order to make sure that the watchmaker will not lose it or forget to replace it after servicing. It is, therefore, part of the pillar plate and not available separately.
3. Beryllium-made bushing for the top pivot of the sweep second wheel is fitted inside the bottom part of the oscillating weight arbor and for that reason oiling is done through the oscillating weight arbor with an appropriate oiler. Bulova recommend oiling this bushing from under the bridge, **before** setting the latter.

Disassembling the watch

Uncasing

Excluding the one-piece, «monocoque» cases, the movement is normally held in the case by two casing clamps (191) and two casing screws (45C).

Removing the dial

After removing the hands and releasing the two lateral dial screws (47), the dial may be removed. The day star with dial disk (591) can be lifted up and after removing the three date indicator guard screws (577), the day and date mechanisms can be removed. A dial rest (148) is used for day date watches (caliber 11 ANACB) having a flat dial.

Checking the automatic gear

By moving the oscillating weight (344) in both directions, the transmission of the power from the oscillating weight (344) to the ratchet wheel (13) can be checked.

Removing the oscillating weight

The oscillating weight is held in place by a gib (343). To remove it, unscrew the gib screw (336) and remove the gib.

Releasing the mainspring

With the oscillating weight (344) removed, the mainspring can be released by simultaneously disengaging the ratchet click (32) from the ratchet wheel (13) and pressing with a pointed tool on one arm of the breguet spring (326) through the hole made in the upper bridge for automatic device (341). Turn the winding crown one quarter of a turn forward and then let the automatic train «run down» by turning the winding crown **slowly** backwards.

NOTE: Simultaneous disengaging of the ratchet click (32) from the ratchet wheel (13) and pressing on the breguet spring (326) can be done easily with one hand, using a tweezer sufficiently open to hold the ratchet click with one point and pressing on the breguet spring with the other.

Cleaning the escapement

As shown in figure 1, the balance and pallet are readily removed without disassembling any other parts of the movement.

The mainspring barrel

Figure 2 shows how easily the mainspring barrel (1S) is removed without disassembly of the self-winding mechanism. The mainspring arbor must make six full turns before the brake spring slips, which represents a total running time of over 40 hours. An unbreakable and life-time lubricated mainspring is used. Therefore, periodic cleaning of the barrel and mainspring is unnecessary.

RECOMMENDATION:

Do not dismantle the mainspring barrel. In case of difficulty, replace the barrel (1S) complete.

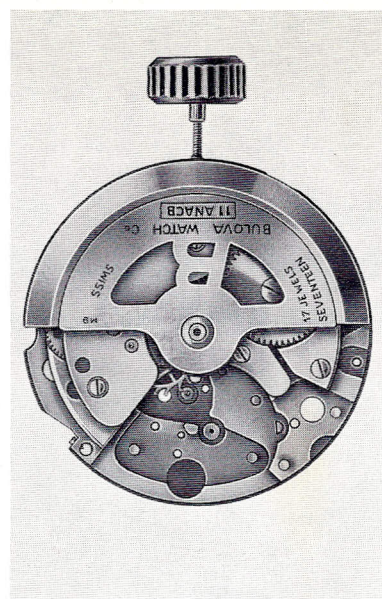


Figure 1

Removal of the balance wheel and pallet

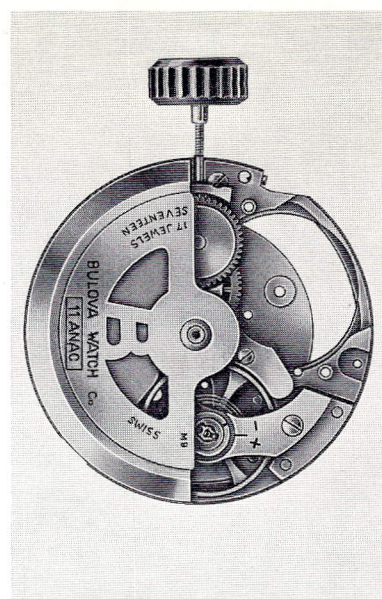
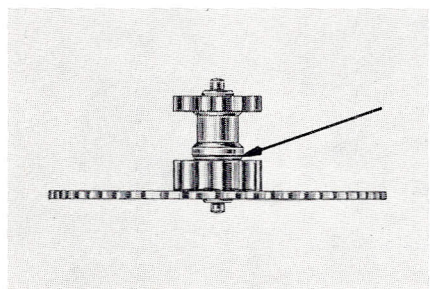
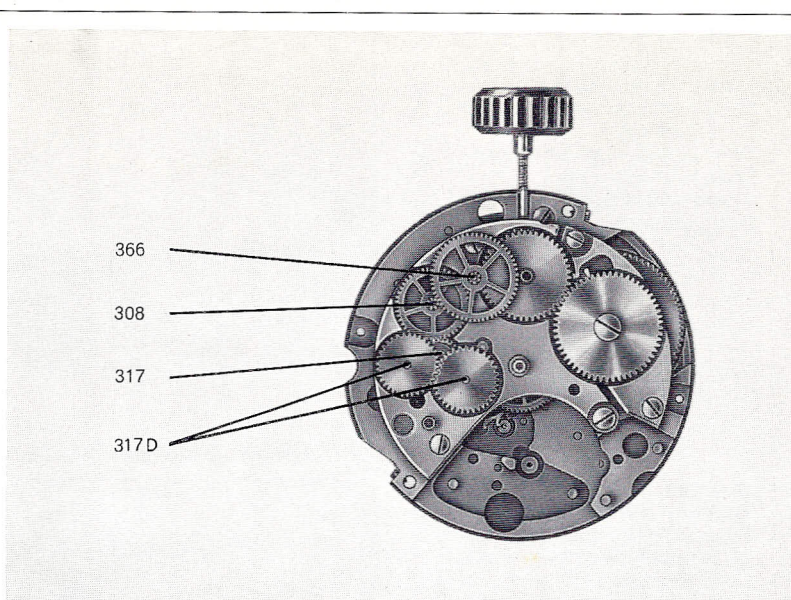
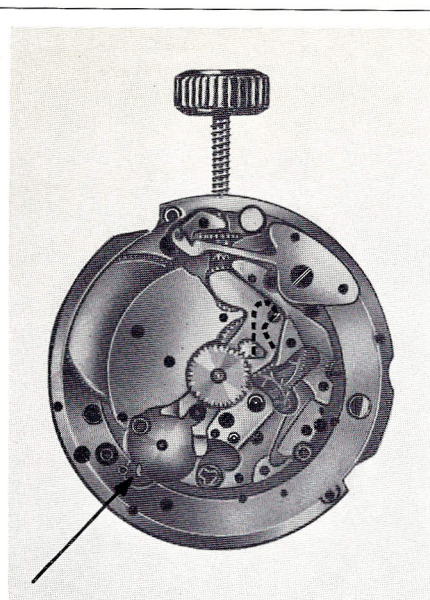


Figure 2

Removal of the barrel



◀ **Figure 3**

The minute wheel spring
The date indicator driving spring stop pin

▲ **Figure 4**

The automatic gear train

◀ **Figure 5**

Oiling of the cannon pinion of the large driving wheel

Reassembling and oiling the watch

Dial side

1. The functions of the winding mechanism must be lubricated as usual.
2. The centre stud (106 C) requires **no lubricant**, for the cannon pinion (94 A) must turn freely on the stud.
3. Lubricate the pivot of the minute wheel (8) and before setting the latter, make sure that the minute wheel spring, which is riveted in the pillar plate, is properly set, i. e. that it is pressing against the pivot of the minute wheel.
4. After setting the minute work cock (9) it is very important to check the endshake and the freedom of the cannon pinion (94 A) and to make sure that the minute wheel spring is pressing the minute wheel against the cannon pinion (94 A).

Train side

1. Before installing the gear train, lubricate the cannon pinion of the large driving wheel (4 F) as shown

in figure 5. When setting the hands, the cannon pinion slips on the wheel, that is why it is necessary to make sure that the friction (torque) between the cannon pinion and the wheel is correct. Neither too loose, nor too tight.

2. Install the gear train, the breguet spring (326) if removed, and affix the combined bridge (226).
NOTE: We recommend oiling the top pivot of the sweep second wheel (6 K) on the bushing fitted under the oscillating weight arbor **BEFORE** setting the bridge.
3. Install the mainspring barrel and its bridge.
4. Lubricate gear train (if the top bushing for sweep second wheel has not been oiled before setting the bridge, lubricate **through** the oscillating weight arbor with an appropriate oiler).
5. Lubricate lower bearings of the automatic train.
6. Lubricate reversing gear stud.
7. Lubricate teeth of both reversing gears.
8. Install automatic mechanism (as shown in figure 4) and lubricate upper pivots.

9. Install, lubricate and adjust as necessary pallet and balance assemblies with bridges.

10. Affix the oscillating weight and lubricate its arbor and gib.

Checking the automatic winding

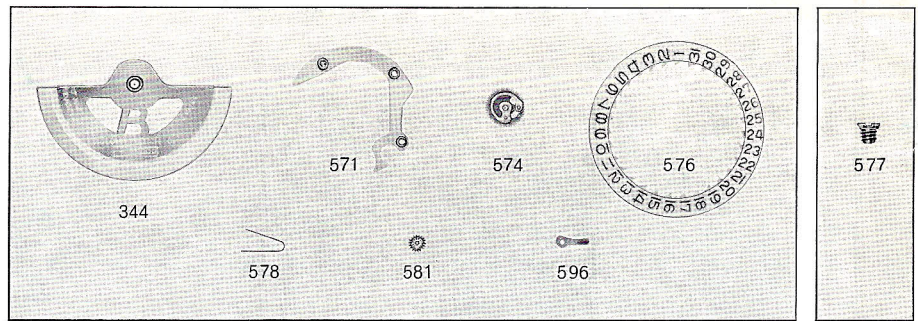
Wind up the mainspring six turns. Hold the movement or the watch in a vertical plane and turn it slowly round the axis of the hands. The oscillating weight will now wind up the mainspring and it should drop under its own weight without being carried over the top. Malfunction may be caused by excessive tension of the breguet spring (326) or by friction elsewhere.

Checking the minute wheel spring

After affixing the dial and hands, it is recommended to check the functioning of the minute wheel spring by pushing forward the **minute hand** (clockwise) with the aid of a pegwood stick. Under the tension of the minute wheel spring, the minute hand must always come back to its original position. This is necessary in order to overcome normal back-lash in the hands caused by the cannon pinion turning freely on the center stud.

11 ANACD Additional or varying parts from 11 ANAC

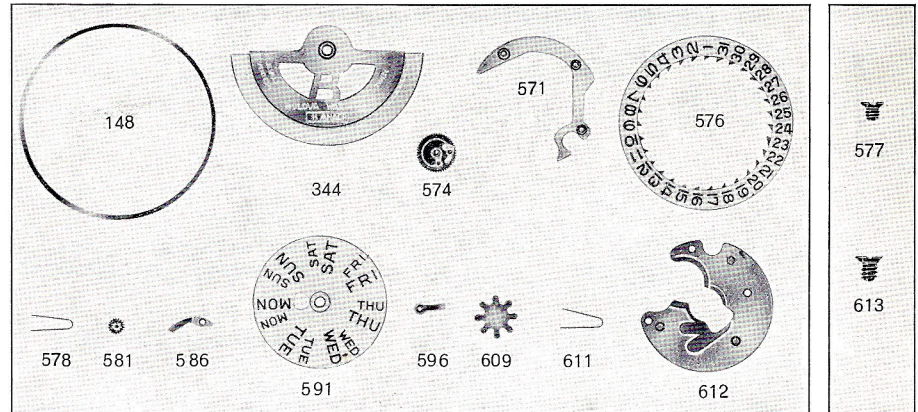
- 344 Oscillating weight, mounted
- 571 Date indicator guard
- 574 Date indicator driving wheel
- 576 Date indicator
- 577 Date indicator guard screw
- 578 Date jumper spring
- 581 Intermediate date wheel
- 596 Date jumper



Scale 1:1 Scale 3:1

11 ANACB Additional or varying parts from 11 ANAC

- 148 Dial rest
- 344 Oscillating weight, mounted
- 571 Date indicator guard
- 574 Date indicator driving wheel
- 576 Date indicator
- 577 Date indicator guard screw
- 578 Date jumper spring
- 581 Intermediate date wheel
- 586 Day jumper
- 591 Day star with dial disk
- 596 Date jumper
- 609 Intermediate day wheel
- 611 Day jumper spring
- 612 Day mechanism guard
- 613 Day device guard screw



Scale 1:1 Scale 3:1

NOTE: There are several different types of dial rests (148) and date indicators (576) used for watches of 11 ANACB caliber. When ordering these parts, please mention the case reference engraved on the inside of the case back.

When ordering Day star with dial disk (591), please specify the language and colour desired.

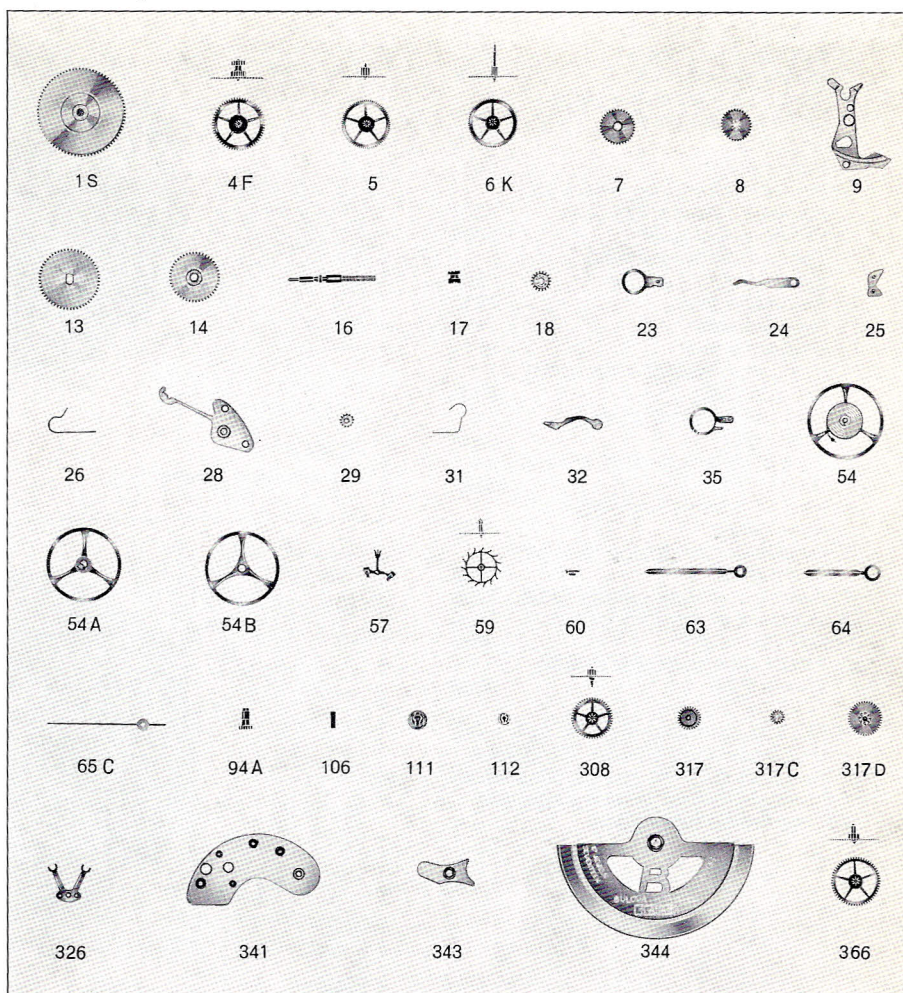
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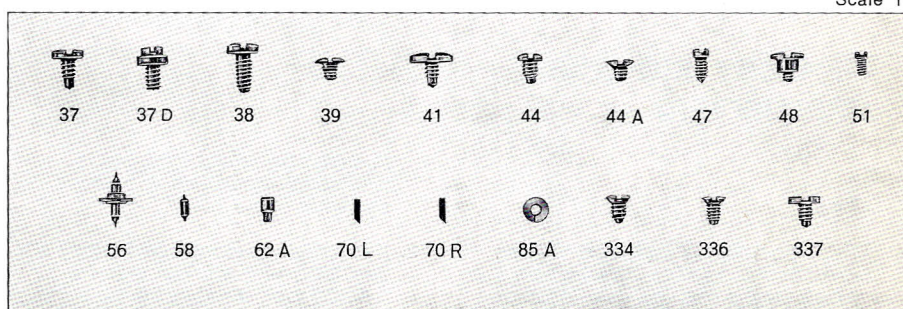
Parts Index

11 ANAC parts

- 1.S Barrel complete
- 4.F Large driving wheel with cannon pinion
- 5 Third wheel
- 6.K Sweep second wheel
- 7 Hour wheel
- 8 Minute wheel
- 9 Minute wheel bridge
- 13 Ratchet wheel
- 14 Crown wheel
- 16 Winding stem
- 17 Clutch wheel
- 18 Winding pinion
- 23 Stud holder
- 24 Clutch lever
- 25 Setting lever
- 26 Clutch lever spring
- 28 Setting lever spring
- 29 Setting wheel
- 31 Ratchet click spring
- 32 Ratchet click
- 35 Regulator
- 37 Bridge screw
- 37.D Combined bridge screw, special
- 38 Balance cock screw
- 39 Pallet bridge screw
- 41 Ratchet wheel screw
- 44 Screw for setting lever spring
- 44.A Screw for minute wheel bridge
- 45.C Casing clamp screw *
- 47 Dial screw
- 48 Setting lever screw
- 51 Hairspring stud screw
- 54 Balance complete
- 54.A Balance with roller
- 54.B Balance
- 56 Balance staff
- 57 Pallet fork complete
- 58 Pallet arbor
- 59 Escape wheel
- 60 Roller
- 62.A Hairspring stud
- 63 Minute hand
- 64 Hour hand
- 65.C Sweep second hand
- 70.L Exit pallet jewel
- 70.R Entry pallet jewel
- 85.A Hairspring collet
- 94.A Cannon pinion without clam notch
- 106 Center pipe
- 111 Upper block «KIF ELASTOR», complete
- 112 Lower block «KIF ELASTOR», complete
- 129 Minute wheel spring **
- 191 Casing clamp *
- 201 Pillar plate *
- 203 Barrel bridge *
- 212 Balance bridge *
- 216 Pallet bridge *
- 226 Combined bridge *
- 308 Reduction gear
- 317 Connecting wheel for auxiliary reverser
- 317.C Reversing gear pinion
- 317.D Reversing gear
- 322 Oscillating weight axle **
- 326 Breguet spring
- 334 Screw for upper bridge of automatic device
- 336 Screw for screw gib
- 337 Breguet spring screw
- 341 Upper bridge for automatic device
- 343 Screw gib
- 344 Oscillating weight, mounted
- 366 Driving gear for crown wheel



Scale 1:1



Scale 3:1

* not illustrated ** not available separately

Oiling recommended

	Moebius
1. Winding mechanism	8300
2. Setting wheel posts	8300
3. Minute wheel pivot	8300
4. Cannon pinion of the large driving wheel (94 A)	8030
5. Gear train	9010
6. Barrel arbor	8030
7. Post of connecting wheel for auxiliary reverser (317)	8300
8. Crown wheel post	8300
9. Teeth of both reversing gears (317 C - 317 D)	8300
10. Automatic train	8030
11. Pallet stones	941
12. Balance wheel	9010
13. Oscillating weight arbor (322) and gib (343)	8300
14. Post of intermediate date wheel (581)	8300
15. Post of date indicator driving wheel (574)	8300
16. Post of intermediate day wheel (609)	8300
17. Date indicator driving stop pin (see fig. 3)	8030
18. Function of date jumper (596)	8030
19. Function of day jumper (586)	8030
20. Day star (591)	8030
21. Pin of date indicator driving wheel (574)	8030

NOTE: The cannon pinion (94 A) turning on the center stud (106 C), the pivots of the pallet (57) and the pivoting posts of the day and date jumpers (586 and 596) **require no lubrication.**

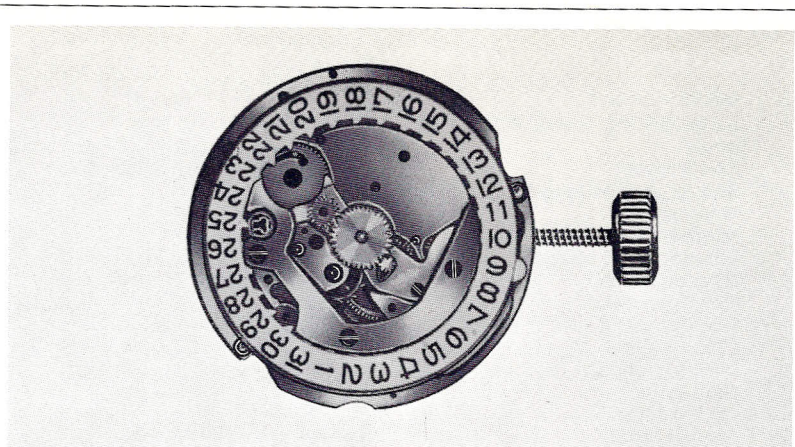


Figure 6
The calendar mechanism

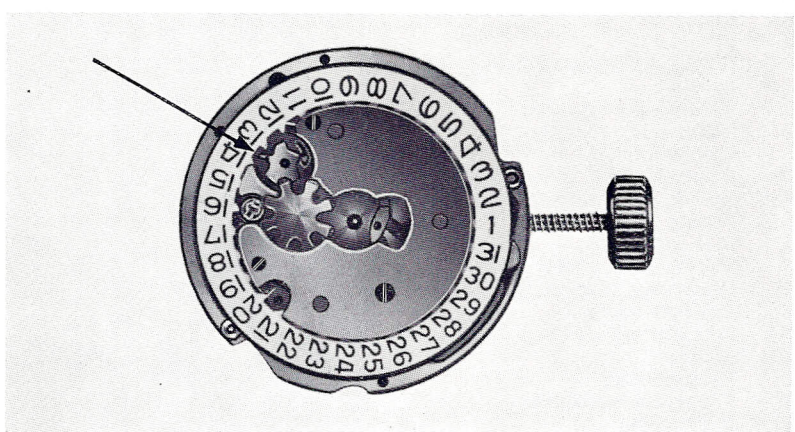


Figure 7
The day and date mechanism
The date indicator driving wheel finger

The day and date mechanism

Type

This movement is equipped with an «instant date change» mechanism, which means that the date indicator jumps instantly at midnight, while the day disk starts moving slowly at about 10 p. m., to change to the next day at approximately midnight.

Disassembling and reassembling

Because of the simplicity of the system, disassembly and reassembly of the day and date mechanism can be done without any difficulty. However, to set the day star with dial disk (591) when reassembling the day and date mechanisms, it is important, to eliminate damage of the finger of the date indicator driving wheel (574), to proceed as follows:

1. Make sure that the finger of the date indicator driving wheel (574) does not interfere with the teeth of the inter-

mediary day wheel (609) but is positioned on the other side, as shown in figure 7.

2. Keep slight pressure on the day dial disk (591) and with the aid of a pointed tool, through the hole, pull the day jumper (586) backwards (against the stem) in order to set it between two teeth of the day star.

NOTE: Should the calendar jump two days instead of one, check and if necessary increase the tension of the date jumper spring (578).

Checking the movement in the case

1. After fitting the movement into the case, make certain the oscillating weight functions normally with no contact against the back of the case.
2. By turning the winding crown, make sure that the day and date indicators jump correctly at approximately 12 o'clock (midnight).

Setting the day and date

1. Set the **day** by turning the hands clockwise or counter-clockwise until the right day appears in the dial aperture.
2. Set the **date** by moving the hands back and forth between 12 o'clock (midnight) and 8 o'clock until the desired date is reached. (Each time, the day will turn back and return again to the correct day).

NOTE: To advance the date **without changing the day** after months having less than 31 days, turn the hands **backwards** to 8 o'clock (20.00 hours) and then advance them again until the proper date of the following month appears.

3. Set the **time** by turning the hands forward to correct time.

NOTE: If the time of day is afternoon (p. m.) continue to turn hands past 12 o'clock noon before stopping at the correct time. This action assures proper day and date advance in relation to time-of-day hands.