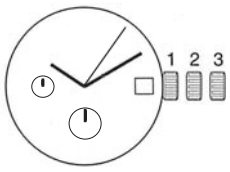
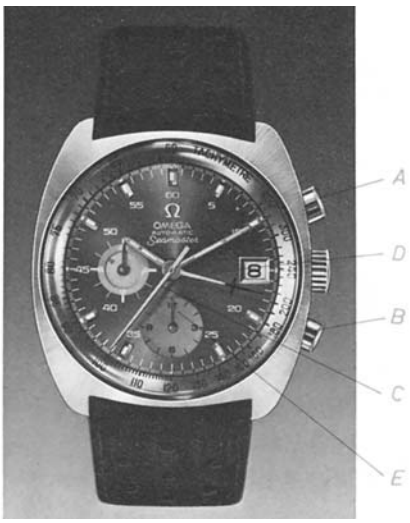
CALIBRE
1040
31 CHRO C 12 RA PC CAL CORR 22 jewels

ϕ 31.00 mm	
Movement height	8.00 mm
Power-reserve Jewel number Frequency Angle of lift	45 h 22 28'800 A/h 52°



The chronograph 1040 is an automatic caliber, with calendar incorporating rapid corrector, and comprising a 24 hour (night/day) indicator disc, a small second hand, an hour-totalizing hand and, in the centre, a minute-recording hand as well as the usual chronograph second hand.

Manipulation
of the chronograph pushers

By pressing pusher "A" once, the second hand - C", the minute recorder "D" and the hour-totalizing hand "E" are set in motion. When pusher "A" is pressed a second time, these hands cease to function. They are reset to zero by pressing pusher "B".

of the winding crown

Position 1 (against the case): manual winding
Position 2 (middle) rapid date correction
Position 3 (external) hand-setting

English

2. DISASSEMBLING

Warning:

remove mechanism springs very carefully to avoid alteration of their tension;

do not turn the eccentrics;

avoid unscrewing of the switch screw 2472.

2. 1. **UNCASING**

2.1.1. Uncase movement.

2.1.2. Remove hands.

2.1.3. Remove dial by lifting it at 12 h. and 6 h. (the posts being forced into the dial holders 6200).

2.1.4. Remove dial rest 1039.

2.1.5. It is not necessary to extract the 24 h. disc of the date indicator driving wheel 1564.

2.2. **DISASSEMBLING OF AUTOMATIC MECHANISM**

2.2.1. Remove: - rotor 1026;

large connecting wheel for winding gear 1453.

2.2.2. Set the chronograph at zero.

2.2.3. Remove: chronograph bridge 1037;

- small connecting wheel for winding gear 1454 (under chronograph bridge 1037);

winding gear 1464;

differential 1475.

2.3. **DISASSEMBLING OF CHRONOGRAPH MECHANISM**

2.3.1. Remove: hour recorder connecting rod 1745;

connecting rod valet for hour recorder 1746;

second hammer spring 1734 (lifting it by the shoulder);

second hammer 1728;

chronograph runner 1705;

cam spring 1845 (+ coupling yoke spring);

upper cam for hammer 1844;

lower cam for coupling clutch 1843;

operating lever 1720;

operating lever yoke 1841

intermediate operating lever 1840;

operating lever spring 1842.

2.3.2. Let down the movement (to do this, wind by a quarter turn of the stem, operate the click 1104).

2.3.3. Remove: spring for bolt-stem of second hammer 1752;

bolt-stem of second hammer 1759;

wig-wag setting wheel spring 1153;

coupling yoke 1723 (take it by the eccentric, remove the coupling wheel bridge 1716 and the coupling wheel 1712);

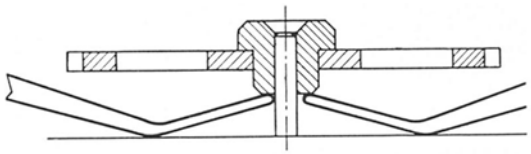
blocking lever 1726;

blocking lever yoke 1818;

blocking lever spring 1733;

friction-spring for chronograph runner 1735;

chronograph driving wheel 1710 (See below).



2.3.4. Unscrew the screw of pusher-stem for zero action 2482.

2.3.5. Remove pusher-stem for zero action.

2.4. **DISASSEMBLING OF DATE MECHANISM**

2.4.1. Remove: date jumper spring 1529 (under date indicator guard 1554);

date indicator guard 1554;

date indicator 1580;

date jumper 1503;

hour wheel 1231;

hour wheel spring 1268;

double date connecting wheel 1559;

date indicator driving wheel 1564..

2.5. **DISASSEMBLING OF MINUTE RECORDER MECHANISM**

2.5.1. Remove: minute heart 1760;

minute hammer spring 1754;

minute hammer 1753;

hour recorder stop lever 1750;

mechanism bridge 1070;

switch 1779 and switch stem 1749 (without disassembling them);

valet for minute recorder clamp 1761;

minute recorder clamp 1762 (two pieces);

cannon pinion mounted with minute recorder driver 1218 (extract cannon pinion very carefully and in upright position);

date corrector valet 7519.

2.5.2. Disassemble under mechanism bridge 1070:

spring for date corrector lever 1576;

date corrector crown 7518;

date corrector lever 1568;

operating lever for date corrector 1565.

2.6. **DISASSEMBLING OF HOUR RECORDER MECHANISM AND WHEEL TRAIN**

2.6.1. Remove: hour recorder stop lever spring 1793;

hour recorder bridge 1775;

hour hammer 1783;

hour recorder runner 1788;

operating lever for hour and minute hammers 1784.

2.6.2. Disassemble movement according to usual procedure, with exeption of the barrel.

2.6.3. Remove: barrel cover 1203, without disassembling the hour recorder driving pinion;

barrel arbor 1204, without extracting the mainspring 1208.

3. CLEANING

Clean all parts according to usual procedure, except:

3.1. **Barrel drum with mainspring:**

Use pegwood for pivoting hole of arbor.

3.2. **Winding gear 1464:**

Use pegwood for pivoting hole, clean pinion leaves and teeth in hard elder-pith.

3.3. **Rotor 1026:**

Dip in benzine only and dry in hot air: do not submit to ultra-sonic cleaning or to sawdust.

3.4. **Date indicator 1580:**

Use hard elder-pith for teeth; do not dip it in baths.

Warning:

Do not dip the following parts in liquids based on trichlorethylene:

plate 1000;

barrel and wheel train bridge (3/4 plate bridge) 1002;

dial rest 1039.

4. **PREASSEMBLING AND CHECKING OF PARTS**

4.1. **Barrel 1200:**

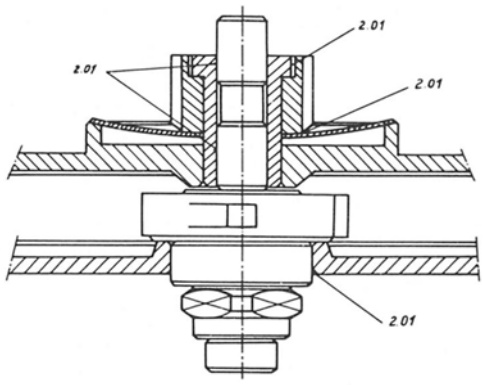
fit barrel arbor 1204;

fit barrel cover 1203;

check endshake;

check letting clown: when completely wound, it should have a minimum development of 7 turns; if not, the mainspring 1208 must be replaced;

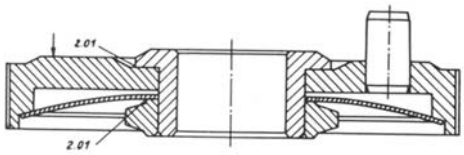
oil (2.01) according to indications below:



4.2. **Cannon pinion mounted with minute recorder driver 1218:**

Oil (2.01) according to indications below.

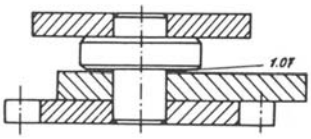
To facilitate oiling, apply pressure on the disc.



4.3. **Date corrector lever 1568:**

Check freedom of the corrector;

Oil (1.07) according to indications below.

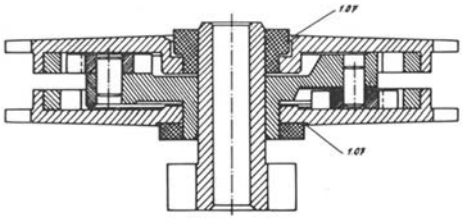


4.4. **Winding gear 1464:**

Check condition of teeth;

Check functioning;

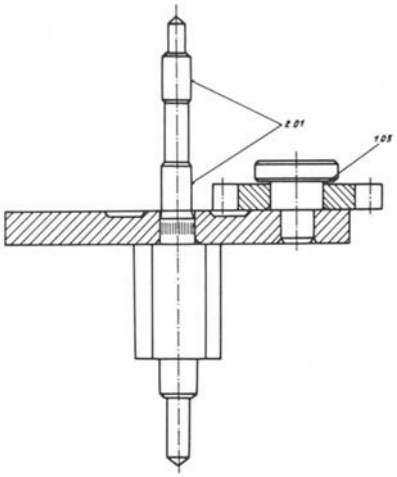
Oil (1.07) according to indications below.



4.5. **Differential 1475:**

Check freedom of the differential satellite;

Oil according to indications below.



4.6. **Rotor 1026:**

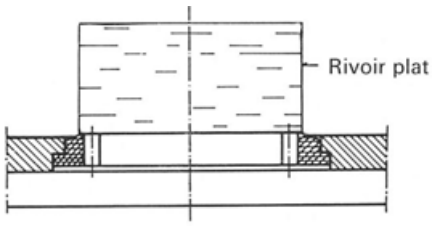
Check freedom of the ball-bearing;

Oil (1.02) 2 balls.

4.7. **Barrel and wheel train bridge (1/4 plate bridge) 1002:**

Check teeth of differential crown 1476. If necessary, replace crown as follows.

Press upper side of crown with a riveting tool.



Fit the new differential crown 1476 by forcing with a flat riveting tool slightly smaller in diameter than the crown, using a turning movement.

Check that the crown is securely held.

4.8. **Friction-spring for chronograph runner 1735:**

Check condition of the teflon plating.

4.9. **Coupling 1723 - 1712 - 1716:**

Assemble coupling;

Check freedom of coupling wheel 1712;

Oil (1.02) the upper and lower pivots of the coupling wheel 1712.

4.10. **Chronograph bridge (lower) 1037:**

Grease (2.01) pivoting and underneath small connecting wheel for winding gear 1454;

Fit small connecting wheel for winding gear 1454;

Grease (2.01) upper surface and teeth of small connecting wheel for winding gear 1454.

4.11. **Mechanism bridge (lower) 1070:**

Grease (2.01):

pivoting of operating lever for date corrector 1566;

pivoting of date corrector lever 1568;

pivoting of date corrector crown 7518;

Fit operating lever for date corrector 1565;

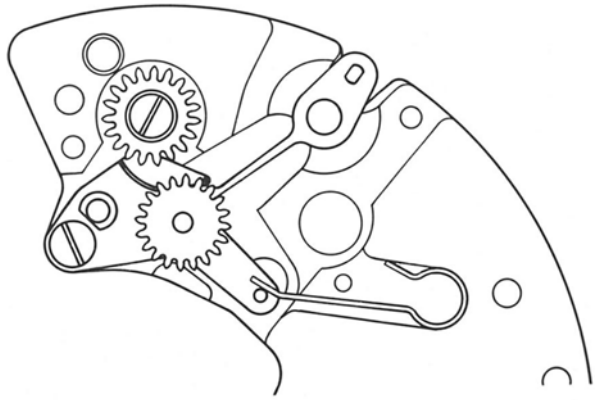
Grease (2.01) the tip of operating lever for date corrector 1565;

Fit:

date corrector lever 1568;

date corrector crown 7518;

Spring for date corrector lever 1576, according to following illustration;



Grease (2.01) function of spring for date corrector lever 1576 on date corrector lever 1568.

5. ASSEMBLING

5. 1. ASSEMBLING OF THE HOUR RECORDER MECHANISM

5.1.1. Grease (2.01):

pivot hole of hour recorder runner 1788;

pivot hole of hour hammer 1783;

underneath operating lever for hour and minute hammers 1784 (on plate);

function of operating lever for hour and minute hammers 1784 on the guiding pin.

5.1.2. Fit:

hour recorder runner 1788;

hour hammer 1783;

operating lever for hour and minute hammers 1784.

5.1.3. Grease (2.01

function of operating lever for hour and minute hammers 1784;

top of operating lever for hour and minute hammers 1784 (function underneath hour recorder bridge 1775).

5.1.4. Fit hour recorder bridge 1775.

5.1.5. Check endshake and freedom of hour recorder runner 1788 and hour hammer 1783.

5.1.6. Wind movement part (without escapement), referring to 5. 2.

5.2. LUBRICATION OF THE MOVEMENT PART

5.2.1. **In the course of assembling:**

Grease (2.01):

pivoting of click 1104;

pivoting and surfaces of crown wheel 1101

pivoting and surfaces of setting wheel (2 pieces) 1152.

Grease (2.01)

2 points on ratchet wheel 1100 (friction under barrel and wheel train bridge 1002);

post of reduction gear 1432;

winding stem 1106 (groove and square);

posts of the setting wheel (2 pieces) 1113;

post of minute wheel 1246;

Breguet teeth and groove of clutch wheel 1107;

pivoting of setting lever 1109;

function of setting lever 1109 with yoke 1111

function of setting lever 1109 with setting lever spring 1110.

5.2.2. **After assembling:**

Lubricate:

upper and lower pivots of barrel arbor 1204 . . . . . Grease 2.01

upper and lower pivots + post of center wheel 1216 . . . . Oil 1.03

upper and lower pivots of third wheel 1240 . . . . . Oil 1.03

upper and lower pivots of fourth wheel 1243 . . . . . Oil 1.02

upper and lower pivots of escape wheel 1305 . . . . . Oil 1.02

pallets . . . . . Grease 2.00

upper and lower pivots of balance staff 1321 . . . . . Oil 1.02

upper and lower pivots of driving gear for ratchet wheel 1437 Grease 1.01

5.2.3. **Do not lubricate:**

upper and lower pivots of pallet fork 1316.

5.3. **ASSEMBLING OF CHRONOGRAPH MECHANISM**

5.3.1. Grease (2.01) and fit bolt-stem of second hammer 1759.

Fit:

spring for bolt-stem of second hammer 1752;

wig-wag setting wheel spring 1153.

5.3.2. Grease (2.01) and fit blocking lever spring 1733.

Fit:

lower cam for coupling clutch 1843;

upper cam for hammer 1844;

operating lever spring 1842 and grease (2.03) the notch;

intermediate operating lever 1840;

operating lever yoke 1841

operating lever 1720;

friction-spring for chronograph runner 1735 (it must be sufficiently tensed to avoid the chronograph hand moving by jerks);

chronograph runner 1705;

differential (the teeth must engage properly);

winding gear 1464 (the teeth must engage properly);

chronograph bridge 1037;

blocking lever yoke 1818;

blocking lever 1726;

coupling 1712 - 1716 - 1723.

5.3.3. Fit in two stages the chronograph driving wheel 1710:

1. Engage it slightly on the staff.

2. Drive it in at the same height as the coupling wheel 1712.

5.3.4. Fit:

cam spring (+ coupling yoke spring) 1845;

second hammer 1728;

second hammer spring 1734.

5. 3. 5. Grease (2.01) and fit pusher stem for zero action.

5.3.4. Fit:

cam spring (+ coupling yoke spring) 1845;
second hammer 1728;
second hammer spring 1734.

5. 3. 5. Grease (2.01) and fit pusher stem for zero action.

5.4. CHECKING OF THE CHRONOGRAPH MECHANISM

5.4.1. **Check penetration of the gears: Fig. 1**

(on one complete revolution)

The coupling wheel 1712 must penetrate 2/3 of the toothing of the chrono graph driving wheel 1710 and have an angular play of 0.02 to 0.04 mm; adjustment by the eccentric (on coupling yoke
1723).
The coupling wheel 1712 must penetrate 1/3 of the chronograph runner 1705; adjustment by coupling support eccentric 1701.

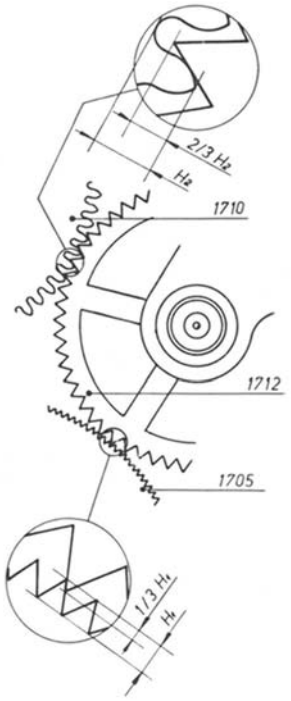


Fig. 1

5.4.2. **Check holding of chronograph runner 1705.**

After resetting to zero, the chronograph runner 1705 should be locked by the second hammer 1728 resting on its heart. Check that the second hammer 1728 touches neither chronograph runner 1705 nor chronograph bridge 1037.

5.4.3. **Check blocking lever insulator:** Fig. 2

Set chronograph in stop position. There should be play between the blocking lever insulator (second hammer 1728) and the pin of the blocking lever 1726.

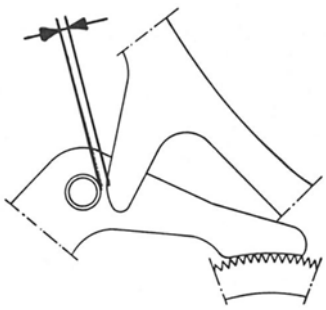


Fig. 2

5.4.4. **Check second hammer 1728:**

Fig. 3 - Fig. 4

Set chronograph in gear. There should be play between the beak (second hammer 1728) and boltstem of second hammer 1759.

Having reset to zero, check play between shoulder of second hammer 1728 and upper cam for hammer 1844.

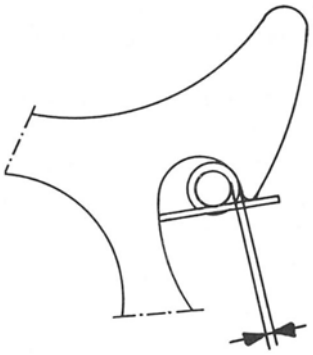


Fig. 3

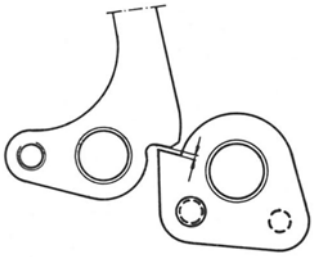


Fig. 4

5.5. **ASSEMBLING OF THE HOUR AND MINUTE RECORDER MECHANISM**

After having assembled the escapement part and oiled (1.03) the upper and lower pivots of differential 1475:

5.5.1. Fit cannon pinion mounted with minute recorder driver 1218 (effect hand-setting and make dial train turn whilst lowering the cannon pinion; no view of dial train - cannon pinion gear).

5.5.2. Grease (2.01):

and fit switch stem 1749 (assembled with switch 1779);

hole (in plate) of pivot for eccentric of valet for minute recorder clamp 1761;

function of switch 1779 on hour recorder stop lever 1750.

5.5.3. Fit:

valet for minute recorder clamp 1761

minute recorder clamp (2 pieces);

minute hammer 1753;

minute hammer spring 1754;

hour recorder stop lever 1750.

5.5.4. Grease (2.01) function of hour recorder stop lever spring 1793 with screw for supporting hour recorder stop lever spring 2358 and fit the latter.

5.5.5. Fit:

date corrector valet 7519;

mechanism bridge 1070.

5.5.6. Turn the movement over and fit:

connecting rod valet for hour recorder 1746;

hour recorder connecting rod 1745.

5.5.7. Turn the movement over and:

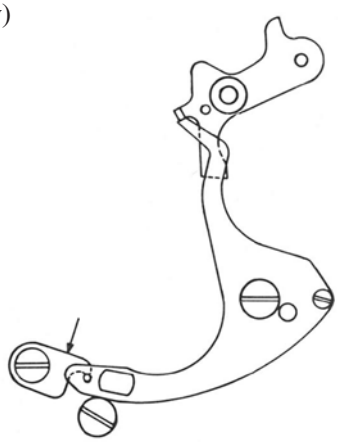
grease (2.01) pipe of cannon pinion 1218;

fit minute heart 1760.

5.6. **CHECKING OF THE HOUR AND MINUTE RECORDER MECHANISM**

5.6.1. Set chronograph in gear and adjust (if necessary) the switch 1779 so that the end of the hour hammer 1783 rests on the end of the hour recorder stop lever 1750 when the zero action pusher is pressed; adjustment by releasing the switch screw 2472 and pushing switch 1779 in direction of the arrow.

(See below)



5.6.2. Set chronograph in stop position. Check that the valet for minute recorder clamp 1761 has some play between the minute recorder clamp (2 pieces) 1762 (Adjustment by eccentric of valet for minute recorder clamp 1761.)

5.6.3. Whilst pressing on the zero action pusher, check that the minute recorder clamp (2 pieces) 1762. releases the driving disc of the minute recorder before the minute hammer 1753 touches the tip of the minute heart 1760.

5.6.4. Whilst pressing on the zero action pusher, check that the hour recorder runner 1788 and the minute heart 1760 are locked.

5.7. **ASSEMBLING OF THE DATE MECHANISM**

5.7.1. Fit the hour wheel spring 1268.

5.7.2. Oil (1.07) the pivoting of:

date indicator driving wheel 1564;

double date connecting wheel 1559;

date jumper 1503.

5.7.3. Fit:

date indicator driving wheel 1564;

double date connecting wheel 1559;

date jumper 1503;

hour wheel 1231 ;

date indicator 1580-1

date indicator guard 1554.

5.7.4. Check end-play of hour wheel 1231.

5.7.5. Oil (1.07) the parts of the hour wheel 1231 which touch underneath date indicator guard 1554.

5.7.6. Check freedom of date indicator 1580.

5.7.7. Fit date jumper spring 1529 after having oiled (1.07) its function with the date jumper 1503.

5.7.8. Oil (1.07):

function of date jumper 1503 with the teeth of the date indicator 1580 ;

date driving wheel finger 1511.

5.8. **CHECKING OF THE DATE MECHANISM FUNCTIONS**

5.8.1. **Winding stem in hand-setting position:**

Fit the 24 h. disc. (The arrow facing the guidemark on the date indicator guard 1554) immediately following the jump of the date indicator 1580.

5.8.2. **Winding stem in intermediate position:**

Check function of the date corrector.

5.9. A**SSEMBLING - CASING-UP**

5.9.1. Fit the dial rest 1039 and the dial.

5.9.2. Fit hands (for chronograph hand, support the chronograph runner 1705) and case-up movement.

5.9.3. Grease (2.01) the pivoting and underneath large connecting wheel for winding gear 1453 and fit same.

5.9.4. Grease (2.01) underneath screw and toothing of large connecting wheel for winding gear 1453.

5.9.5. Fit rotor 1026 and check its freedom.

5.9.6. Check functions:

1 . Carry out several start-stop operations and check that the chronograph hand does net jump at the start (tol. 2/5).

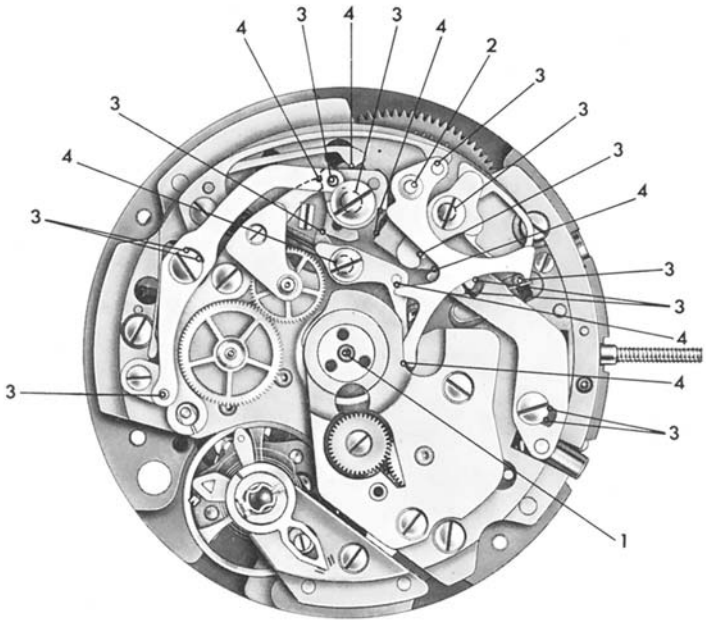
2. With the chronograph in gear, ascertain that resetting to zero cannot be effected whilst it is running.

Set the hands on 12 h. and, with the chronograph in gear, allow to run during several hours so as to make sure that the minute and hour recorders follow correctly.

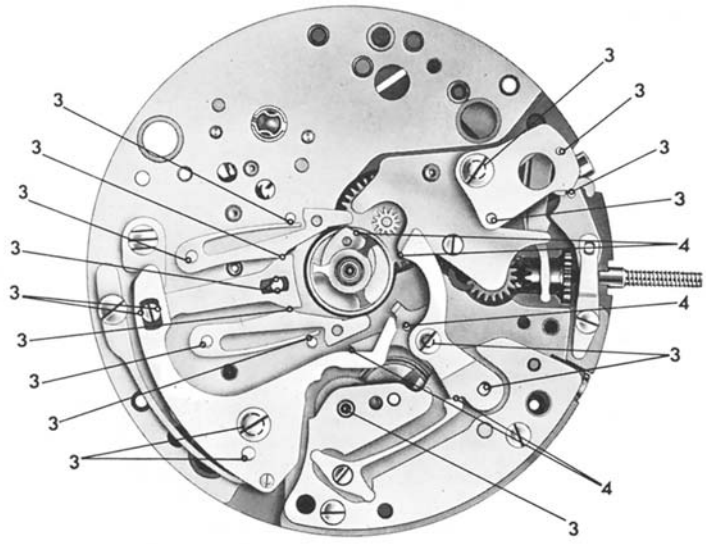
4. Check duration of run: about 48 hours.

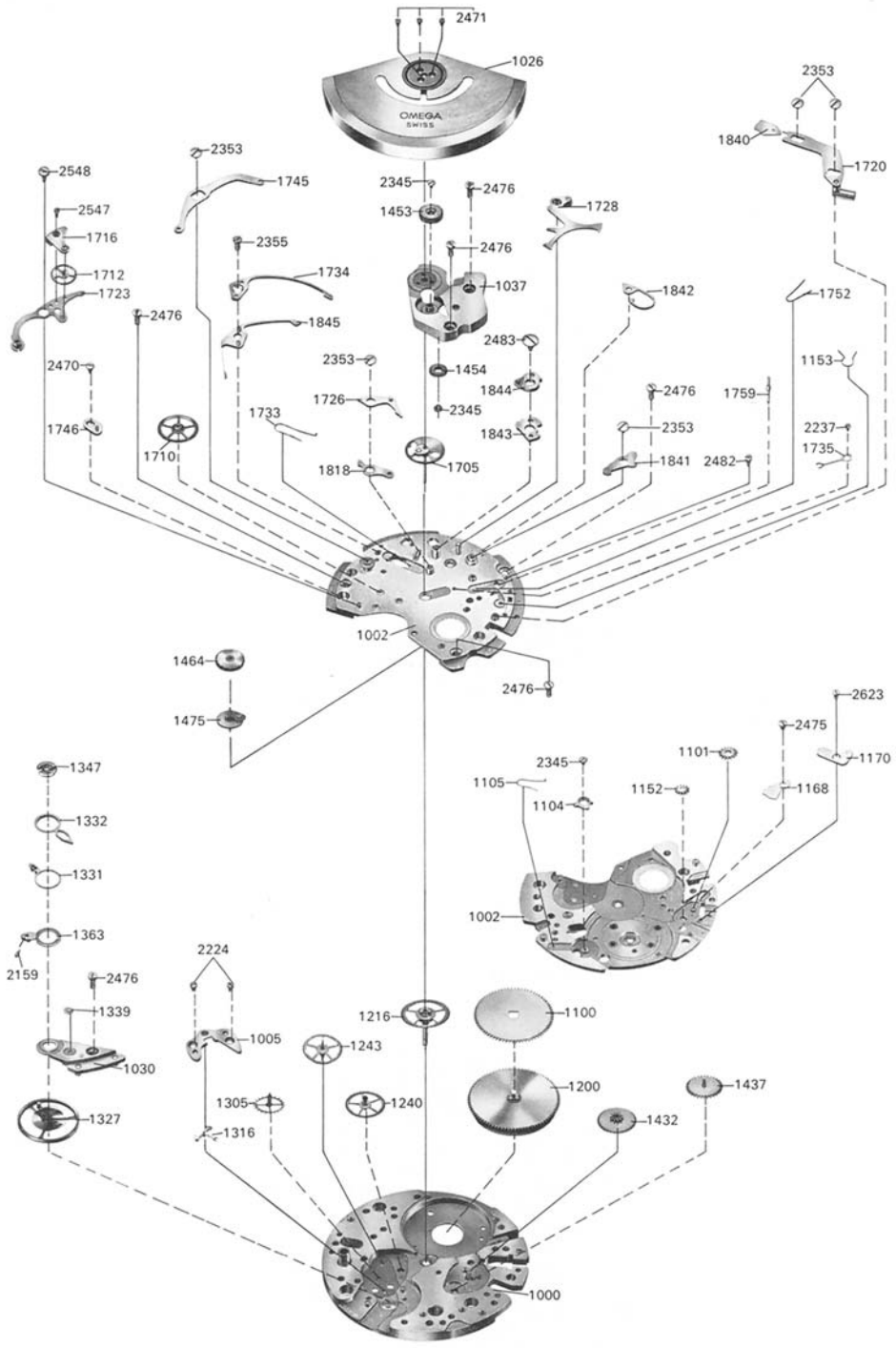
Greasing of chronograph mechanism

1. 1.01
2. 1.07
3. 2.01
4. 2.03



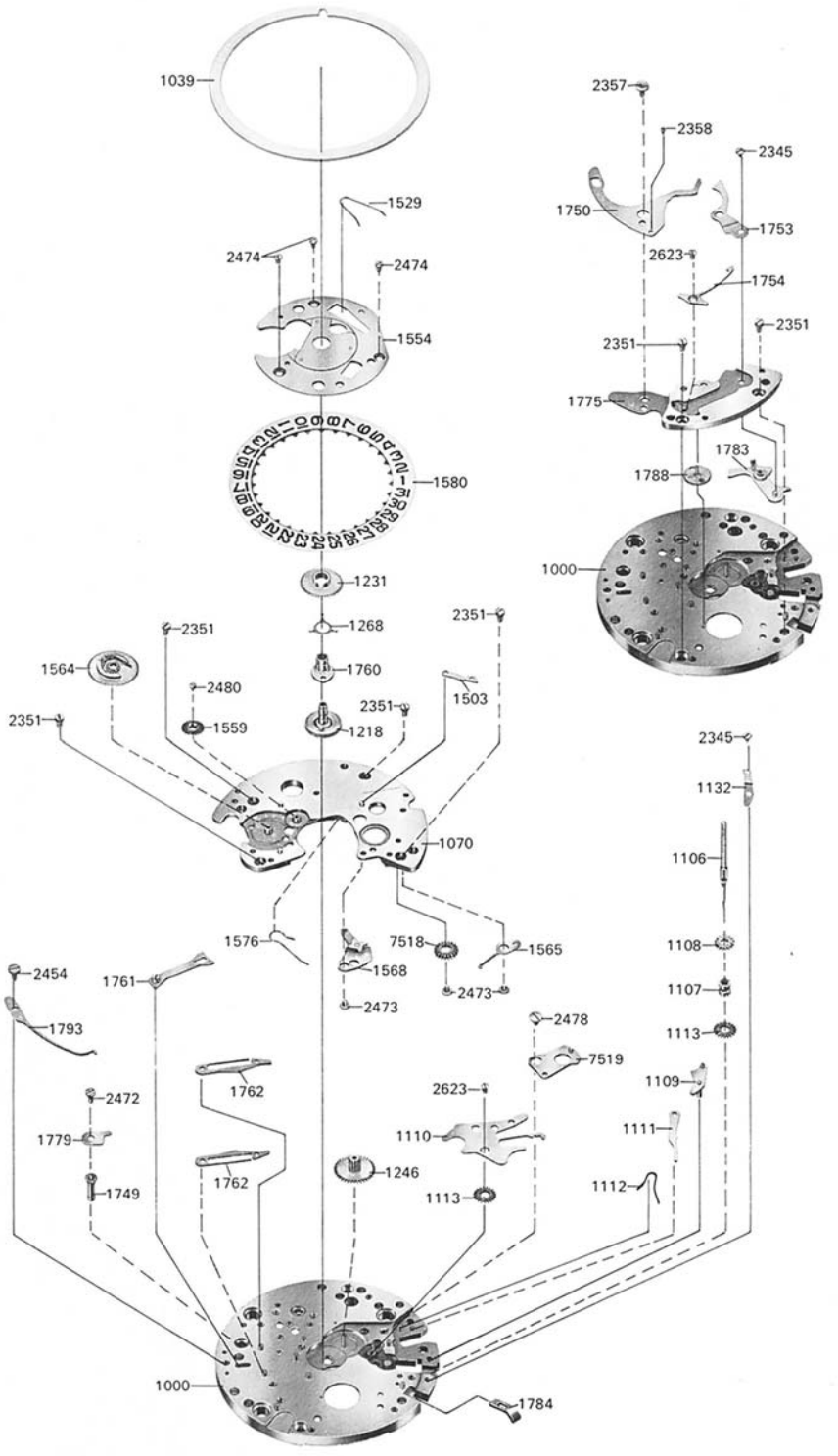
Greasing of hour and minute recorder mechanism





Numbering and description of components in break-up

1000 Plate
1002 Barrel and wheel train bridge (¾ plate bridge)
1005 Pallet cock
1026 Rotor
1030 Balance cock
1037 Chronograph bridge
1100 Ratchet wheel
1101 Crown wheel
1104 Click
1105 Click spring
1152 Wig-wag setting wheel
1153 Wig-wag setting wheel spring
1168 Crown wheel cover
1170 Wig-wag setting wheel cover
1200 Barrel with arbor
1216 Center wheel
1240 Third wheel
1243 Fourth wheel
1305 Escape wheel
1316 Pallet fork
1327 Balance, complete
1331 Regulator ring
1332 Regulator pointer
1339 Adjuster for regulator
1347 Incabloc, upper
1363 Stud-holder
1432 Reduction gear
1437 Driving gear for ratchet wheel
1453 Large connecting wheel for winding gear
1454 Small connecting wheel for winding gear
1464 Winding gear
1475 Differential
1705 Chronograph runner
1710 Chronograph driving wheel
1720 Operating lever
1726 Blocking lever
1728 Second hammer
1733 Blocking lever spring
1734 Second hammer spring
1735 Friction spring for chronograph runner
1745 Hour recorder connecting rod
1746 Connecting rod valet for hour recorder
1752 Spring for bolt-stem of second hammer
1759 Bolt-Stem of second hammer
1818 Blocking lever yoke
1840 Intermediate operating lever
1841 Operating lever yoke
1842 Operating lever spring
1843 Lower cam for coupling clutch
1844 Upper cam for hammer
1845 Cam spring (+ coupling yoke spring)
2159 Screw for stud
2224 Screw for pallet cock
2237 Screw for friction spring of chronograph runner
2345 Screws for large and small connecting of winding gear
2345 Screw for click
2353 Screw for hour recorder connecting rod
2353 Screw for blocking lever
2353 Screw for operating lever yoke
2353 Screw for operating lever
2353 Screw for spring of second hammer and cams
2470 Screw for hour recorder connecting rod valet
2471 Screw for rotor
2475 Screw for crown wheel cover
2476 Screw for balance cock
2482 Screw for pusher-stem for zero action
2483 Screw for cams
2548 Screw for coupling yoke (fixing)
2623 Screw for wig-wag setting wheel cover



Numbering and description of components in break-up

1000 Plate
1039 Dial rest
1070 Mechanism bridge
1106 Winding stem
1107 Clutch wheel
1108 Winding pinion
1109 Setting lever
1110 Setting lever spring
1111 Yoke
1112 Yoke spring
1113 Setting wheel (2 pieces)
1132 Pressure spring for setting lever
1218 Cannon pinion mounted with minute recorder driver
1231 Hour wheel
1246 Minute wheel
1268 Hour wheel spring
1503 Date jumper
1529 Date jumper spring
1554 Date indicator guard
1559 Double date connecting wheel
1564 Date indicator driving wheel
1565 Operating lever for date corrector
1568 Date corrector lever
1576 Spring for date corrector lever
1580 Date indicator
7518 Date corrector crown
7519 Date corrector valet
1723 Coupling yoke with eccentric
1749 Switch stem
1750 Hour recorder stop lever
1753 Minute hammer
1754 Minute hammer spring
1760 Minute heart
1761 Valet for minute recorder clamp
1762 Minute recorder clamp (2 pieces)
1775 Hour recorder bridge
1779 Switch
1783 Hour hammer
1784 Operating lever for hour and minute hammers
1788 Hour recorder runner
1793 Hour recorder stop lever spring
2345 Screw for hour and minute hammers
2345 Screw for pressure spring of setting lever
2351 Screw for mechanism bridge
2351 Screw for hour recorder bridge
2357 Screw for hour recorder stop lever (fixing)
2358 Screw for supporting hour recorder stop lever spring
2454 Screw for hour recorder stop lever spring
2472 Screw for switch
2473 Screw for crown of date corrector
2473 Screw for operating lever of date corrector
2473 Screw for date corrector lever
2474 Screw for date indicator guard
2478 Screw for setting lever spring and date corrector valet
2480 Screw for double date connecting wheel
2623 Screw for minute hammer spring
2623 Screw for setting lever spring (on setting wheel)