MOVEMENT FOR GENTS'

INDEX NO.

02 SERIES 02

08 SERIES 08

52 SERIES 52

65 SERIES 65

72 SERIES 72

98 SERIES 98

02※※,09※※,18※※,30※※,57※※

1. SPECIFICATIONS

Cal. No.	Size (mmϕ)	Thick-ness (mm)	Vibrations per hour	Center second	Without second hand	Date mechanism	Day mechanism	Second hand stopping	Fine regulator
020*	25.6	4.0	18,000	.o	x	x	x	x	x
027*	"	"	"	o	x	x	x	x	x
091*	"	"	"	o	x	x	x	o	x
092*	"	"	"	o	x	x	x	o	x
093*	"	"	"	o	x	x	x	x	o
180*	"	4.5	"	o	x	o	x	x	x
181*	"	"	"	o	x	x	o	x	x
183*	"	"	"	o	x	o	x	x	x
184*	"	"	"	o	x	o	x	x	x
185*	"	"	"	o	x	o	x	x	x
186*	"	"	"	o	x	o	x	o	x
187*	"	"	"	o	x	o	x	o	x
3000	"	4.0	"	x	o	x	x	x	x

- Parashock (shockproofing device) is employed on all calibers, while the Profix (oil preservation device) is employed on watches with more than 19 Jewels.

2 HANDLING PROCEDURES

(1) Date setting

Pull out the crown and change the date by repeating the reciprocation motion of the hands between the hours of 8:30 p.m. and 12:30 a.m. (Cal. No. 18**).

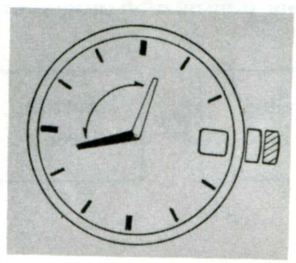


Fig. 1

(2) Time setting

Set the watch to the correct time with considerations to a.m. and p.m. hours. (Cal. No. 18**).

3. STRUCTURE AND OPERATIONS

3-1. Dial side mechanism

(1) Date mechanism

⊙ The power transmission process of the date mechanism is as follows:

Hour wheel ▶ Intermediate date wheel. ▶ Date dial driving wheel ▶ Date dial

(2) Second hand stopping device (Fig. 2).

- The second hand stops when the crown is pulled out and it starts to move from the stopped position when the crown is pushed in.
- The setting lever and the yoke actuates when the crown is pulled out and the stop lever which couples to the yoke moves the stop lever spring in a pushing direction along the groove on the plate. The stop lever spring tip which has been bent by the stop lver motion touches the teeth of the fourth wheel and stops the second hand.
- Simultaneously as the crown is pushed in, the stop lever and the stop lever spring return to their former positions and the second hand starts to move.

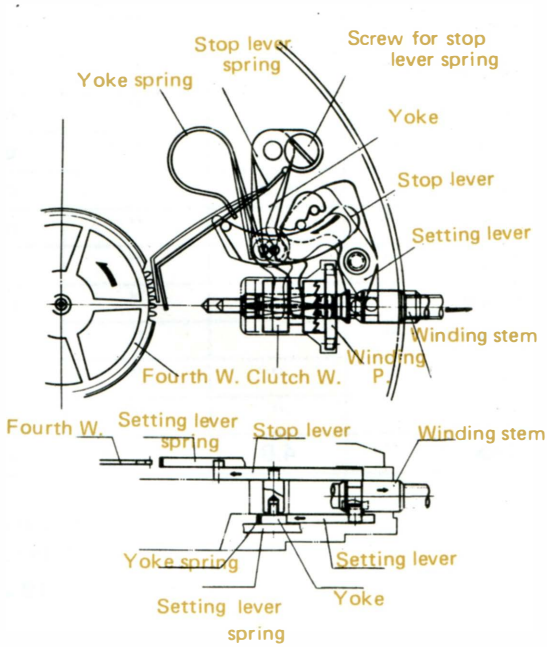
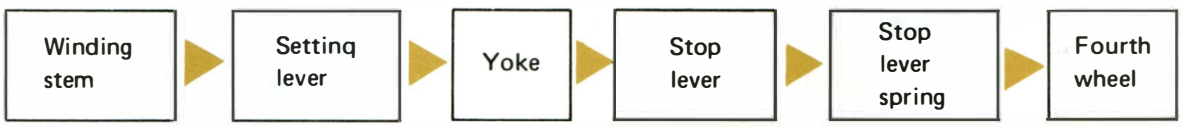


Fig. 2

⦿ The power transmission process of the second hand stopping device is as follows:



3-2. Structure (Exploded view and parts name)

Bridge side

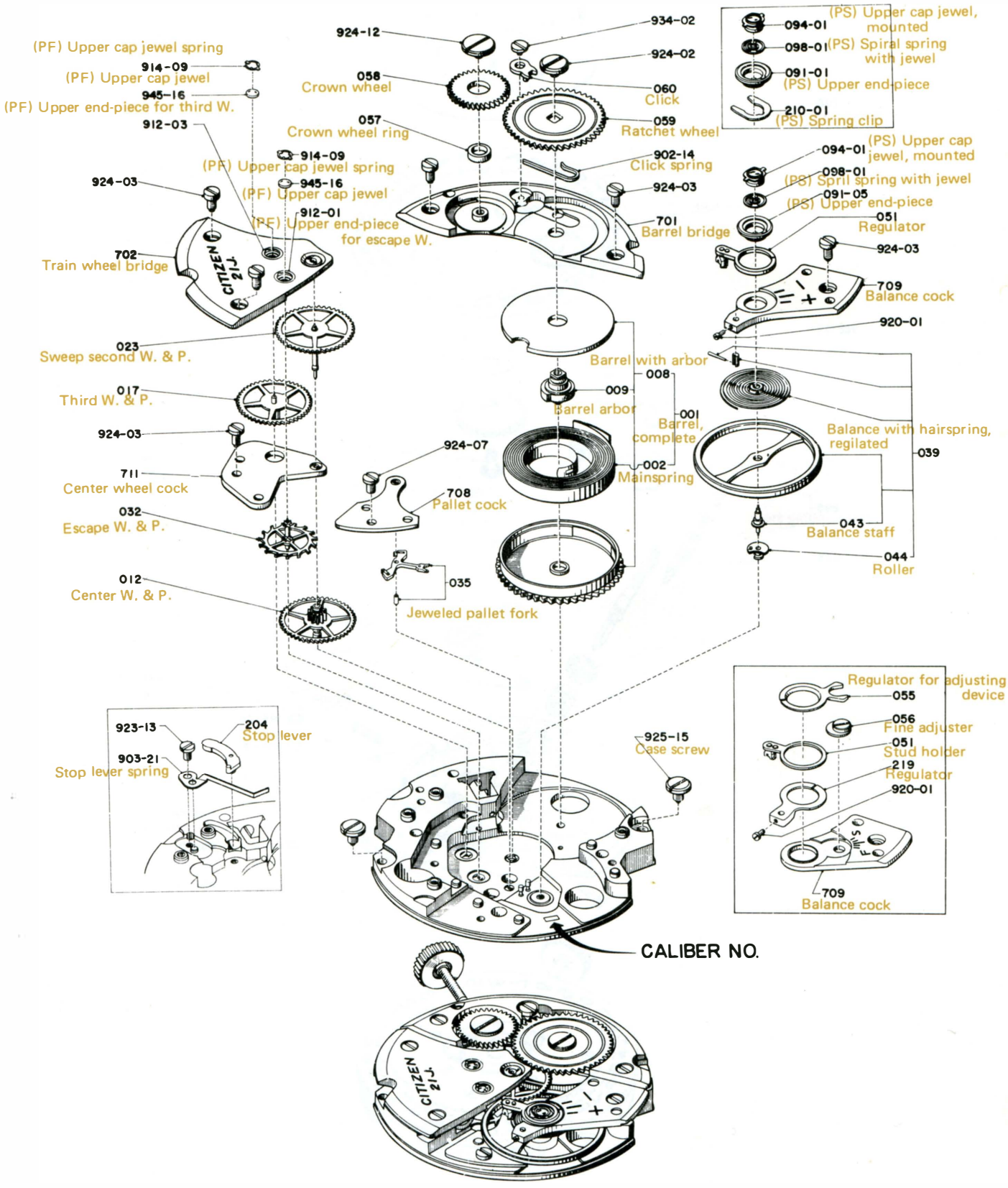


Fig. 3

3-2. Structure (Exploded view and parts name)

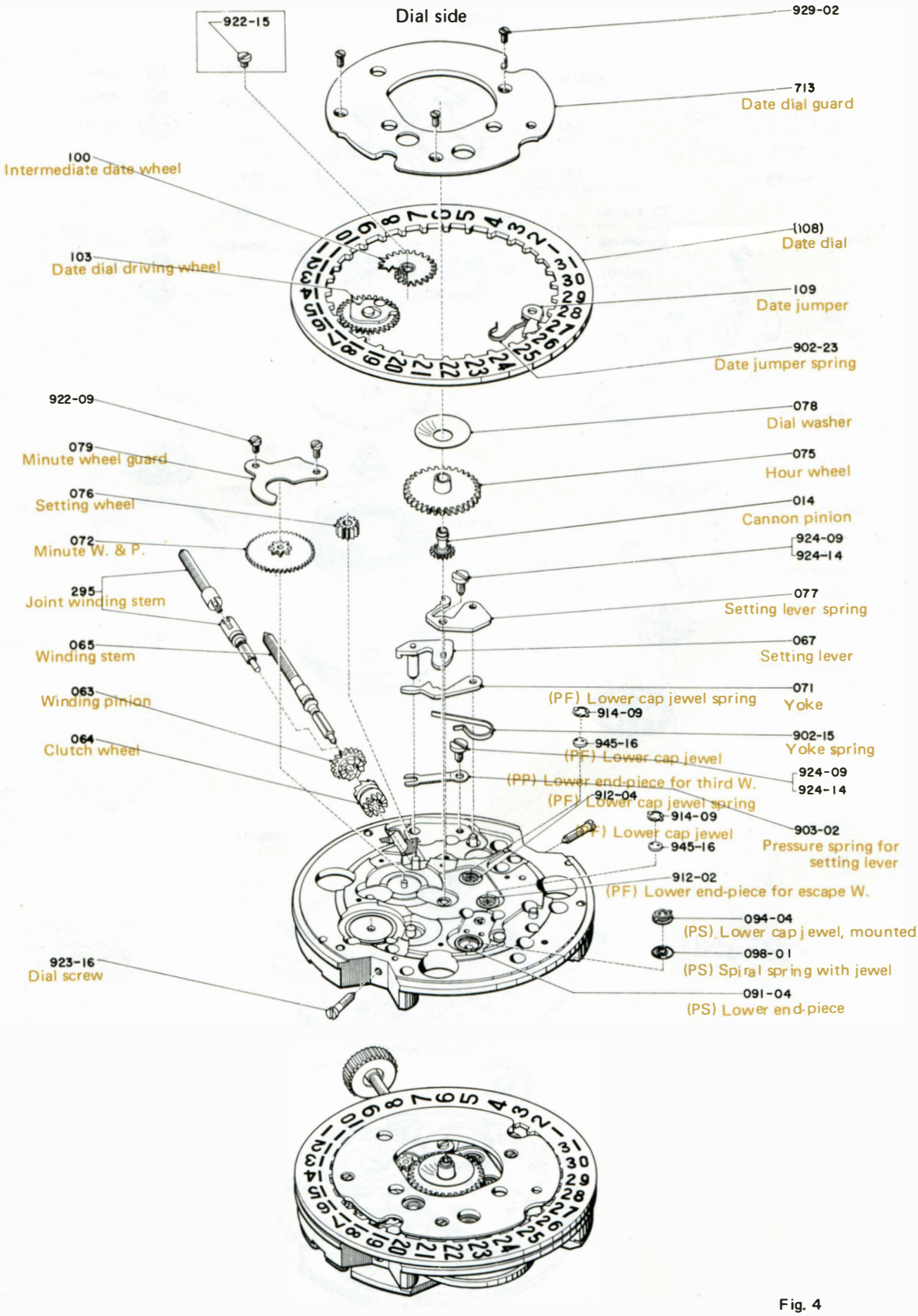


Fig. 4

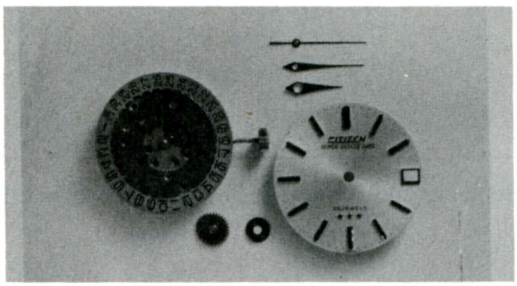
- For parts with more than 2 parts numbers, please refer to the PARTS CATALOG.

4. DISASSEMBLY

Contents of disassembly

4-1. Date mechanism

1. Hands, Dial



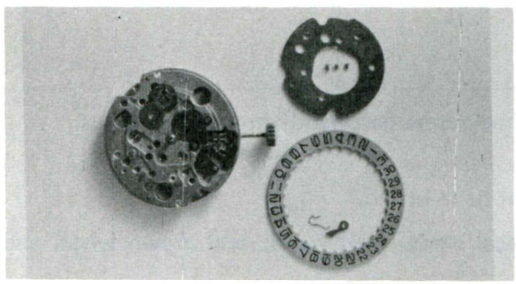
(1) Remove second, minute and hour hands.

Remarks:
For Cal. No. 3000, remove minute and hour hands carefully.

(2) Loosen 2 screws for dial and remove dial.

(3) Remove dial washer and hour wheel.

2. Date dial guard Date dial (Omitted for Cal. No. 02**, 09**and 3000)

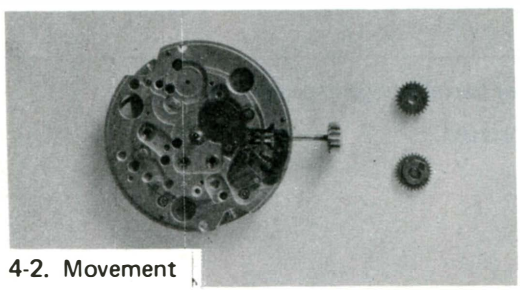


(1) Remove 3 screws for date dial guard and remove date dial guard.

(2) Hold date jumper spring down and remove date dial.

(3) Remove date jumper spring and date jumper.

3. Intermediate date wheel. Date dial driving wheel



(1) Remove intermediate date wheel and date dial driving wheel.

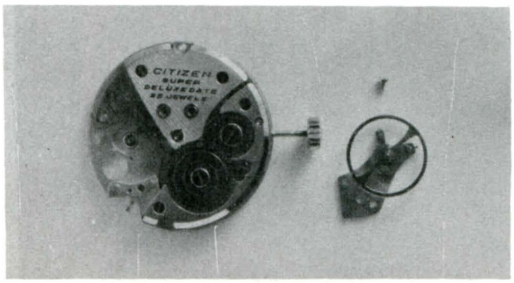
Remarks:
For Cal. No. 1800 and 1810, remove the screw (left hand) for intermediate date wheel.

4-2. Movement

1. Mainspring unwinding

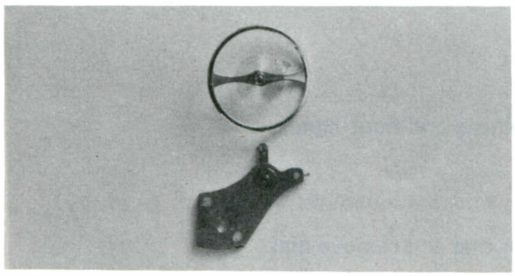
(1) Grasp the crown, disengage the meshing of the ratched wheel and the click and unwind the mainspring gradually.

2. Balance cock



(1) Remove balance cock screw and remove balance cock with the balance.

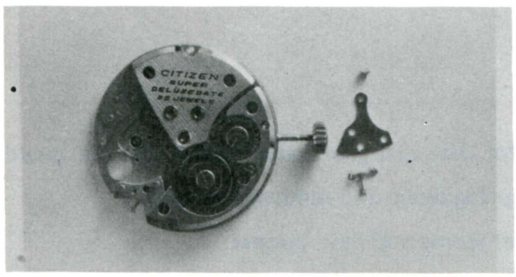
3. Balance



(1) Turn hairspring stud and loosen hairspring stud screw.

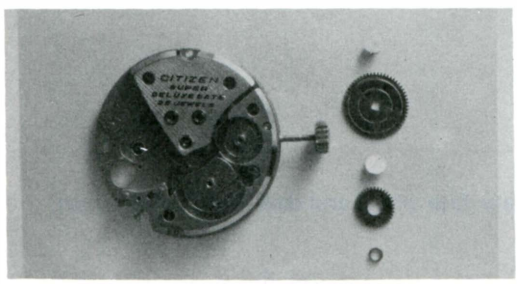
(2) Remove the balance.

4. Jeweled pallet fork



(1) Remove pallet cock screw and remove pallet cock and jeweled pallet fork.

5. Ratchet wheel, Crown wheel

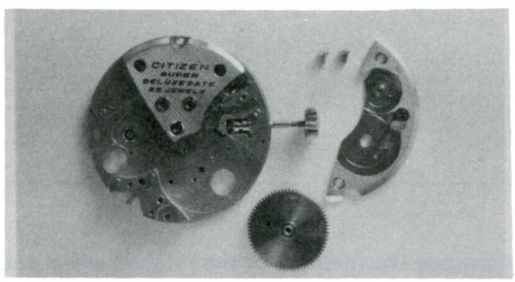


(1) Remove ratched wheel screw (left hand) and ratchet wheel.

Remarks:
The click should not be removed.

(2) Remove crown wheel screw (left hand) and crown wheel and crown wheel ring.

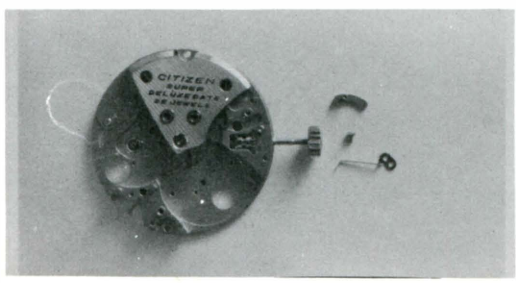
6. Barrel bridge



(1) Remove 2 screws for barrel bridge and barrel bridge.

(2) Remove barrel, complete.

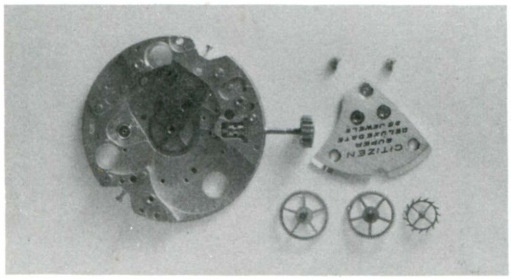
7. Stop lever
(Cal. Nos. 1860, 1870, 0911, 0920 and 0930 only)



(1) Remove stop lever.

(2) Remove stop lever spring screw and stop lever.

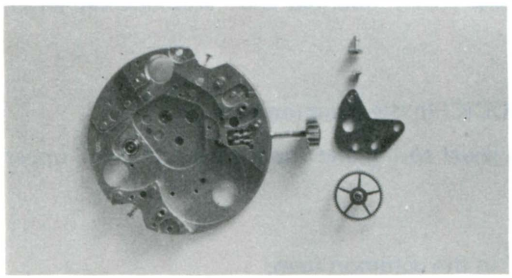
8. Train wheel bridge



(1) Remove 2 screws for train wheel bridge and train wheel bridge.

(2) Remove fourth wheel, third wheel and escape wheel.

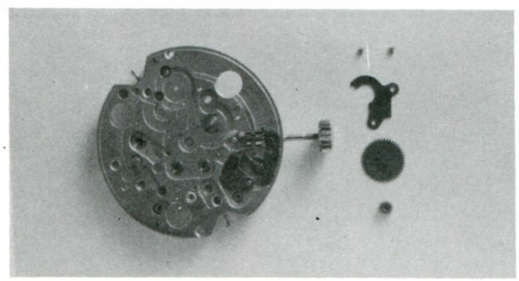
9. Center wheel cock



(1) Remove cannon pinion.

(2) Remove screw for center wheel cock, center wheel cock and center wheel.

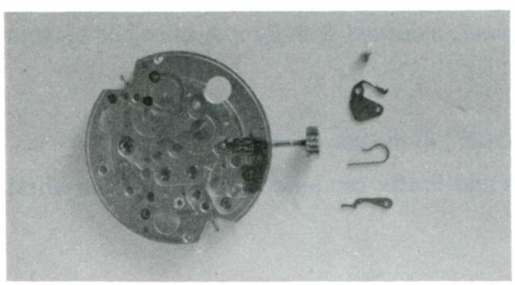
10. Minute wheel guard



(1) Remove 2 screws for minute wheel guard and minute wheel guard.

(2) Remove minute wheel and setting wheel.

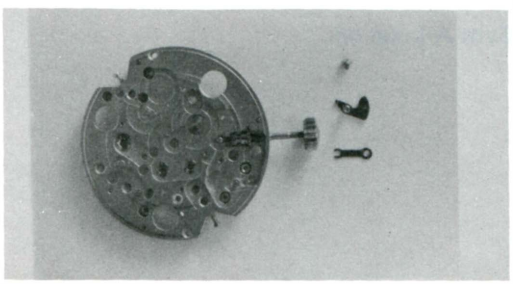
11. Setting lever spring



(1) Remove setting lever screw and setting lever.

(2) Remove yoke spring and yoke.

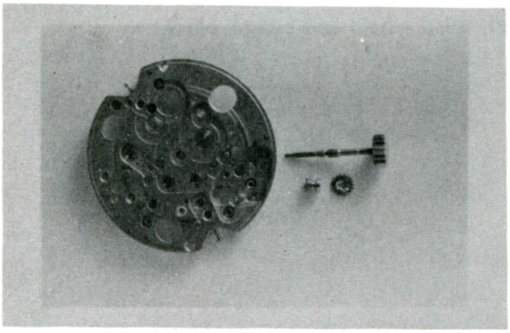
12. Setting lever



(1) Remove pressure spring for setting lever.

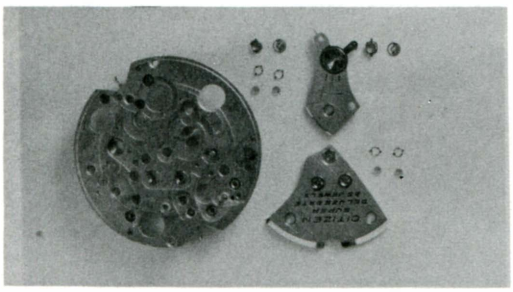
(2) Remove setting lever and pressure spring for setting lever.

13. Winding stem



(1) Remove winding stem, winding pinion and clutch wheel.

14. Parashock, Profix



(1) Remove Parashock cap jewel, mounted and Parashock cap jewel, upper and lower.

Remarks:
Refer to "PARASHOCK" in the common item.

(2) Remove Profix cap jewel spring and the Profix cap jewel, upper and lower.

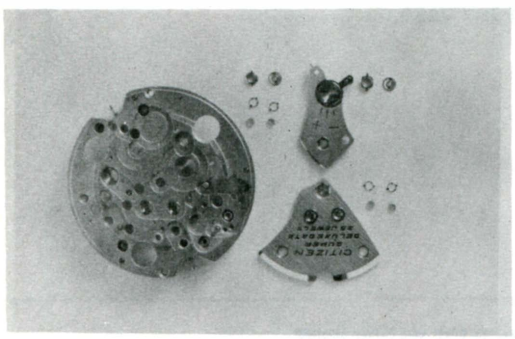
Remarks:
Refer to "PROFIX" in the common item.

5. ASSEMBLY

Contents of assembly

5-1. Movement

1. Paraschock, Profix



(1) Set Parashock spiral spring in to balance cock and the plate.

(2) Oil Parashock cap jewel, mounted with Synt-A-Lube and set it in position.

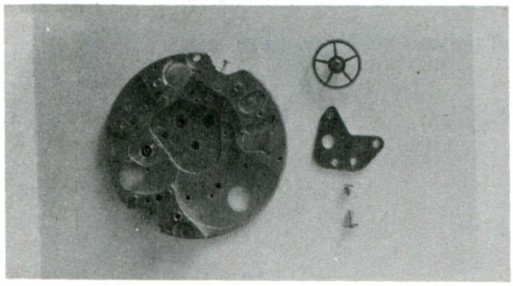
Remarks:
Refer to "PARASHOCK" in the common item.

(3) Set Profix cap jewel and Profix cap jewel spring in to train wheel bridge and plate.

Remarks:
Refer to "PROFIX" in the common item.
For Cal. No. 18**, 02**7j, 17j and 3000-17j, Procedures (3) and (4) are omitted.

(4) Oil the Profix with Synt-A-Lube oil.

2. Center wheel cock



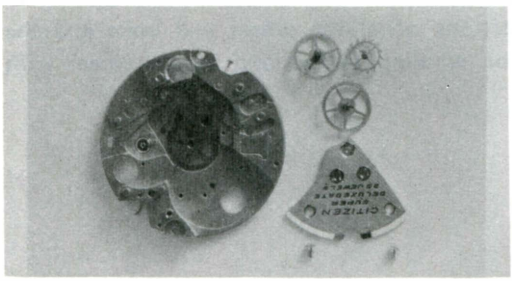
(1) Set center wheel and oil the upper pivot with CA-1 oil.

(2) Set center wheel cock and tighten the screw.

(3) Oil the lower pivot of center wheel and the bearing portion of cannon pinion with CA-1 oil.

(4) Push cannon pinion in.

3. Train wheel bridge



(1) Set third wheel and escape wheel.

(2) Oil in 2 places on the lower pivot of fourth wheel with Synt-A-Lube and set.

(3) Set train wheel bridge and tighten 2 screws.

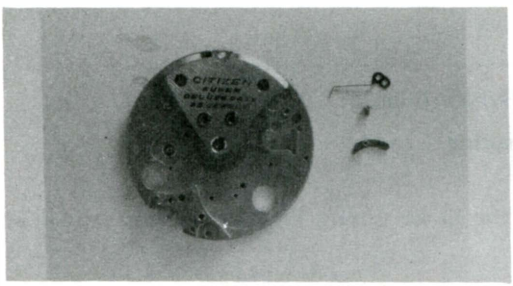
(4) Oil the upper pivot of fourth wheel with Synt-A-Lube.

Remarks:

For Cal. No. 18**, 02**-7j, 17 and 3000-17j, oil the upper and lower pivots of third wheel and escape wheel.

For Cal. No. 18** and 02**-19j, oil the upper and lower pivots of third wheel also.

4. Stop lever
(For Cal. No. 1860, 1870, 0911, 0920 and 0930 only)



(1) Set stop lever spring and tighten the screw.

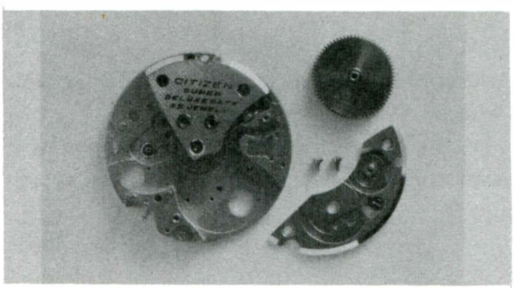
(2) Set stop lever.

Remarks:

Confirm that the gap between stop lever spring and fourth wheel is 1.5~2 times the thickness of stop lever spring and that the tip end of stop lever spring is touching fourth wheel at the center of its width.

Check the gap between stop lever spring and third wheel.

5. Barrel bridge



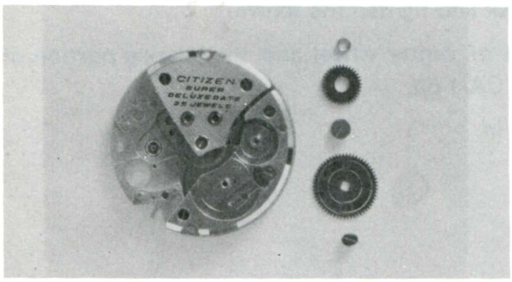
(1) Oil barrel, complete and set.

(2) Set barrel bridge and tighten 2 screws.

Remarks:

Oil the bearing portion of barrel arbor with barrel and the upper and lower pivots of barrel arbor with CA-1 oil. When barrel, complete is disassembled and cleaned, refer to "Phynox" in the common item. Turn barrel, complete lightly and check whether or not the train wheels rotate smoothly.

6. Crown wheel, Ratchet wheel

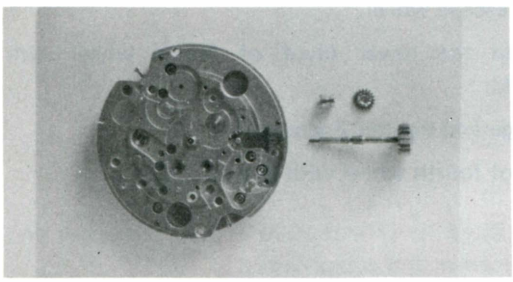


(1) Set crown wheel ring and oil its perimeter with Synt-V-Lube.

(2) Set crown wheel and tighten the screw (left hand).

(3) Set ratchet wheel and tighten the screw (left hand).

7. Winding stem

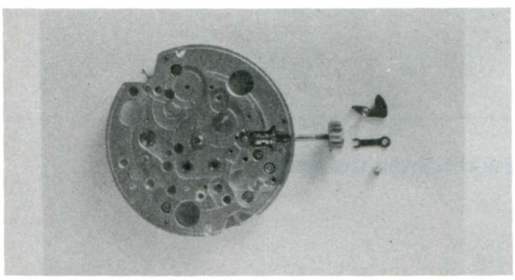


(1) Set winding pinion and clutch wheel.

(2) Oil winding stem with Synt-V-Lube and push into the plate.

(3) Oil the contact portions of clutch wheel and yoke and the meshing portions of winding pinion and clutch wheel with Synt-V-Lube.

8. Setting lever

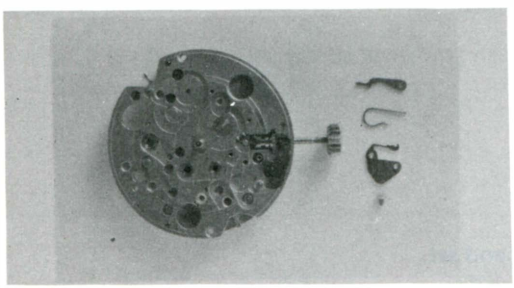


(1) Oil setting lever axle with Synt-V-Lube.

(2) Set setting lever and pressure spring for setting lever and set at the same time.

(3) Tighten screw for setting lever pressure spring.

9. Setting lever spring



(1) Oil yoke axle with Synt-V-Lube.

(2) Set yoke and yoke spring.

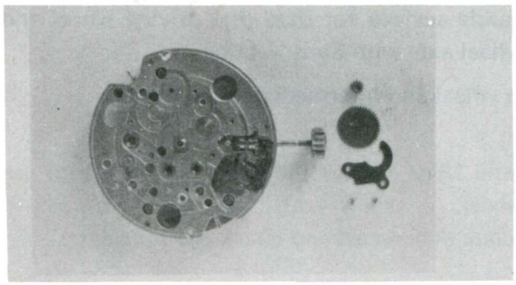
Remarks:
Set so the pin on the lower surface of yoke fits into stop lever axle.

(3) Set setting lever spring and tighten the screw.

(4) Oil the contact portion of yoke and setting lever and the touching portion of the setting lever spring and the setting lever pin with Synt-V-Lube oil.

Remarks:
Pull out the crown and confirm that stop lever spring is securely touching the fourth wheel.
Rotate the crown in the mainspring winding direction and confirm that stop lever spring is not touching with the fourth wheel teeth.

10. Minute wheel guard



(1) Oil setting wheel axle and minute wheel axle with Synt-V-Lube.

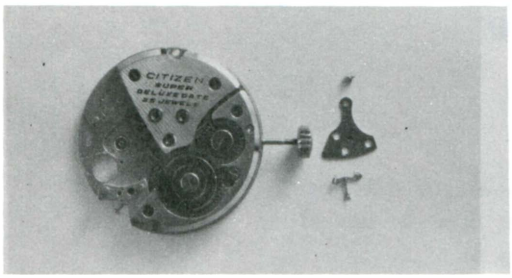
(2) Set setting wheel and minute wheel.

Remarks:
The slanted side of setting wheel is its lower side.

(3) Set minute wheel guard and tighten 2 screws.

Remarks:
Wind the mainspring a little and whether or not the train wheels rotate smoothly.

11. Jeweled pallet fork



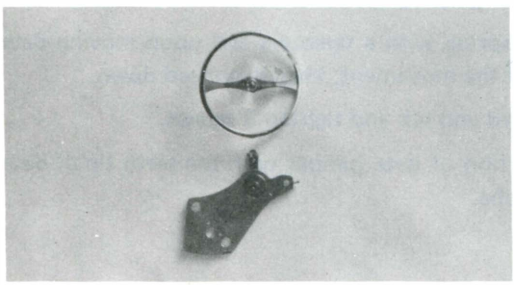
(1) Set jewelled pallet fork.

(2) Set pallet cock and tighten the screw.

(3) Oil the upper and lower pivots of jeweled pallet fork with a small amount of Synt-A-Lube.

Remarks:
Wind the mainspring a little (Turn the crown 3-4 times) and check the operation of the jeweled pallet fork.

12. Balance



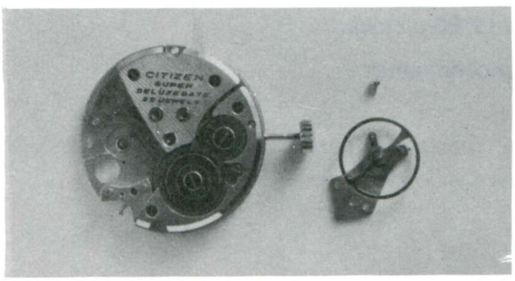
(1) While inserting the hairspring stud into the hairspring stud hole on the balance cock, insert the hairspring in between the regulator pin and the regulator key.

(2) Turn the regulator key.

(3) Tighten hairspring stud screw.

Remarks:
Be careful not to deform the hairspring configuration.

13. Balance cock



(1) Set balance cock with the balance and tighten the screw.

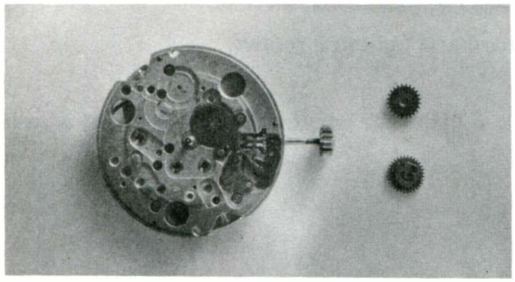
Remarks:
Carefully check the end shake and the configuration of the hairspring.

(2) Stop the motion of the balance with the fingertip and oil the impulse face of the pallet jewels with Synt-A-Lube.

Remarks:
Advance the escape wheel by 7～8 teeth and oil again.

5-2. Date mechanism

1. Date dial driving wheel, Intermediate date wheel

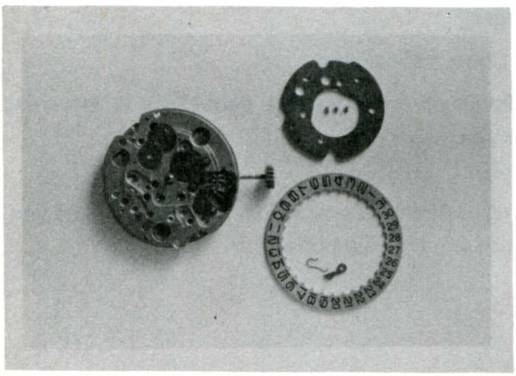


(1) Oil the hole and guide surface for date dial driving wheel and intermediate date wheel axle with Synt-V-Lube.

(2) Set date dial driving wheel and intermediate date wheel.

Remarks:
For Cal. No. 1800 and 1810, tighten the screw (left hand) for the intermediate date wheel.
Rotate the intermediate date wheel and check the squeaking.

2. Date dial, Date dial guard



(1) Oil date jumper axle with Synt-V-Lube.

(2) Set date jumper and date jumper spring.

(3) Oil the contact portion of date dial guard with date dial with Synt-V-Lube (Fig. 5).

Remarks:
The oiling portion of the date dial guard should be the opposite side of the date jumper (Fig. 5).

Fig. 5

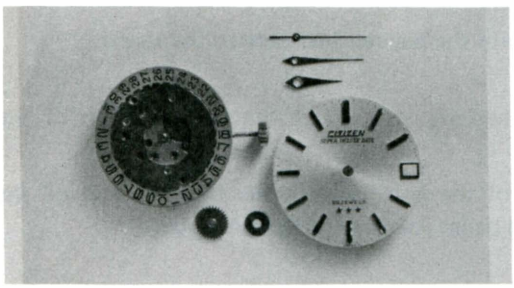
(4) Match date dial to date jumper and set.

(5) Bend date jumper spring with a tweezers and upon moving date dial to the center of the movement, keep it pressed down.

(6) Match date dial guard and sek and tighten 3 screws.

(7) Oil the contact portion of date jumper with the teeth tip of date dial with Synt-V-Lube.

3. Dial, Hands



(1) Set hour wheel and dial washer.

(2) Set dial and tighten 2 screws.

(3) Rotate the hands and at the moment when the date changes, attach hour hand to 12:00 o'clock.

(4) Attach minute and second hands.

Remarks:
For Cal. No. 18**, rotate the hands and check the date dial operation. Check the hands clearance.

6. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.

RECORD MASTER

1. SPECIFICATIONS

Cal. No.:	570 *
Functions:	Center second, date mechanism and chronograph mechanism
Dimensions:	Size 25.6mmϕ
	Thickness 6.05mm
Vibrations:	18,000 times per hour
Others:	Parashock (Shockresistant device)
	Profix (Oil preservation device)

2. CHARACTERISTICS

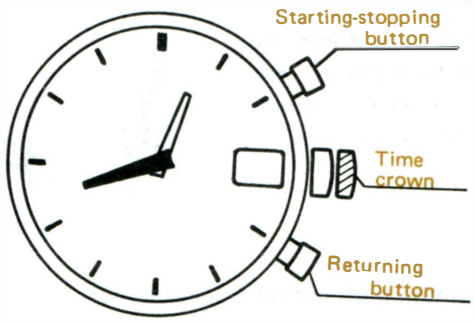
- The 57 Series is a hand winding wrist watch with date indication and a chronograph mechanism. The starting, stopping and the returning of the second hand can be made without stopping the hour and minute hands and can also be used as a stopwatch.
- Dial with tachymeter graduations can also be used as a tachymeter.
- No matter in what order the push buttons are pressed, they have no influence on the watch accuracy.

3. HANDLING PROCEDURES

3-1. Date and time setting

This is the same as for Cal. No. 18**.

3-2. How to use it as a chronograph (Fig. 6).



1. Starting

When the starting-stopping button (2:00 o'clock position) is pressed, the second hand starts to move.

2. Stopping

When the starting-stopping button is pressed for the second time, the second hand stops at that position. Moreover, by pressing the starting-stopping button repeatedly, the starting and stopping of the second hand can be repeated. (Accumulation system)

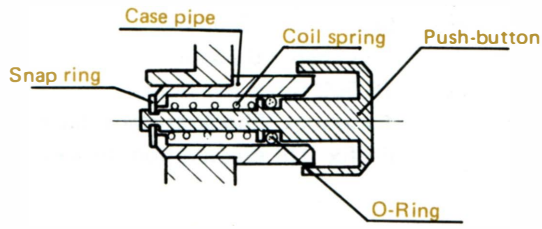
3. Returning

When the returning button (4:00 o'clock position) is pressed, the second hand returns to the 0 position (12:00 o'clock position). (When the returning button is pressed in the second hand moving condition, the second hand returns to the 0 position but commences to move at the same time the button is released.)

4. OUTLINE OF STRUCTURE AND OPERATIONS

4-1. Watchcase structure

- It adopts a tension flange type and a GN-3 type parawater device on its bezel and a screw back type on its case back.
- The push-buttons (Starting-stopping and returning buttons) have a coil spring embodied and are equipped to the case pipe with a snap ring (Fig. 7).
- When the starting-stopping and the returning buttons are pressed, its tip activates the operating lever and the fly-back lever and when the finger is released, it returns to its former position by the spring power.
- Disassembly and assembly of the push-button Normally, it is not necessary to disassemble the push-button, however, when the push-button is to be replaced or the O-Ring is to be oiled, proceed under the following method.



Contents of disassembly

1. Remove snap ring from push-button.

   Remarks:

   Push by a driver, etc. (Perform this in a condition where button is lightly pressed).

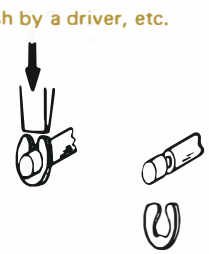


Fig. 8

2. Remove push-button from case pipe.

Contents of assembly

1. Assemble coil spring and push-button into case pipe.

   Remarks:
   Oil the O-Ring with O-Ring oil before assembly.

2. Assemble snap ring to push-button.

   Push the push-button and protrude the tip from the case pipe.

3. Oil the tip end of starting-stopping and returning buttons with O-Ring oil.

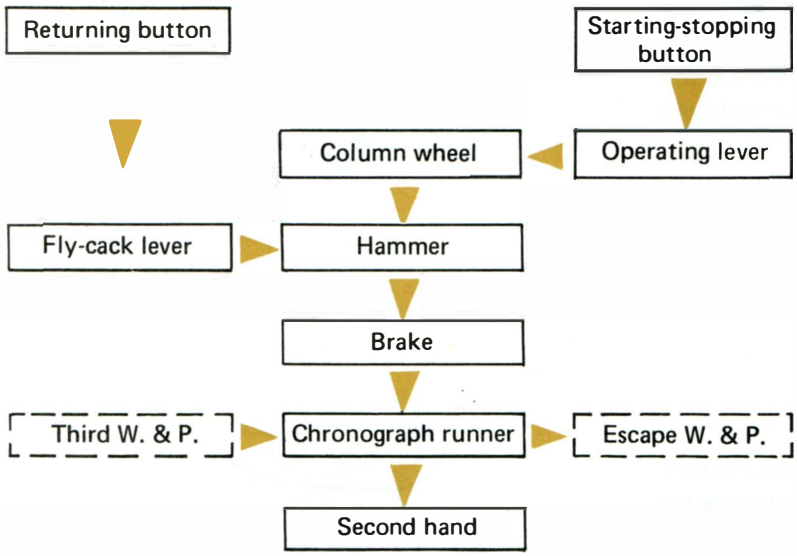
Fig. 9

4-2. Basic movement and date mechanism.

The basic movement and the date mechanism is the same as the 02 series and is the most standardized type.

4-3. Chronograph mechanism

⦿ The power transmitting process is as follows:



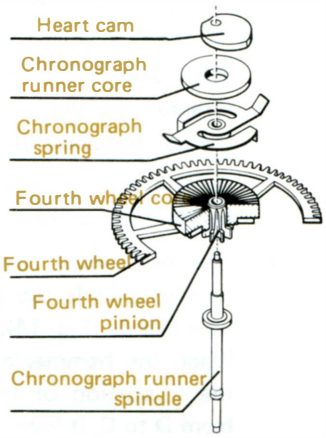


Fig. 10

1. Chronograph runner

- The heart cam and chronograph spring are fixed firmly to the chronograph runner spindle. The fourth wheel core and fourth wheel are fixed to the fourth wheel pinion which is loosely to the chronograph runner spindle and ratates freely around the spindle.
- The chonograph spring is fixed to the chronograph runner spindle on its central portion and the tips of spring (B) come in contact with the fourth wheel core (Fig. 11) When A portions are pushed down, the chronograph spring is bent so as to lift up B positions (Fig. 12).
- The fourth wheel and fourth wheel pinion are always rotating together and while the chronograph spring is in contact with the fourth wheel core, the chronograph runner spindle fixed with the chronograph spring rotates and carries the second hand. When B portions of chronograph spring are separated from the fourth wheel core, rotating power from the spring to the spindle is cut off, thus the second hand stops.
- The movement of chronograph spring is controlled by the up and down motion of the brake which is positioned between the chronograph cock and the chronograph spring.

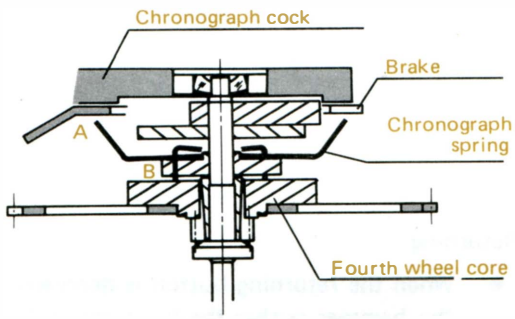
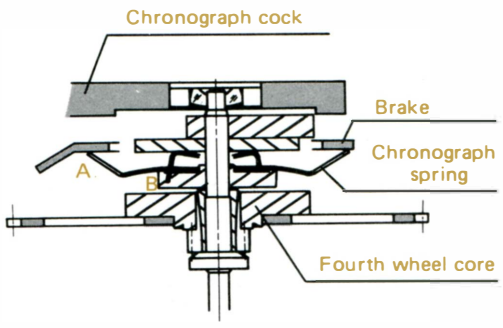


Fig. 11



2. Starting and stopping

When the starting-stopping button is depressed, the operating lever advances the column wheel teeth one by one. The column wheel has its position fixed by the column wheel jumper.

- The hammer is given a rotating power from D to C direction by the hammer spring and contacts with the column wheel pin.

  As the column wheel pin position changes, the hammer reciprocates between C and D (Fig. 13).

- The protruding portion F of the brake is bent upwards, while the protruding portion G is bent downwards (Fig. 14).
  When the hammer moves from C to D, it lifts up the F portion of the brake and when it moves from D to C, it lowers the G portion down.

- The up and down movement of the brake is conveyed to chronograph spring and the starting and stopping of the second hand is repeated.

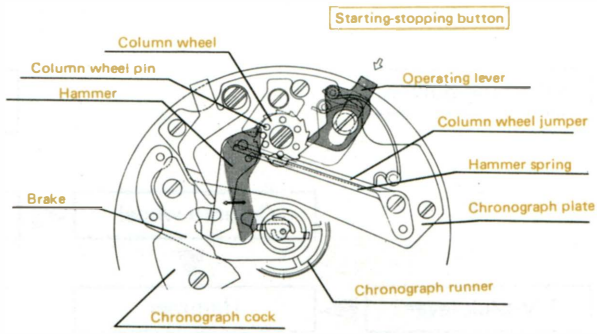


Fig. 13

Fig. 14

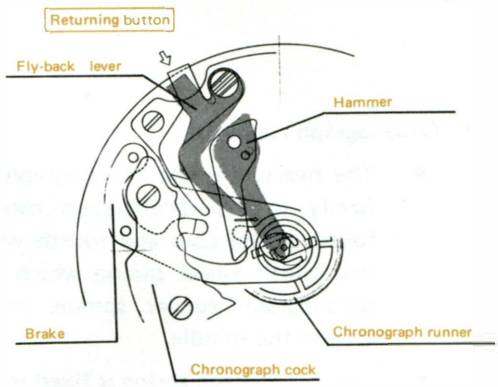


Fig. 15

3. Returning

- When the returning button is depressed, the fly-back lever moves the hammer from D to E and the tip of the hammer pushes the heart cam side surface of the chronograph wheel to return the second hand to O position (Fig. 15).

4-4. Structure (Exploded view and parts name)

Bridge side

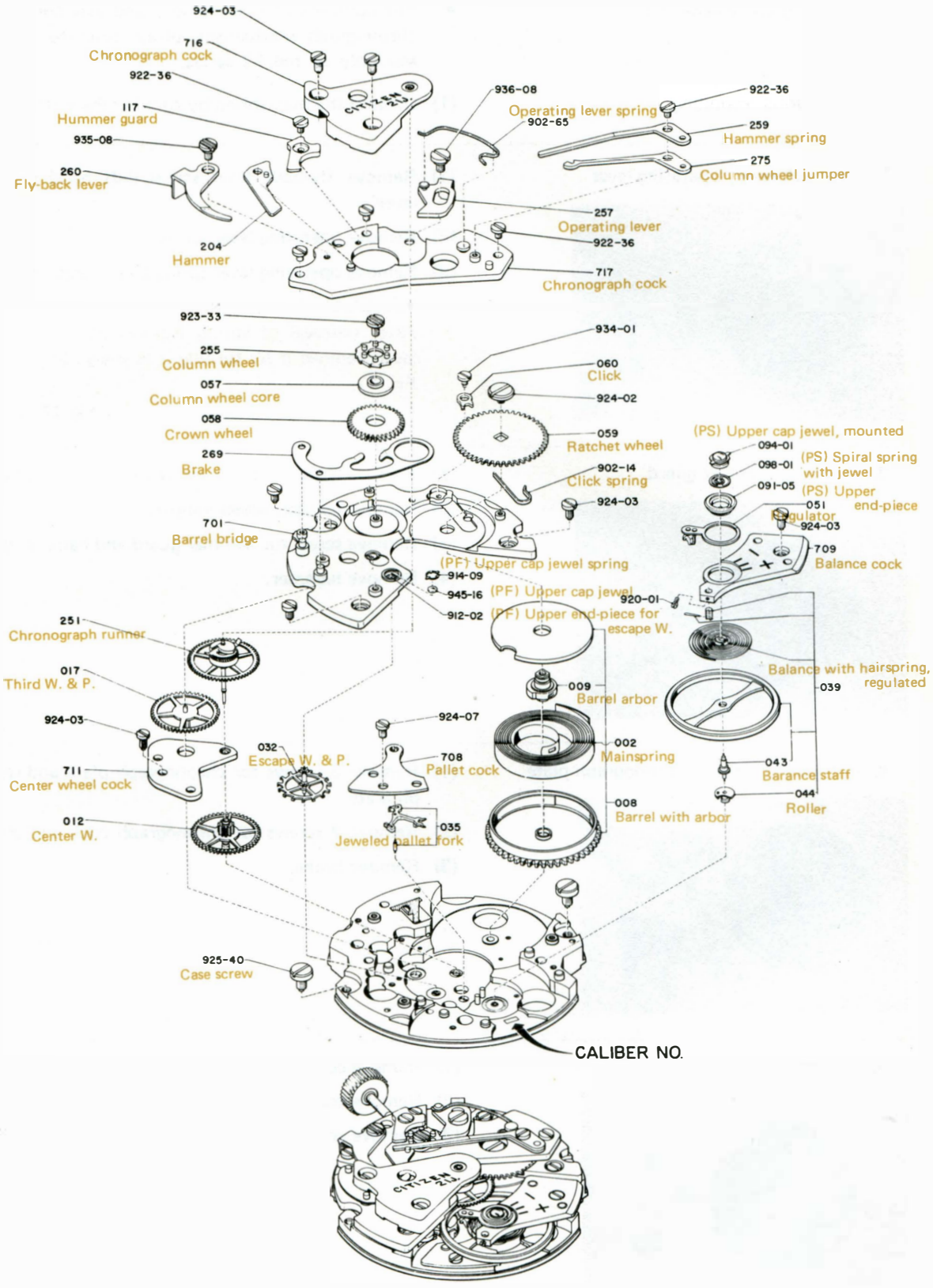


Fig. 16

5. DISASSEMBLY

Contents of disassembly

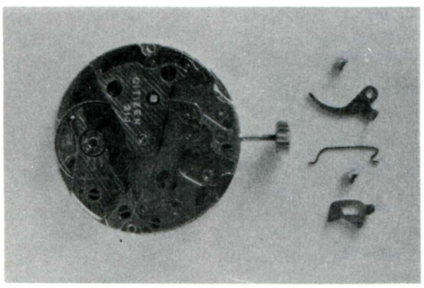
5-1. Chronograph mechanism

- For contents of dissassembly and assembly for other than the chronograph mechanism, please refer to the disassembly and assembly of the 02 series.

1. Mainspring rewinding

(1) Unwind the mainspring by running the watch.

2. Fly-back lever, Operating lever



(1) Remove fly-back lever screw (left hand screw) and fly-back lever.

(2) Remove operating lever spring.

(3) Remove operating lever spring and operating lever.

Remarks:
After removal of spring from operating lever, remove it by turning it as shown in Fig. 17.

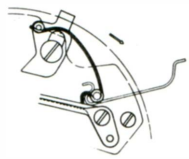
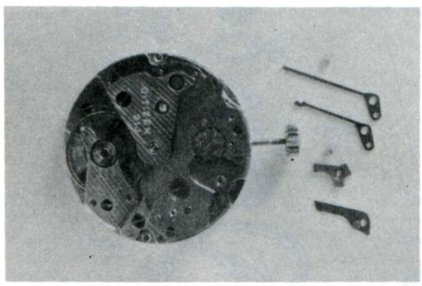


Fig. 17

3. Hammer, Hammer guard



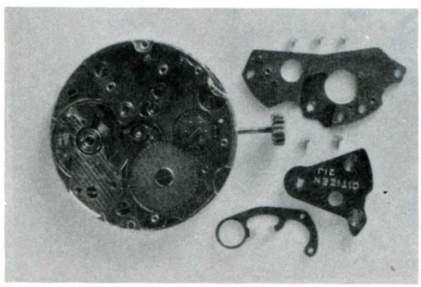
(1) Remove hammer spring screw and hammer spring.

(2) Remove column wheel jumper.

(3) Remove screw for hammer guard and hammer guard.

(4) Remove hammer.

4. Chronograph cock. Chronograph plate

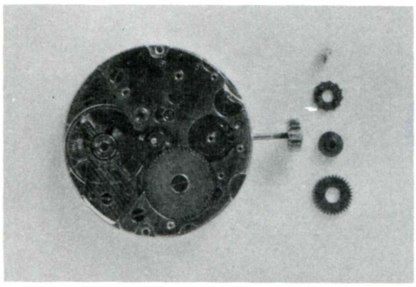


(1) Remove 3 screws for chronograph plate and remove chronograph plate.

(2) Remove 2 screws for chronograph cock and chronograph cock.

(3) Remove brake.

5. Column wheel



(1) Remove column wheel screw and column wheel.

(2) Remove column wheel core.

(3) Remove crown wheel.

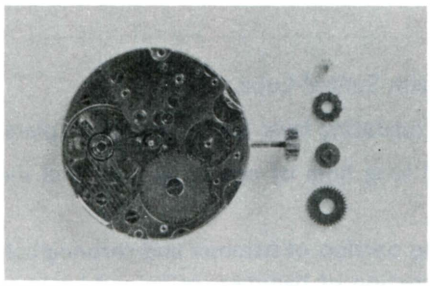
6. ASSEMBLY

Contents of assembly

6-1. Chronograph mechanism

- The Chronograph runner handling is included in the assembly of the 02 series but not to fail to oil the bearing portion of chronograph wheel pinion and spindle with Synt-A-Lube.

1. Column wheel



(1) Assemble crown wheel.

(2) Oil column wheel core with Synt-V-Lube and assemble.

Remarks:
Be careful with the upper and lower side of the column wheel core (Fig. 18).

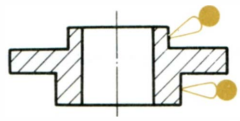


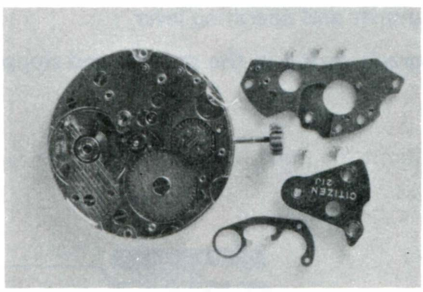
Fig. 18

(3) Assemble column wheel.

(4) Tighten column wheel screw (left hand screw).

(5) Oil the side surface of the column wheel pin with Synt-V-Lube. (Oil at the every other pin)

2. Chronograph cock. Chronograph plate



(1) Oil the protruding portion of brake with a small amount of Synt-V-Lube and assemble.

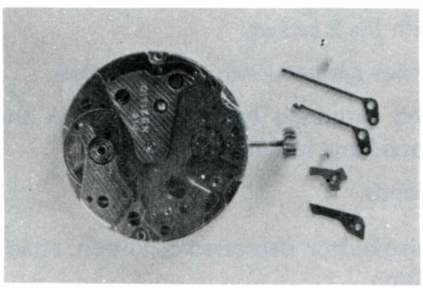
Fig. 19

(2) Assemble chronograph cock and tighten its 2 screws.

(3) Oil the upper pivot of the chronograph runner with Synt-V-Lube.

(4) Assemble the chronograph plate and tighten its 3 screws.

3. Hammer, Hammer guard



(1) Oil the touching portion of the hammer and heart cam and the touching portion of hammer with chronograph cock with a small amount of Synt-V-Lube.

(2) Assemble hammer.

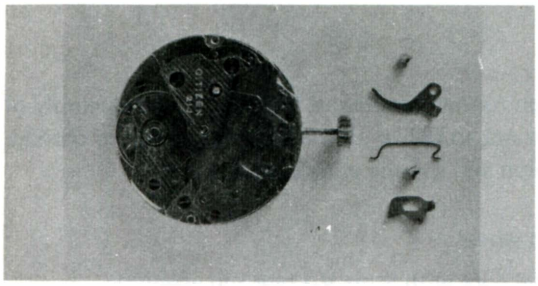
Remarks:
Hammer should be positioned so it can be seen from the hole of chronograph cock.

(3) Assemble hammer guard and tighten its screw.

(4) Assemble column wheel jumper.

(5) Place hammer spring on top and tighten screw for column wheel jumper.

4. Operating lever. Fly-back lever



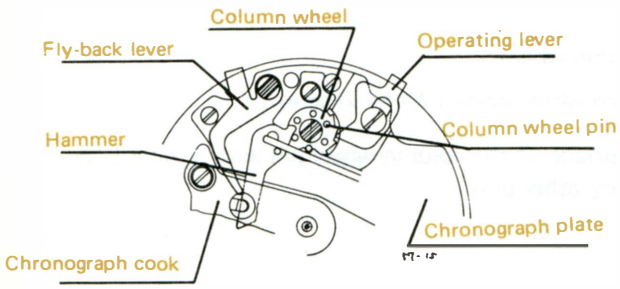
(1) Assemble operating lever and tighten its screw.

(2) Assemble operating lever spring.

Remarks:
In a manner opposite to disassembly.

(3) Assemble fly-back lever and tighten its screw (left hand screw).

5. Oiling of various parts



- Oil the following places with Synt-V-Lube.

(1) The rubbing portions of operating lever and chronograph plate.

(2) The touching portion of long hole of operating lever and the screw.

(3) Hammer axle, the rubbing portion of hammer and chronograph plate and the touching portion of hammer spring and hammer pin.

(4) Fly-back lever axle and the rubbing portion of fly-back lever and chronograph plate.

6. Operation checking

(1) Check the operation of hammer and operating lever.

(2) Check the gap of chronograph spring in the starting and stopping conditions.

Remarks:
The width is to be made about the same from half the thickness of brake.

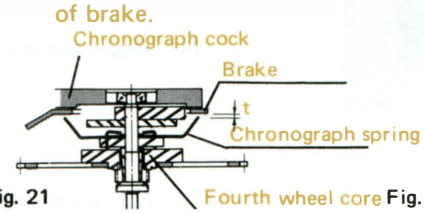


Fig. 21

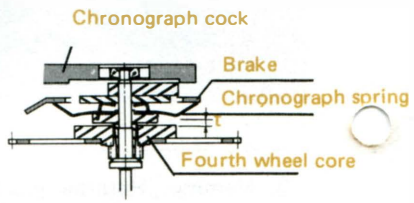
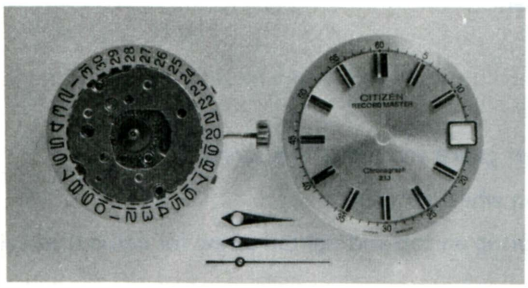


Fig. 22

7. Dial. Hands



(1) Attach dial and tighten with the 2 screws.

(2) Insert the movement into case and secure the 2 case screws.

(3) Push starting-stopping and returning buttons and check the starting, stopping and second hand reterming operations.

(4) Attach hour and minute hands.

(5) In the stopped and returning button depressed condition, attach second hand to the O position.

(6) Push starting-stopping button and start second hand. Then, stop it about 15, 30 and 45 seconds later and check if the second hand returns to the O position when returning button is depressed.

7. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.

1. SPECIFICATIONS

In the 52 series automatic wrist watches, there are three types:
the Cal. No. 52**with day and date indicators: the Cal. No. 54**with date indicator: the Cal. No. 64**without calendar indicator. Their specifications are as follows:

Cal. No.	Size (mmφ)	Thickness (mm)	Vibrations per hour	Automatic center second	Date mechanism	Day mechanism	Quick date setting	Second hand stopping	Fine adjuster
520*	28.0	4.48	18,000	○	○	○	○	×	×
521*	〃	4.95	〃	○	○	○	○	×	×
522*	〃	〃	〃	○	○	○	×	×	×
523*	〃	4.48	〃	○	○	○	○	×	×
524*	〃	〃	〃	○	○	○	○	○	×
525*	〃	〃	〃	○	○	○	○	○	○
526*	〃	4.34	〃	○	○	○	○	○	×
527*	〃	4.48	〃	○	○	○	○	×	×
529*	〃	〃	〃	○	○	○	○	○	×
540*	〃	3.98	〃	○	○	×	○	×	×
541*	〃	〃	〃	○	○	×	○	○	×
542*	〃	4.45	〃	○	○	×	×	×	×
543*	〃	〃	〃	○	○	×	○	×	×
544*	〃	3.98	〃	○	○	×	○	○	×
545*	〃	〃	〃	○	○	×	○	○	○
546*	〃	〃	〃	○	○	×	○	○	×
547*	〃	〃	〃	○	○	×	○	×	×
640*	〃	4.23	〃	○	×	×	×	×	×
642*	〃	〃	〃	○	×	×	×	○	×

- Hand winding mechanism, out-of-beat correcting device and Parashock (Shock-resistant device) are employed on all calibers, whereas, Profix (oil preservation device) is employed on watches with more than 27 jewels.

2. CHARACTERISTICS

- The 52 series is a thin type automatic wrist watch of high efficiency and all calibers are provided with hand winding device.
- Since the safety change system is employed on the quick date setting device, there are no troubles due to usage errors.

3. HANDLING PROCEDURES

Perform correction in the sequence of day, time and date.

(1) Mainspring winding

Wind the mainspring by the crown at the A position for 15 to 20 times or by shaking the watch sufficiently.

Day setting
Manual winding
Date setting
Day and time settings

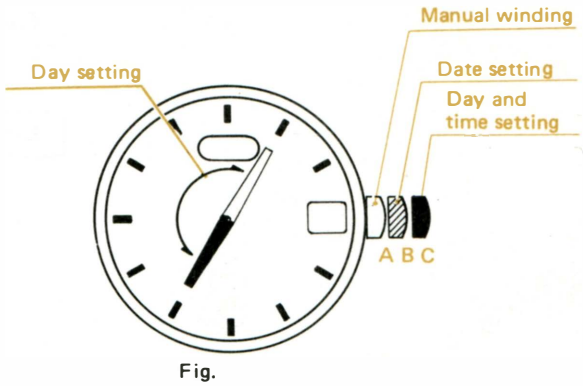


Fig.

(2) Day setting

Set the day by reciprocating the hands between 7:00 p.m. and 1:00 a.m. with the crown at C position.

(3) Time setting

Time setting is performed at C position.

(4) Date setting

Date setting is performed at B position.

Note: When the date is corrected between the hours of 9:00 p.m. and 0:00 a.m., the date may not change on the following day so date correction should be made with the hands turned out of this time range.

(5) Second hand stopping device

Calibers equipped with the second hand stopping device will have the second hand stopped when the crown is pulled out to the C position and set back in motion when the crown is pushed in.

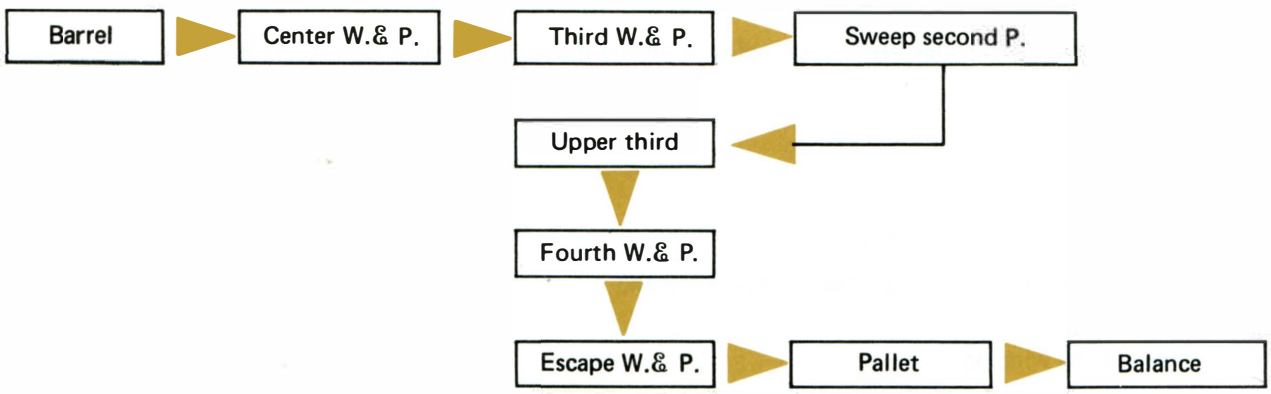
4. STRUCTURE AND OPERATIONS

4-1. Basic movement (Dial side train wheels and indication mechanism)

(1) The thin type of bridge side train wheels is employed on this watch so the fourth wheel is off center. Thus, reducing the piling of wheels in the center portion and making it a thin type watch.

(2) The third wheel being provided with two wheels that hold the sweep second pinion in between, protects the sweep second hand against backlash.

⊙ The power transmitting process of this watch is as follows:



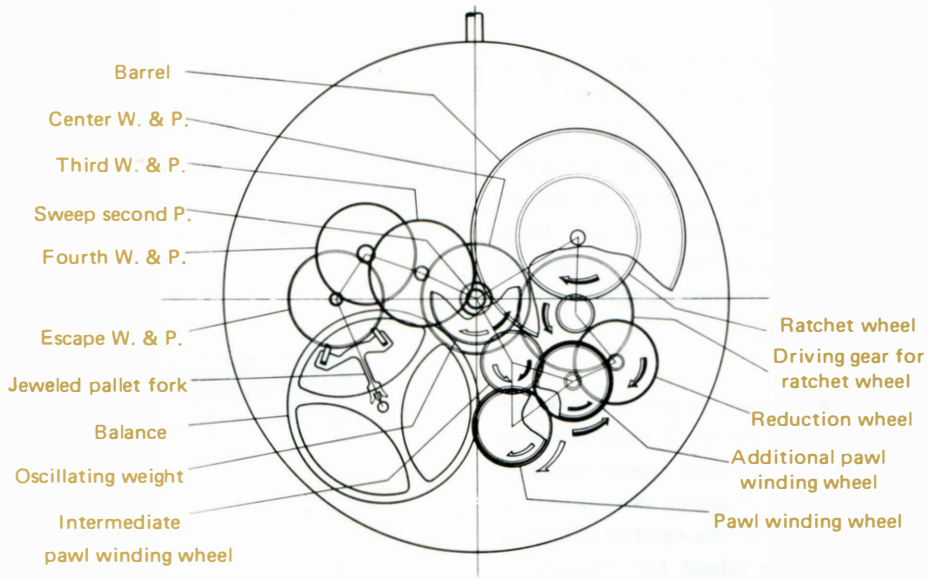


Fig. 2

(3) The ratchet wheel position is contrary to conventional watches (same type as the alarm lower ratchet wheel of Citizen Alarm) is supported between the barrel and the plate. For this reason, the click is also positioned below the barrel and is directly screwed to the plate.

(4) The click configuration is largely designed so the resistance and wear during automatic winding is small and as it extends its arm in the notch of the plate, handling is easy (Fig. 3).

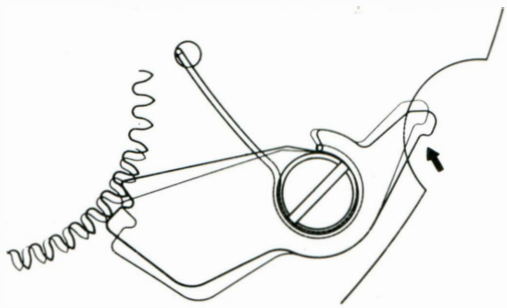


Fig. 3

4-2. Automatic mechanism

- The oscillating weight is supported in the center of the movement by a ultra-precision ball bearing.

- The oscillating weight is set by directly screwing the inner race of the ball bearing (Fig. 4) to the weight post of the barrel and train wheel bridge. As a special shaped head is on the inner race screw, an exclusive driver should be used for setting and removal. (Refer to 5 Assembly).

- The rotation of the oscillating weight is converted into a fixed direction rotation by 2 pawl winding wheels through the intermediate pawl winding wheel and upon speed reduction at the reduction wheel and the driving gear for the ratchet wheel, it is conveyed to the ratchet wheel for mainspring winding (Fig.5).

- The pawl winding wheels perform a clutching operation by the star shaped pinion (Fig. 6). The pawl winding wheel consists of the upper and lower wheels and as the upper wheel rotates in the clockwise direction, the lower wheel turns together as a single body. When the upper wheel rotates in the counterclockwise direction, the lower wheel turns in the clockwise direction. The addition pawl winding wheel operates in reverse order.

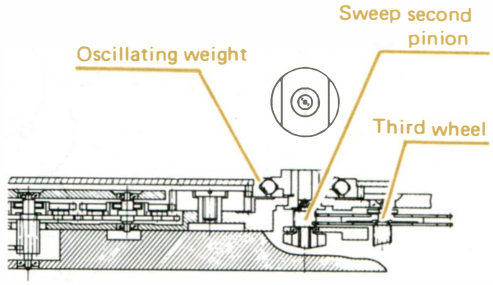


Fig. 4

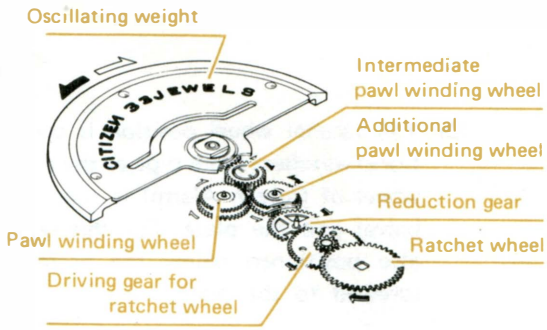


Fig. 5

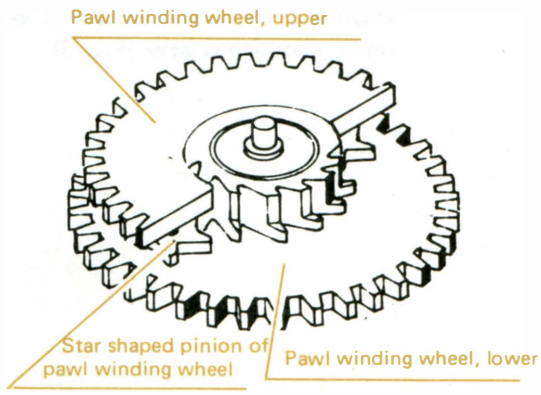
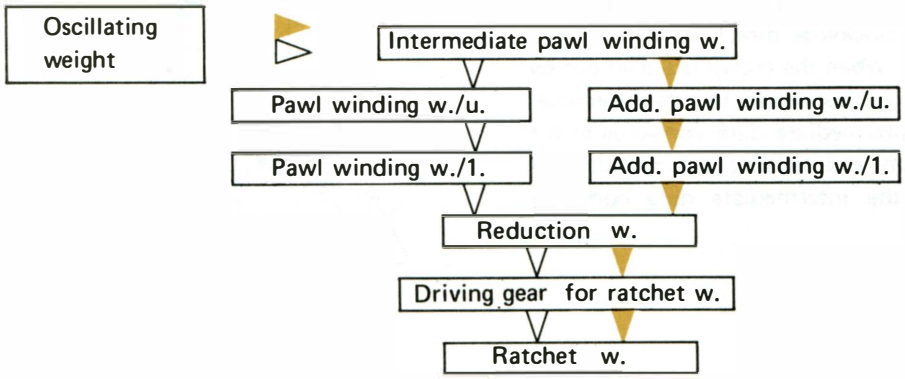


Fig. 6

⊙ The power transmittance process for the automatic train wheels is as follows:



▷ When the oscillating weight rotates in the clockwise direction.

▶ When the oscillating weight rotates in the counter-clockwise direction.

4-3. Dial side mechanism

- The dial side structure adopts a rocking bar system.
- By pulling out the winding stem, it can be changed over to 2 positions; quick date correction and hand setting, from the mainspring winding position.

(1) Mainspring winding by the crown

Mainspring winding can be performed with the crown in pushed-in position.

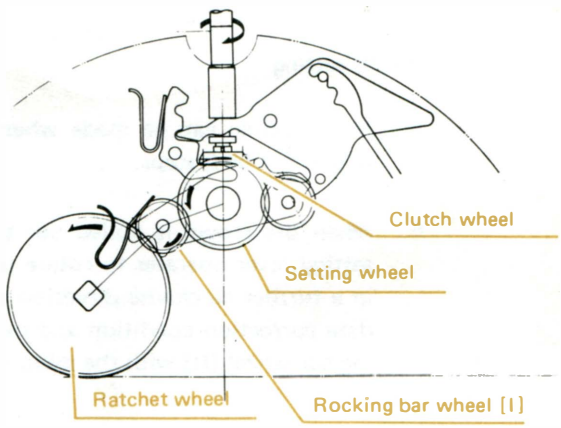


Fig. 7

- The power transmitting process is as follows (Fig. 7):

Clutch wheel ▶ Setting wheel ▶ Rocking bar wheel (I) ▶ Ratchet wheel

(2) Quick date setting

Pull out the crown by one step and when the crown is rotated in the clockwise direction, date corrections can be made. When the crown is pulled out by one step, the setting lever works to rotate the rocking bar and the intermediate date corrector in the clockwise direction and meshes the rocking bar wheel (II) with the intermediate date corrector wheel.

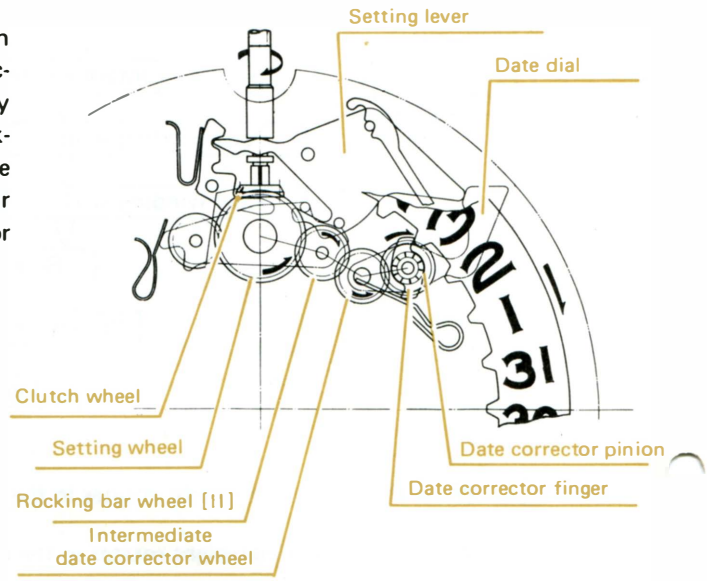
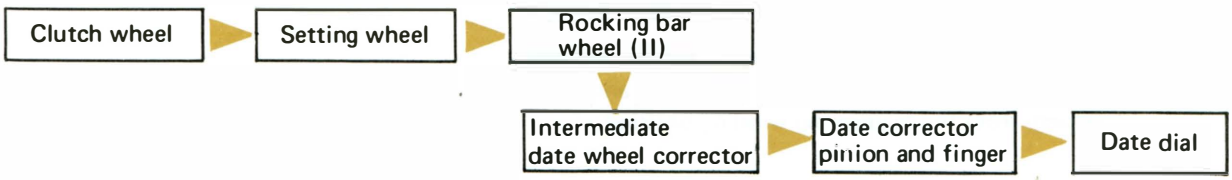


Fig. 8

⊙ The power transmittance process is as follows:



(3) Hands setting

- Hand setting can be made when the crown is pulled out by 2 steps.
- When the crown is pulled out by 2 steps, the setting lever operates to rotate the rocking bar in a further clockwise direction than the quick date correction condition and meshes the rocking bar wheel (II) with the minute wheel.

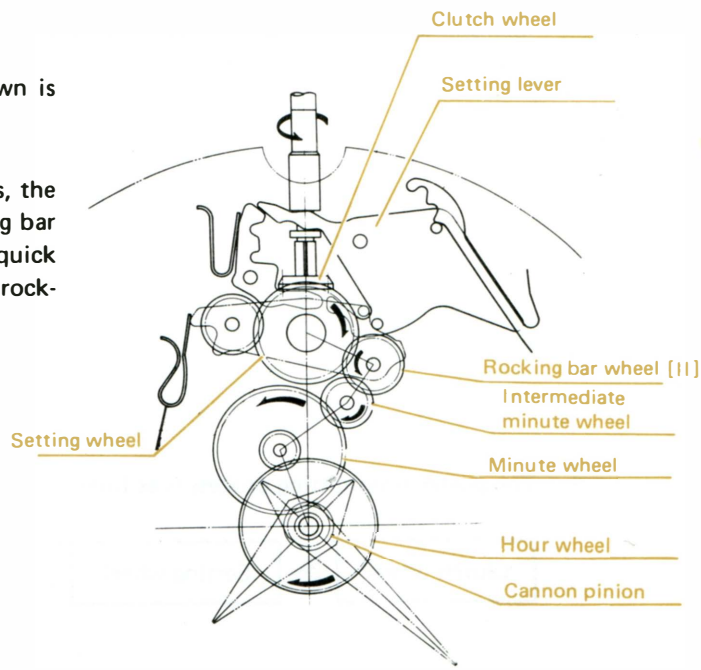


Fig. 9

⊙ The power transmitting process is as follows (Fig. 9):

(4) Day and date mechanism

- The rotation of the hour wheel is conveyed to the date dial driving wheel finger, which only rotates once a day, through the intermediate date wheel and the date dial is advanced. While, the day dial is advanced by the day dial driving wheel, through the day dial driving pin which is fixed to the date dial driving wheel.

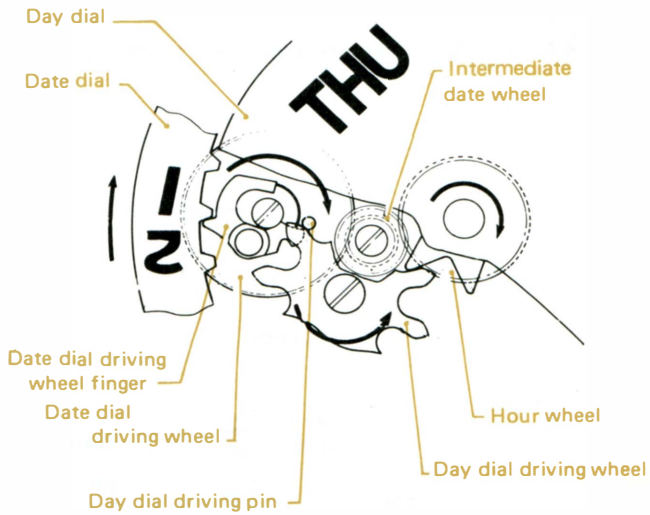


Fig. 10

⊙ The power transmitting process is as follows (Fig. 10):

4-4. Structure (Exploded view and parts name)

Bridge side

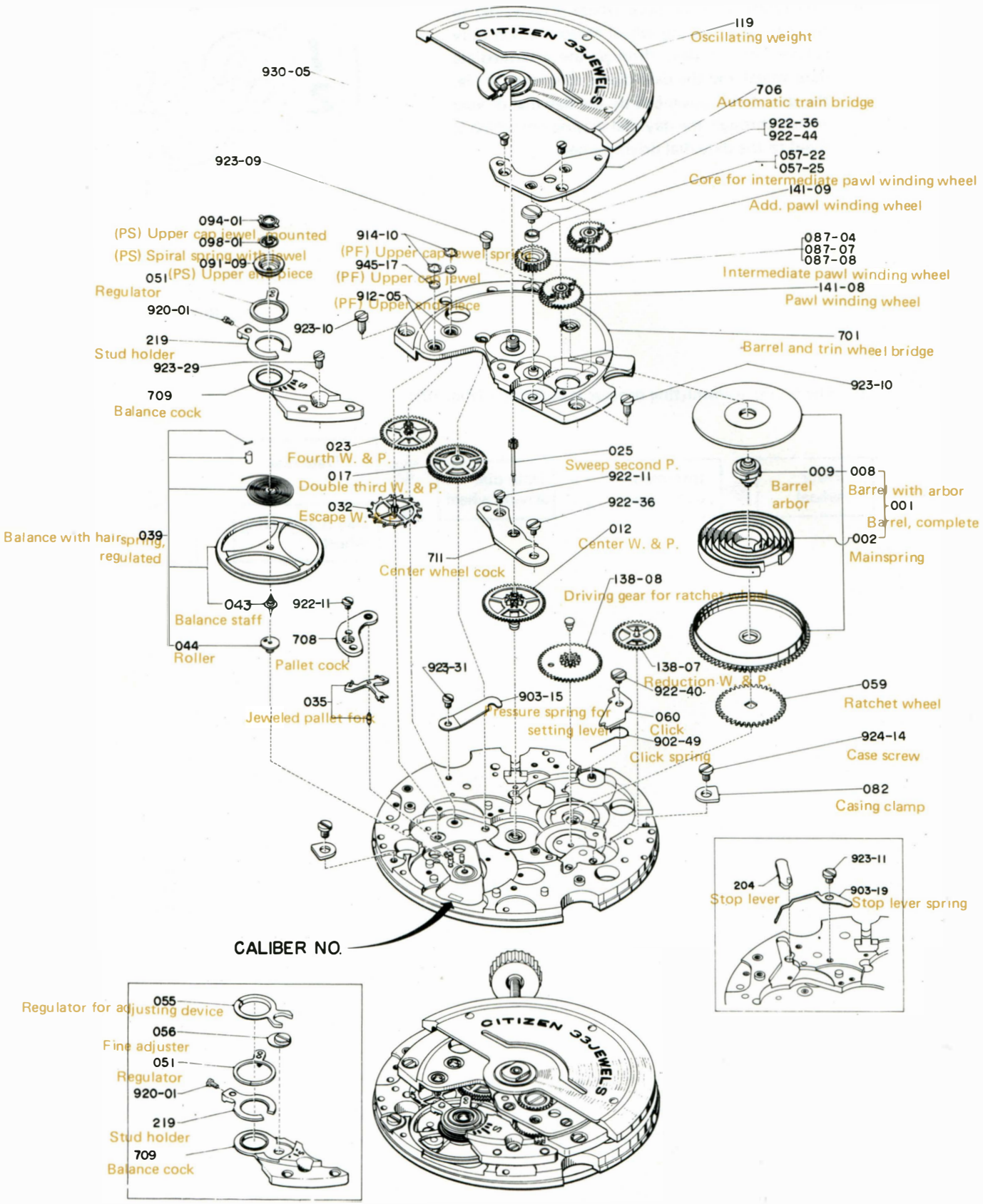


Fig. 11

- For parts with more than 2 parts numbers, please refer to the PARTS CATALOG.

4-4. Structure (Exploded view and parts name)

Dial side

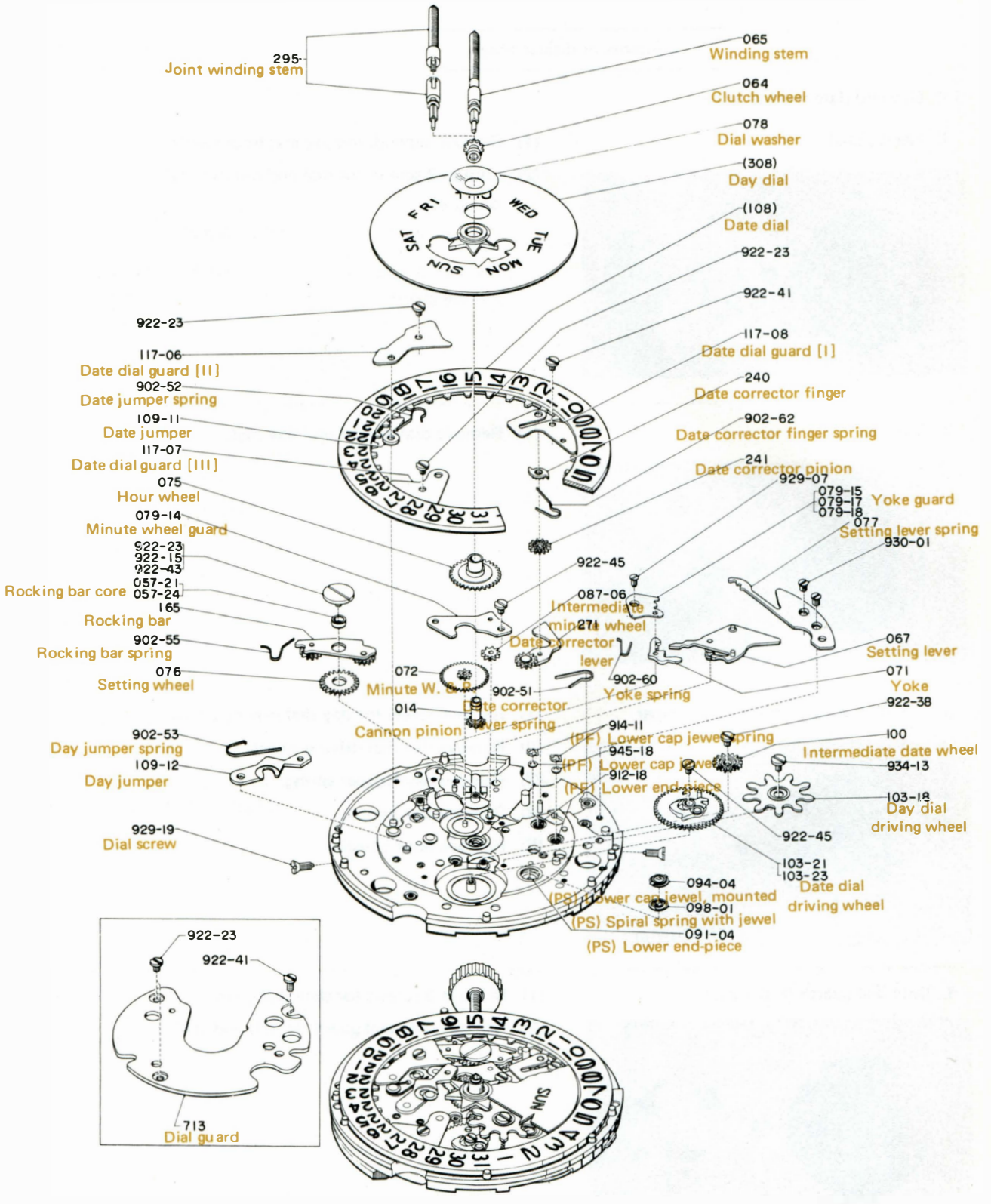


Fig. 12

- For parts with more than 2 parts numbers, please refer to the PARTS CATALOG.

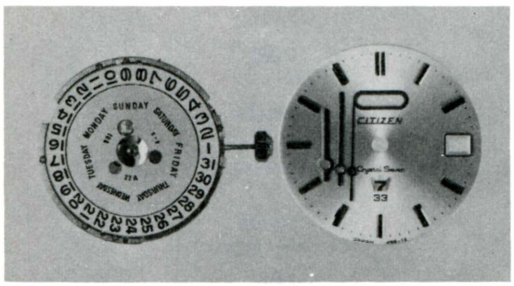
5. DISASSEMBLY

- The following disassembly procedures are intended for disassebling all parts, however, when you perform simple disassembly, you can omit the procedures that are indicated as (Omit).

Contents of disassembly

5-1. Day and date mechanism

1. Hands, Dial



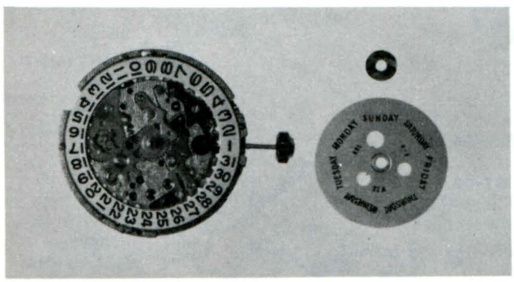
(1) Remove second, minute and hour hands.

(2) Loosen 2 screws for dial and remove dial.

Remarks:
For Cal. No. 54**, remove dial washer.

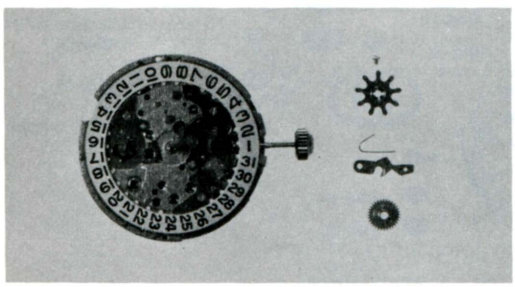
For Cal. No. 64**, remove dial washer, dial guard and 3 screws for dial guard.

2. Day dial



(1) Remove dial washer and day dial.

3. Day dial driving wheel, Day jumper



(1) Remove screw for day dial driving wheel.

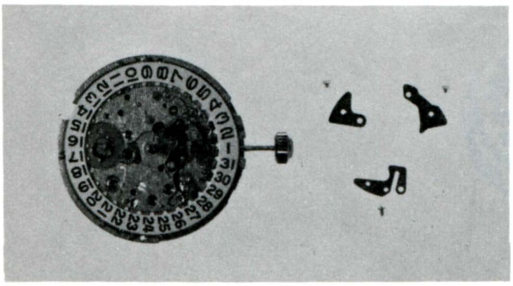
(2) Remove day dial driving wheel.

(3) Remove day jumper spring.

(4) Remove day jumper.

(5) Remove hour wheel.

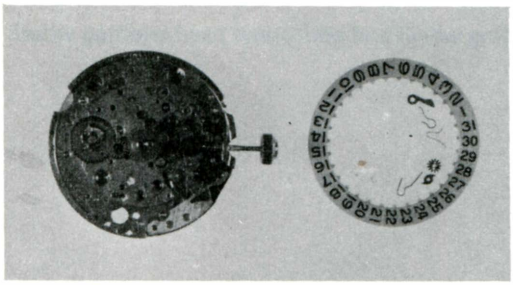
4. Date dial guards (I) (II) and (III)



(1) Remove 3 screws for date dial guard.

(2) Remove date dial guard (I), (II) and (III).

5. Date jumper, Date dial



(1) Remove rocking bar spring.

Remarks:
Hold the date jumper spring with your finger so it will not fly off.

(2) Remove date jumper spring.

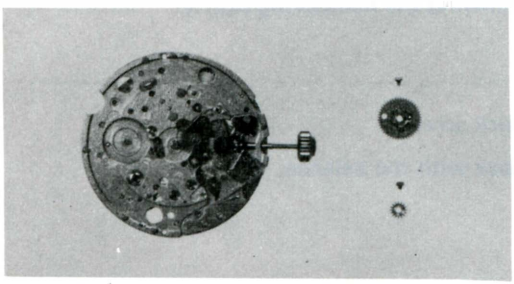
(3) Remove date jumper.

(4) Remove date dial.

(5) Remove date corrector finger spring.

(6) Remove date corrector finger and pinion.

6. Date dial driving wheel, Intermediate date wheel (Omit)



(1) Remove screw for intermediate date wheel.

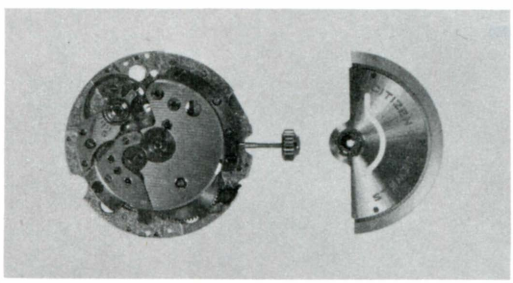
(2) Remove intermediate date wheel.

(3) Remove screw for date dial driving wheel.

(4) Remove date dial driving wheel.

5-2. Automatic mechanism

1. Oscillating weight, complete



(1) Remove oscillating weight, complete.

Remarks:
Turn the nut to the left with the Citizen oscillating weight driver.

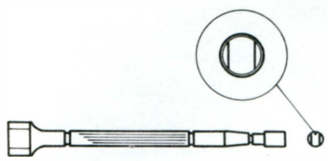
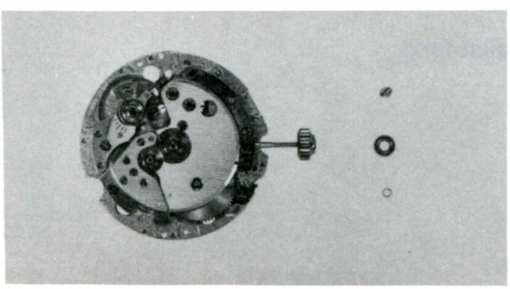


Fig. 13

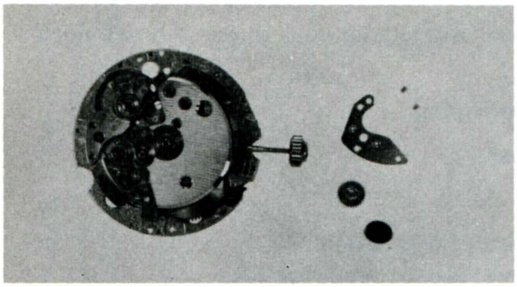
2. Intermediate pawl winding wheel



(1) Remove screw for intermediate pawl winding wheel.

(2) Remove intermediate pawl winding wheel and its core.

3. Automatic train bridge,
Pawl winding wheel



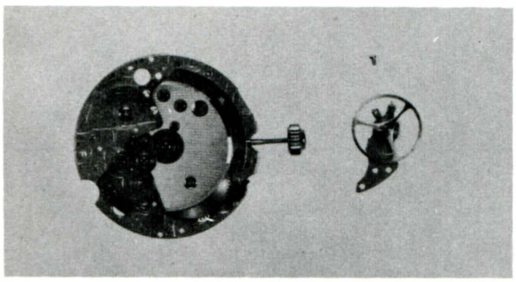
(1) Remove 2 screws for automatic train bridge.
(2) Remove automatic train bridge.
(3) Remove pawl winding wheel and additional pawl winding wheel.

5-3. Movement

1. Mainspring unwinding

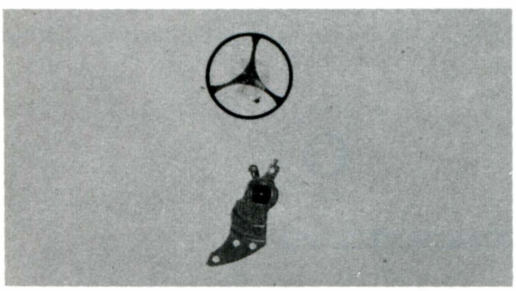
(1) Grasp the crown and disengage the meshing of the click with the ratchet wheel and unwind the mainspring slowly.

2. Balance cock



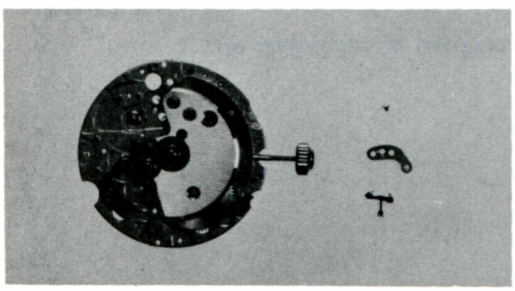
(1) Remove balance cock screw.
(2) Remove balance cock with the balance.

3. Balance



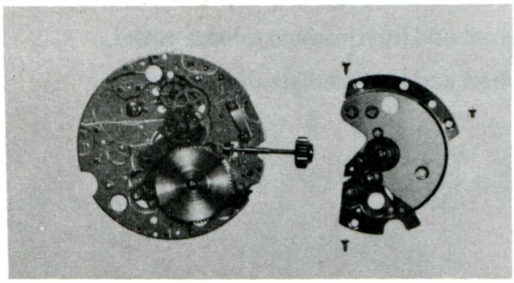
(1) Turn the regulator key and loosen hairspring stud screw.
(2) Remove the balance.

4. Jeweled pallet fork



(1) Remove pallet cock screw.
(2) Remove pallet cock.
(3) Remove jeweled pallet fork.

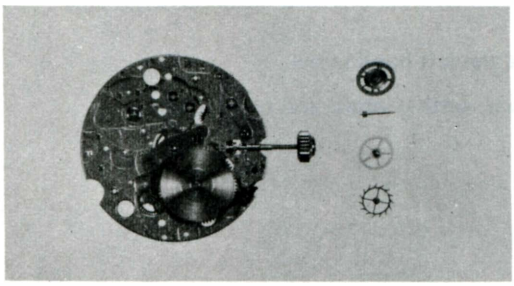
5. Barrel and train wheel bridge



(1) Remove 3 screws for barrel and train wheel bridge.

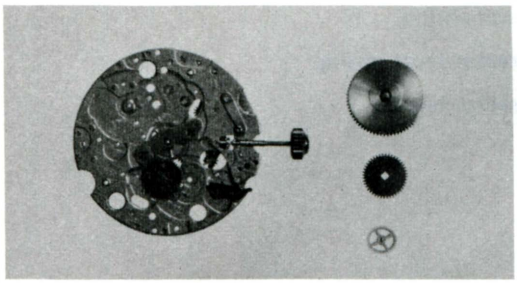
(2) Remove barrel and train wheel bridge.

6. Train wheels



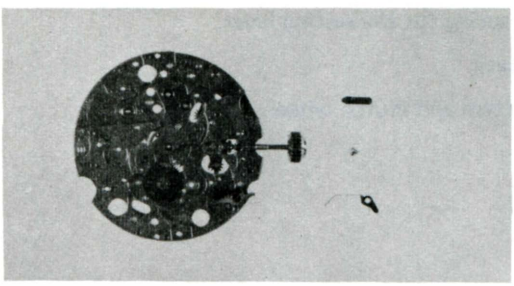
(1) Remove sweep second pinion, third wheel, fourth wheel and escape wheel.

7. Barrel



(1) Remove the barrel (complete) ratchet wheel and reduction wheel.

8. Stop lever

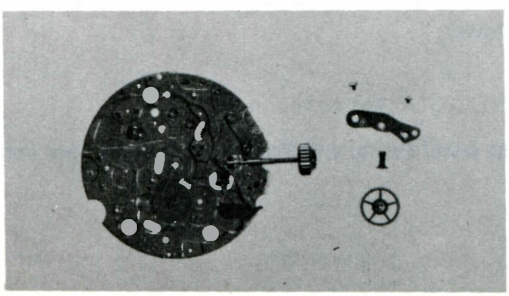


(1) Remove stop lever.

(2) Remove stop lever screw.

(3) Remove stop lever spring.

9. Center wheel cock, Center wheel



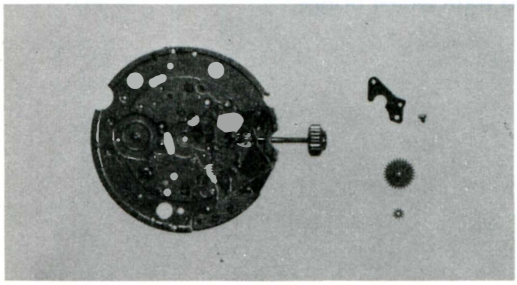
(1) Remove cannon pinion.

(2) Remove 2 screws for center wheel cock.

(3) Remove center wheel cock.

(4) Remove center wheel.

10. Minute wheel guard, Minute wheel (Omit)

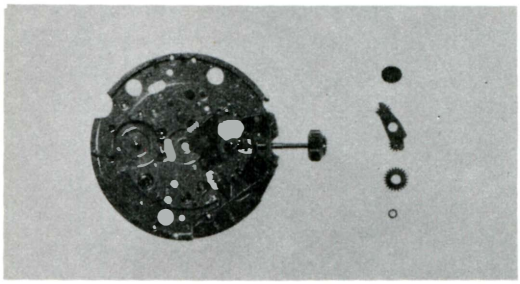


(1) Remove screw for minute wheel guard.

(2) Remove minute wheel and intermediate minute wheel.

(3) Remove minute wheel and intermediate minute wheel.

11. Rocking bar, Setting wheel (Omit)

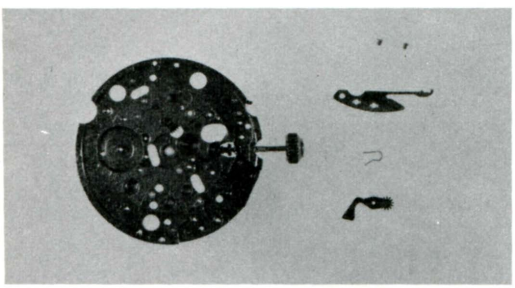


(1) Remove rocking bar screw.

Remarks:
The black screw is the left hand screw.

(2) Remove rocking bar, setting wheel and rocking bar core.

12. Setting lever spring (Omit)



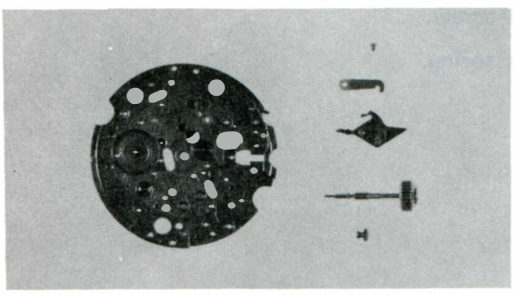
(1) Remove 2 screws for setting lever spring.

(2) Remove setting lever spring.

(3) Remove date corrector lever spring.

(4) Remove date corrector lever.

13. Setting lever, Winding stem (Omit)



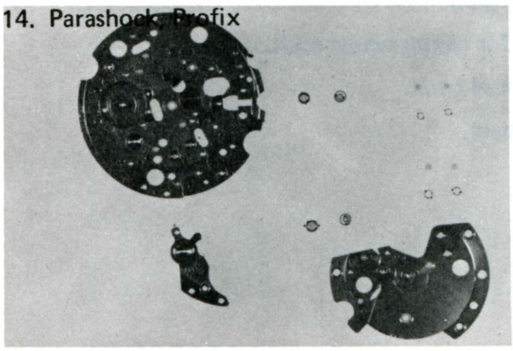
(1) Remove screw for setting lever pressure spring.

(2) Remove pressure spring for the setting lever.

(3) Remove setting lever.

(4) Remove winding stem and clutch wheel.

14. Parashock, Profix



(1) Remove Parashock cap jewel, mounted and Parashock spiral spring, upper and lower.

Remarks:
Refer to "PARASHOCK" in the common item.

(2) Remove Profix cap jewel spring and Profix cap jewel, upper and lower.

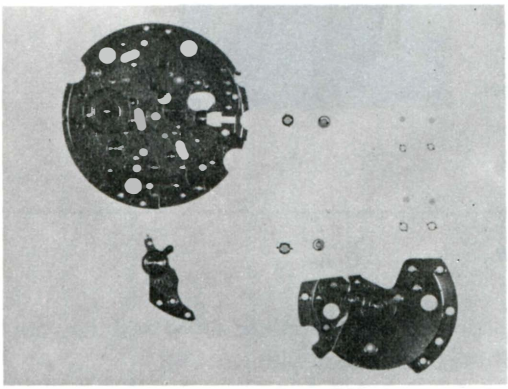
Remarks:
Refer to "PROFIX" in the common item.

6. ASSEMBLY

Contents of assembly

6-1. Movement

1. Parashock, Profix



(1) Set Parashock spiral spring into the plate and balance cock.

(2) Oil Parashock cap jewel, mounted with Synt-A-Lube and set it in position.

Remarks:
Refer to "PARASHOCK" in the common item.

The oiling amount is to be within 1/3 to 3/4 of the hole jewel diameter.

(3) Set Profix cap jewel and Profix cap jewel spring into the plate and barrel and train wheel bridge.

(4) Oil Profix with Synt-A-Lube, upper and lower.

Remarks:
Refer to "PROFIX" in the common item. (Exclude 17j, 21j, 23j, 25j)

(5) Oil sweep second pinion upper hole jewel with Synt-A-Lube from inside.

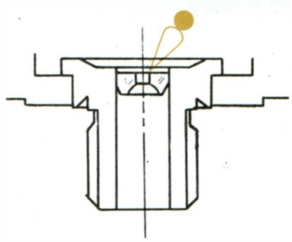
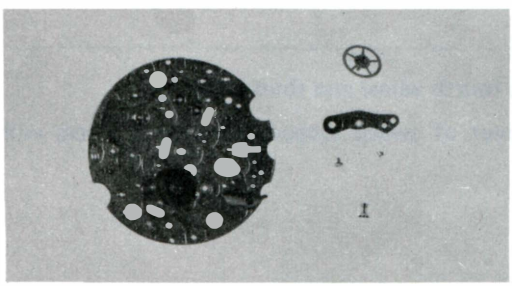


Fig. 14

2. Center wheel, Center wheel cock



(1) Set center wheel and oil the upper pivot with CA-1 oil.

(2) Set center wheel cock and tighten 2 screws.

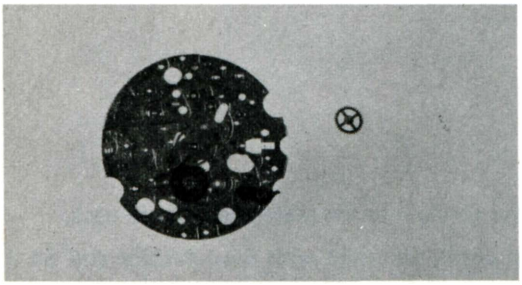
Remarks:
The shorter screw is for the winding stem side.

(3) Oil the lower pivot of center wheel and friction fitting portion of center wheel with cannon pinion with CA-1 oil.

(4) Push cannon pinion in.

3. Reduction wheel

(1) Oil the axle of driving gear for ratchet wheel, the rubbing surface with the plate, the wheel and pinion with CA-1 oil.



(2) Oil the tooth of reduction wheel with CA-1 oil.

Remarks:
The tooth is to be oiled in 2 symmetrical positions of the teeth tip and the pinion in a single place on the teeth tip.

(3) Set reduction wheel.

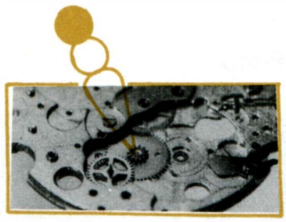
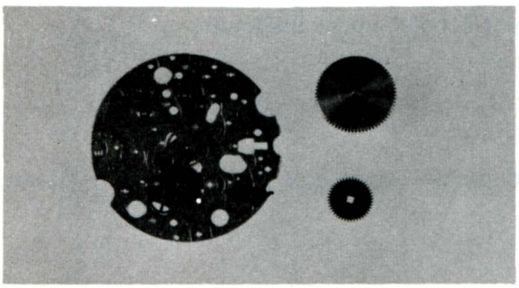


Fig. 15

4. Barrel



(1) Oil the barrel arbor.

Remarks:
Oil the bearing portion of the barrel and arbor and the upper and lower pivots of the barrel arbor with CA-1 oil.
When the barrel is disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING" in the common item.

(2) Insert ratchet wheel into the square portion of the barrel arbor and set to the plate.

(3) Mesh the click and ratchet wheel.

Remarks:
Push the click in the center direction.

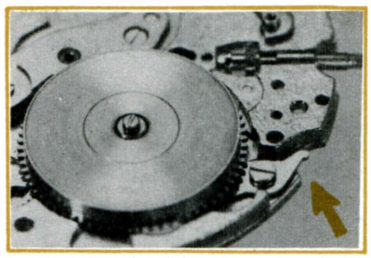
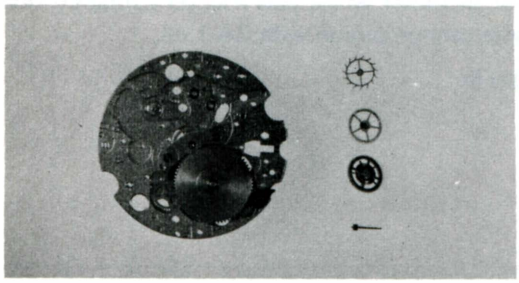


Fig. 16

5. Train wheels

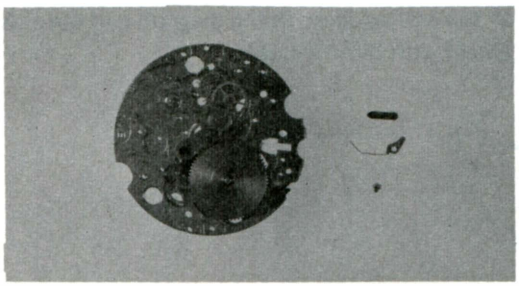


(1) Set escape wheel, fourth wheel and third wheel.

(2) Oil the lower pivot of sweep second pinion is 2 places with Synt-A-Lube.

6. Stop lever

(Applicable calibers)
5240, 5250, 5260, 5290, 541*, 5440, 5450, 5460, 6420



(1) Set stop lever.

(2) Set stop lever spring and tighten the screw.

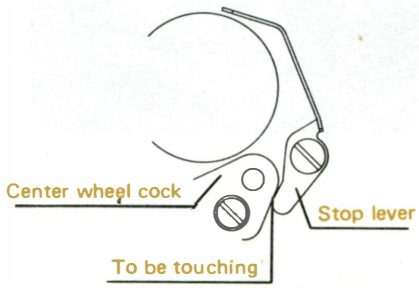
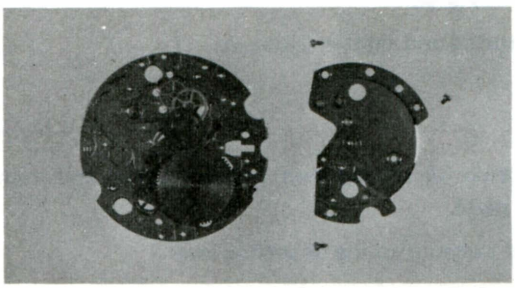


Fig. 17

7. Barrel and train wheel bridge



(1) Set barrel and train wheel bridge and tighten 3 screws.

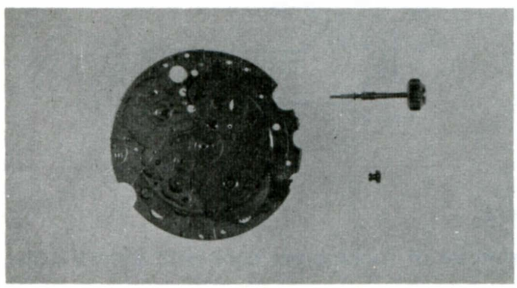
Remarks:
The short screw is near the winding stem.
In case of 17j, 21j, and 23j, oil fourth wheel and the upper and lower pivots of escape wheel with Synt-A-Lube.

(2) Oil the upper and lower pivots of third wheel with Synt-A-Lube.

(3) Oil the upper and lower pivots of reduction wheel with CA-1 oil.

8. Winding stem

(In the simple method, only oiling is performed for procedures from 8 to 13 and proceded to procedure 14)



(1) Oil the winding stem with Synt-V-Lube.

(2) Set clutch wheel and push in the winding stem.

(3) Oil clutch wheel with Synt-V-Lube.

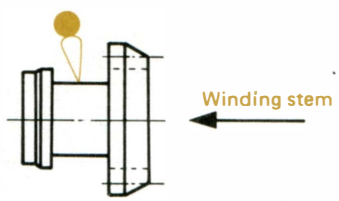


Fig. 18

9. Setting lever, Setting lever spring

(1) Oil the yoke axle and the setting lever axle with Synt-V-Lube.

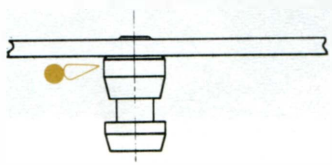
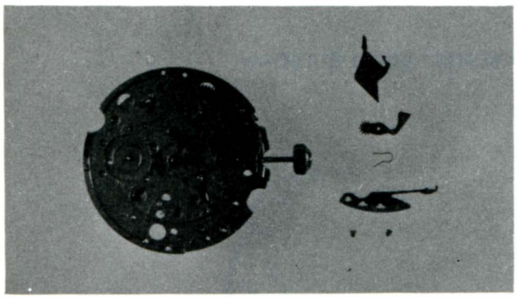


Fig. 19



(2) Set setting lever.

(3) Oil date corrector lever with Synt-V-Lube.

(4) Assemble date corrector lever.

(5) Assemble date corrector lever spring.

(6) Oil the portions of the setting lever in the diagram and the axle of date corrector wheel with Synt-V-Lube.

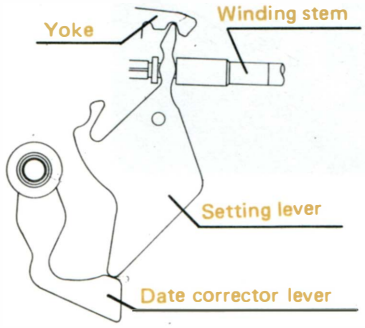
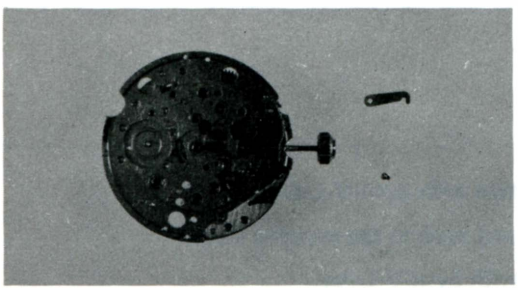


Fig. 20

(7) Set setting lever spring and tighten 2 screws.

10. Pressure spring for setting lever



(1) Insert pressure spring for setting lever between barrel and train wheel bridge and plate.

(2) Tighten Screw for pressure spring of setting lever.

Remarks:
Accurately insert the tip end of the setting lever spring into the setting lever axle.

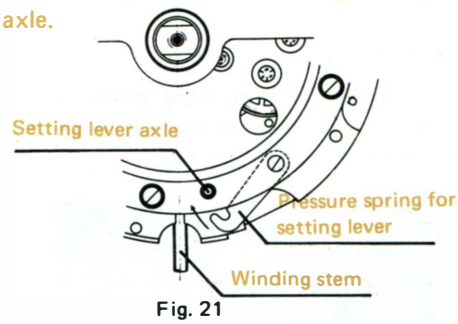
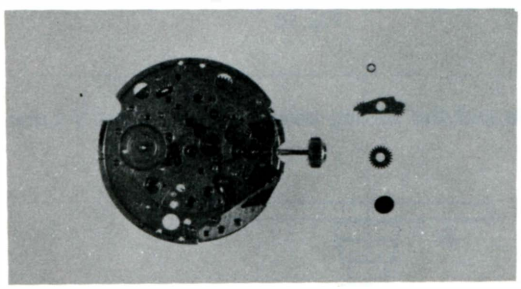


Fig. 21

11. Setting wheel, Rocking bar



(1) Set rocking bar core.

(2) Oil the outer perimeter of rocking bar core with Synt-V-Lube.

(3) Oil the axle of rocking bar wheel with Synt-V-Lube.

(4) Set setting wheel and rocking bar and tighten the screw.

Remarks:
The setting wheel should be positioned with the chamferred surface facing down. The black screw is the left hand screw.

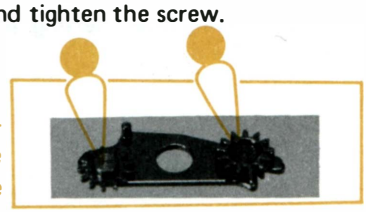
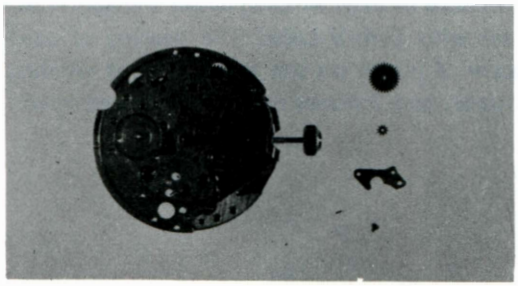


Fig. 22

12. Minute wheel, Minute wheel guard



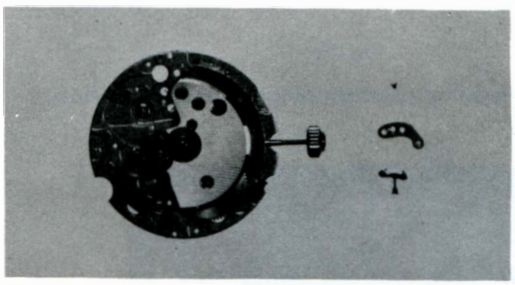
(1) Oil the minute wheel axle and intermediate minute wheel axle with Synt-V-Lube.

(2) Set minute wheel and intermediate minute wheel.

(3) Set minute wheel guard and tighten the screw.

Remarks:
Perform checking on the condition of train wheels and winding stem changeover.

13. Jeweled pallet fork, Pallet cock



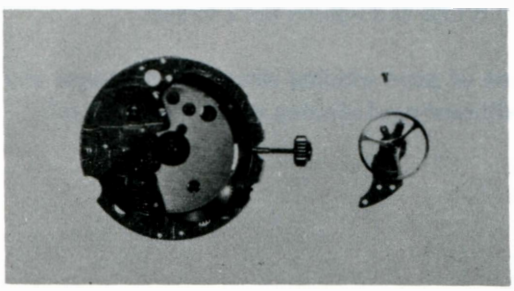
(1) Set jeweled pallet fork.

(2) Set pallet cock and the screw.

(3) Oil the upper and lower pivots of jeweled pallet fork with a small amount of Synt-A-Lube.

Remarks:
Wind the mainspring a little (turn the crown 2 or 3 times) and check jeweled pallet fork operation.

14. Balance,
Balance cock



(1) While inserting the hairspring stud into the hairspring stud hole the balance cock, insert the hairspring in between the regulator pin and the regulator key.

Remarks:
Be careful not to deform the hairspring configuration.

(2) Turn the regulator key.

(3) Tighten hairspring stud screw.

(4) Set balance cock with the balance and tighten the screw.

Remarks:
Carefully check the balance end shake and configuration of the hairspring.

(5) Stop the motion of the balance with the fingertip and oil the impulse face of the pallet jewels with Synt-A-Lube.

Remarks:
Advance the escape wheel by 7 or 8 teeth and oil again.

6-2. Automatic mechanism

1. Pawl winding wheels

(1) Oil the following portions of pawl winding wheel and additional pawl winding wheel with Synt-V-Lube. The bearing of pawl winding wheel, upper 2 places on the teeth of pawl winding wheel, upper and lower, and 2 places on the star shaped pinion and axle.

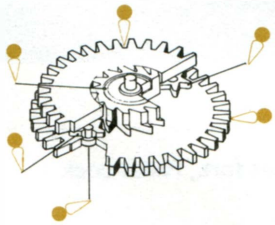


Fig. 23

(2) Oil the lower hole jewel of pawl winding wheel with CA-1 oil.

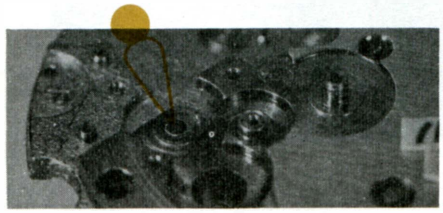
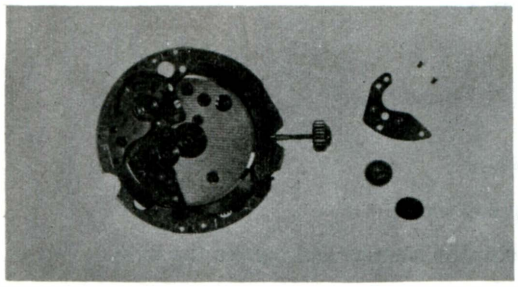


Fig. 24

2. Automatic train bridge

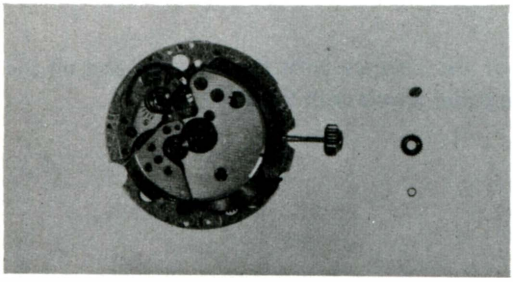


(1) Set additional pawl winding wheel and pawl winding wheel.

(2) Set automatic train bridge and tighten the 2 screws.

(3) Oil the upper pivot of pawl winding wheel and the upper and lower pivots of additional pawl winding wheel with CA-1 oil.

3. Intermediate pawl winding wheel



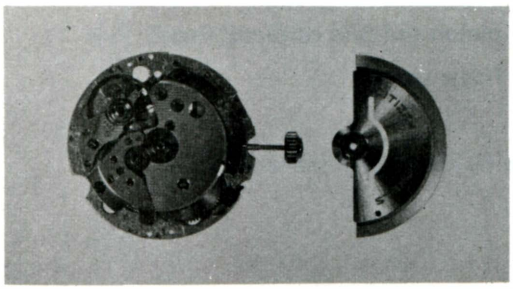
(1) Assemble intermediate pawl winding wheel core.

(2) Oil the outer perimeter of intermediate pawl winding wheel core with Synt-V-Lube.

(3) Set intermediate pawl winding wheel and tighten the screw.

Remarks:
Engage the upper and lower tooth of both pawl winding wheels.

4. Oscillating weight, complete



(1) Oil the ball bearing with Synt-V-Lube.

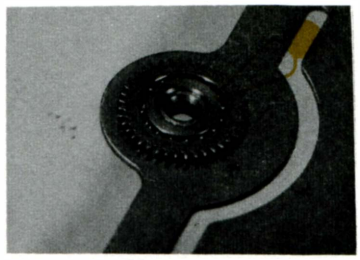


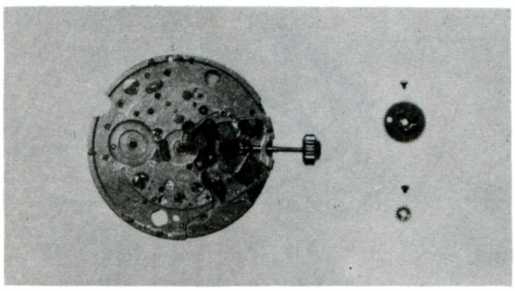
Fig. 25

(2) Screw oscillating weight, complete into the weight post of barrel and train wheel bridge.

Remarks:
Screw in with a Citizen oscillating weight driver while turning the oscillating weight and tighten after meshing the weight pinion with the intermediate pawl winding wheel.
Slant the movement and turn the weight to the left and right to check that it rotates smoothly.

6-3. Day and date mechanism

1. Date dial driving wheel, Intermediate date wheel



(1) Oil intermediate date wheel axle and the guide surface and axle date dial driving wheel with Synt-V-Lube.

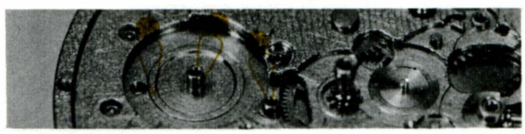


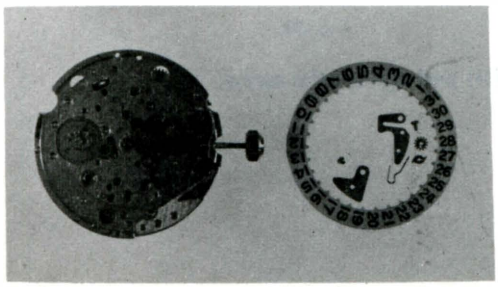
Fig. 26

(2) Set date dial driving wheel and tighten the screw.

(3) Set intermediate date wheel and tighten black screw.

Remarks:
Be careful on the meshing of the bottom side wheel of intermediate date wheel and date dial driving wheel.
Check the rotation of date dial driving wheel and intermediate date wheel.

2. Date dial, Date dial guards (I), (III)



(1) Oil the contact portion with the date dial teeth tip of the plate with Synt-V-Lube.

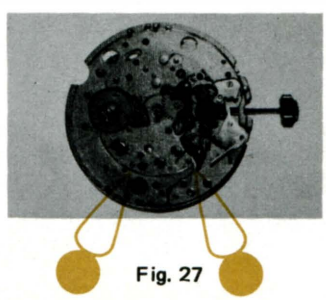


Fig. 27

(2) Oil the triangle teeth of the date corrector pinion with Synt-A-Lube.

(3) Set date corrector pinion and date corrector finger.

(4) Set date corrector finger spring.

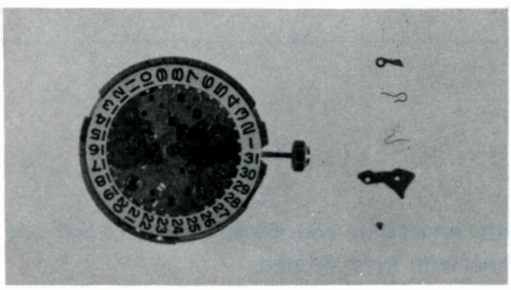
(5) Set date dial.

(6) Set date dial guard (I) and tighten the screw.

Remarks:
The screw for the date dial guard (I) is the longest screw among the 3 screws.

(7) Set date dial guard (III) and tighten the screw.

3. Date jumper, Date dial guard (III)



(1) Oil the contact portion of date jumper with the teeth of date dial and date jumper axle of the plate with Synt-V-Lube.

Fig. 28

(2) Set date jumper.

(3) Set date jumper spring.

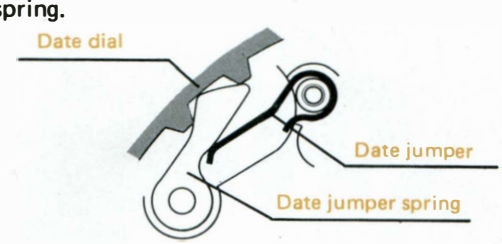


Fig. 29

(4) Set rocking bar spring.

Remarks:
Set the winding stem in the mainspring winding position and place the rocking bar against the minute wheel guard.
Be careful as the date jumper may not rise.

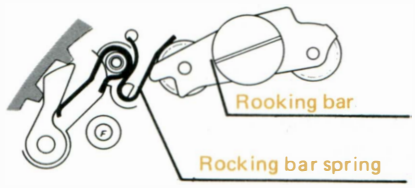
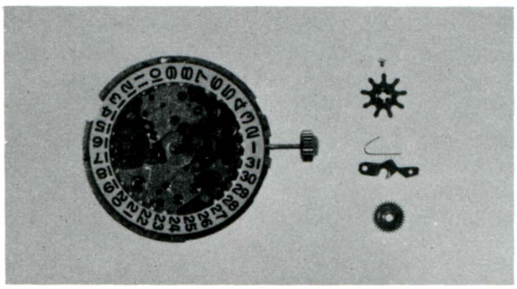


Fig. 30

(5) Set date dial guard (II) and tighten the screw.

Remarks:
Turn the hands and check the quick date setting operation.

4. Day jumper, Day dial driving wheel



(1) Set hour wheel.

(2) Oil the contact protion of day jumper rivet, and the day jumper axle with Synt-A-Lube.

(3) Set day jumper.

(4) Set day jumper spring.

(5) Set day dial driving wheel and tighten the screw.

Remarks:
Tighten by matching the wheel center with the screw.

(6) Oil the meshing portion of day dial driving wheel screw with Synt-V-Lube.

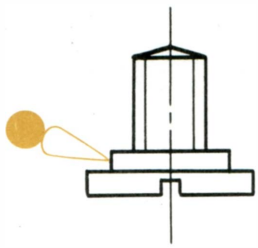
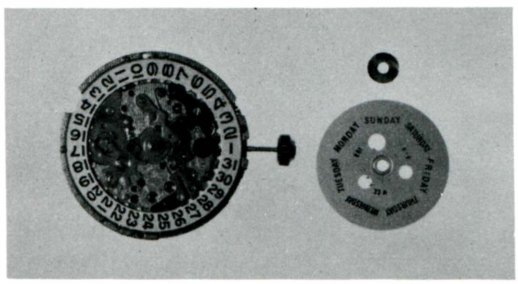


Fig. 31

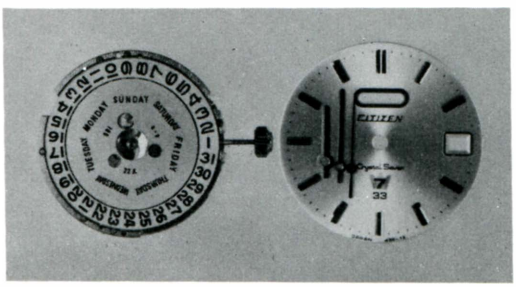
5. Day dial



(1) Set day dial and dial washer.

Remarks:
Mesh the day jumper with the day star wheel.

6. Dial, Hands



(1) Attach dial and tighten 2 screws.

Remarks:
Tighten the screws strongly by pressing down the dial so it will not rise up.

(2) Attach hour, minute and second hands.

Remarks:
Turn the hands and check the day dial operation.
Attach the hands so the date will change at 12:00 midnight.
Check the hands clearance.

7. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.

1. SPECIFICATION

Cal. No.	Size (mmϕ)	Thickness (mm)	Vibrations per hour	Automatic center second	Date mechanism	Day mechanism	Quick date setting
600*	23.3	5.00	21,600	o	o	x	o
650*	〃	5.22	〃	o	o	o	o

- Hand winding mechanism, out-of-beat correcting device and parashock (shock-resistant device) will be provided on all calibers.

Cal. No. 65**
Bridge side

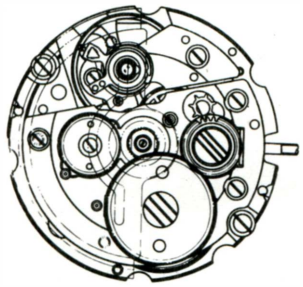


Fig. 1

Cal. No. 65**
Dial side

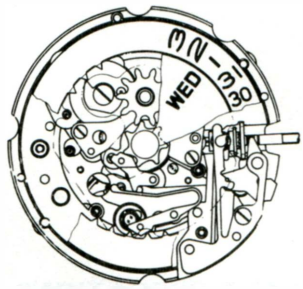


Fig. 2

2. CHARACTERISTICS

The 65 series is rationally and simply designed automatic center second wristwatches with day and date mechanism (Date mechanism only for Cal. No. 60**).

1. The click is of an epicyclic gear type which does not necessitate a wire spring.
2. It has an integrated and intensive dial side mechanism.
3. A two-storied pawl winding wheel has been adopted in the automatic train wheels.
4. Wire springs are absolutely not necessary.

3. HANDLING PROCEDURES

Corrections should be made in the order of day, time and date. The crown can be pulled out to 2 positions, B and C, from A as shown in Fig. 3.

(1) Mainspring winding

For manual winding, wind the crown at A position for about 15 to 20 times or shake the watch sufficiently.

(2) Day correction

Perform a reciprocation motion between 7:30 p.m. and 0:30 a.m. with the crown in C position.

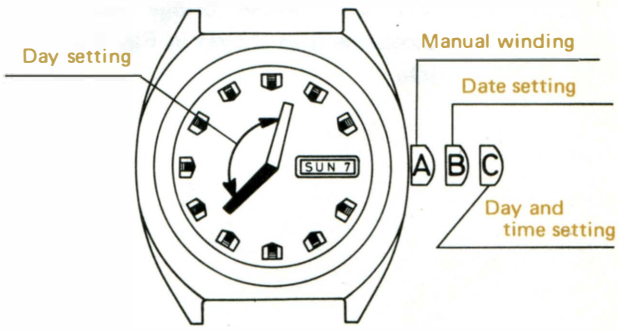


Fig. 3

(3) Time setting

In the same C position as for day correction, set the hands to the correct time with consideration of the a.m. and p.m. hours.

(4) Date correction

Date correction is performed by turning the crown counterclockwise direction in B position.

Note: When the date is corrected between the time ranges of 8:30 p.m. and 12:00 midnight. Therefore, make date corrections after moving the hands out of this time range.

4. STRUCTURE AND OPERATIONS

4-1. Movement

(1) Train wheels

A standard strocture of center second type train wheels are employed in the movment.

(2) Click

- An epicylic gear type click which requires no wire spring is employed. This click is freed when the mainspring is wound by the crown and in ordinary cases, it is pushed against the slit (A) on the barrel bridge by the power of the mainspring and locked. (Fig. 4)
- For unwinding the mainspring, wind the mainspring slightly with the crown so the click is placed in free condition. Then, remove the click from the slit of the barrel and train wheel bridge tool for testing escapement as shown in Fig. 5 and let it run idle.

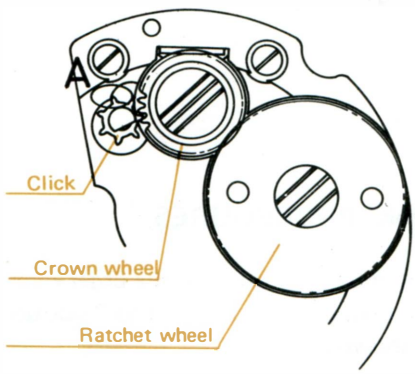


Fig. 4

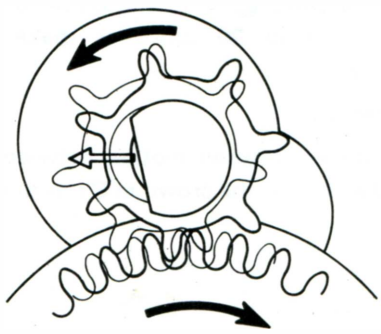


Fig. 5

4.2. Automatic train wheels.

(1) The oscillating weight which is installed in the center of the movement is supported by the precision ball bearing.

(2) The automatic train wheel adopts a pawl winding wheel system and changing of rotating direction are made by the two-storied pawl winding wheel. The structure of this pawl winding wheel consists of 2 pawl winding gears and 4 star shaped wheels. It is so designed that when the oscillating weight rotates in clockwise direction, the lower pawl winding wheel engaged to the intermediate pawl. Winding wheel runs idle and when the oscillating weight rotates in counterclockwise direction, the upper pawl winding wheel engaged to the reduction wheel runs idle.

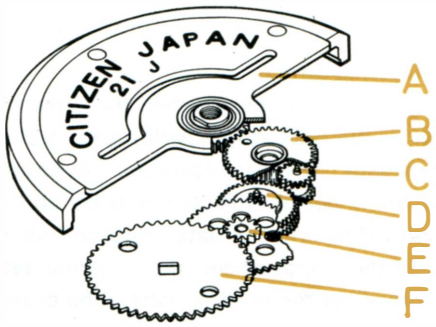


Fig. 6

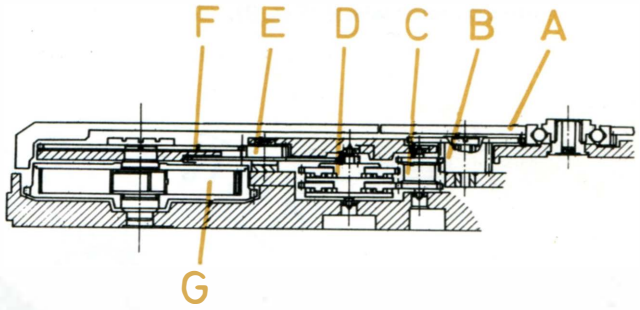


Fig. 7

A: Oscillating weight
B: Reduction wheel
C: Intermediate pawl winding wheel
D: Pawl winding wheel
E: Driving gear for ratchet wheel
F: Ratchet wheel
G: Barrel

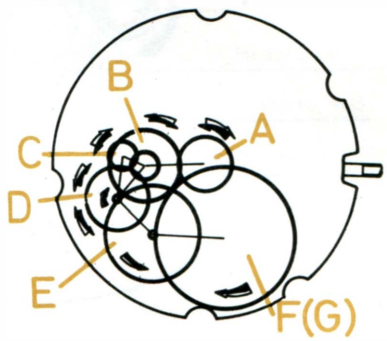
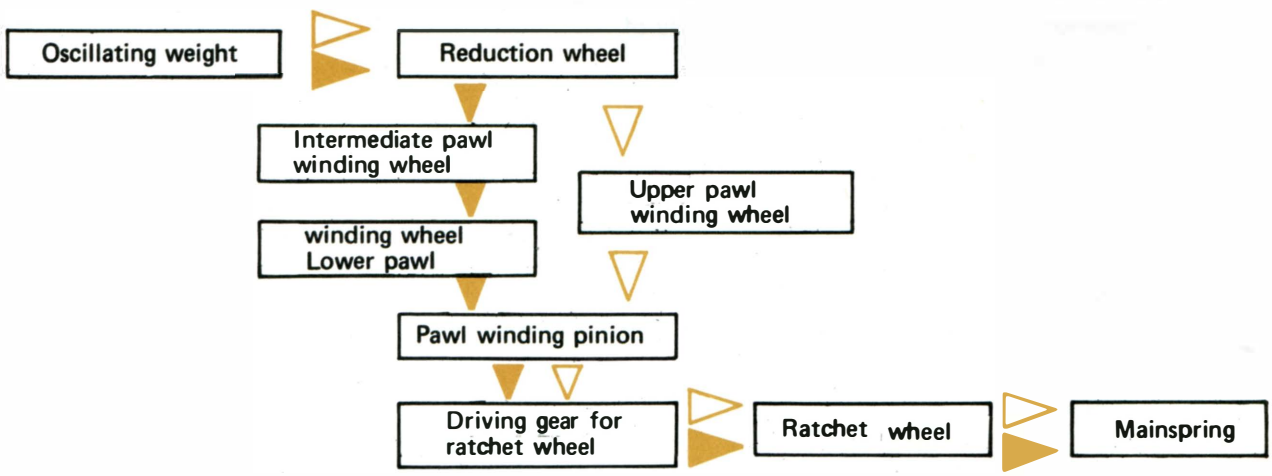


Fig. 8

⊙ The power transmitting process of the automatic train wheel is as follows:



▷ When the oscillating weight rotates in the clockwise direction.

▶ when the oscillating weight rotates in the counterclockwise direction.

4-3. Dial side mechanism

(1) Quick date setting device

Date correction can be made when the crown is pulled out to one click stop position and rotated counterclockwise. The date corrector wheel and date corrector finger constructs one body on the setting lever spring and the date corrector wheel engages with the clutch wheel (Intermediate date corrector wheel) at the position where the crown is pulled out to one step and advances the date dial by the date corrector finger fixed on the date corrector wheel (Fig. 9).

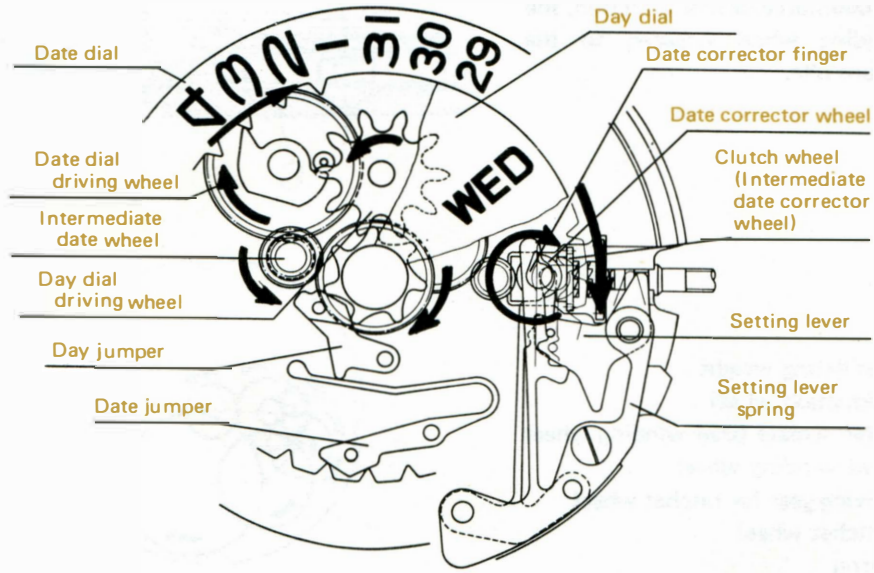


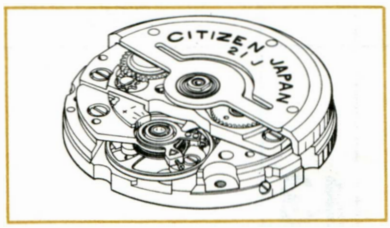
Fig. 9

◇ Oscillating weight driver

The Citizen oscillating weight driver can be used in common for the assembly and disassembly of the oscillating weight, complete.

4-4. Structure (Exploded view and parts name)

Bridge side



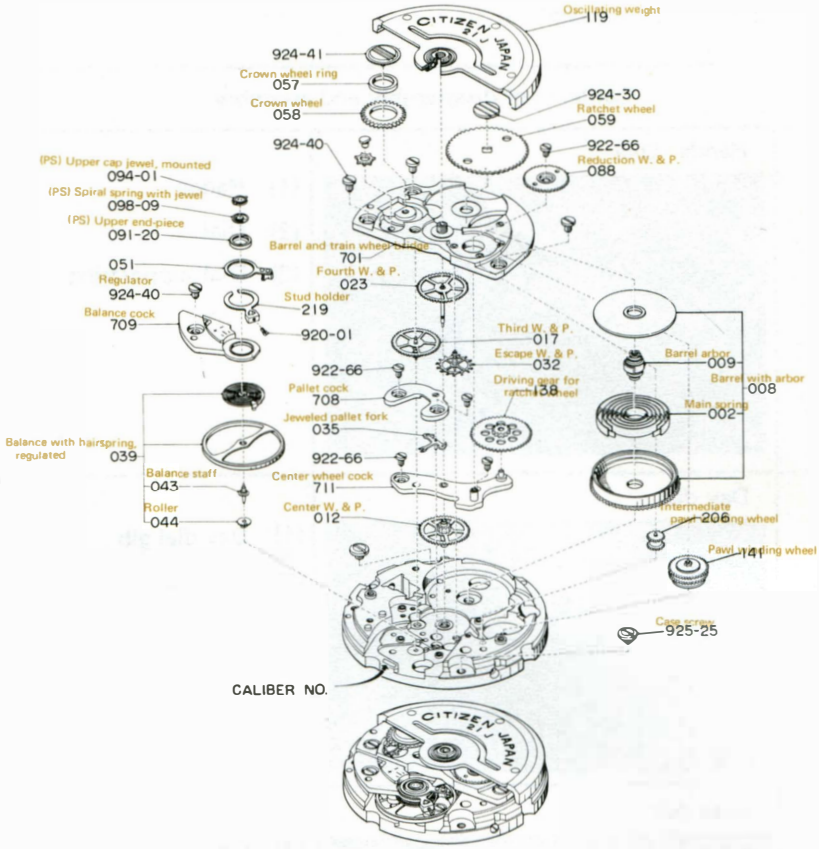
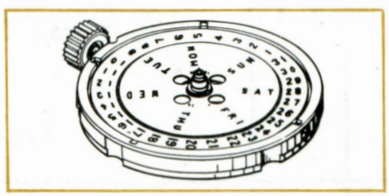


Fig. 10

Dial side



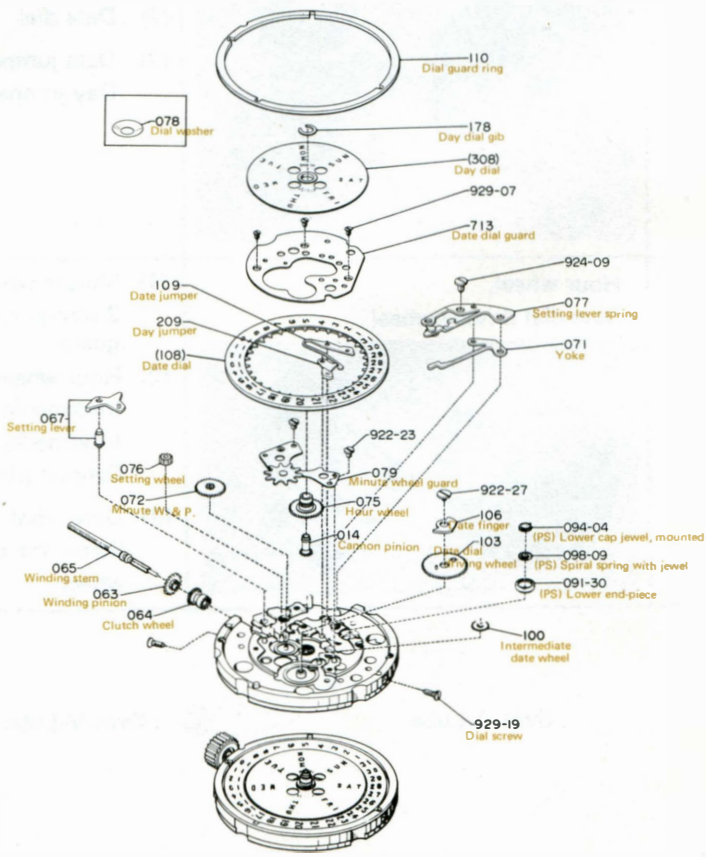
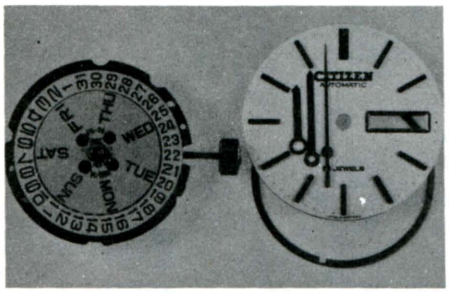
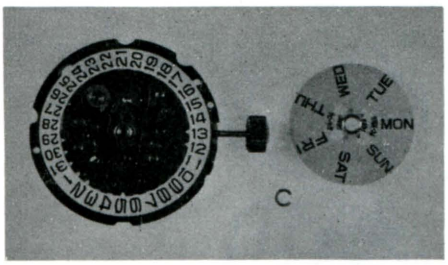
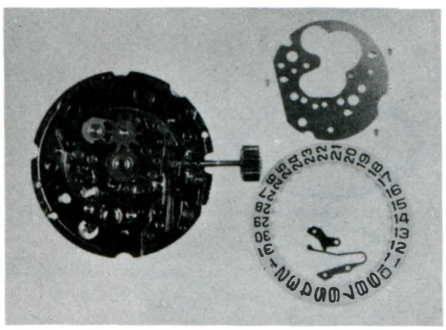
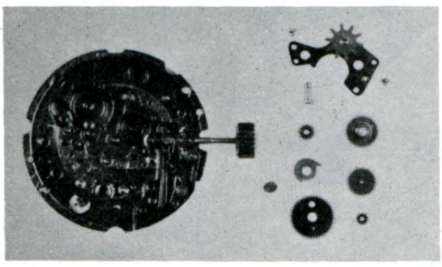
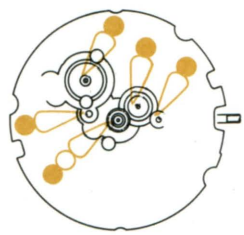


Fig. 11

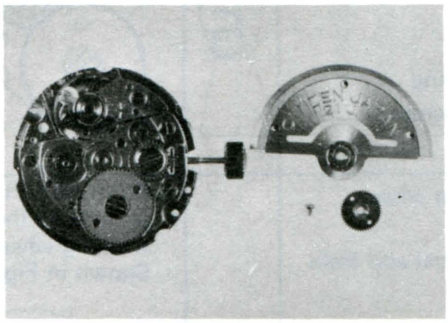
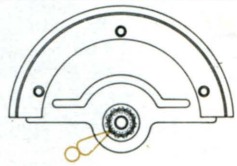
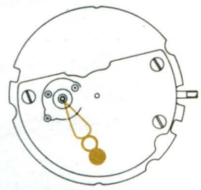
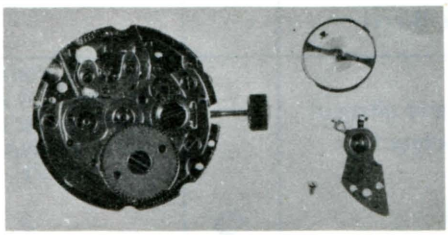
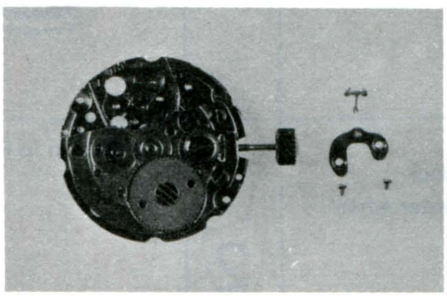
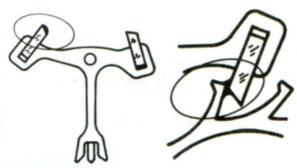
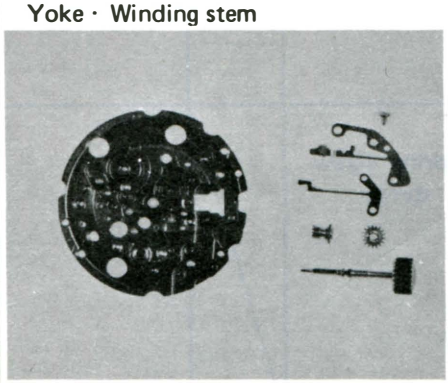
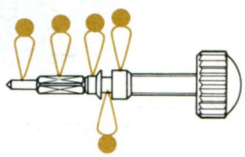
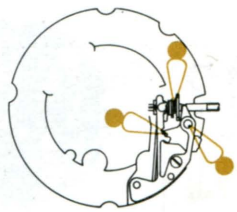
5. DISASSEMBLY AND ASSEMBLY

Day and Date mechanism

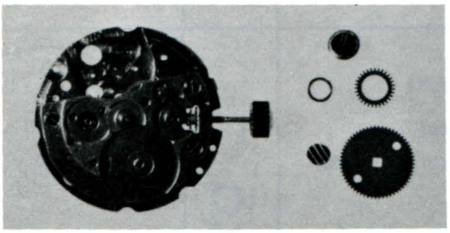
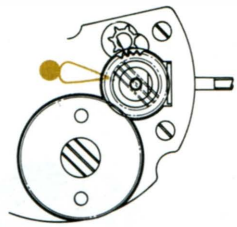
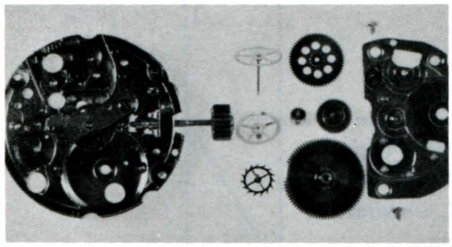
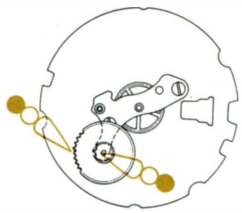
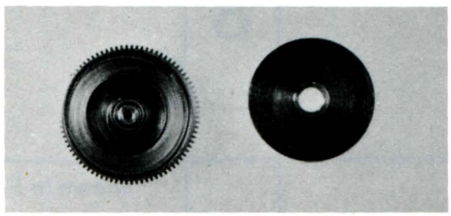
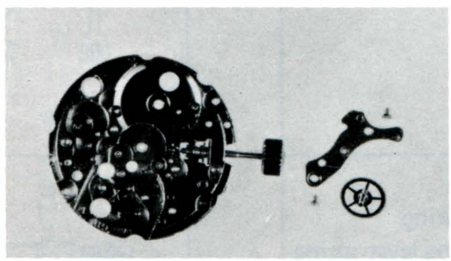
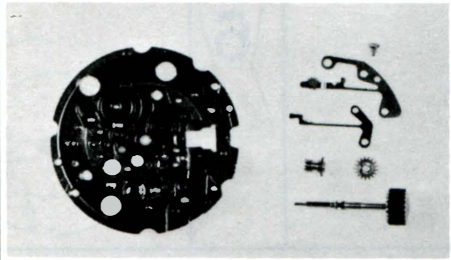
	Contents of disassembly and assembly			Oiling
1	Hands · Dial 	(1) Hands (2) Dial (3) Dial supportring	13	
2	Day dial 	(1) Day dial gib (2) Day dial	12	
3	Date dial 	(1) Calendar plate 3 calendar plate screws (2) Date dial (3) Date jumper Day jumper	11	 Fig. 12
4	Hour wheel, Date dial driving wheel 	(1) Minute wheel 2 screws for minute wheel guard (2) Hour wheel, Minute wheel, Intermediate minute wheel, Intermediate date wheel, Cannon pinion (3) Date dial driving wheel, Screw for date dial driving wheel	10	 Fig. 13

: Synt-A-Lube : Synt-V-Lube : Citizen watch oil (CA-1)

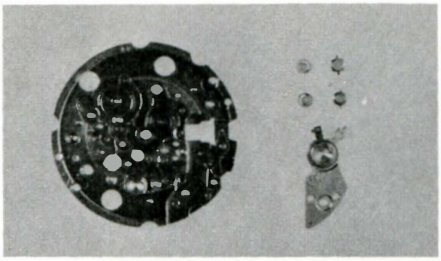
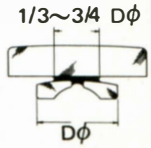
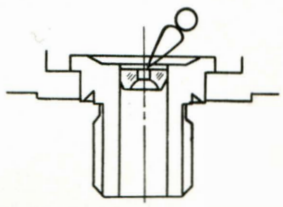
Automatic mechanism and movement

	Contents of disassembly and assembly			Oiling
5	Oscillating weight 	(1) Oscillating weight (2) Reduction wheel Screw for reduction wheel	9	 Fig. 14  Fig. 15
6	Loosen mainspring	Gasp the crown and disengaging the meshing of the click with the ratchet wheel, unwind the mainspring gradually.		
7	Balance 	(1) Balance cock with balance Balance cock screw (2) Balance	8	
8	Jeweled palled 	(1) Pallet cock Pallet cock screw (2) Jeweled pallet fork	7	Shown in Fig. 26  Fig. 16 Fig. 17
	Yoke · Winding stem 	(1) Setting lever spring Screw for setting lever spring (2) Yoke (3) Winding stem Clutch wheel Winding pinion	6	 Fig. 18  Fig. 19

: Synt-A-Lube : Synt-V-Lube : Citizen watch oil (CA-1)

	Contents of disassembly and assembly			Oiling
9	Crown wheel Ratchet wheel 	(1) Ratchet wheel Ratchet wheel screw (left hand) (2) Crown wheel Crown wheel ring Crown wheel screw (left hand)	5	 Fig. 20
10	Train wheel 	(1) Barrel and train wheel bridge 3 screw for barrel and train wheel bridge (2) Driving gear for ratchet wheel Pawl winding wheel Intermediate pawl winding wheel (3) Fourth wheel Third wheel Escape wheel Barrel	4	• Don't oil to the star pinions on the pawl winding wheel • Shown in Figs. 26. 27  Fig. 21
	Barrel 	(1) Disassembling and oiling of the barrel,complete	3	• If barrel, complete is blot or nonoil, it should be cleaning It is then applied CITIZEN WATCH OIL (CA-2)  Fig. 22
11	Center wheel 	(1) Center wheel cock 2 screws for center wheel cock (2) Center wheel	2	• Shown in Fig. 26.
12	Yoke Winding stem 	(1) Setting lever spring screw for setting lever spring (2) Yoke (3) Winding stem Clutch wheel Winding pinion		

: Synt-A-Lube : Synt-V-Lube : Citizen watch oil (CA-1)

	Contents of disassembly and assembly			Oiling
13	Parashock 	(1) PS cap jewel PS spiral spring with jewel	1	 Fig. 23  Fig. 24  Fig. 25

Oiling for train wheels

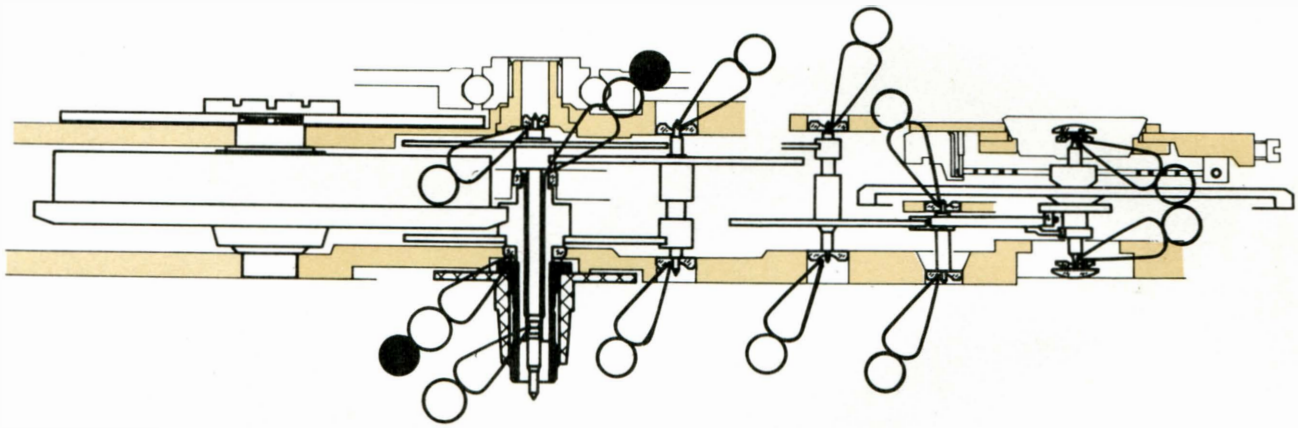
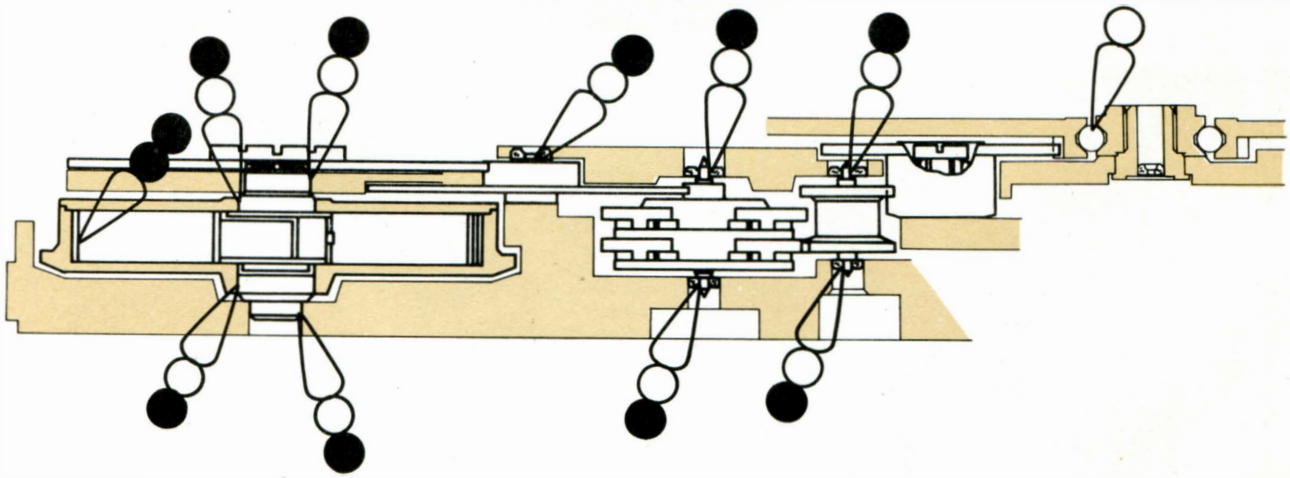


Fig. 26

Oiling for automatic train wheels



: Synt-A-Lube

: Synt-V-Lube

: Citizen watch oil (CA-1)

: Citizen watch oil (CA-2)

6. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.

1. GENERAL OUTLINE

- The 72 series Leopard (8 and 10) and the Seven Star V2 are thin-typed, high vibration, high quality automatic wristwatches with day and date mechanism and are equipped with a newly designed movement which has placed emphasis on functions and performances such as increasing the number of vibrations on the balance, simplifying the dial side mechanism, etc.
- The Leopard 8 (Cal. No. 722*) and the Seven Star V2 (Cal. No. 728*) are equipped with an instant day and date changing device which changes the day and date instantly at 12:00 midnight.

Cal. No. 720*
Bridge side

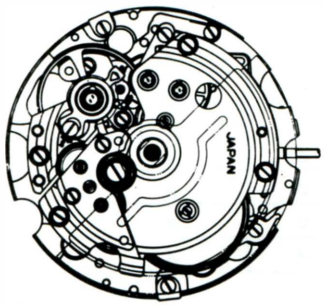


Fig. 1

Cal. No. 720*
Dial side

Fig. 2

Cal. No. 722* 728*
Dial side

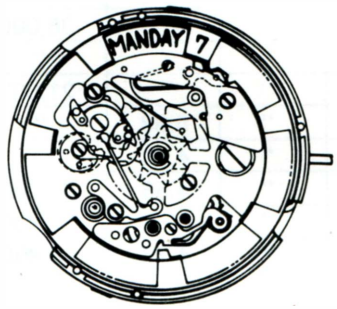


Fig. 3

2. CHARACTERISTICS

(1) The adoption of a high balance vibration (6, 8 and 10 vibrations = Super beat), a power increased mainspring newly designed tooth on train wheels, etc., has made it a structure with a torque of extremely small fluctuation and with the employment of a triangle hairspring stud, double touching hairspring system and the out of beat correcting device on the regulating device, it shows a stabilized performance and a favorable rate trace. In addition, the integration of the dial side wire springs, etc, have been designed with consideration for repairing.

(2) It is eqipped with a second hand stopping device of the balance stop type with an accurate starting and stopping operation (excluding Cal. No. 727*, 747*).

(3) Sufficient considerations have been given on performance maintenance and durability improvement such as providing an oil dispersion preventing treatment on the escape wheel, jeweled pallet fork and the jewels and enabling the usage of the barrel with arbor (w/mainspring) for several years without oiling.

(4) It is equipped with an instant day and date changing device which changes the day and date instantly at 12:00 midnight. (Cal. No. 722*, 728*).

(5) Similar as the Cal. No. 52** and others, it is a thin type high-quality automatic watch which can be also wound manually.

3. SPECIFICATIONS

In the 72 series (Leopard. Seven Star V2) automatic wristwatches, there are three types; the type with the balance vibration of 21,600 times/hour (6 vibrations), the type with the balance vibration of 28,800 times/hour (8 vibrations) = Super and the type of 36,000 times/hour (10 vibrations) - Super and their specifications are shown in the table below.

Cal. No.	Size (mmϕ)	Thick-ness (mm)	Vibra-tions per hour	Automatic center second	Date mecha-nism	Day mecha-nism	Quick date setting	Instant Day and date changing	Second hand Stopping	Fine regulator
720*	28.0	4.84	21,600	o	o	o	o	x	o	o
721*	"	"	28,800	o	o	o	o	x	o	o
722*	"	5.38	"	o	o	o	o	o	o	o
723*	"	4.84	36,000	o	o	o	o	x	o	o
725*	"	"	"	o	o	o	o	x	o	o
727*	"	"	21,600	o	o	o	o	x	x	x
728*	"	5.38	"	o	o	o	o	o	o	x
729*	"	4.84	"	o	o	o	o	x	o	x
743*	"	4.58	36,000	o	o	x	o	x	o	o
747*	"	"	21,600	o	o	x	o	x	x	x
760*	"	4.73	28,800	o	x	x	x	x	o	o

- Hand winding mechanism, out of beat correcting device and Parashock (shockresistant device) will be provided on all calibers, whereas the Profix (oil preservation device) will be provided on all other calibers, with the exception of Cal. No. 727*, 7290, 7470, (21j, 23j).

4. HANDLING PROCEDURES

Set in the sequence of day, time and date

(1) Mainspring winding, time setting, second hand stopping devices Perform the manual winding same as in Cal. No. 52**.

(2) Day setting

Pull out the crown to C position and set the day by performing a reciprocation motion between 7:00 p.m. and 1:00 a.m. (for Cal. No. 722*, 728*, between 7:30 p.m. and 0:30 a.m.). (Figs. 4 and 5)

(3) Date setting

Date setting is performed with the crown in B position. When date correction is made between 9:00 p.m. and 12:00 midnight (for Cal. No. 722*, 728*, between 10:30 p.m. and 12:00 midnight), the date may not change on the following day so date correction should be made with the hands moved out of this time range.

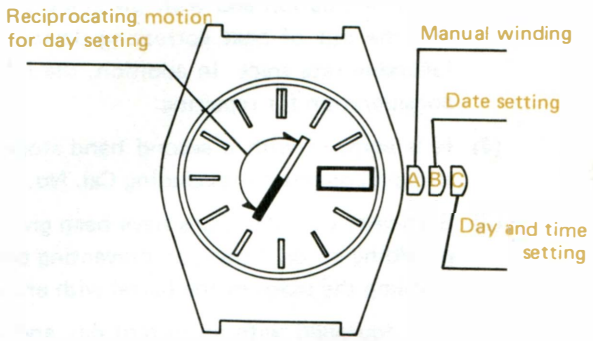


Fig. 4

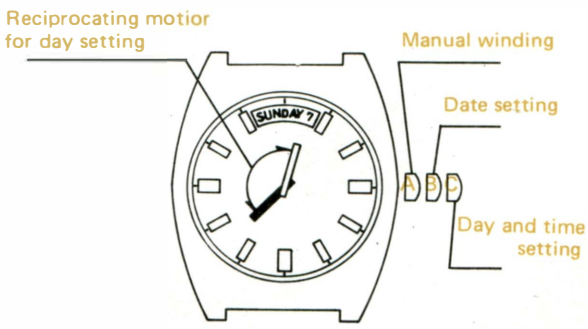


Fig. 5

5. STRUCTURE AND OPERATIONS.

5-1. Basic movement

(1) Train wheels

The same type of train wheels as for the Cal. No. 52** has been adopted and it is of a thin type which uses a double toothed wheel and a second pinion on the third wheel.

(2) Barrel, complete (w/mainspring)

- The barrel with vertical grooves has the following charcteristics. (Fig. 6)
  - * it has a stabilized slip torque.
  - * The torque fluctuation is small.
  - * Exceeds in durability.

  In addition the barrel for the super beat is provided with a gold plating so its durability is superior.
- A snap-on type barrel arbor lid is adopted on the Cal. No. 723*, 725*, 743*.
- It will maintain its initial performance for several years without oiling and there is no necessity of disassembling, and oiling.

  When the teeth of the barrel arbor of the barrel with arbor is dirtied, clean the filth with a pithwood or a brush immersed in benzine.

  Note: There is hardly any necessity to disassemble, clean and oil the barrel with arbor, but when it is disassembled and cleaned, be sure to oil with the Citizen watch oil CA-2.

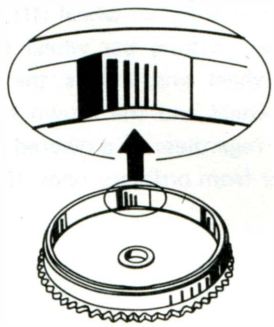


Fig. 6

(3) Second hand stopping device

- On the Leopard and the Seven Star V2 (excluding Cal. No. 727*, 749*), there is a balance stop type second hand stopping device (refer to "Common items on movement", second hand stopping device Type III).

5-2. Automatic mechanism

- Automatic mechanism is the same type as those used in Cal. No. 52**.

5-3. Dial side mechanism

- Rocking bar

  In the rocking bar of Cal. No. 723*, 725*, 743*, there is the rocking bar wheel (I) and the rocking bar wheel (II). On the rocking bar wheel (I), there are two wheels, the upper rocking bar wheel (I) and the lower rocking bar wheel (II).
  The lower rocking bar wheel (I) meshes with the ratchet wheel and makes the reduction ratio of ratchet wheel and the crown rotation large. Hand winding, regardless of a pwered up mainspring, does not differ from ordinary ones. (Figs. 7 and 8)

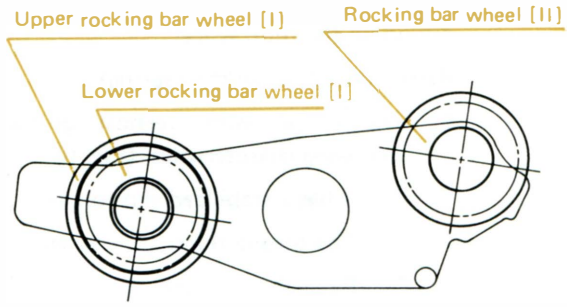


Fig. 7

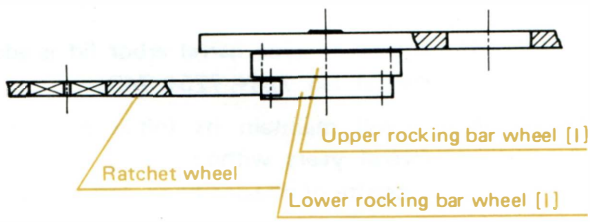


Fig. 8

- Guards and levers

  The guards and the levers have the spring portion integrated into a single body in consideration of easy repairing and are made of a simple structure. (Fig. 9)

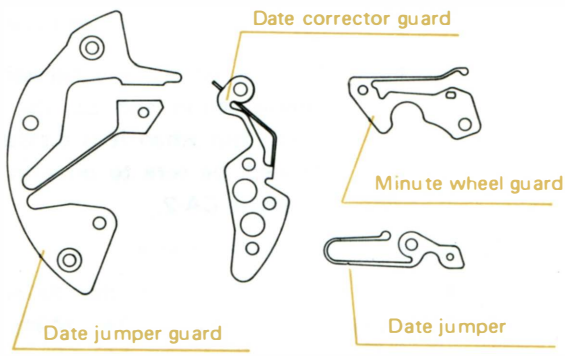


Fig. 9

5-4. Instant day and date changing mechanism

- On Cal. No. 722* and 728*, an instant day and date changing mechanism which changes the day and date at 12 o'clock instantly is provided.

- The rotation of the hour wheel is transmitted to the calendar lever driving wheel which rotates once a day through the intermediate date wheel.

  On the calendar lever driving wheel, there is a fixed upper cam and a free rotating lower cam.
  The calendar lever pin fixed to the calendar lever is pushed against the outer perimeter of the lower cam (calendar lever driving wheel) by the calendar lever.

  When the calendar lever pin comes to the indented protion of the lower cam, the calendar lever rotates a fixed angle and the date dial driving finger and day dial driving finger instantly changes the date dial and the day dial.

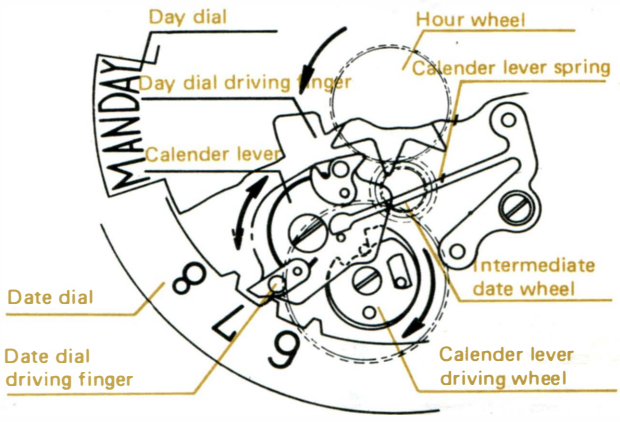
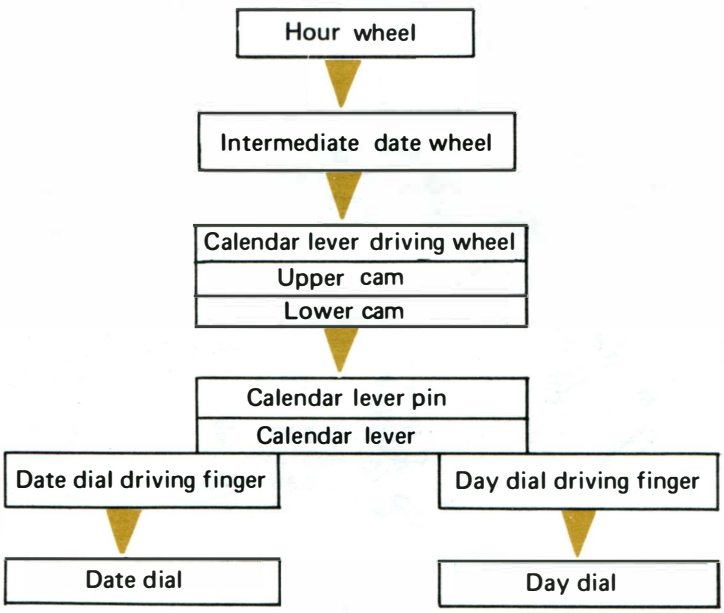


Fig. 10

⊙ The power transmittance process is as follow:



5-5. Structure (Exploded view and parts name)

Bridge side

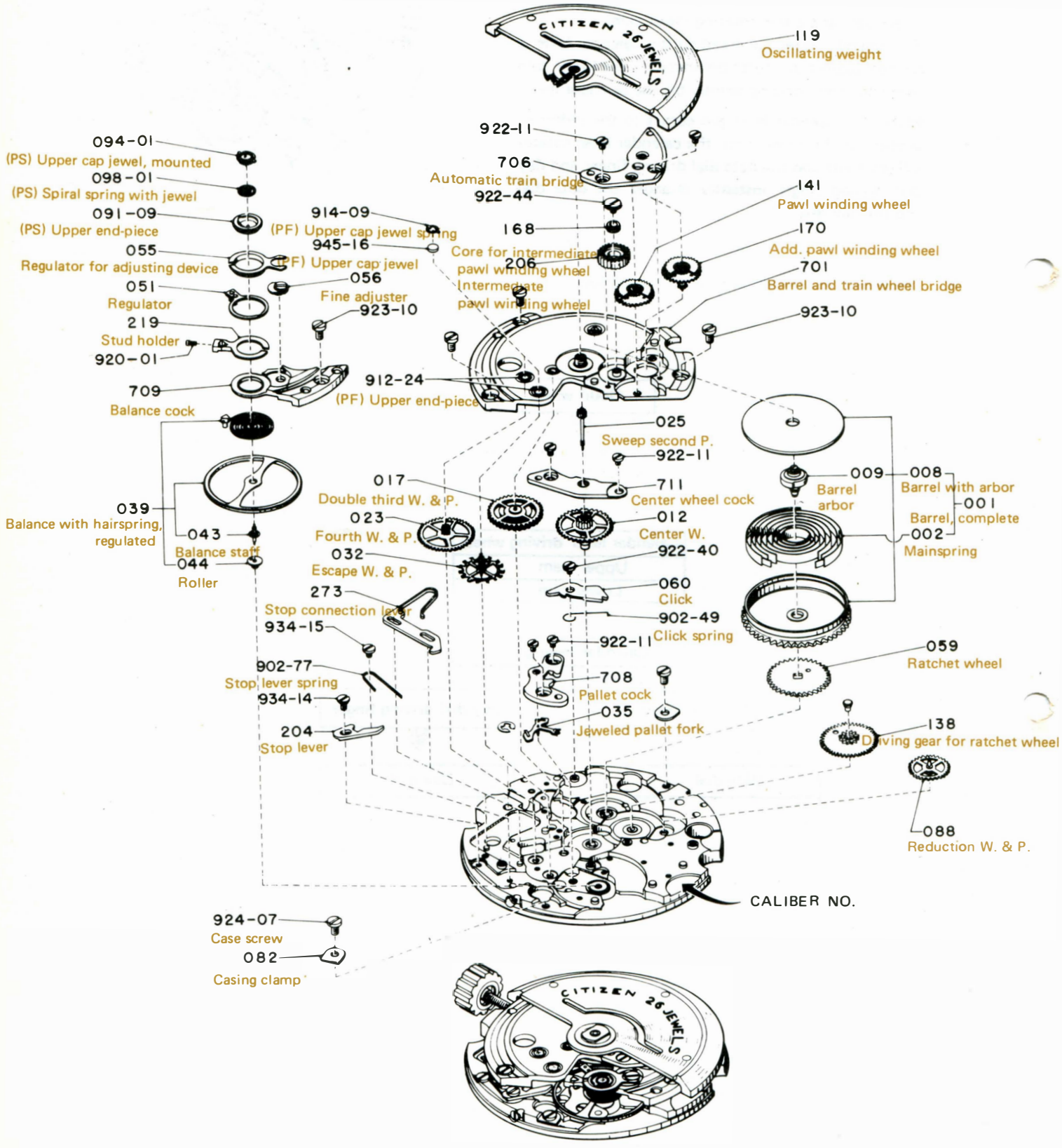


Fig. 11

5-5. Structure (Exploded view and parts Name)

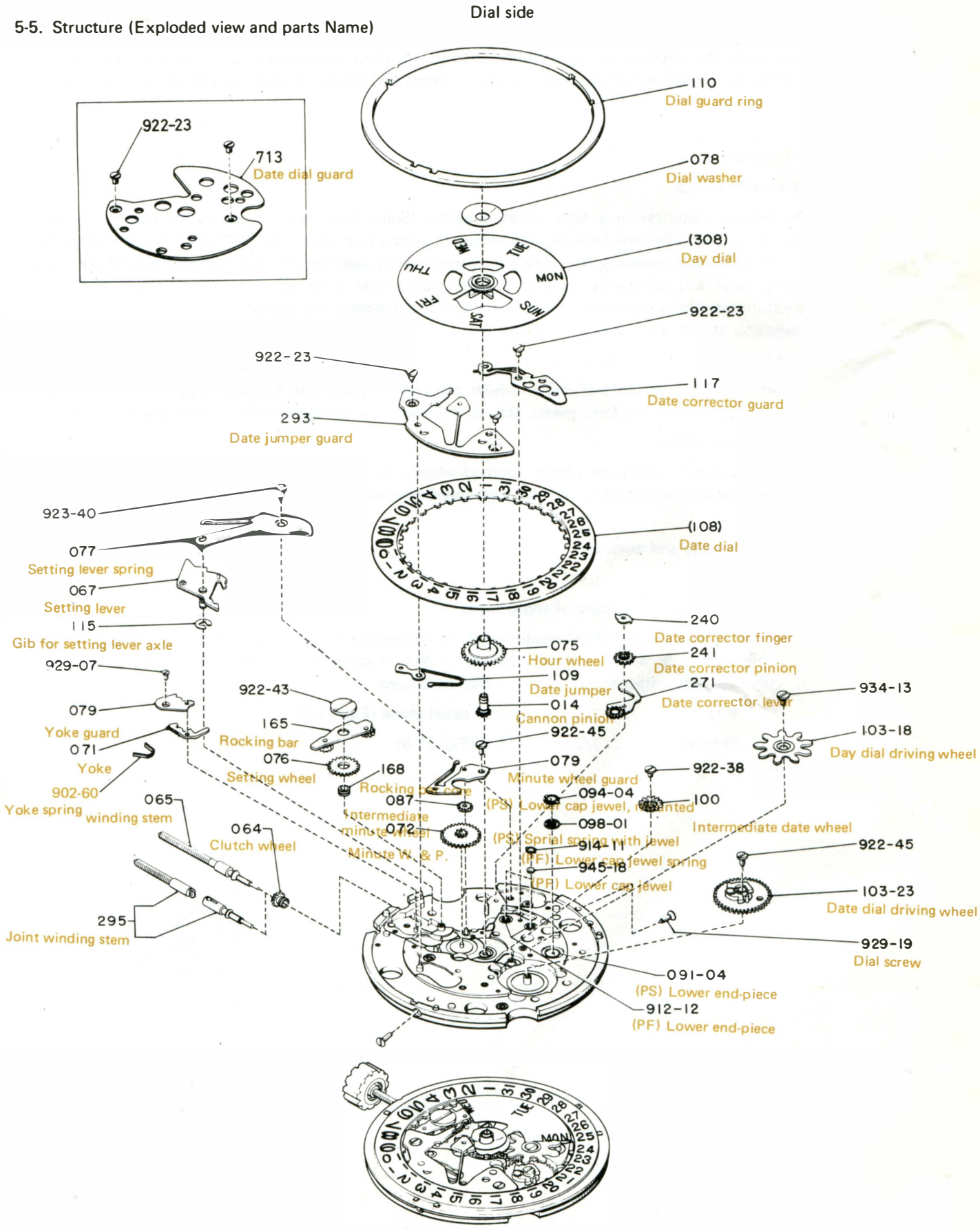


Fig. 12

6. HIGH VIBRATION WATCH

The Leopard 8 and the Leopard 10 are automatich high vibration wirstwatches with the respective balance vibrations of 28,800 times/hour (8 vibrations) = (Super beat) and 36,000 times/hour (10 vibrations) = (Super beat).

6-1. Characteristics

1 Time performance

The balance stabilizes in a high vibration watch (Super beat motion) due to the power increased mainspring, high vibrating balance, the hairspring with a high elasticity coefficient, etc. The more the balance oscillation increases, the more the balance motion stabilizes to lessen outes effects (shock, etc.) during usage and constantly exhibits a performance that is comparable to a watch in stationary condition resultly, a stabilized high accuracy can be constantly maintained.

2 Promotion of anti-abrasion and durability

- Oil preservation treatment

  An "Oil preservation treatment" which prevents oil dispersion has been provided on the escape wheel, jeweled pallet fork, jewels, etc., so there is no oil leakage and oil is constantly preserved.

- Surface finishing

  The surface finishing on pivots, toothed wheels, etc., have been further promoted and has been designed so it would be suitable for high speed rotations and excels in anti-abrasion.

6-2. Notes on disassembly and assembly

1 Escapement

- Adjustment on the amount of engagement

  The first lock (The meshing amount of the pallet jewel and the escape wheel) of an escapement on a high vibration watch is smaller by about 20% in comparison to that in Cal. No. 52**. When pallet stone adjustment is necessary, adjust as follows:

  First lock . . . . . 1/4-1/6 width of pallet stone (Fig. 11-a)

  Second lock . . . 1/2 of first lock (Fig. 11-b)

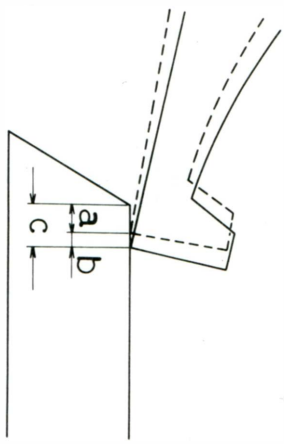


Fig. 13

- Balance amplitude

  The balance amplitude of for a watch with a vibration of 10 beats/second is about 15°-20° smaller than the balance amplitude of a watch with a vibration of 6 times/second.(Fig. 12)

(Reference)

Vibrations per hour	Amplitude (Completely wound and in horizontal position)
21,600	260°
28,800	245°
36,000	240°

2 Cleaning

Since an "Oil preservation treatment" is provided on the high vibration watch for promoting the oil preservation at the meshing portion of the jeweled pallet fork and the escape wheel, be careful to observe the following points when cleaning.

- Perform ultrasonic cleaning or rinse cleaning. Avoid brush cleaning.
- Use benzine, Tricloretylene, Chlorothene NU, etc., for cleaning liquid and avoid using alcohol and Sonoclen.

3 Oiling

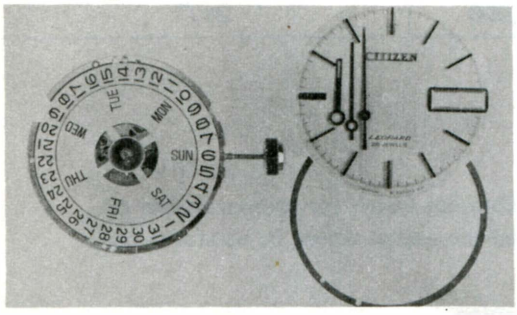
- The oiling places and the type of oil to use hardly differs from those for the Cal. No. 52**, etc., however, be careful on the oiling amount and oil only a proper amount.
- On the upper and lower pivots of the third wheel for Cal. No. 723**, 725*, 743*, oil with the Citizen watch oil CA-1.
- It is not necessary to disassemble and clean the barrel, complete (w/mainspring) but when you do, be sure to use the Citizen watch oil CA-2. The performance of this watch cannot be fully exhibited when oiled with other oils.

7. DISASSEMBLY

Contents of disassembly

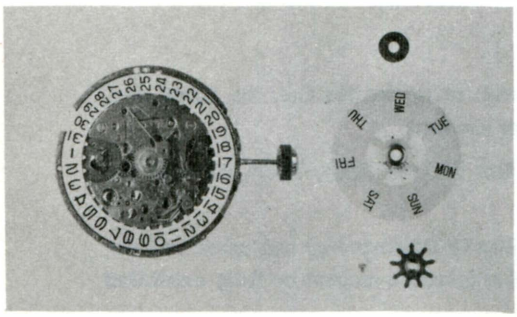
7-1. Day and Date mechanism (Excluding Cal. No. 722*, 728*)

1. Hands, Dial



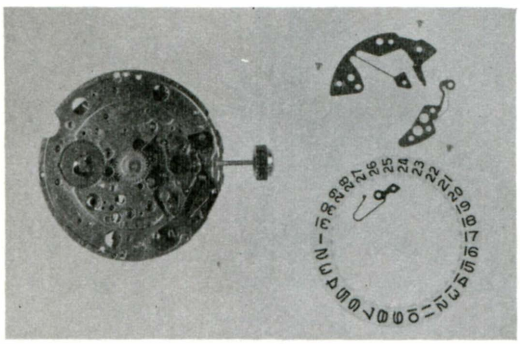
(1) Remove second, minute and hour hand.
(2) Loosen 2 dial screws and remove dial.
(3) Remove dial guard ring for the dial.
Remarks:
For Cal. No. 76**, remove dial guard screws and dial guard.

2. Day dial, Day dial driving wheel



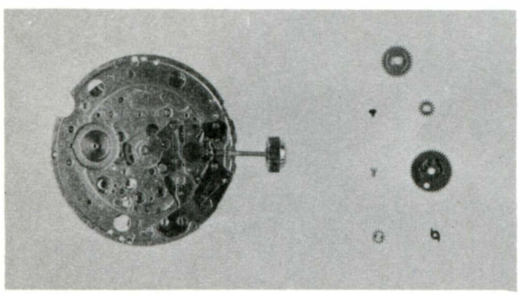
(1) Remove dial washer and day dial.
(2) Remove screw for day dial driving wheel and day dial driving wheel.

3. Date dial Date jumper



(1) Remove screw for date corrector guard and date corrector guard.
(2) Remove 2 screws for date jumper guard and date jumper guard.
(3) Remove date dial.
(4) Remove date jumper.

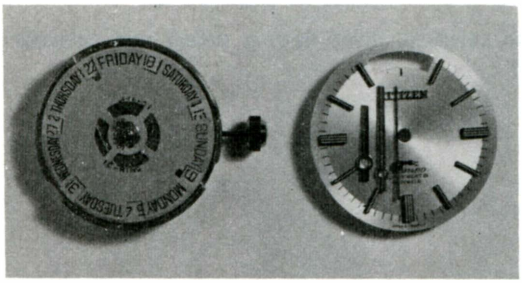
4. Hour wheel, Date dial driving wheel



(1) Remove hour wheel.
(2) Remove screw for intermediate date wheel (left handed) and intermediate date wheel.
(3) Remove screw for the date dial driving wheel and date dial driving wheel.
(4) Remove date corrector finger and date corrector pinion.

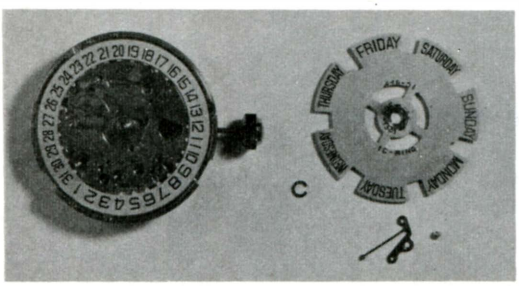
7-1. Day and Date mechanism (Cal. No. 722*, 728*)

1. Hands, Dial



(1) Remove second, minute and hour hands.
(2) Loosen dial screw and dial.

2. Day dial, Driving lever spring



(1) Remove day dial gib and day dial.

Remarks:
The day dial gib is removed by prying open with a driver, etc.

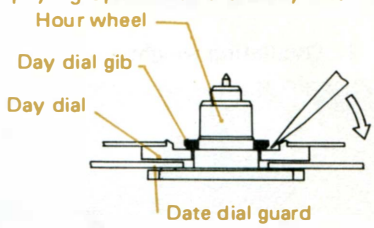
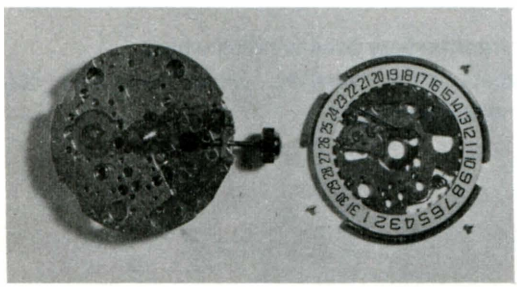


Fig. 15

(2) Remove screw for calendar lever spring and calendar lever spring

3. Calendar block



(1) Remove 3 screws for calendar plate and calendar block.

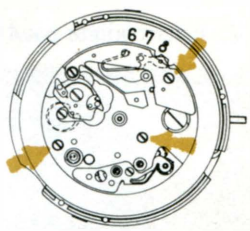
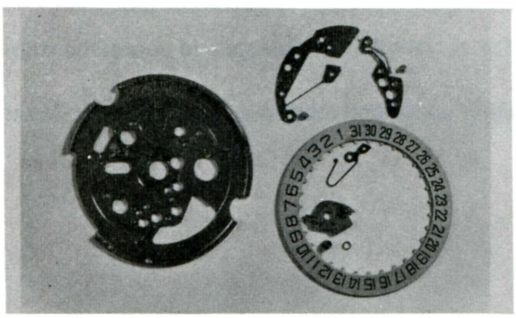


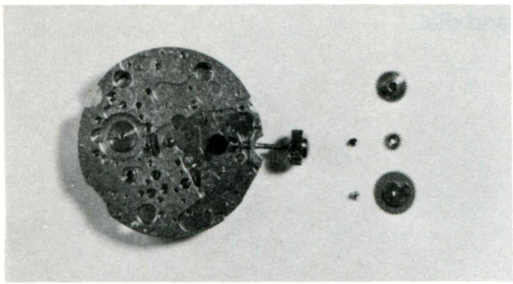
Fig. 16

4. Driving lever, Date dial



(1) Remove screw for date jumper guard and date jumper guard.
(2) Remove screw for date corrector guard and date corrector guard.
(3) Remove screw for calendar lever, calendar lever and calendar lever ring.
(4) Remove date dial and date jumper.

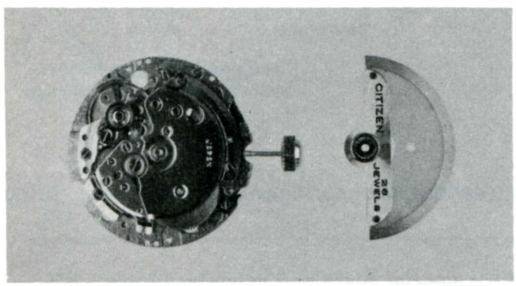
5. Hour wheel,
Calender lever driving wheel



(1) Remove hour wheel, date corrector ginger and date corrector pinion.
(2) Remove screw for intermediate date wheel and intermediate date wheel.
(3) Remove screw for calendar lever driving wheel and calendar lever driving wheel.

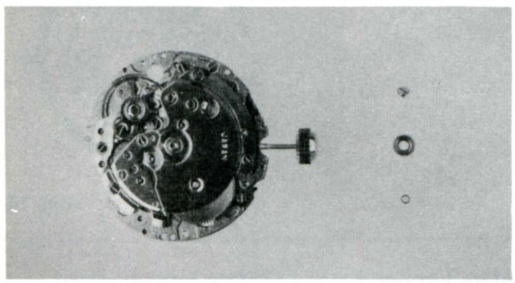
7-2. Automatic winding mechanism

1. Oscillating weight complete



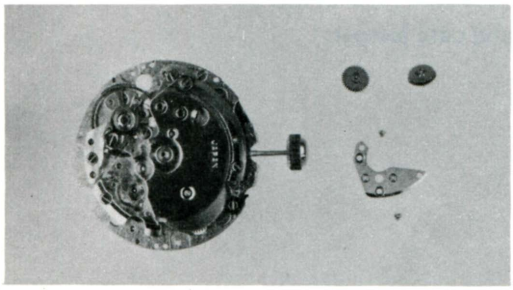
(1) Remove oscillating weight complete.
Remarks:
Turn the nut left by a Citizen oscillating weight driver.

2. Intermediate pawl winding wheel



(1) Remove screw for intermediate pawl winding wheel.
(2) Remove intermediate pawl winding wheel and core for intermediate pawl winding wheel.

3. Pawl winding wheel



(1) Remove 2 screws for automatic train bridge and automatic train bridge.
(2) Remove pawl winding wheel and additional pawl winding wheel.

7-3. Movement

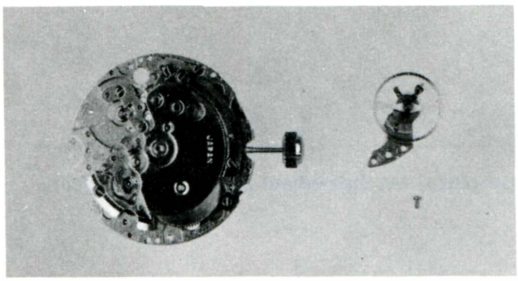
* PS: . . . . . Parashock PF: . . . . . Profix

1. Mainspring unwinding

(1) Grasp the crown and disengaging the meshing of the click with the ratchet wheel, unwind the mainspring gradually.

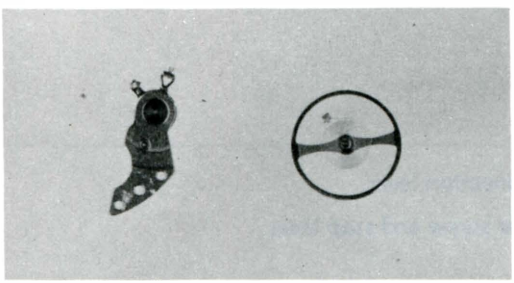
2. Balance cock

(1) Remove balance cock screw and balance cock with the balance.



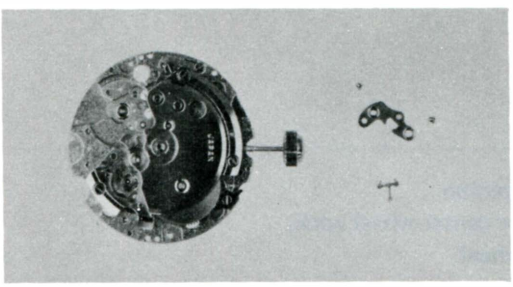
3. Balance

(1) Turn the regulator key and loosen hairspring stud screw.
(2) Remove the balance.



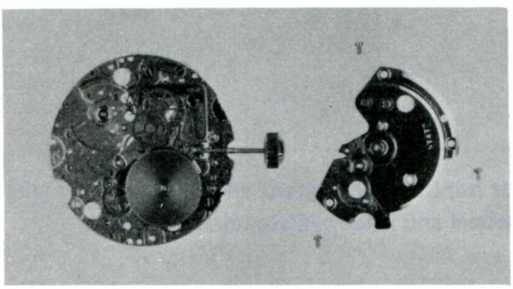
4. Jeweled pallet fork

(1) Remove 2 pallet cock screws and pallet cock.
(2) Remove jeweled pallet fork.

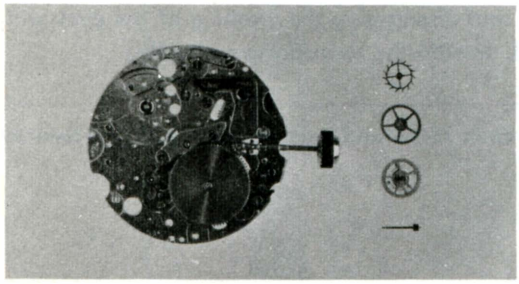


5. Barrel and train wheel bridge

(1) Remove 3 screws for barrel and train wheel and barrel and train wheel bridge.

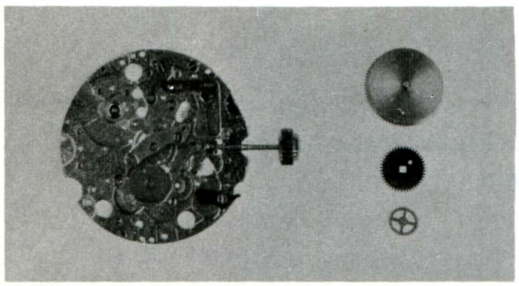


6. Train wheels



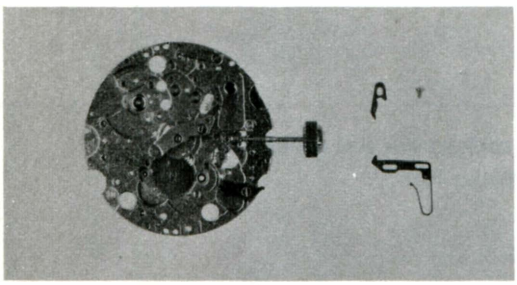
(1) Remove sweep second pinion, third wheel, fourth wheel and escape wheel.

7. Barrel



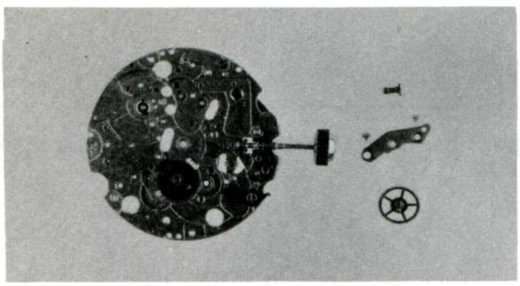
(1) Remove barrel (complete) ratchet wheel and reduction gear.

8. Stop lever



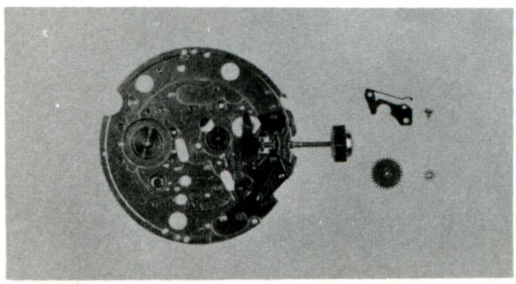
(1) Remove stop connection lever.
(2) Remove stop lever screw and stop lever.

9. Center wheel



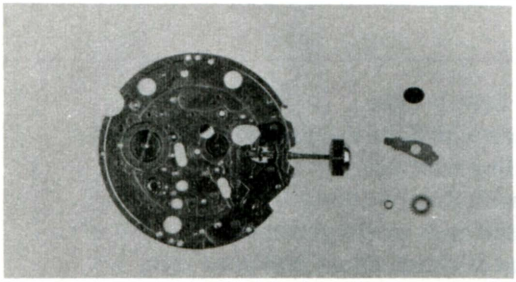
(1) Remove cannon pinion.
(2) Remove screw for center wheel cock.
(3) Remove center wheel.

10. Minute wheel



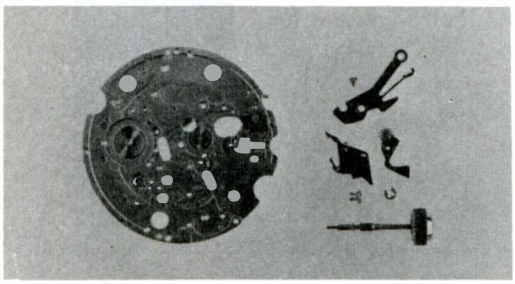
(1) Remove screw for minute wheel guard and minute wheel guard.
(2) Remove minute wheel and intermediate minute wheel.

11. Rocking bar



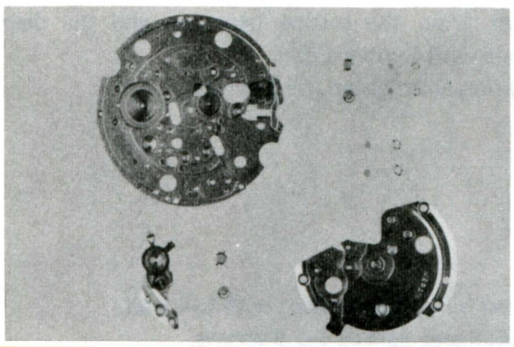
(1) Remove rocking bar screw (left hand) and rocking bar.
(2) Remove setting wheel and rocking bar core.

12. Setting lever, Winding stem



(1) Remove gib for setting lever axle.
(2) Remove screw for setting lever spring and setting lever spring.
(3) Remove setting lever and date corrector lever.
(4) Remove winding stem and clutch wheel.

13. Parashock, Profix



(1) Remove Parashock cap jewel, mounted and Parashock spiral spring, lower and upper.
Remarks:
Refer to "PARASHOCK" in the common item.
(2) Remove Profix cap jewel spring and Profix cap jewel, lower and upper.
Remarks:
Refer to "PROFIX" in the common item.

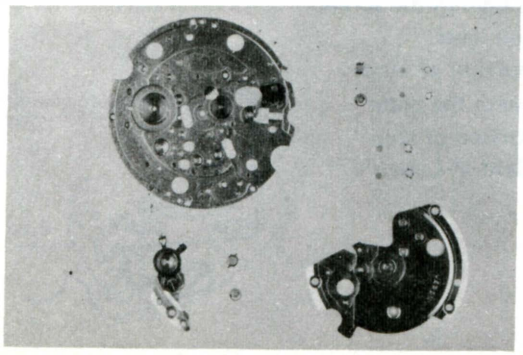
8. ASSEMBLY

Contents of assembly

8-1. Movement

PS ..... Parashock PF ..... Profix

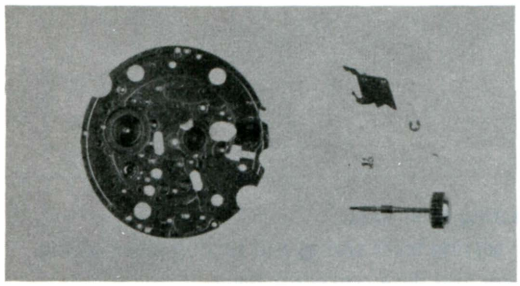
1. Parashock, Profix



(1) Set Parashock spiral spring into to the plate and balance cock.
Remarks:
Refer to "PARASHOCK" in the common item.
(2) Oil Parashock cap jewel mounted with Synt-A-Lube and set it in position.
(3) Set Profix cap jewel and Profix cap jewel spring into the plate and barrel and train wheel bridge.
Remarks:
Refer to "PROFIX" in the common item.

(4) Oil Profix with Synt-A-Lube, lower and upper.
(5) Oil sweep second pinion upper hole jewel with Synt-A-Lube from the inside.

2. Winding stem, Setting lever



(1) Oilyoke axle with Synt-V-Lube.
(2) Oil setting lever axle with Synt-V-Lube and setting lever.
(3) Set the gib for setting lever axle.
(4) Oil winding stem with Synt-V-Lube.
(5) Set Clutch wheel and push winding stem in.
(6) Oil rubbing portion of clutch wheel with yoke with Synt-V-Lube.

Remarks:
Set clutch wheel by applying the tip of setting lever to the protruding portion of yoke.

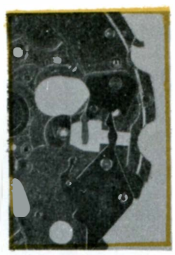
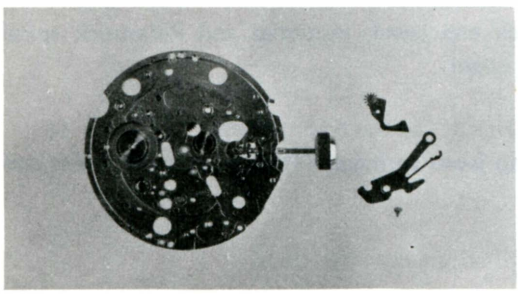


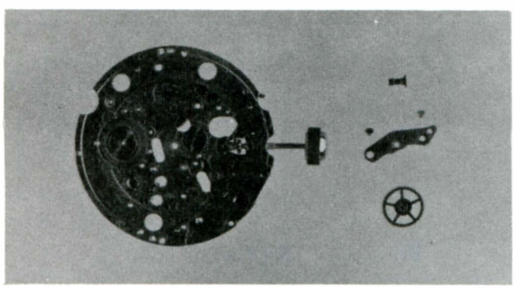
Fig. 17

3. Date corrector lever, Setting lever spring



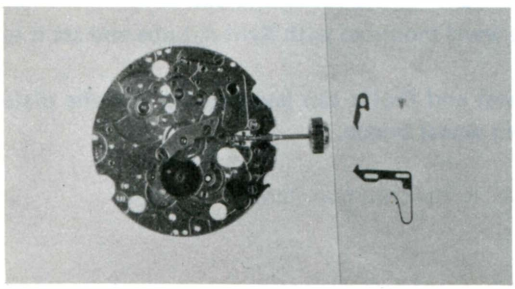
(1) Oil date corrector lever axle with Synt-V-Lube and set date corrector lever.
(2) Oil the touching portion of setting lever and yoke, setting lever and date corrector lever, the setting lever pin and the date corrector wheel axle with Synt-V-Lube.
(3) Set setting lever spring and tighten the 2 screws.

4. Center wheel



(1) Set center wheel and oil its upper pivot with CA-1 oil.
(2) Set center wheel cock and tighten the 2 screws.
(3) Oil the lower pivot of center wheel and the friction fitting portion with cannon pinion with CA-1 oil.
(4) Push cannon pinion in.

5. Stop lever



(1) Set stop lever and tighten the screw.
(2) Set stop connection lever.
(3) Oil the rubbing portion of stop connection lever with the plate and the contact portion of stop lever screw with Synt-V-Lube.

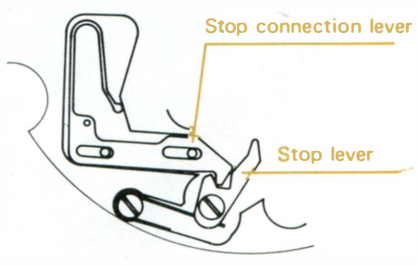
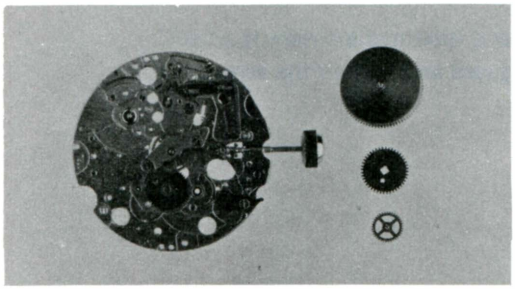


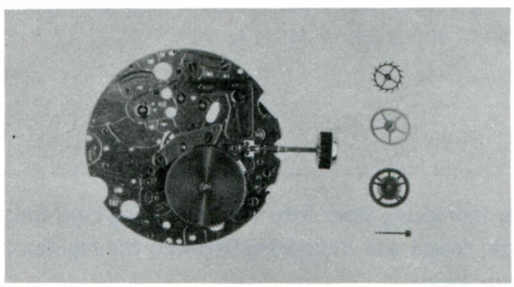
Fig. 18

6. Reduction wheel, Barrel



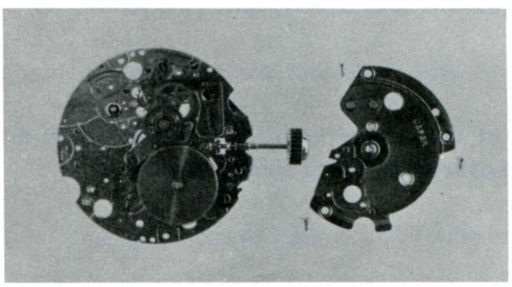
(1) Oil the axle of driving gear for ratchet wheel, the rubbing surface with the plate the wheel and pinion with CA-1 oil.
(2) Oil the teeth of reduction wheel with CA-1 oil and set.
Remarks:
For the toothed wheel, oil the 2 symmetrical places of the tooth tip and for the pinion one place of the teeth tip.
(3) Oil the upper and lower pivots of barrel arbor and the portion of barrel and arbor with CA-1 oil.
Remarks:
When the barrel bearing is disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING." in the common item.
(4) Set ratchet wheel to the square portion of barrel arbor and set to the plate.
(5) Mesh the click and ratchet wheel.

7. Train wheels



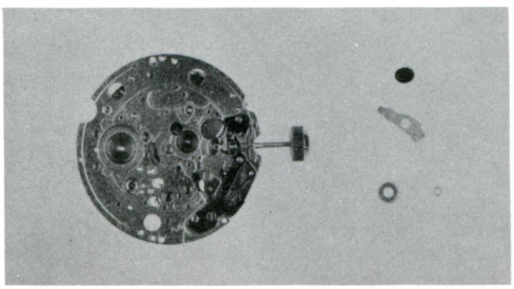
(1) Set escape wheel, fourth wheel and third wheel.
(2) Oil the lower pivot of sweep second pinion in 2 places with Synt-A-Lube.

8. Barrel and train wheel bridge



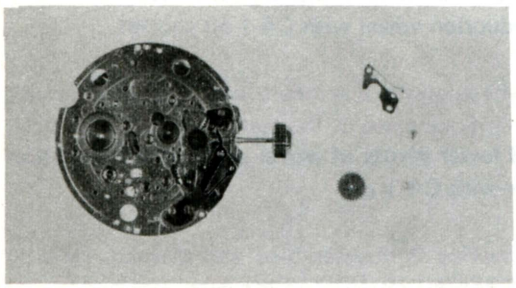
(1) Set barrel and train wheel bridge and tighten the 3 screws.
(2) Oil the upper and lower pivots of third wheel with Synt-A-Lube.
Remarks:
For Cal. No. 7230, 7250, 7450 oil upper and lower pivots of the third wheel with CA-1 oil.
For Calibers without Profix, oil the upper and lower pivots of third, fourth and escape wheels with Synt-A-Lube.
(3) Oil the upper and lower pivots of reduction wheel with CA-1 oil.

9. Rocking bar



(1) Set rocking bar core and oil the outer perimeter of rocking bar core with Synt-V-Lube.
(2) Oil the axle of rocking bar wheel with Synt-V-Lube.
(3) Set setting wheel and rocking bar and tighten the screw (left hand) for rocking bar.

10. Minte wheel

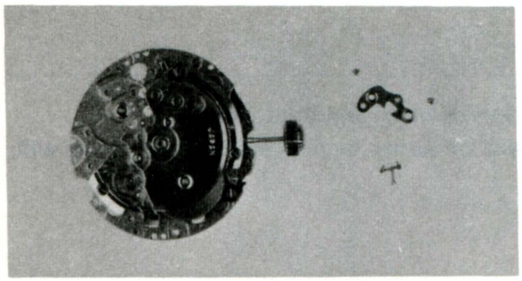


(1) Oil intermediate minute wheel axle and minute wheel axle with Synt-V-Lube.
(2) Set minute wheel and intermediate minute wheel.
(3) Set minute wheel guard and tighten the screw.

11. Operation checking

(1) Check the conditions of the train wheels and the winding stem changeover.

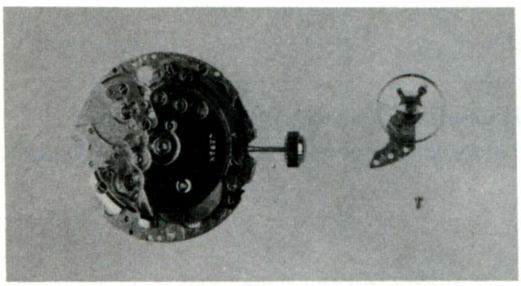
12. Jeweled pallet fork



(1) Set jeweled pallet fork.
(2) Set pallet cock and tighten the 2 screws.
(3) Oil the upper and lower pivots of jeweled pallet fork with a small amount of Synt-A-Lube.

Remarks:
Wind the mainspring a little (turn the crown 2 to 3 times) and check the operation of the jeweled pallet fork.

13. Balance cock



(1) While inserting the hairspring stud into the harispring stud hole of the balance cock, insert the hairspring between the regulator pin and the regulator key.
(2) Turn the regulator key.
(3) Tighten hairspring stud screw.
(4) Set balance cock with the balance and tighten the screw.

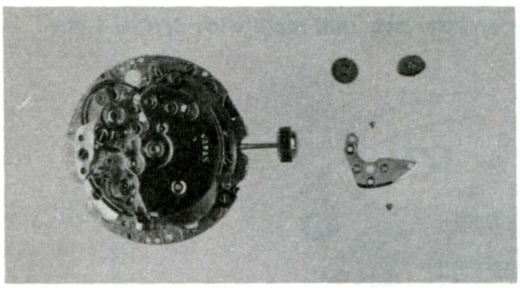
Remarks:
Carefully check the end shake and the configuration of the hairspring.

(5) Stop the motion of the balance with the fingertip and oil the inpulse face of the pallet jewels with Synt-A-Lube.

Remarks:
Advance the escape wheel by 7 or 8 tooth and oil again.

8-2. Automatic mechanism

1. Pawl winding wheel



(1) Oil pawl winding wheel and additional pawl winding wheel with Synt-V-Lube.

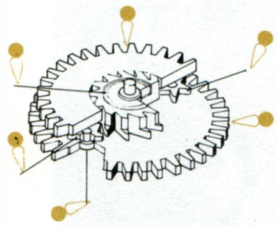
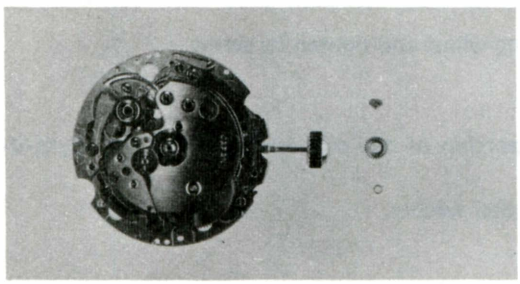


Fig. 19

Remaks:
Pawl winding wheel and the additional pawl winding wheel

(2) Oil the lower hole jewel of pawl winding wheel with CA-1 oil.
(3) Set pawl winding wheel and additional pawl winding wheel.
(4) Set automatic train bridge and tighten the 2 screws.
(5) Oil the upper pivot of pawl winding wheel and the upper and lower pivots of additional pawl winding wheel with CA-1 oil.

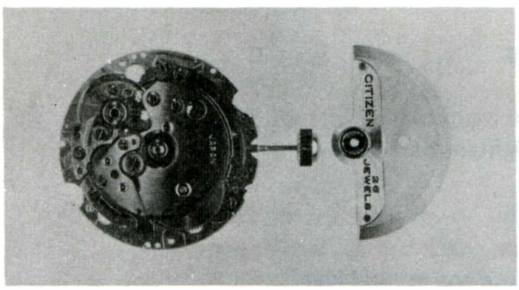
2. Intermediate pawl winding wheel



(1) Set intermediate pawl winding wheel core and oil its outer perimeter with Synt-V-Lube.
(2) Set intermediate pawl winding wheel and tighten the screw.

Remarks:
Engage the upper toothed wheel of pawl winding wheel and additional pawl winding wheel.

3. Oscillating weight complete

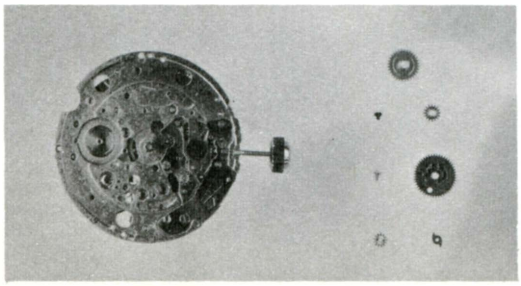


(1) Oil the ball bearing with Synt-A-Lube.
(2) Screw oscillating weight into the weight post of barrel bridge.

Remarks:
Screw in with the oscillating weight driver turning the weight. It should be tightened after the weight pinion and the intermediate pawl winding wheel has been engaged.
Slant the movement and turn the weight to the left and right and check that it rotates smoothly.

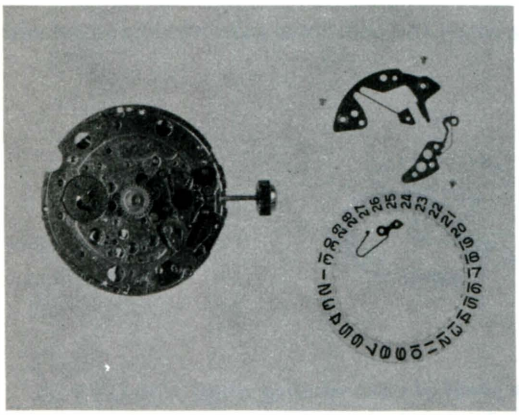
8-3. Day and Date mechanism (Excluding Cal. No. 722*, 728*)

1. Date dial driving wheel, Hour wheel



(1) Oil the intermediate date wheel axle and the date dial driving wheel axle on the plate with Synt-V-Lube.
(2) Set date dial driving wheel and tighten the screw.
(3) Set intermediate date wheel and tighten the screw.
(4) Oil hour wheel with Synt-V-Lube and set.
(5) Oil the triangle teeth of date corrector pinion with Synt-V-Lube.
(6) Set date corrector pinion and date corrector finger.

2. Date dial, Date jumper



(1) Oil the rubbing portion of the date dial teeth tip with the plate with Synt-V-Lube oil and set.
(2) Oil the date jumper axle with Synt-V-Lube and set date jumper.
(3) Oil the touching portion of the date jumper spring tip and the plate, date jumper and the date dial teeth with Synt-V-Lube.

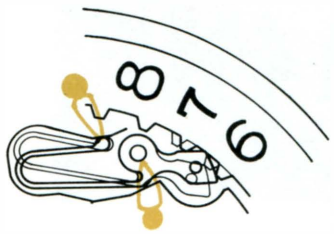
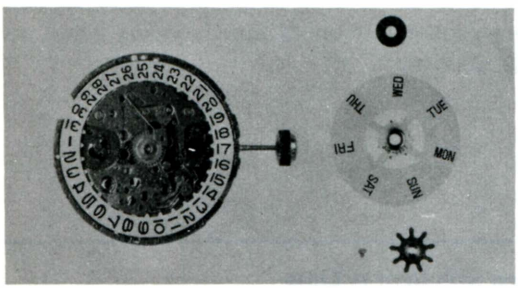


Fig. 20

(4) Set date jumper guard and tighten the screw.
(5) Set date corrector guard and tighten the screw.

Remarks:
Check the operation of date dial and the quick date setting.

3. Day dial, Day dial driving wheel

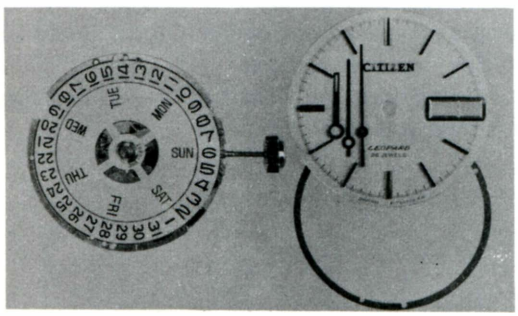


(1) Set day dial driving wheel and tighten its screw.

Remarks:
Match the screw to the toothed wheel center and tighten .

(2) Oil the bearing portion of day dial driving wheel with Synt-V-Lube.
(3) Set day dial and dial washer.

4. Dial



(1) Set dial guard ring.

Remarks:
Set dial guard and tighten the 2 screws.

(2) Attach dial and tighten the 2 screws.

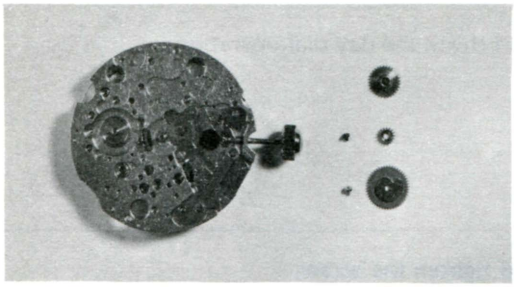
Remarks:
Tighten strongly by pressing the dial so it will not rise.
Turn the hands and check the day dial operation.

(3) Attach hour, minute and second hands.

Remarks:
Attach the hands so the date will change at 12:00 midnight.
Check the hands clearance.

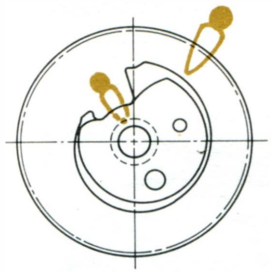
8-3. Day and Date mechanism (Cal. No. 722*, 728*)

1. Calendar lever driving wheel, Hour wheel



(1) Oil the axle of calendar lever driving wheel and intermediate date with Synt-V-Lube.

(2) Oil the lower cam of calendar lever driving wheel with Synt-V-Lube and set.
Then, tighten the screw.
Remarks:
Oil a small amount on the side surface of the lower cam.

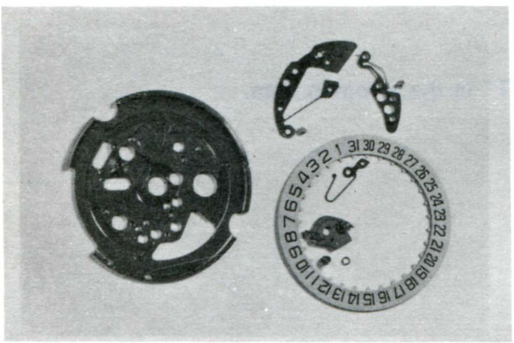


(3) Set intermediate date wheel and tighten screw.

(4) Oil cannon pinion with CA-1 oil and set hour wheel.

(5) Oil the triangle teeth of date corrector pinion with Synt-V-Lube and set date corrector pinion and date corrector finger.

2. Calendar lever, Date dial



(1) Oil calendar lever axle of calendar plate with Synt-V-Lube and set calendar lever ring and calendar lever and tighten the screw.

(2) Oil the contact portion of the date dial teeth tip of calendar plate with Synt-V-Lube and set date dial.

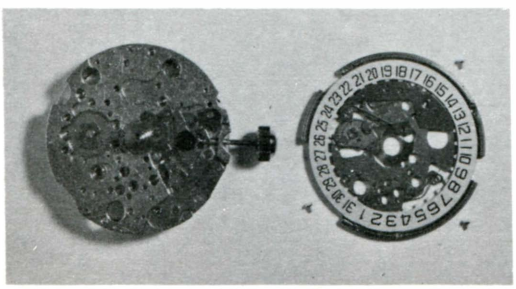
(3) Oil date jumper axle with Synt-V-Lube and set date jumper.

(4) Oil the contact portions of date jumper and the date dial teeth, the spring tip and the plate with Synt-V-Lube.

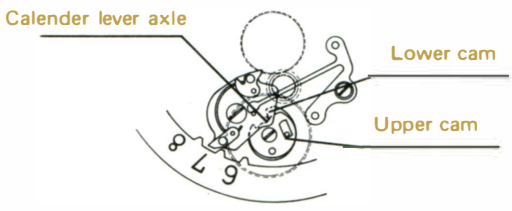
(5) Set date jumper guard and tighten the screw.

(6) Set date corrector guard and tighten the screw.
Remarks:
Turn the hands and check the date dial operation.

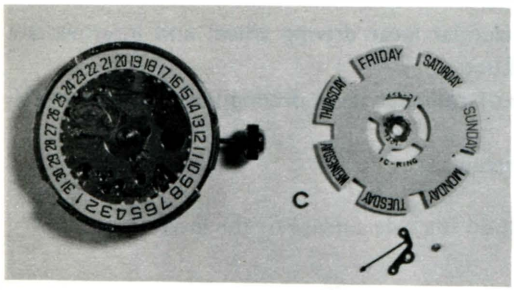
3. Calendar block



(1) Assembly calendar block and tighten the 3 screws.
Remarks:
The calendar lever axle should not ride on the upper or lower cam.

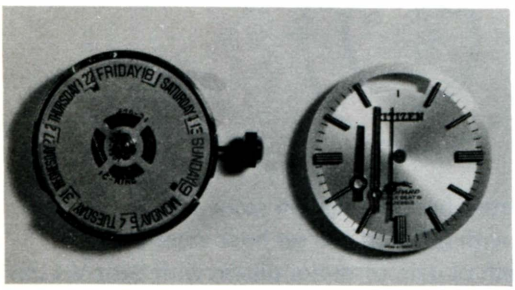


4. Calendar lever spring, Day dial



(1) Set calendar lever spring and tighten the screw.
(2) Set day dial and attach day dial gib.
Remarks:
The day dial gib is set to the hour wheel and pushed in with tweezers.
Turn the hands and check the day dial operation.

5. Dial, Hands



(1) Attach the dial and tighten the screw.
Remarks:
Tighten the screws strongly while pressing down the dial so it will not rise.
(2) Attach hour, minute and second hands.
Remarks:
Attach the hands so the day and date will change at 12:00 midnight.
Check the hands clearance.

9. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.

1. SPECIFICATIONS

Cal. No.	Size (mmϕ)	Thick-ness (mm)	Vibrations per hour	Center second	Alarm mechanism	Date mechanism	Out-of-beat correcting device
310*	27.0	6.73	18,000	o	o	o	o (Cal. No. 3102 only)
981*	〃	5.70	〃	o	o	x	o (Cal. No. 9812 only)

2. HANDLING PROCEDURES

How to set the date and the alarm.

1 Date setting

Pull out the crown and change the date by a reciprocating motion between 9:00 p.m. and 0:30 a.m. (Cal. No. 310*).

2. How to set the alarm

- Wind the mainspring with the alarm crown. When the crown is pulled out and the alarm hand is set to the desired time, the alarm starts to ring at the set time.

Note: The alarm hand should be set after date and time settings have been performed.

- The alarm stops when the crown is pushed in.

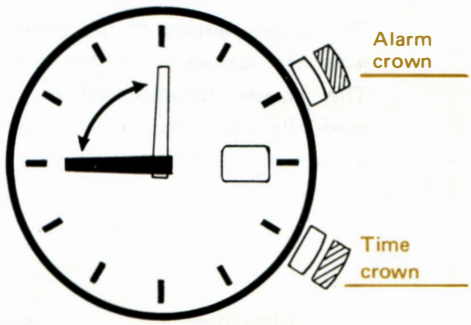


Fig. 1

3. STRUCTURE AND OPERATIONS

3-1. Hand rotating mechanism

Time indication and mainspring winding mechanism are the same as in standardized type watches such as the 02 series, etc.

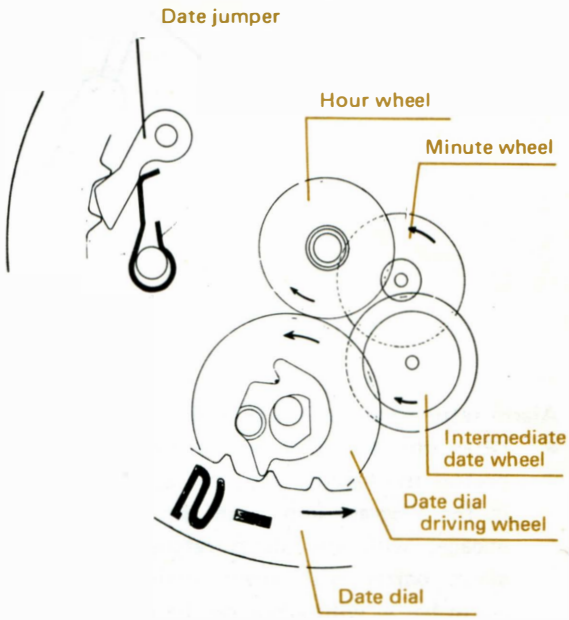


Fig. 2

3-2. Date mechanism

The transmitting process of the power that drive the date dial are as follows:

Hour wheel ▶ Minute wheel and pinion ▶ Intermediate date wheel ▶ Date dial driving wheel ▶ Date dial

3-3. Alarm mechanism

1 Power mechanism

The power device of the time and alarm mechanisms are arranged on the dial side train wheels. The power accumulated in the alarm barrel is gradually conveyed by the alarm escape wheel to vibrate the alarm hammer. (Fig. 3)

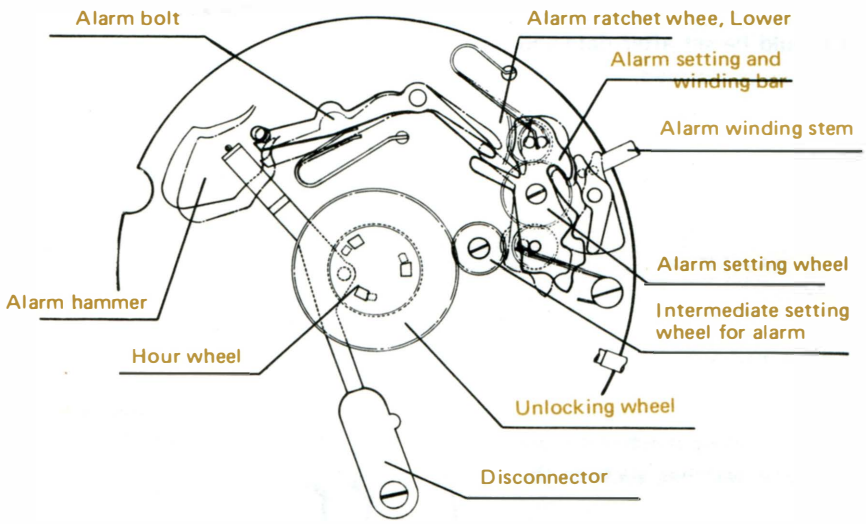


Fig. 3

2 Alarm setting mechanism (Fig. 4)

- When the alarm crown is pushed in, the alarm bolt presses the hammer stop pin as shown by the solid line in the diagram and stops the vibration and as the it engages with the alarm ratchet wheel, lower of the alarm barrel with arbor, mainspring winding of the alarm barrel with arbor can be performed.

- When the alarm crown is pulled out, it becomes as shown by the dotted lines the alarm bolt is released and through the connection with the unlocking wheel by means of the alarm setting wheel, alarm setting connection wheel and the intermediate setting wheel for alarm, the alarm band can be rotated.
- On the other hand, the disconnector is pushed against the plate side by the unlocking wheel and the hour wheel and stops the vibration by holding the starting pin of the hammer.
  However, when the hour wheel rotates and the contact points (3 places) of the hour wheel enter into the unlocking wheel holes (3 places), the hammer starting pin disengages from the starting lever.
- The hammer vibration starts when the alarm bolt and the disconnector simultaneously disengages from the two pins on the hammer.

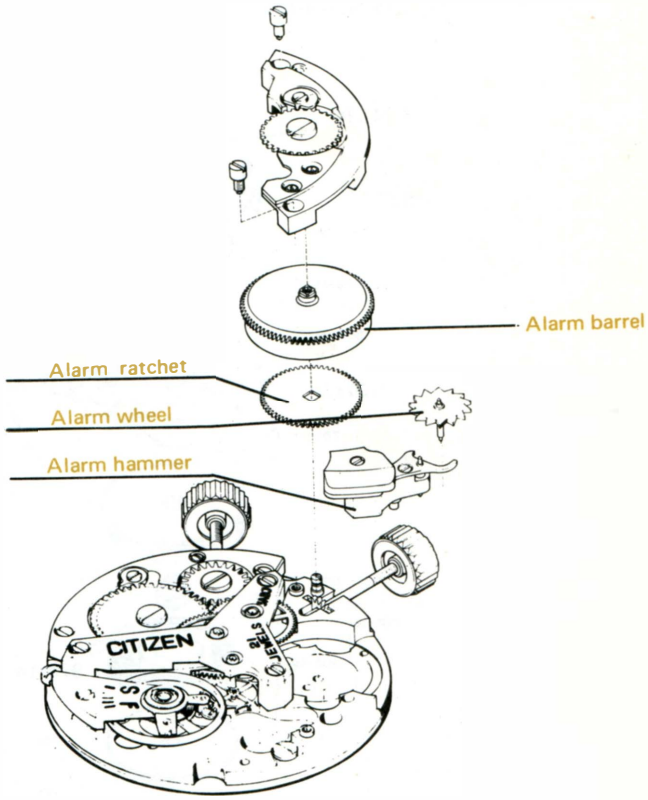


Fig. 4

3-4. Structure (Exploded view and parts neme)

Bridge side

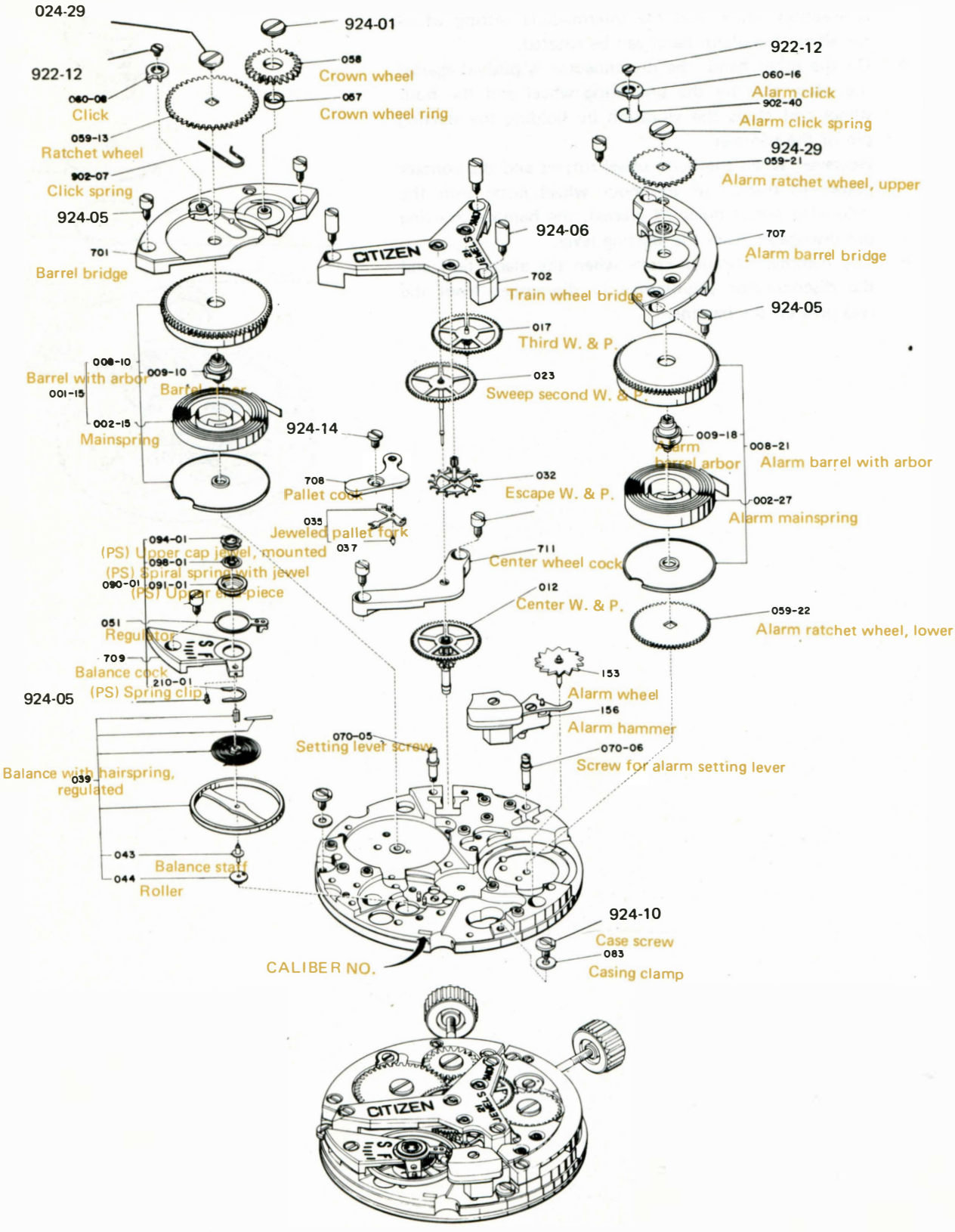


Fig. 5

3-4. Structure (Exploded view and parts name)

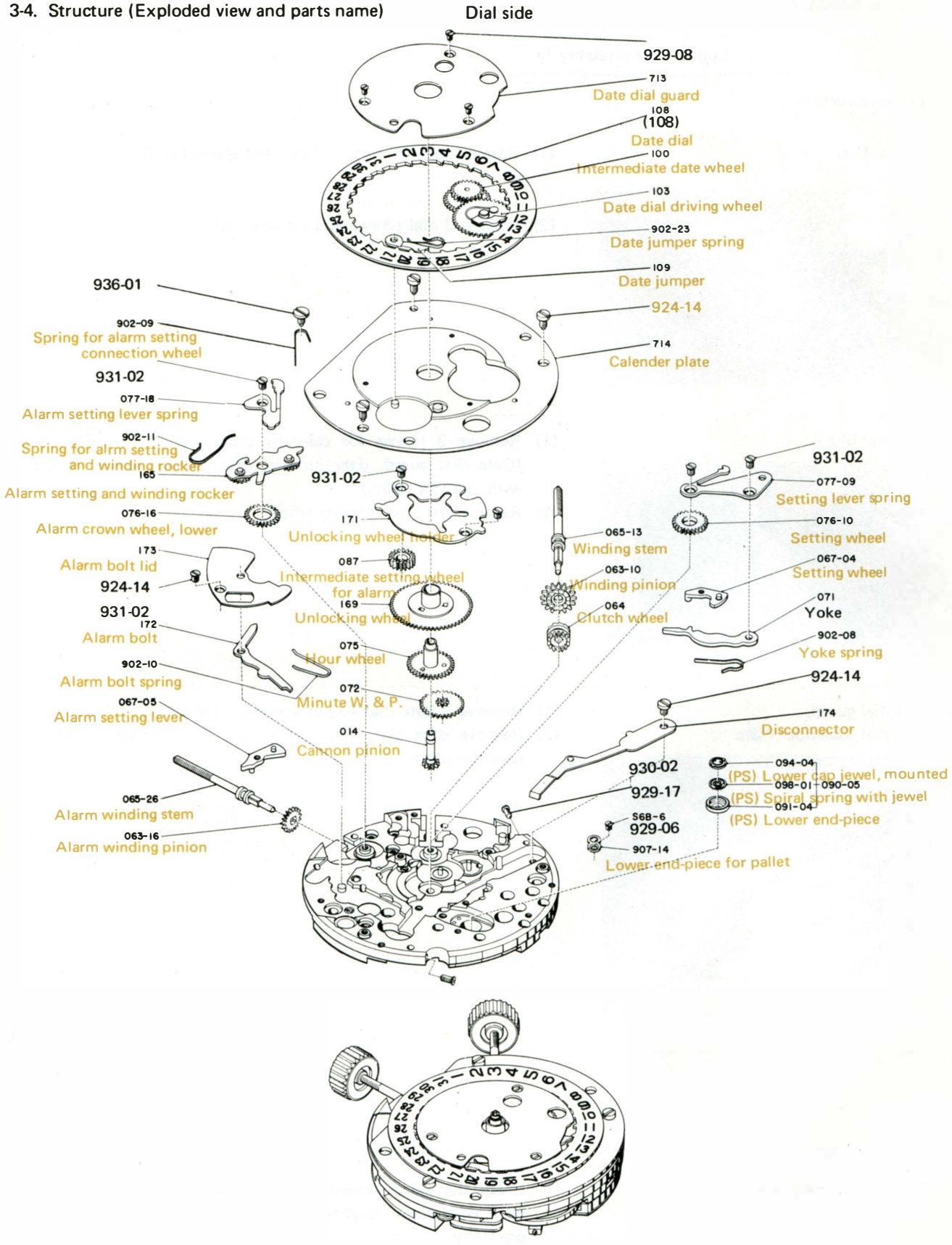


Fig. 6

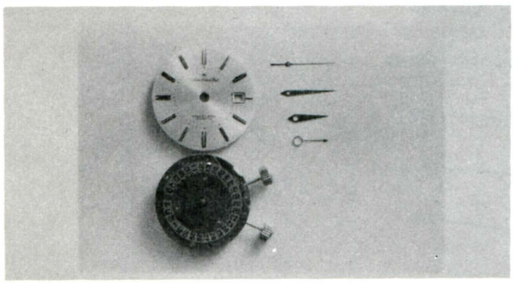
- For parts with more than 2 parts numbers, please refer to the PARTS CATALOG.

4. DISASSEMBLY

Contents of disassembly

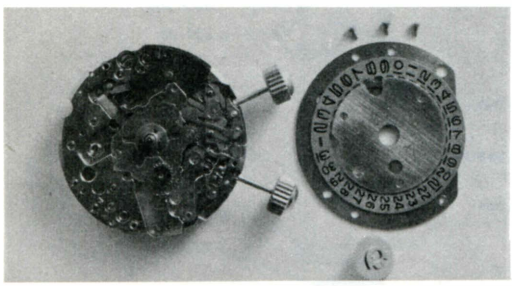
4-1. Date mechanism

1. Hands, Dial



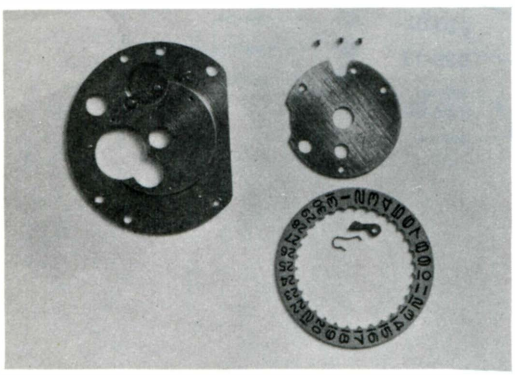
(1) Remove second, minute hour and alarm hands.
Remarks:
Be careful not to deform the alarm hand.
(2) Loosen 2 dial screws and remove dial.

2. Calendar block



(1) Remove 3 screws for calendar plate and the calendar block (Date dial guard, date jumper, date jumper spring, date dial with calendar plate).
(2) Remove date dial driving wheel.

3. Date dial guard,
Date dial, Calendar Plate



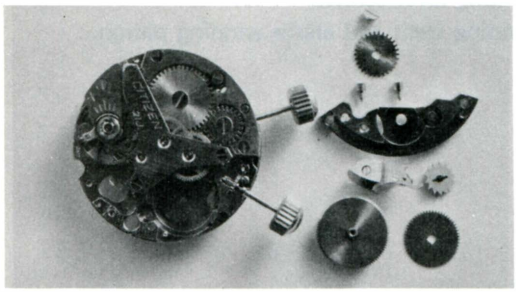
(1) Remove 3 date dial screws and date dial guard.
(2) Remove date dial, date jumper and date jumper spring from calendar plate.
Remarks:
Be careful not to let the date jumper spring fly.

4-2. Alarm mechanism

1. Alarm mainspring unwinding

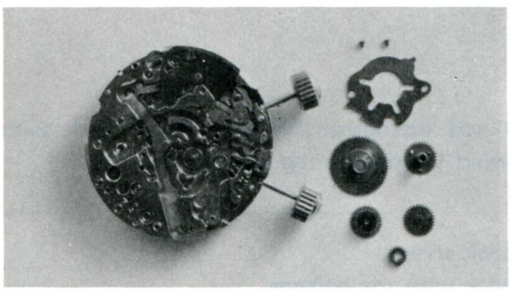
(1) Grasp the alarm crown and disengage the meshing of alarm click with alarm ratchet wheel, upper, unwind the mainspring gradually.
Remarks:
The mainspring may be unwound by activating the hammer.

2. Alarm barrel bridge



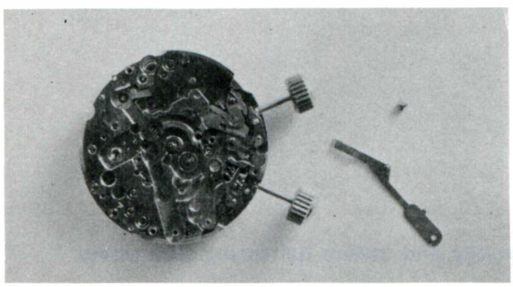
(1) Remove alarm ratchet wheel screw (left hand) and ratchet wheel, upper.
Remarks:
Do not remove the alarm click.
(2) Remove 2 alarm barrel bridge screws and alarm barrel bridge.
(3) Remove hammer, alarm wheel and alarm ratchet wheel, lower.

3. Unlocking wheel holder



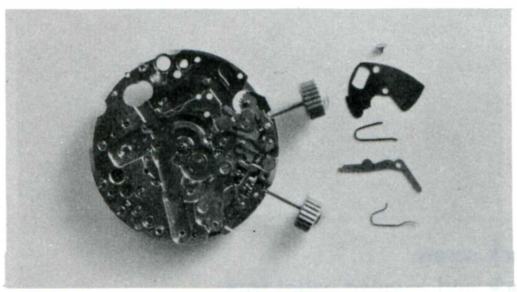
(1) Remove 2 screws for the unlocking wheel holder.
(2) Grasp unlocking wheel and remove the unlocking wheel, unlocking wheel holder and the intermediate date wheel at the same time.
Remarks:
For Cal. No. 981*, remove unlocking wheel holder and unlocking wheel.
(3) Remove hour wheel.
(4) Remove minute wheel and intermediate setting wheel for alarm.

4. Starting lever



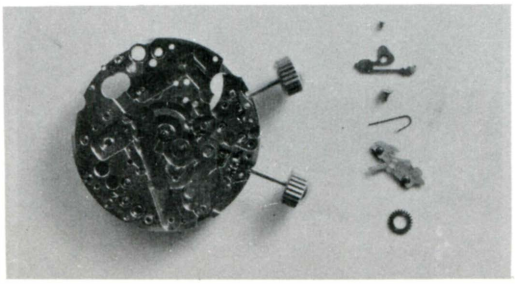
(1) Remove disconnector screw and disconnector.

5. Alarm bolt lid



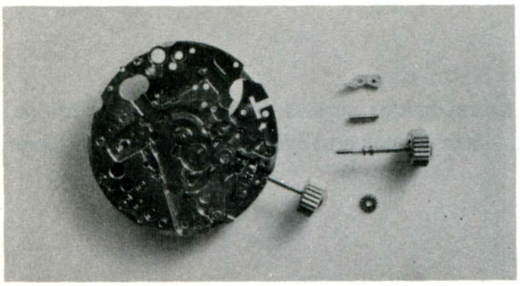
(1) Remove screw for alarm bolt lid and alarm bolt lid.
(2) Remove alarm bolt spring and alarm bolt.
Remarks:
Be careful not to let the spring fly.
(3) Remove spring for alarm setting and winding rocker.

6. Alarm setting and winding rocker



(1) Remove screw for spring of alarm setting connection wheel and spring for alarm setting connection wheel.
(2) Remove screw for alarm setting lever spring and alarm setting lever spring.
(3) Remove alarm setting and winding rocker and alarm crown wheel, lower.

7. Alarm winding stem



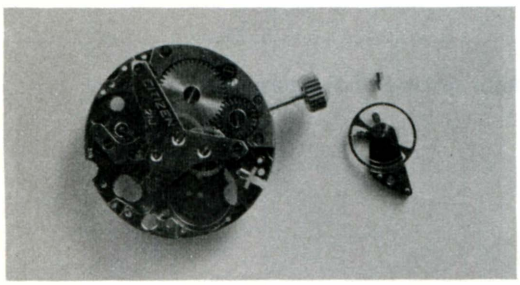
(1) Loosen alarm setting lever screw and remove alarm setting lever and alarm setting lever screw.
(2) Remove alarm winding stem and alarm winding pinion.

4-3. Movement

1. Mainspring unwinding

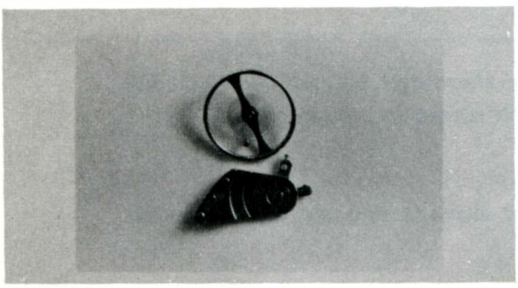
(1) Grasp the crown and disengage the meshing of click with ratchet wheel, unwind the mainspring gradually.

2. Balance cock



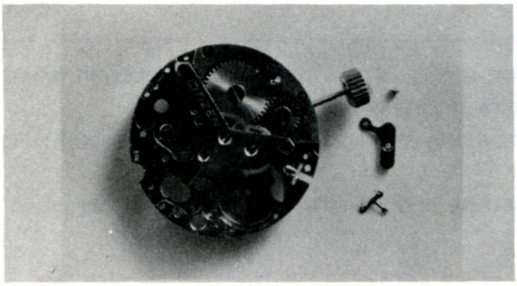
(1) Remove balance cock screw.
(2) Remove balance cock with the balance.

3. Balance



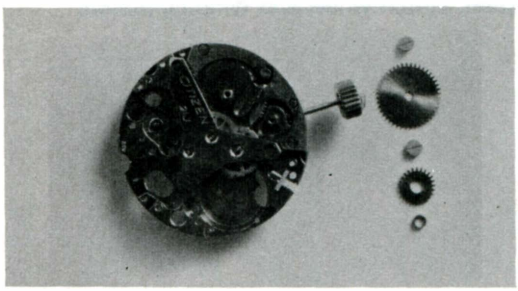
(1) Turn the regulator key and loosen hairspring stud screw.
(2) Remove balance.

4. Jeweled pallet fork



(1) Remove pallet cock screw.
(2) Remove pallet cock and jeweled pallet fork.

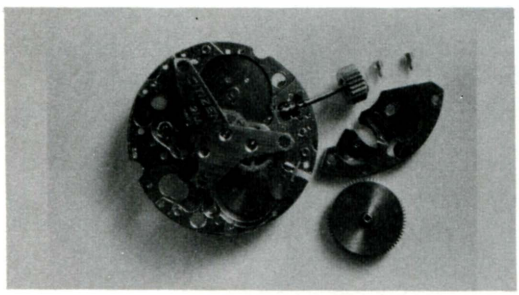
5. Ratchet wheel, Crown wheel



(1) Remove ratchet wheel screw (left hand) and ratchet wheel.
(2) Remove crown wheel screw (left hand) and crown wheel and crown wheel ring.

Remarks:
Do not remove the click and the click spring.

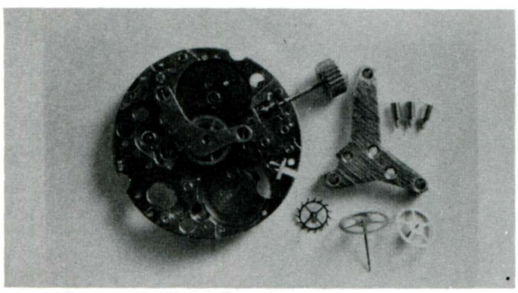
6. Barrel bridge



(1) Remove 2 barrel bridge screws and barrel bridge.
(2) Remove the barrel.

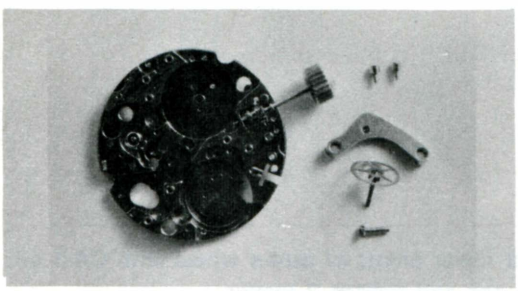
Remarks:
Remove the barrel without touching it against the center wheel teeth.

7. Train wheel bridge



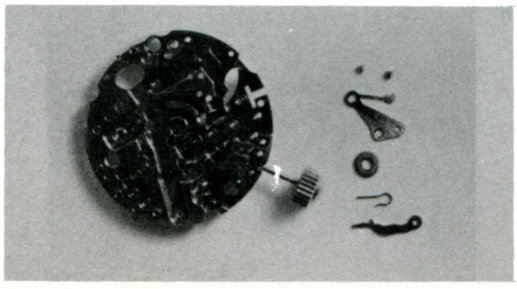
(1) Remove 3 screws for train wheel bridge and train wheel bridge.
(2) Remove escape wheel, fourth wheel and third wheel.

8. Crown wheel bridge



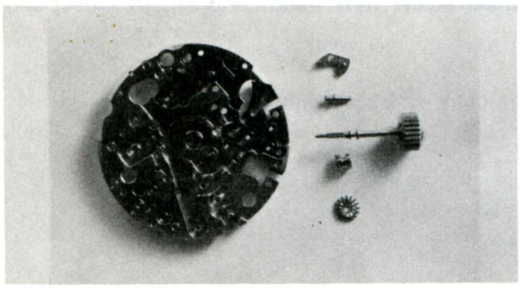
(1) Remove cannon pinion.
(2) Remove 2 screws for center wheel cock and center wheel cock and center wheel.

9. Setting lever spring



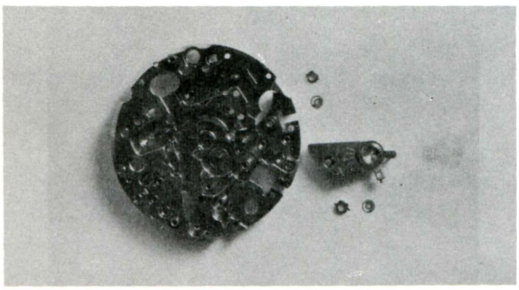
(1) Remove 2 screws for setting lever spring.
(2) Remove setting lever spring and setting wheel.
(3) Remove yoke spring and yoke.

10. Winding stem



(1) Loosen setting lever screw and setting lever.
(2) Remove winding stem, clutch wheel and winding pinion.

11. Parashock



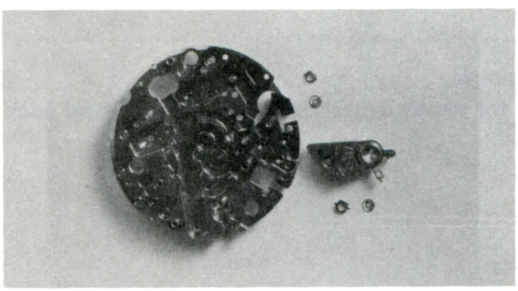
(1) Remove Parashock cap jewel, mounted and Parashock spiral spring upper and lower.
Remarks:
Refer to "PARASHOCK" in the common item.

5. ASSEMBLY

Contents of assembly

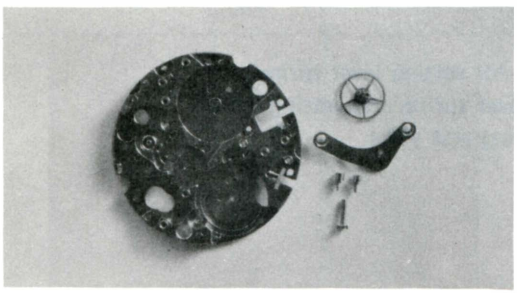
5-1. Movement

1. Parashock



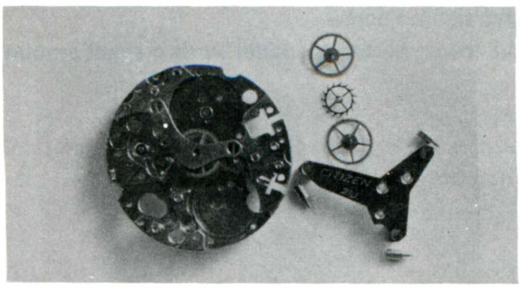
(1) Set Parashock spiral spring into the plate and balance cock.
(2) Oil Parashock cap jewel, mounted with Synt-V-Lube and set in position.
Remarks:
Refer to "PARASHOCK" in the common item.

2. Center wheel cock



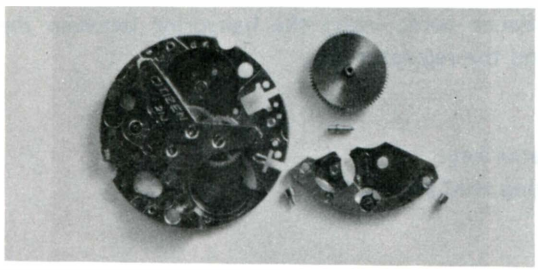
(1) Oil the upper and lower pivots of center wheel with CA-1 oil.
(2) Set center wheel cock and tighten 2 screws.
(3) Oil the bearing portion of center wheel with cannon pinion with CA-1 oil.
(4) Push cannon pinion in.

3. Train wheel bridge



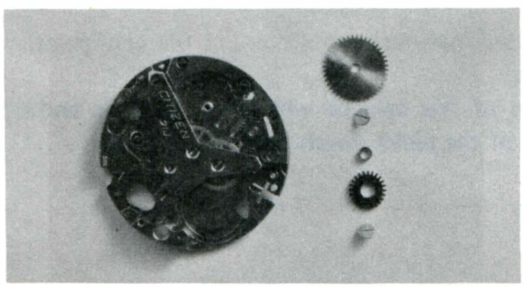
(1) Set third wheel and escape wheel.
(2) Oil the lower pivot of fourth wheel in 2 places with CA-1 oil and set.
(3) Set train wheel bridge and tighten 3 screws.
(4) Oil the upper pivot of third, fourth and escape wheels and lower pivot of third and escape wheels with Synt-A-Lube.

4. Barrel bridge



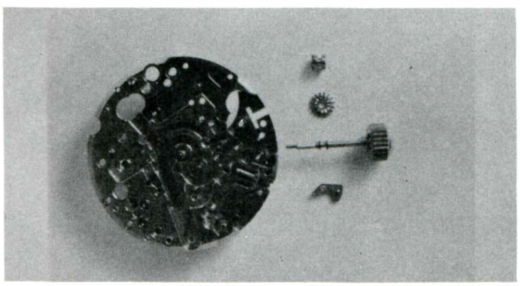
(1) Oil the barrel and set.
Remarks:
Oil the bearing portion of barrel and arbor and the upper and lower pivots of the barrel arbor with CA-1 oil.
When the barrel arbor is disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING" in the common item.
(2) Set setting lever screws.
(3) Set barrel bridge and tighten 2 screws.

5. Crown wheel, Ratchet wheel



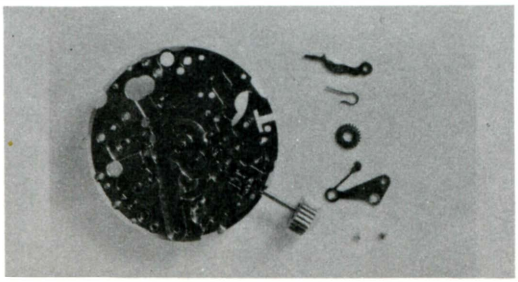
(1) Set crown wheel ring and oil its perimeter with Synt-V-Lube.
(2) Set crown wheel and its screw (left hand).
(3) Set ratchet wheel and tighten screw (left hand).

6. Winding stem



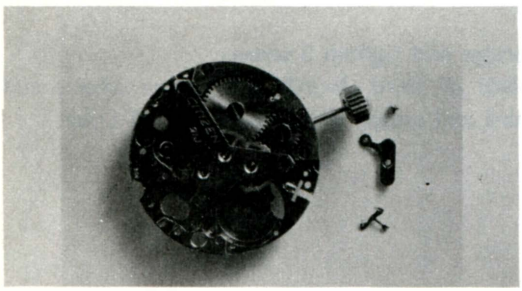
(1) Set clutch wheel and winding pinion.
(2) Oil winding stem with Synt-V-Lube oil and push into the plate.
(3) Oil the contact portions of clutch wheel with yoke and clutch wheel with winding pinion with Synt-V-Lube.
(4) Oil the fitting portion of the setting lever screw with the plate with Synt-V-Lube.
(5) Set setting lever and tighten screw.

7. Setting lever spring



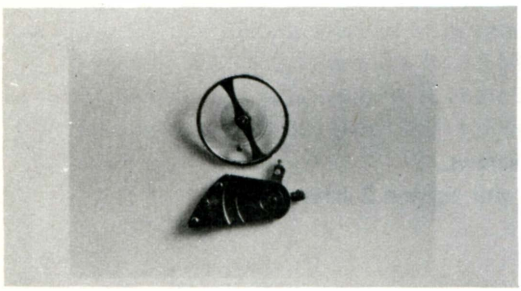
(1) Oil yoke axle and setting wheel axle Synt-V-Lube.
(2) Set yoke and yoke spring.
(3) Oil the touching portion of setting lever with yoke and setting lever spring contacting pin of setting lever with Synt-V-Lube.
(4) Set setting wheel.
(5) Set setting lever spring and tighten 2 screws.
Remarks:
Wind the mainspring a little and check whether the train wheels rotate smoothly.

8. Jeweled pallet fork



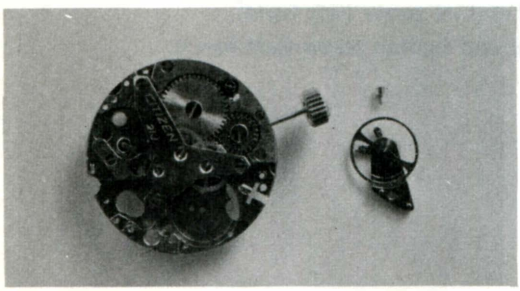
(1) Set jeweled pallet fork.
(2) Set pallet cock and tighten screw.
(3) Oil the upper and lower pivots of pallet with a small amount of Synt-A-Lube.
Remarks:
Wind the mainspring a little (Turn the crown 2 to 3 time) and check the pallet operation.

9. Balance



(1) While inserting the hairspring stud into the hairspring stud hole of the balance cock, insert the hairspring between the regulator pin and the regulator key.
Remarks:
Be careful not to deform the harispring configuration.
(2) Turn the regulator key.
(3) Tighten hairspring stud screws.

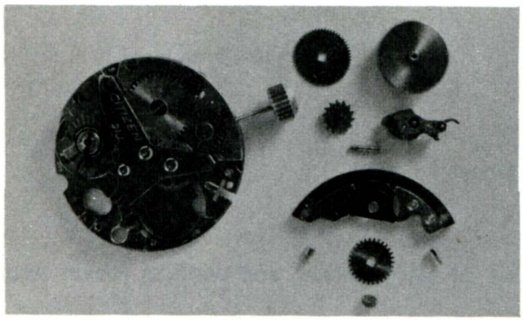
10. Balance cock



(1) Set balance cock with the balance cock and tighten the screw.
Remarks:
Carefully check the balance end shake and the configuration of the hairspring.
(2) Stop the motion of the balance with your fingertip and oil the impulse face of the pallet jewels with Synt-A-Lube.
Remarks:
Advance the escape wheel by 7 or 8 teeth and oil again.

5-2. Alarm mechanism

1. Alarm barrel bridge



(1) Oil the alarm barrel.
Remarks:
Oil the bearing portion of barrel with arbor and upper and lower pivots of barrel arbor with CA-1 oil.
When the barrel is disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING" in the common item.
(2) Set alarm ratchet wheel, lower to the alarm barrel arbor and set them into the plate.
(3) Set alarm wheel and hammer.
(4) Assemble alarm setting lever screw.
(5) Set alarm barrel bridge and tighten 2 screws.
(6) Set alarm ratchet wheel, upper and tighten screw (left hand).
(7) Oil alarm wheel, upper and lower pivots of hammer and the meshing portion of the alarm wheel and the alarm hammer with Synt-V-Lube.

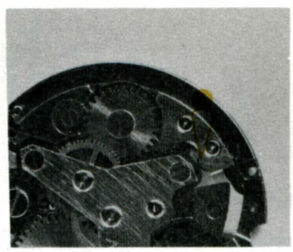
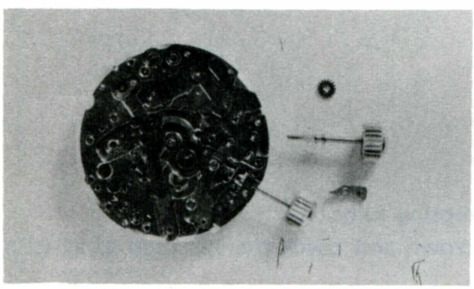


Fig. 7

2. Alarm winding stem



(1) Oil the alarm bolt axle of the plate with Synt-V-Lube.
(2) Set alarm bolt and alarm bolt spring.

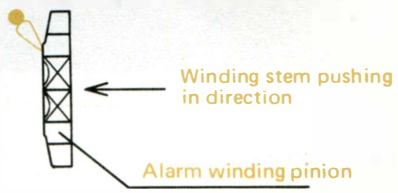
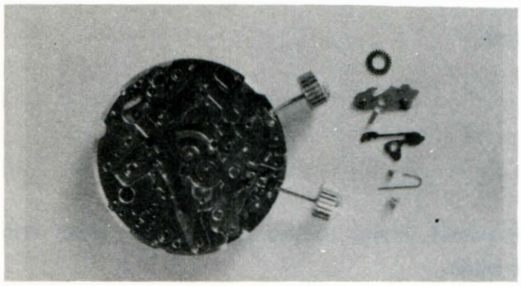


Fig. 8

(3) Set spring for alarm setting and winding rocker.
(4) Set alarm bolt lid and tighten screw.

3. Alarm setting and winding rocker



(1) Oil the axle of alarm setting and winding rocker with Synt-V-Lube. (Fig. 9)

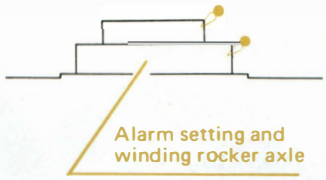


Fig. 9

(2) Set alarm setting wheel.

Remarks:

The glossy side is its bottom.

(3) Oil the wheel axle of alarm setting and winding rocker with Synt-V-Lube.

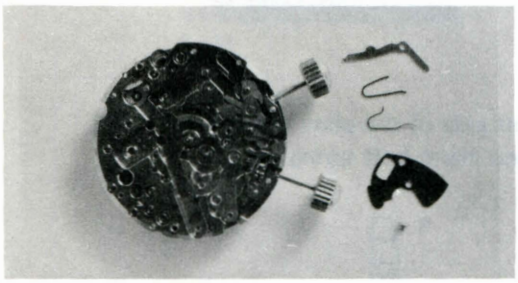
(4) Set alarm setting and winding rocker.

(5) Set alarm setting lever spring and tighten screw.

(6) Oil the contact portion of alarm setting lever and alarm setting lever spring with Synt-V-Lube.

(7) Set spring for alarm setting connection wheel and tighten screw.

4. Alarm bolt lid



(1) Oil the alarm bolt axle of the plate with Synt-V-Lube.

(2) Set alarm bolt and alarm bolt spring.

(3) Set spring for alarm setting and winding rocker.

(4) Set alarm bolt lid and tighten screw.

5. Operation checking

(1) Wind the alarm mainspring fully.

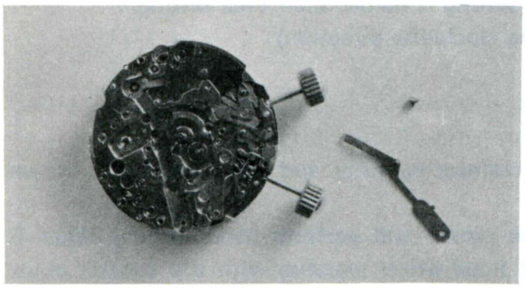
(2) Pull out the alarm crown and check the vibration (ringing) of the hammer.

Remarks:

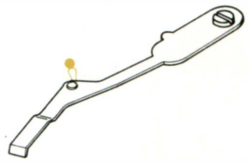
The vibrating time is about 15 seconds. When placed in the case, it is about 10 seconds.

(3) Wind the mainspring again and pull out the crown. When the crown is pushed in while the hammer is working, check that the hammer vibration stops.

6. Disconnector



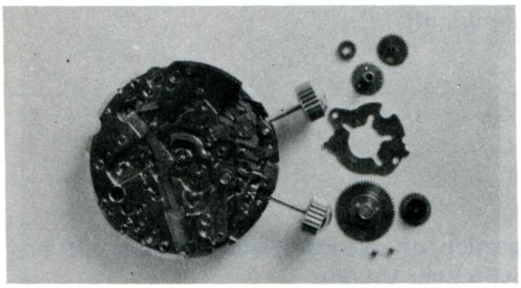
(1) Set disconnector and tighten screw.
(2) Oil the contacts of disconnector with Synt-V-Lube. (Fig. 10)



Disconnector

Fig. 10

7. Unlocking wheel holder



(1) Oil the intermediate setting wheel axle for alarm and the minute wheel axle on the plate with Synt-V-Lube.
(2) Set intermediate setting wheel for alarm and minute wheel.
(3) Oil 3 contacts of hour wheel with Synt-V-Lube and set hour wheel (Fig. 11).

Remarks:
The hour wheel is slightly raised from the disconnector spring.

Hour wheel Fig. 11

(4) Oil the guide surface for unlocking wheel and the intermediate date wheel axle on the plate with Synt-V-Lube. (Fig. 12)

Fig. 12

(5) Oil the guide surface for unlocking wheel holder and fitting portion of unlocking wheel with unlocking wheel holder with Synt-V-Lube. (Fig. 13, 14)

Fig. 13

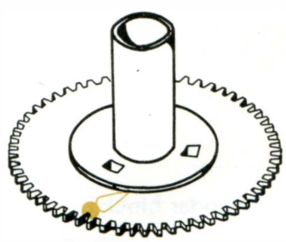


Fig. 14

(6) After matching unlocking wheel holder to unlocking wheel, grasp the unlocking wheel and insert the cut portion on the outer permeter of unlocking wheel holder between upper and lower toothed wheels of intermeditae date wheel.
(7) With the 3 parts as a set, assemble to the designated palces on the plate.
(8) While pushing unlocking wheel holder lightly with your finger, pull out time crown and alarm crown and perform hand turning and alarm hand turning. After checking the meshings of each wheel, tighten 2 screws for unlocking wheel holder.

8. Operation checking

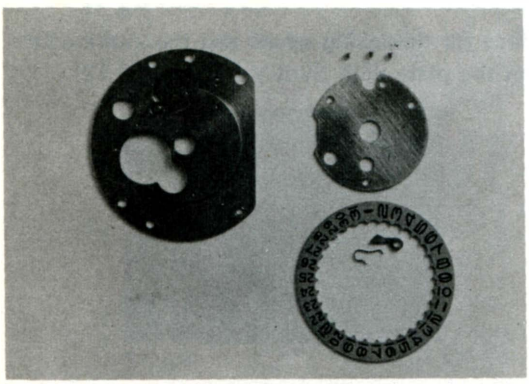
(1) Pull out the alarm crown and perform alarm setting and then check that alarm setting is harder than time setting.
(Turns only in the clockwise direction)
Remarks:
In case the hammer vibrates when the alarm crown is pulled out, turn the alarm hand till the vibration stops.

(2) Wind the alarm mainspring fully and leave the alarm crown pulled out.

(3) Pull out the time crown and perform hand turning. When 3 contact points of hour wheel matches with the contact point escape hole of unlocking wheel (The hour wheel piles on the unlocking wheel by the disconnector), check that the hammer vibrates and that it stops vibration when the position of hour wheel contact point are off.

5-3. Date mechanism

1. Calendar plate, Date dial, Date dial guard



(1) Oil the contact portion of calendar plate with date dial and date jumper axle with Synt-V-Lube.
Remarks:
On the date dial fitting portion, oil a small amount.

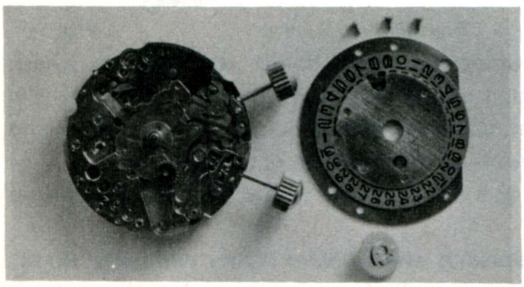
(2) Set date dial and date jumper.

(3) Set date jumper spring.
Remarks:
Set pressing the spring with your finger not to let it fly.

Fig. 15

(4) Set date dial guard and tighten 3 screws.

2. Calendar block

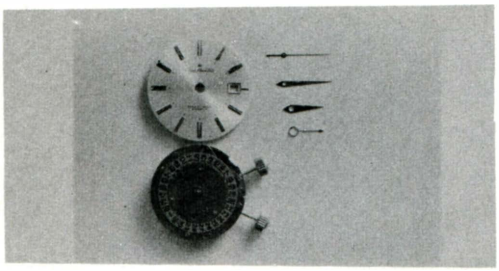


(1) Oil date dial driving wheel hole of the plate with Synt-V-Lube.

(2) Set date dial driving wheel.

(3) Set calendar block to the movement and tighten 3 screws.
Remarks:
Turn the hands and check the date dial operation.
When it suddenly becomes hard during reverse hand turning (The unlocking wheel turns together), perform alarm hand turning to shift the position of the unlocking wheel. Then, perform reverse turning again.

3. Hands, Dial



(1) Attach dial and tighten 2 screws.

(2) Turn the hands with the time crown (When the date starts moving, turn slowly) and stop at the moment the date changes.
Next, wind the alarm mainspring (About one rotation of ratchet wheel), pull out the crown and slowly turn the alarm. At the moment the hammer vibrates, stop turning the alarm and attach alarm hand and time hand to 12:00 o'clock position.
Remarks:
When the hammer vibrates at the same time the crown is pulled, turn the alarm hand until vibration stops.

(3) Attach hour and minute and second hands
Remarks:
Check the hands clearance.

4. Operation checking

(1) Turn the hands and check that the date changes at 12:00 midnight.
Remarks:
Please avoid reverse rotation when alarm hand and hour hand is together.

(2) Wind the alarm mainspring fully and have the alarm hand set at 3, 6, 9 and 12 o'clock, respectively. Check that the hammer vibrates at these set times when the hour hand is gradually turned.
Remarks:
In proper working condition when the vibration starting time differs about ±5 minutes against the set time.

6. TROUBLE SHOOTING

Refer to "TROUBLE SHOOTING CHART FOR WATCH MOVEMENT" in the common item.