

## movement

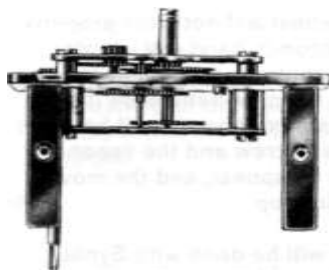
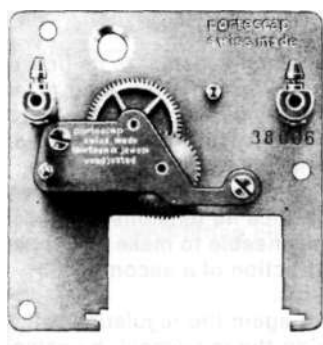
general description, systematic description  
principle, service and spare parts

# portescap

This Complete PORTESCAP® Service Section has been Specially Prepared and is included Through the Courtesy of "Universal Escapement, Ltd. — La Chaux-de-Fonda, Switzerland."

## Service

### Base plate with train wheels

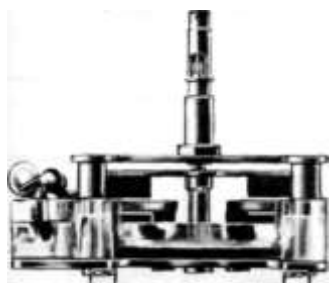


The unit with the train can be disassembled, cleaned and reassembled under usual procedure. Only the minute wheel should not be cleaned, since it works on greased friction.

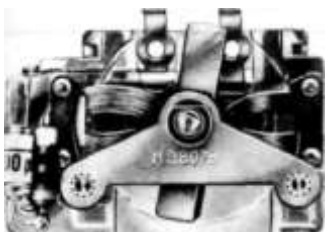
For oiling, the manufacturers of the Portescap movement recommend the use of Synta-Visco-Lube oil for all pivots, and also for the minute stud.

After pushing back the guard ring of the minute wheel, check the end shake of the minute wheel.

### Motor unit



- 1 unscrew the two assembling screws to separate plate, frame, bridge and rotor
- 2 clean the Incabloc shock-absorber, using the method recommended by the manufacturers
- 3 clean the motor tube bearing
- 4 clean the rotor, making sure that no metal particles stick to the magnets
- 5 disassemble the winding pinion (this delicate operation should be done only by a watchmaker specially trained and with the proper tools)



- 6 carefully clean the frame of the electrical assembly; do not use liquids
- 7 put a drop of Synta-Visco-Lube oil in one of the notches of the oscillating pinion, put pressure to the pinion to make it rotate, in order to spread the oil evenly
- 8 reassemble the motor without separating or scratching the coil threads
- 9 oil the pivots with Synta-Visco-Lube oil. If a defect in the winding pinion, or in the electrical circuits is noticed, it is recommended that the complete unit be sent back to the factory.

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## Regulating unit



Normally, cleaning and oiling the Incabloc shock-absorber (upper and lower) is sufficient, and there is no need to disassemble anything else.

If a thorough cleaning is necessary, proceed as follows:

- 1 open the regulator key
- 2 unscrew the stud screw of the hairspring
- 3 remove the balance bridge, then the hairspring balance wheel assembly
- 4 loosen the impulse spring stud screw
- 5 remove the bridge, then the detent, and the detent wheel (the permanent magnet should not be unscrewed)
- 6 wash all parts in benzine (the Incabloc shock-absorber should be cleaned separately)
- 7 replace the detent wheel, the detent and the bridge controlling the end shake (detent staff 2/100 to 4/100 mm, detent wheel 1/100 to 3/100 mm when the movable bridge is pressed down); the end shake of the detent wheel should be very slight because it is responsible for the movement of the seconds hand; if it goes beyond the tolerance indicated above, the hand will vibrate and not move with precision

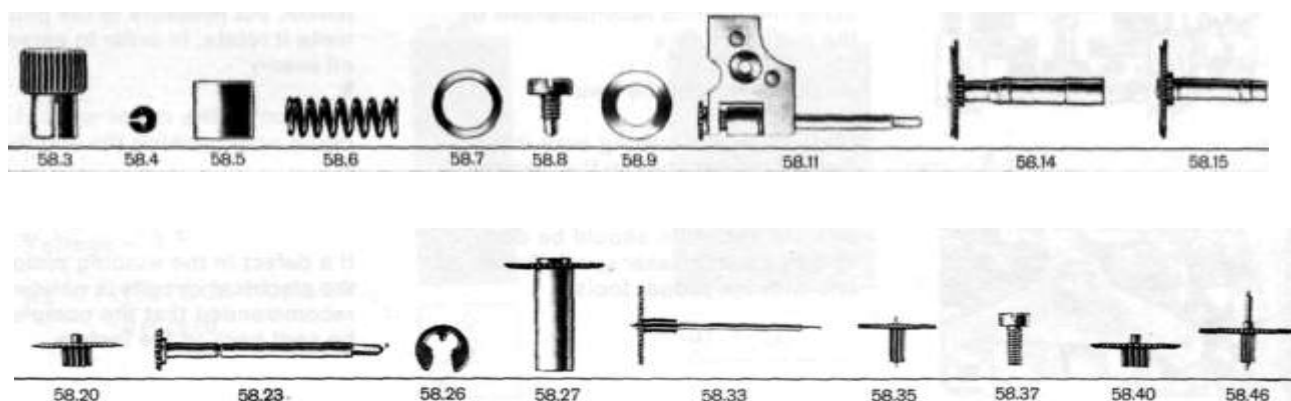
- 8 replace the impulse spring stud and tighten its fitting screw, without altering the strength of the spring (only a specially trained watchmaker can control this)
- 9 make sure that the detent blade is slightly detached 1
- 0 check the functioning of the wire spring of the movable bridge; its very weak tension should be exercised freely—if this tension is too weak, the gear of the endless screw and the seconds wheel will not work properly, and the seconds hand will vibrate; if, on the contrary, this tension is too great, the motor will increase its current consumption, the oil between the endless screw and the seconds wheel will disappear, and the movement could stop
- 11 the oiling will be done with Synta-Visco-Lube oil for the jewels of the upper and lower Incabloc shock-absorber upper and lower detent jewels upper and lower pivots of the movable bridge the flat of the detent jewel (without the oil touching the detent itself) behind the arms of the star the micrometric regulator screw notch the endless screw (it is advisable to

oil the endless screw sufficiently, as the use of the oil, at this point, is relatively high)

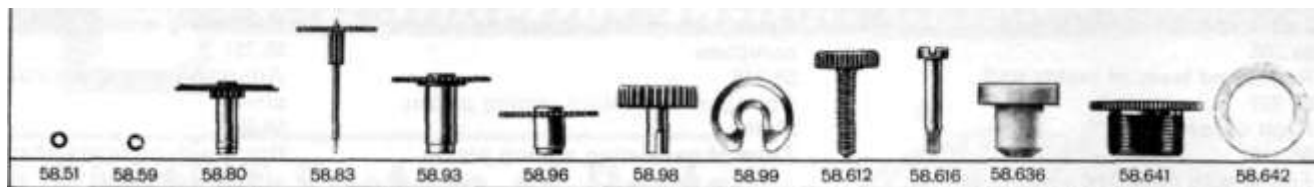
- 12 replace the hairspring balance wheel bridge, and tighten the hairspring stud screw
- 13 control the starting and the centering of the hairspring; turn the key leaving as little space as possible, without however impairing the free movement of the hairspring
- 14 place the movement in its final position and do not move it for at least 36 hours; this stabilization gives an opportunity for the oil to spread, the movable parts to reach their definite position, and the hairspring to balance its tensions, conditions indispensable to make any correction of a fraction of a second
- 15 check again the regulation without moving the movement, by using the Vibrograf (oscillations 7200/h); because of the exceptional conception of the Portescap movement, the instantaneous reading corresponds to the actual running condition.

## Spare parts

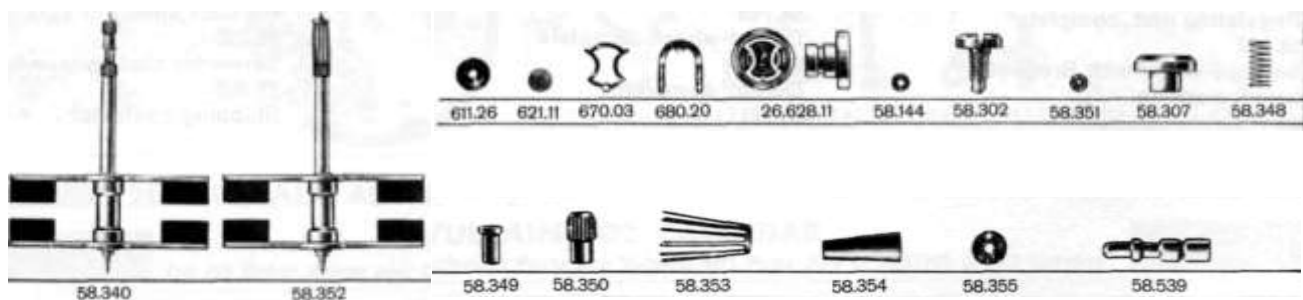
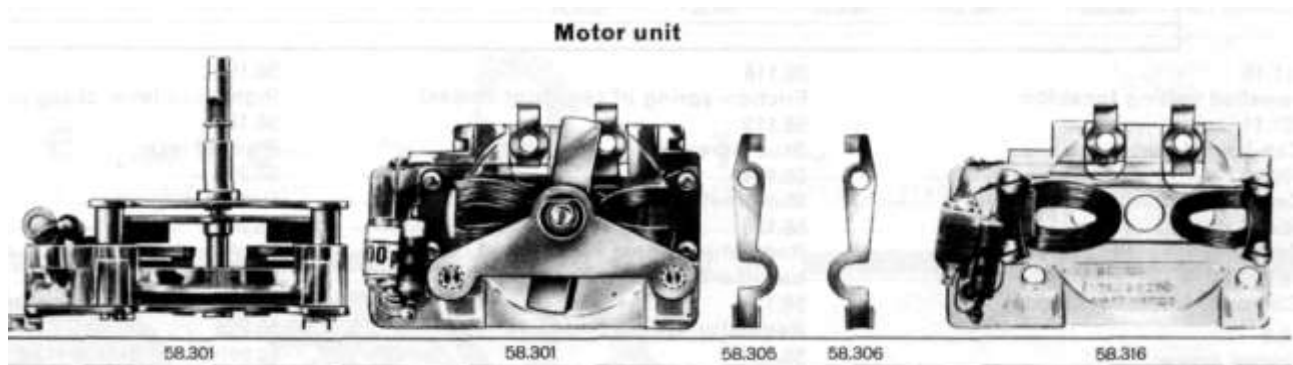
### Gear-train unit



# portescap



58.3	58.20	58.59
Protecting sleeve for seconds pivot	Minute-wheel	Bushing of second-wheel, upper, long hand-fitting pipes with seconds
58.4	58.23	58.80
Adjusting ring of minute-wheel	Mounted hand-setting stem	Center-wheel with cannon-pinion, short hand-fitting pipes
58.5	58.26	58.83
Tube of hand-setting stem	Horse-shoe bolt of the spring of hand-setting stem	Second-wheel, short hand-fitting pipes
58.6	58.27	58.93
Spiral spring of the tube of hand-setting stem	Hour-wheel, long hand-fitting pipes without seconds	Hour-wheel, long hand-fitting pipes
58.7	58.33	58.96
Hour-wheel seat, long hand-fitting pipes without seconds	Second-wheel, long hand-fitting pipes	Hour-wheel, short hand-fitting pipes
58.8	58.35	58.98
Bridge screw	Second-wheel, long hand-fitting pipes without seconds	Hand-setting knob
58.9	58.37	58.99
Hour-wheel seat, hand-fitting pipes with seconds	Screw of hand-setting bridge	Horse-shoe bolt for fixing movement
58.11	58.40	58.612
Bridge with mounted hand-setting, exterior hand-setting	Minute-wheel, exterior hand-setting	Contact-knob
58.14	58.46	58.616
Center-wheel with cannon-pinion, long hand-fitting pipes without seconds	Third-wheel	Screw of protecting case
58.15	58.51	58.636
Center-wheel with cannon-pinion, long hand-fitting pipes with seconds	Bushing of third and second-wheels, upper and lower, short hand-fitting pipes	Insulator of protecting case screw
		58.641
		Nut for central fixation
		58.642
		Nut-washer for central fixation



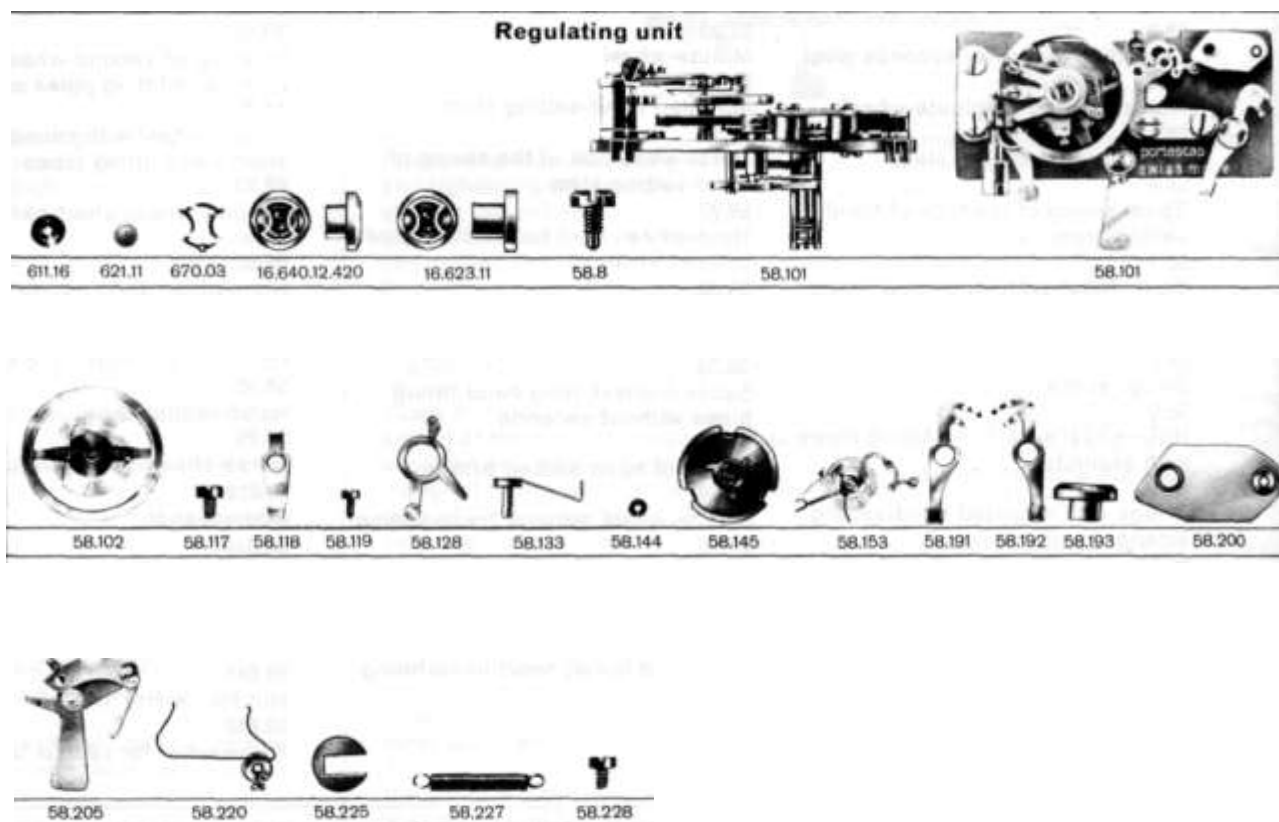
611.26	680.20	58.144
Jewelled setting Incabloc	Gib Incabloc	Rotor jewel, upper
621.11	26.628.11	58.301
Cap-jewel Incabloc	Complete Incabloc for rotor, without gib	Motor unit, complete
670.03		58.302
Cap-jewel spring Incabloc		Bridge screw

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58.305  
Lefthand lever of motor unit  
58.306  
Righthand lever of motor unit  
58.307  
Rivet of lever  
58.316  
Frame with mounted electric device

58.340  
Rotor with oscillating arming pinion,  
complete  
58.348  
Spring of oscillating arming pinion  
58.349  
Tube of oscillating arming pinion

58.350  
Oscillating arming pinion  
58.351  
Adjusting-ring of oscillating arming  
pinion  
58.352  
Rotor with umbrella-shaped arming  
pinion, complete



611.16  
Jewelled setting Incabloc  
621.11  
Cap-jewel Incabloc  
670.03  
Cap-jewel spring Incabloc  
16.640.12.420  
Complete upper Incabloc  
16.623.11  
Complete lower Incabloc  
58.8  
Bridge screw  
58.101  
Regulating unit, complete  
58.102  
Balance-wheel with Breguet  
balance-spring  
58.117  
Screw for friction-spring of regulator  
(index)

58.118  
Friction-spring of regulator (index)  
58.119  
Stud-screw  
58.124  
Micrometric screw of regulator (index)  
58.128  
Regulator (index) for Breguet  
balance-spring  
58.133  
Regulator-spring (index-spring)  
58.144  
Jewel for detent and detent-wheel  
58.145  
Detent-wheel, complete  
58.153  
Detent, complete  
58.191  
Lefthand lever of regulating unit

58.192  
Righthand lever of regulating unit  
58.193  
Rivet of lever  
58.200  
Detent-magnet  
58.205  
Stop-lever  
58.220  
Blade-shaped stop-spring  
58.225  
Eccentric of detent-magnet  
58.227  
Fly-back spring of stop-lever  
58.228  
Screw for blade-shaped stop-spring  
58.368  
Shipping container