MOVEMENTS FOR LADIES'

INDEX NO.

01※※, 23※※,51※※,53※※,

1. SPECIFICATIONS

Cal No.	Size (mm)	Thickness (mm)	Vibrations per hour	Center second	Without second hand	Date mechanism	Quick date setting
011*	15.3 x 17.8	3.5	18,000	X	0	X	X
013*	"	"	"	X	0	X	X
014*	"	"	"	X	0	X	X
015*	"	"	"	X	0	X	X
0170	"	"	"	X	0	X	X
230*	"	4.5	"	0	X	X	X
2320	"	4.54	"	0	X	X	X
510*	"	4.3	"	X	0	0	X
5110	"	4.35	"	X	0	0	0
530*	"	5.3	"	0	X	0	X
531* 532*	"	5.35	"	0	X	0	0

The Parashock (Shockproofing device) is employed on all calibers, while the Profix (Oil preservation device) is employed on Cal. No. 532*-21 jewels.

2. HANDLING PROCEDURES

- The crown of watches for Cal. No. 531*, 532* and 511* can be pulled out to two stop positions, B and C. Mainspring winding, time setting and date setting are performed as show in Fig. 1.
- Date setting

  Perform date setting by the reciprocating motion of the crown between positions B and C. You should note that the date may not change on the following day when quick date corrections are performed within the range of 7:30 p.m. and 0:00 a.m. (midnight). Therefore, date settings should be performed by turning the hands beyond this time range.

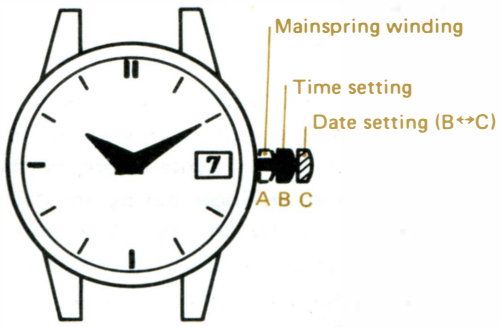


Fig. 1

3. STRUCTURE AND OPERATIONS

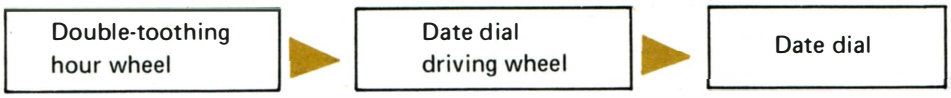
3-1. Movement

The basic movement is of a standardized center second type.

3-2. Bridge side mechanism

(1) Date mechanism

The power transmittance process of the date mechanism are shown as bolow.



(2) Quick date setting mechanism

- Mechanism (I) (Cal. No. 511*, 531 *)

When the crown is pulled out further from the time setting position B, the intermediate date corrector which is set in position by the 2 pins of the setting lever moves the date corrector and this moves the semi-circular shaped boss to forward the date dial.

When the finger on the crown is released, the date corrector is returned by the date corrector spring, and the setting lever is also returned to the time setting position B by the pressure spring for setting lever. (Fig. 2)

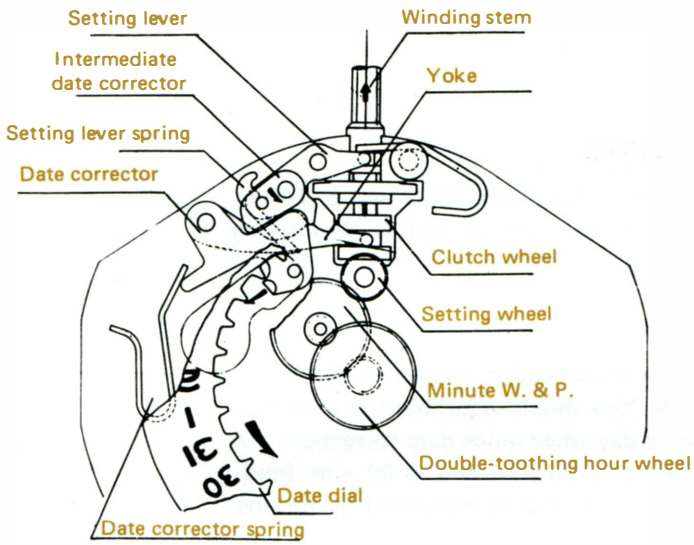


Fig. 2

- Mechanism (II) (Cal. No. 532)

When the crown is pulled out further from the time setting position B, the date corrector through the movement of the setting lever pin rotates a fixed degree (Until it hits against the stopper axle of the date corrector which is positioned on the setting lever spring) centered around the yoke axle. The date corrector finger being pushed against the date corrector finger pin by the date corrector spring hits against the date dial tooth and forwards the date dial by one day. When the finger is released from the crown, the date corrector and the setting lever are returned to the time setting position B by the power of the date corrector and pressure spring for setting lever. (Fig. 3)

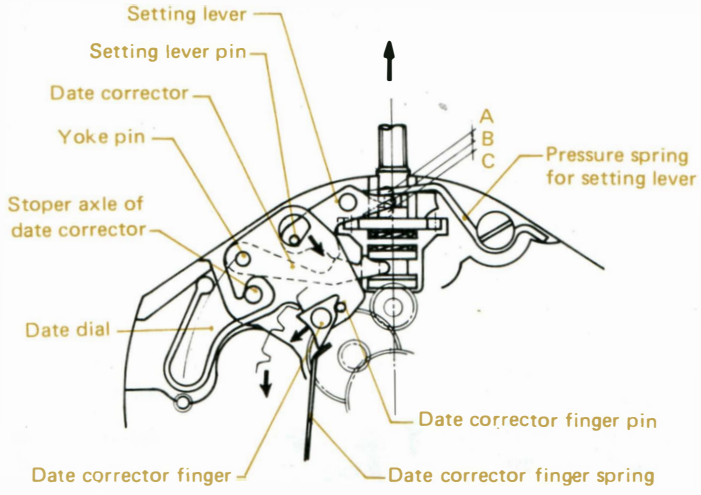

Setting lever
Setting lever pin
Date corrector
Yoke pin
Stoper axle of
date corrector
Date dial
A
B
C
Pressure spring
for setting lever
Date corrector finger pin
Date corrector finger
Date corrector finger spring

Fig. 3

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

Bridge side

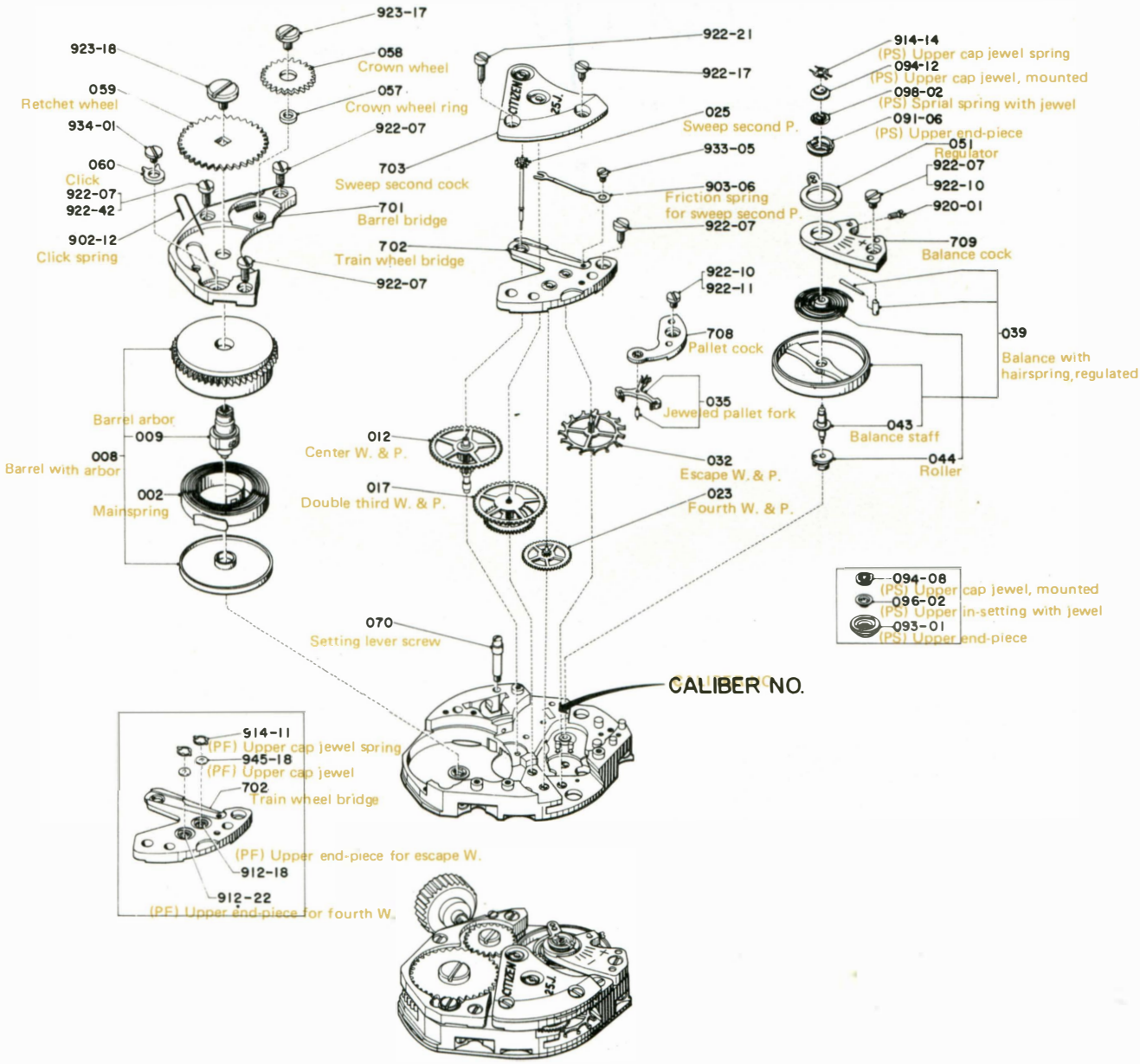


Fig. 4

- Please refer to the PARTS CATALOG as for parts with more than 2 parts numbers.

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

Dial side

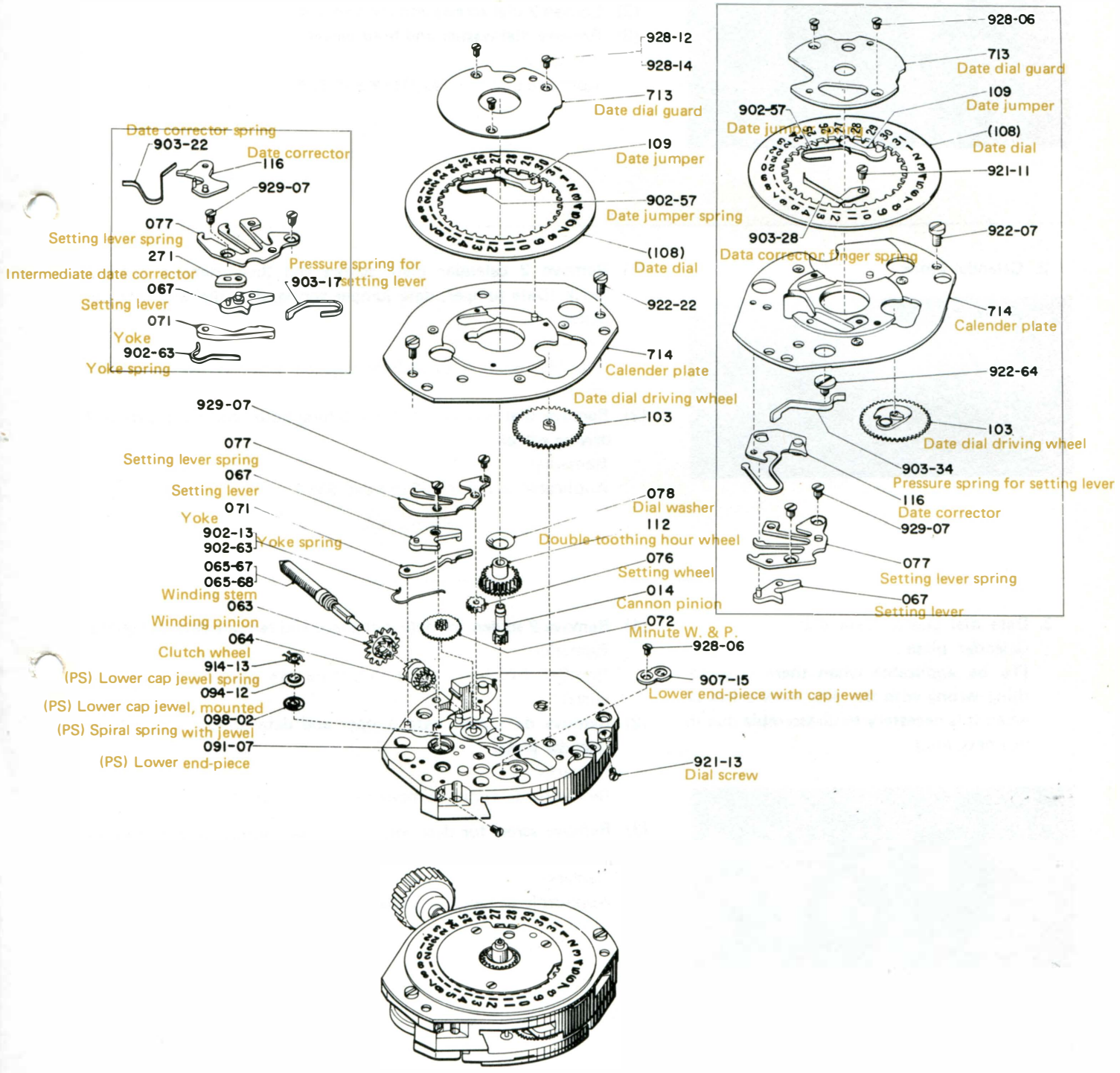


Fig. 5

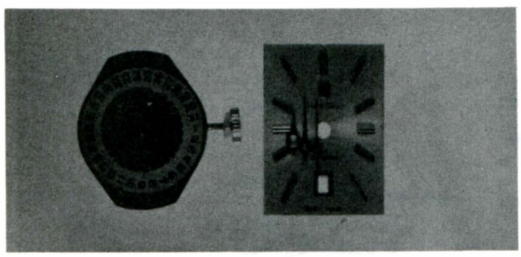
- Please refer to the PARTS CATALOG as for parts with more than 2 parts numbers.

4. DISASSEMBLY

Contents of disassembly

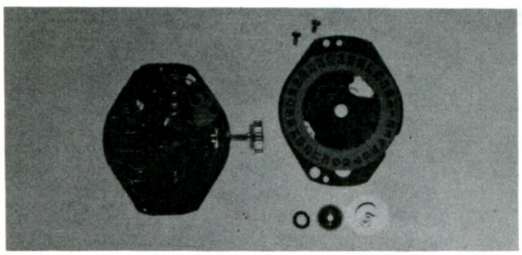
4-1. Date mechanism

1. Hands. Dial



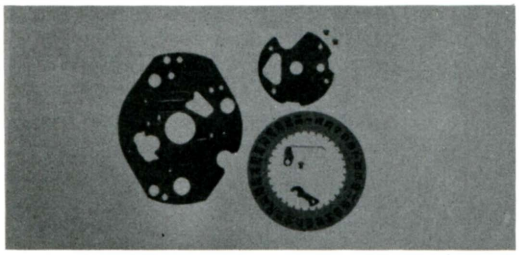
(1) Remove second, minute and hour hands.
Remarks:
For Cal. No. 51** and 01**, minute and hour hands only.
(2) Loosen 2 dial screws and remove dial.
(3) Remove dial washer and hour wheel.
Remarks:
Applicable to Cal. No. 01** and 23**.

2. Calendar block



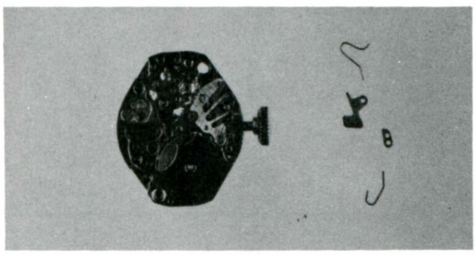
(1) Remove 2 calendar plate screws and then, remove calendar block (Date jumper, date jumper spring, date dial and calendar plate).
Remarks:
Cal. No. 5320 is to include date corrector spring in calendar block.
(2) Remove dial washer, double-toothing hour wheel and date dial driving wheel.
Remarks:
Applicable to Cal. No. 51** and 53**.

3. Date dial guard. Date dial. Calendar plate
(To be applicable when there is something wrong with the date mechanism or when it is necessary to disassemble due to dirtiness, etc.)



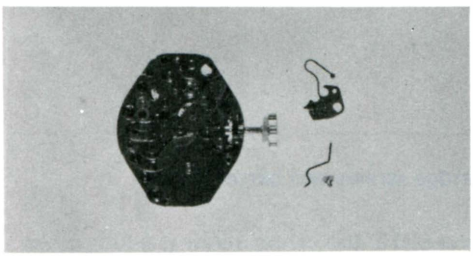
(1) Remove 2 screws for date dial guard and remove date dial guard.
Remarks:
For Cal. No. 510* and 530*, there are 3 screws for date dial guard.
(2) Remove date dial, date jumper and date jumper spring from calendar plate.
Remarks:
Be careful so as not to make the date jumper fly.
(3) Remove screw for date corrector finger spring and then, remove date corrector finger spring.
Remarks:
Applicable to Cal. No. 5320.

4. Date corrector
(Applicable to Cal. No. 510*, 511*, 530*, and 531*)



(1) Remove date corrector and intermediate date corrector.
(2) Remove date corrector spring.
(3) Remove setting lever spring.
Remarks:
Applicable to Cal. No. 5310 and 5110.

4'. Date corrector.
Setting lever spring
(Applicable to Cal. No. 5320)



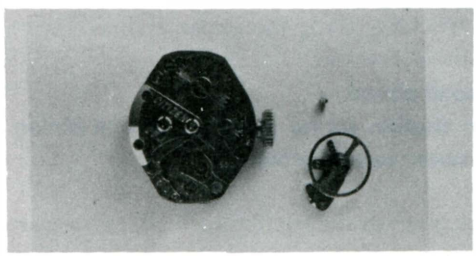
(1) Remove date corrector.
(2) Remove screw for setting lever spring and remove setting lever spring.

4-2. Movement

1. Mainspring unwinding

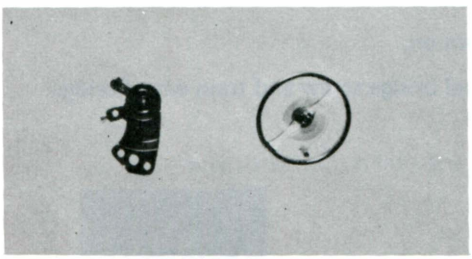
(1) Grasp the crown and disengage the meshing of the click with the rachet wheel and gradually unwind the mainspring.

2. Balance cock



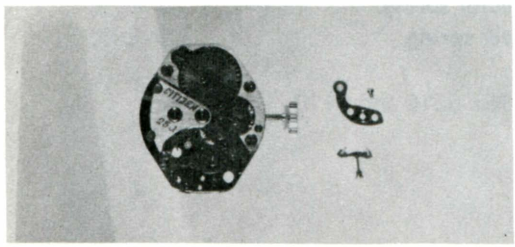
(1) Remove balance cock screw and balance cock with the balance.

3. Balance



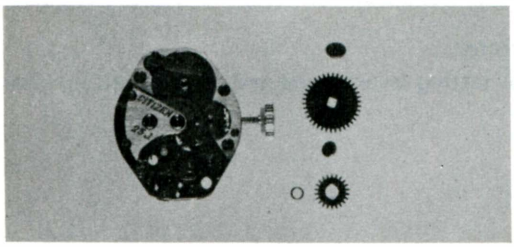
(1) Turn the regulator key and loosen hairspring stud screw.
(2) Remove the balance.

4. Jeweled pallet fork



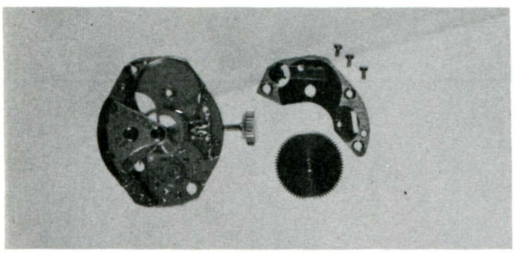
(1) Remove pallet cock screw and remove pallet cock and jeweled pallet fork.

5. Ratchet wheel. Crown wheel



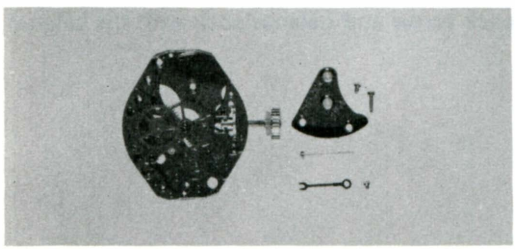
(1) Remove ratchet wheel screw and retchet wheel.
(2) Remove crown wheel screw (left hand) and then, remove crown wheel and crown wheel core.
Remarks:
The click and click spring should not be removed.

6. Barrel bridge



(1) Remove 3 barrel bridge screws and barrel bridge.
Remarks:
In Cal. No. 5110 and 5310, the center screw is a long screw.
(2) Remove barrel, complete.
Remarks:
Remove barrel, complete so it will not hit strongly against center wheel.

7. Sweep second cock

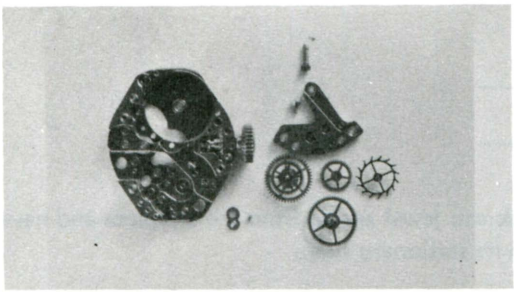


(1) Remove 2 screws for sweep second cock and sweep second cock.
Remarks:
For Cal. No. 23** (19 & 21j), the upper endpiece with cap jewel for third wheel is removed.
(2) Remove sweep second pinion.
(3) Remove screw for friction spring of sweep second pinion and friction spring for sweep second pinion.
Remarks:
Cautions should be given so the friction spring for sweep second pinion is not deformed.

8. Train wheel bridge
(Applicable for Cal. No. 53**and 01**)

(1) Remove cannon pinion.
(2) Remove train wheel bridge screw and train wheel bridge.
Remarks:
Pry up the bridge and pull out towards you.

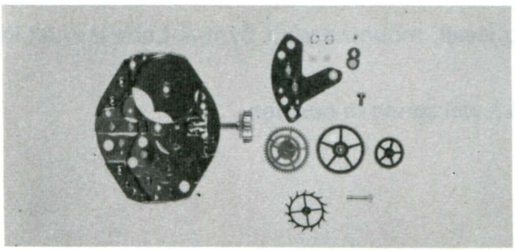
Fig. 6



(3) Remove center wheel, third wheel, fourth wheel and escape wheel.

(4) Remove Profix cap jewel spring, Profix cap jewel and end-piece with cap jewel, lower and upper.

8'. Train wheel bridge
(Applicable for Cal. No. 53**and 01**)



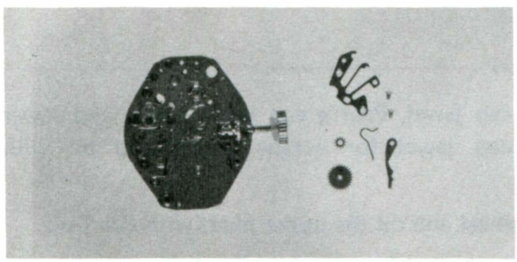
(1) Remove cannon pinion

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

(3) Remove center wheel, thrid wheel, fourth wheel and escape wheel.

(4) Remove Profix cap jewel spring and Profix cap jewel in the train wheel bridge and the plate.

9. Setting lever spring

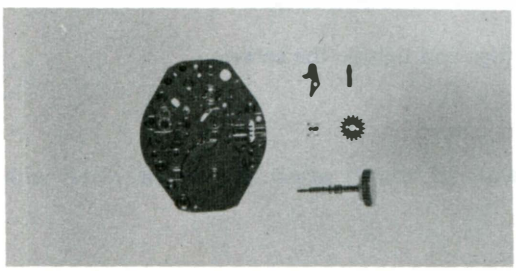


(1) Remove 2 screws for setting lever spring and setting lever spring.

(2) Remove minute wheel and setting wheel.

(3) Remove yoke spring and yoke.

10. Winding stem

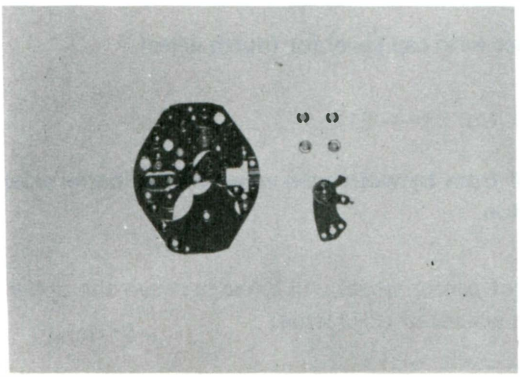


(1) Remove setting lever and setting lever axle.

Remarks:
For Cal. No. 530*, 510*, 230* and 01**, loosen setting lever screw and remove setting lever.

(2) Remove winding stem and then, remove winding pinion and clutch wheel.

11. Parashock



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

(2) Insert Parashock cap jewel spring back into the endpiece groove.

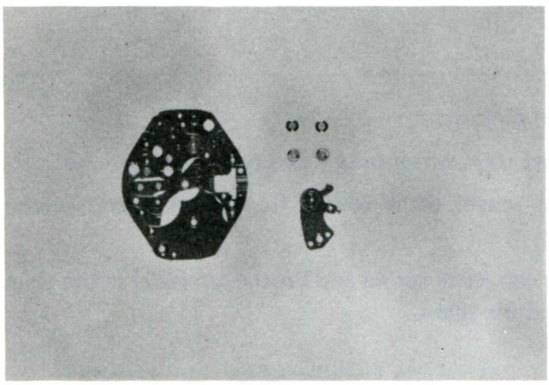
Remarks:
Refer to the items in common "PARASHOCK".

5. Assembly

Contents of assembly

5-1. Movement

1. Parashock



(1) Remove Parashock cap jewel spring from the endpiece and have it placed down on its stationary side.

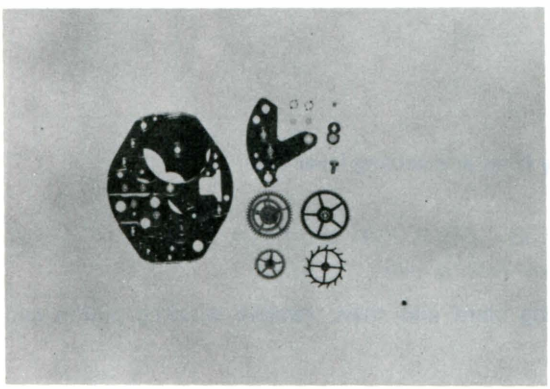
Remarks:
Refer to the items in common "PARASHOCK".

(2) Set Parashock sprial spring with jewel into the plate and balance cock.

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

(4) Set Parashock cap jewel spring in position.

2. Train wheel bridge
(Applicable for Cal. No. 53**and 23**)



(1) Assemble Profix cap jewel, Profix cap jewel spring and lower end-piece with cap jewel for escape wheel and oil with Synt-A-Lube.

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

(3) Oil lower hole jewel of third and fourth wheel with Synt-A-Lube.

(4) Assemble escape wheel and fourth wheel.

(5) Set train wheel bridge and tighten the screw.

Remarks:
One screw on the balance side.

(6) Oil the upper pivots of fourth wheel and escape wheel with Synt-A-Lube.

Remarks:
Oiling for Cal. No. 23**- 7 and 17j, 53**- 17j, 5300, 5301 and 5310-21j are to be made on the escape lower pivot (Synt-A-Lube).

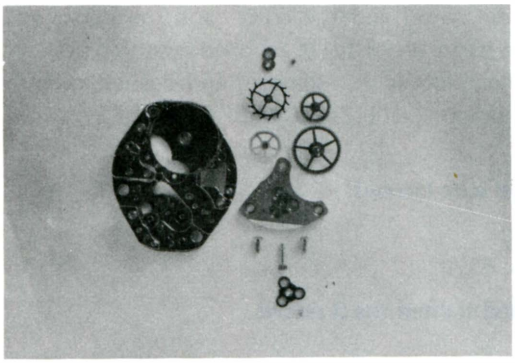
(7) Set upper end-piece with cap jewel for fourth wheel.

Remarks:
Applicable for Cal. No. 23**- 21j.

(8) Insert thrid wheel from between train wheel bridge (barrel side) and set it in position.

Remarks:
Set so the wheel of center wheel will enter between the upper and lower toothed wheels of third wheel.

2'. Train wheel bridge
(Applicable for Cal. No. 51** and 01**).



(1) Set lower end-piece with cap jewel for escape wheel and oil with Synt-A-Lube. Assemble Profix cap jewel and Profix cap jewel spring and oil with Synt-A-Lube.

Remarks:
Applicable for Cal. No. 510*-21j, 5110-21j and 01**-17j and 21j.

(2) Oil the hole jewels of third wheel and fourth wheel with Synt-A-Lube.

(3) Set center wheel, third wheel, fourth wheel and escape wheel.

(4) Set train wheel bridge and tighten the 2 screws.

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

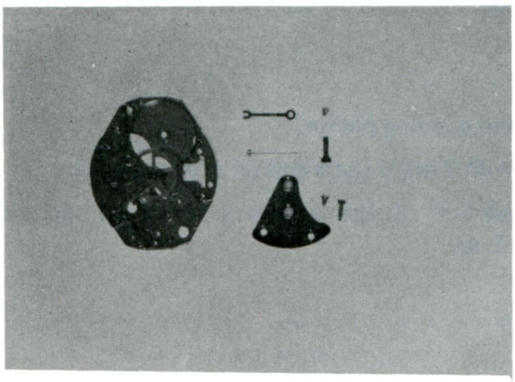
(6) Push cannon pinion in.

(7) Oil each pivot of third, fourth and escape wheel.

(8) Set upper end-piece with cap jewel for third, fourth & escape wheel and tighten the screw.

Remarks:
Applicable for Cal. No. 015*-21j, 0170-23j, 510*-21j and 5110-21j.

3. Sweep second cock



(1) Set friction spring for sweep second pinion in position on train wheel bridge and tighten the screw.

(2) Oil the contact portions of the lower pivot of sweep second pinion and friction spring for sweep second pinion with Synt-A-Lube.

(3) Set sweep second cock and tighten the 2 screws.

Remarks:
The short screw on the balance side.

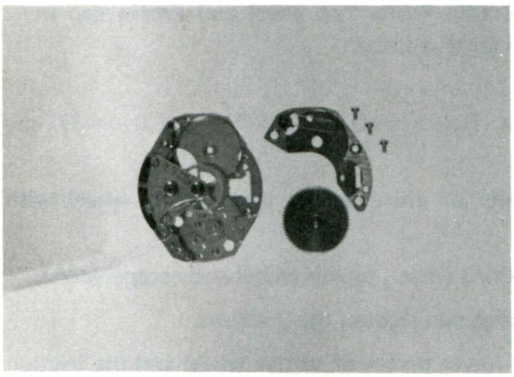
(4) Oil the upper pivot of sweep second pinion and third wheel with Synt-A-Lube.

Remarks:
For Cal. No. 23**-19j and 21j, the upper end-piece with cap jewel for double third wheel is assembled.

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

(6) Push in cannon pinion.

4. Barrel bridge



(1) Oil barrel, complete and assemble.

Remarks:
The bearings of the barrel and the arbor, and the upper and lower pivots of the barrel arbor are to be oiled with CA-1 oil.
When the barrel, complete is disassembled and cleaned, refer to the items in common "CITIZEN UNBREAKABLE MAIN-SPRING".

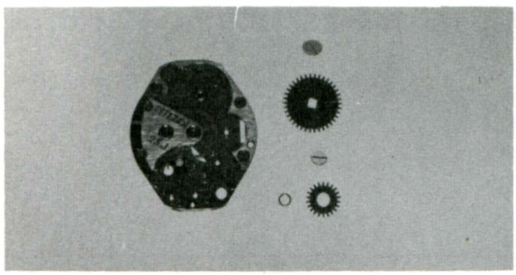
(2) Set the setting lever axle (screw).

Remarks:
Excluding Cal. No. 5320.

(3) Set barrel bridge and tighten the 3 screws.

Remarks:
For Cal. No. 5310 and 5110, the long screw is in the center.

5. Ratchet wheel. Crown wheel



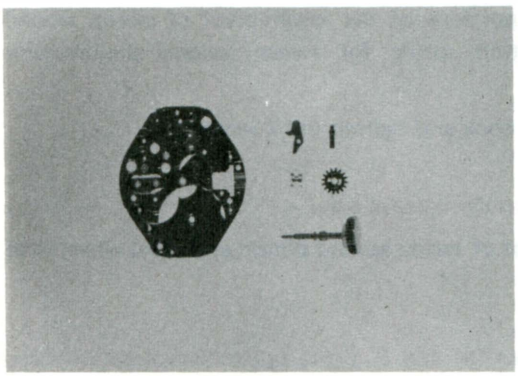
(1) Set crown wheel core to the crown wheel axle of barrel bridge.

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

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

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

6. Winding stem



(1) Set setting lever axle.

Remarks:
Applicable for Cal. No. 5320.

(2) Set clutch wheel and winding pinion.

(3) Oil winding stem with Synt-V-Lube and set it into the plate.

(4) Oil the contact portion of setting lever axle (screw) and the plate with Synt-V-Lube.

Remarks:
For Cal. No. 01**, 23**, 510* and 530*, oil the contact portion of setting lever screw with the plate.

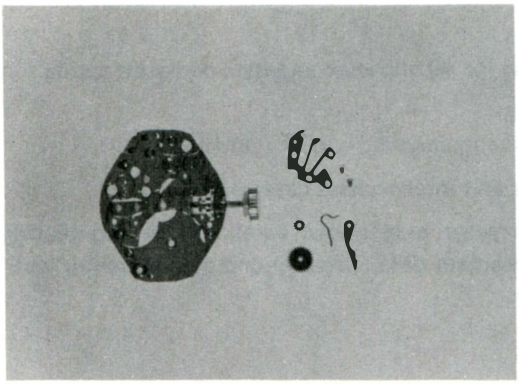
(5) Set setting lever.

Remarks:
For Cal. No. 01**, 23**, 510*, and 530*, set the setting lever and tighten the screw.

7. Setting lever spring

(1) The yoke axle of the plate, setting wheel axle, minute wheel axle, the contact portion of clutch wheel with yoke and the meshing portion of winding pinion with clutch wheel are to be oiled with Synt-V-Lube.

(2) Set yoke and yoke spring.



(3) Set setting wheel and minute wheel.

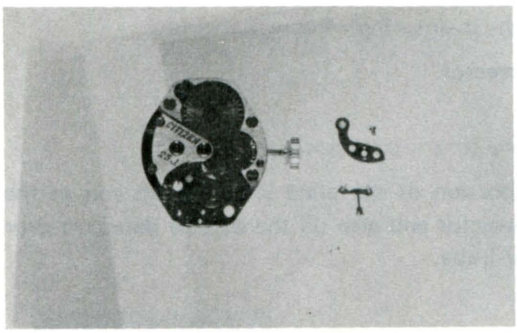
Remarks:
The slanting side of the setting wheel is the bottom.

(4) Set setting lever spring and tighten the 2 screws.

(5) The contact portion of setting lever and yoke, and the pin of setting lever which contacts setting lever spring are to be oiled with Synt-V-Lube.

Remarks:
Wind the mainspring a little (turn the crown 2 or 3 times) and check whether or not the train wheels rotates smothly.

8. Jeweled pallet fork



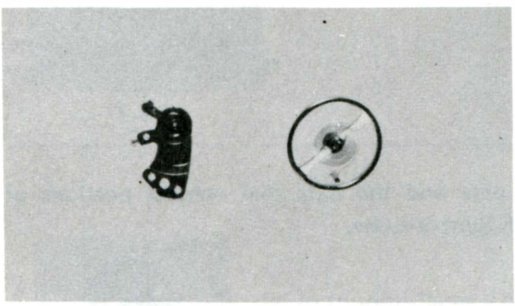
(1) Set jeweled pallet fork.

(2) Set pallet cock and tighten the screw.

Remarks:
Perform mainspring winding a little (2 or 3 times by the crown) and check the actuation of the jeweled pallet fork.

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

9. Balance



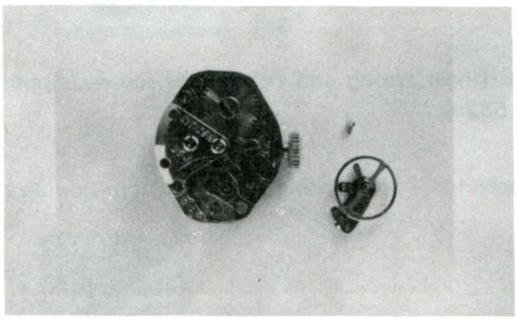
(1) Insert the hairspring between the regulator pin and the regulator key while inseting the hairspring stud into the hairspring stud hole of the balance cock.

(2) Turn the regulator key in position.

Remarks:
Be careful not to deform the hairspring configuration.

(3) Tighten the hairspring stud screw.

10. Balance cock



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

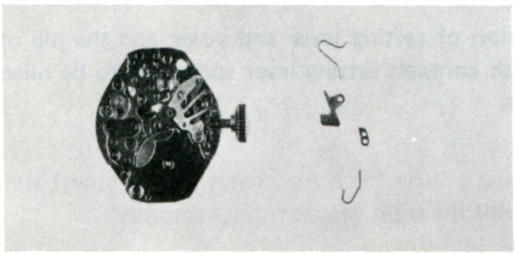
Remarks:
Closely check the end shake of the balance and the configuration of the hairspring.

(2) Stop the movement of the balance with your finger-tips 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. Date Mechanism

1. Date corrector
(Applicable for Cal. No. 511* and 531*)



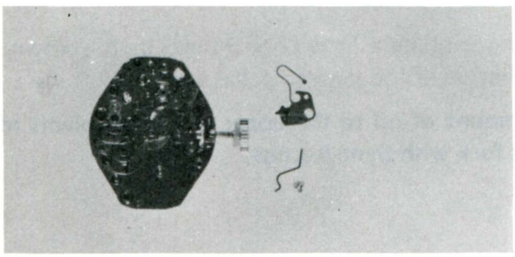
(1) Set Pressure spring for setting lever and date corrector spring.

Remarks:
Set the crown at the mainspring winding position.

(2) Set date corrector and intermediate date corrector.

(3) Oil the date corrector axle (Yoke axle) and the contacting portions of intermediate date corrector and date corrector lever with Synt-V-Lube.

1'. Date corrector.
Pressure spring for setting lever
(Applicable for Cal. No. 532*)



(1) Set pressure spring for setting lever and tighten the screw.

Remarks:
Set the crown at the mainspring winding position.

(2) Assemble date corrector.

Remarks:
Set the crown at the time setting position.

(3) Oil the contact portion of the plate with the tip end of the spring of date corrector and also oil the axle of date corrector finger with Synt-V-Lube.

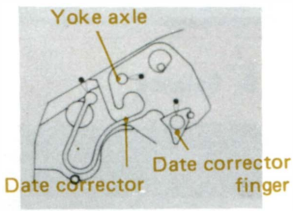
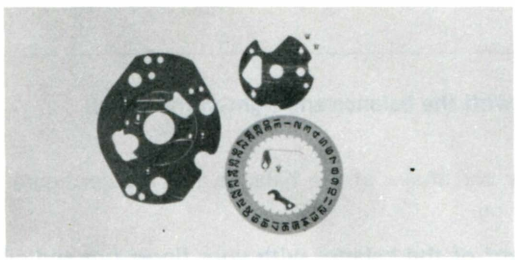


Fig. 7

2. Calendar plate.
Date dial. Date dial guard



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

Remarks:
Oil at 2 places with a small amount of oil.

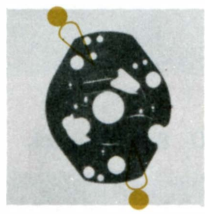


Fig. 8

(2) Set date corrector finger spring and tighten the screw. (Applicable for Cal. No. 532*).

Remarks:
Push the date corrector finger spring to the center side and tighten.

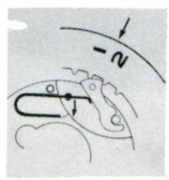


Fig. 9

(3) Set date jumper spring and date jumper.

(4) Set date dial matching to date jumper. Move date dial while bending date jumper spring towards the center direction and set it in position.

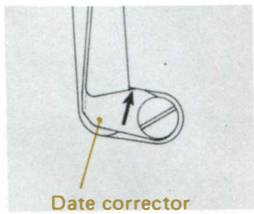


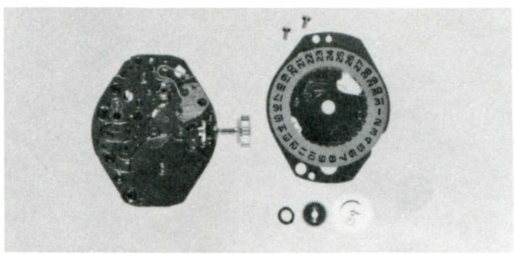
Fig. 10

(5) Set date dial guard and tighten the 2 screws.

Remarks:
For Cal. No. 510* and 530*, there are 3 screws for the date dial guard.

(6) Oil the meshing portion of date jumper and the date dial teeth with Synt-V-Lube.

3. Calendar block



(1) Oil the axle of date dial driving wheel with Synt-V-Lube and assemble date dial driving wheel.

Remarks:
For Cal. No. 532*, the guard surface of the plate is also oiled.

(2) Set double-toothing hour wheel and dial washer.

(3) Set the calendar block and tighten the 2 screws.

Remarks:
For Cal. No. 532*, set the tip of the date corrector finger spring in position.

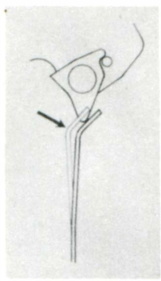


Fig. 11

For Cal. No. 511* and 531*, the pin of date corrector is placed against the edge of the cut portion on the calendar plate.

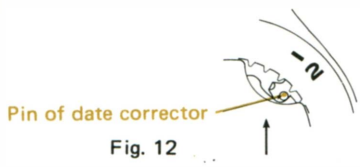
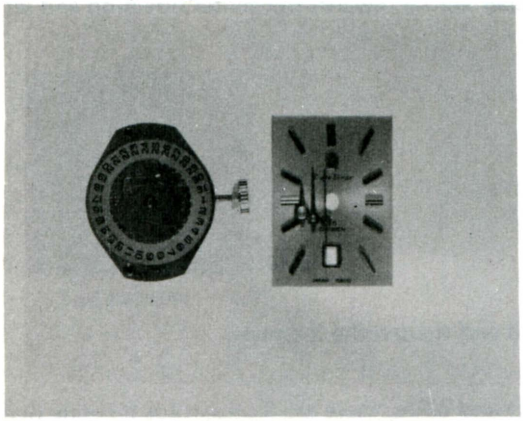


Fig. 12

Pull out the crown and check the date setting condition. Check the operation of the date dial by turning the hands.

4. Dial. Hands



(1) Set hour wheel and dial washer.

Remarks:
Applicable for Cal. No. 01** and 23**.

(2) Attach dial and tighten the 2 screws.

(3) Attach hour, minute and second hands.

Remarks:
For Cal. No. 51** and 53**, attach the hands so the date changes at 0:00 o'clock midnight. Check the hands clearances.

6. TROUBLE SHOOTING

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

1. SPECIFICATIONS

Cal. No.	Size (mmφ)	Thick-ness (mm)	Vibration per hour	Center second	Date mechanism	Quick date setting	Out-of-beat correcting
610*	17.2	4.3	21,600	○	○	○	○
611*	〃	〃	〃	○	○	○	○
620*	〃	3.8	〃	○	×	×	○

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

2. CHARACTERISTICS

1 The 61 Series is newly designed ladies' wrist watches which place their main emphasis on performance. By the adoption of a vibration of 21,600 per hour and through the employment of the center second train wheels, out-of-beat correction device and the triangle hairspring stud, the stability and promotion of performance has been realized.

2 The Cal. No. 61** is equipped with a quick date setting device and adopts a safety change system which frees the watch from troubles no matter when date correction is made.

3 The Cal. No. 611* adopts a push type setting lever and since a regular winding stem is employed even on one-piece cases, the attachment and removal of the winding stem can be easily performed.

3. HANDLING PROCEDURES

Time and date settings are the same as Cal. Nos. 530* and 531*. (Fig. 1)

Note: Date may not change on the following day when quick date corrections are performed within time range of 8:30 p.m. and 0:30 a.m.. Therefore, date settings should be performed by turning the hands out of this range.

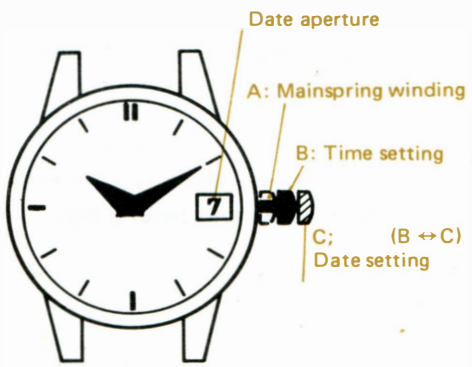


Fig. 1

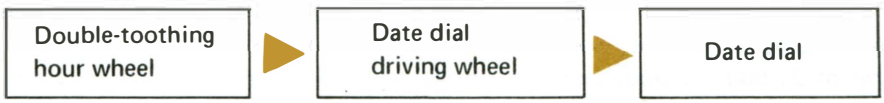
4. STRUCTURE AND OPERATIONS

4-1. Basic movement

The basic movement has been newly designed with the intention of stabilizing and improving the performance. The fundamental structure similar to the Cal. No. 02**, etc., is of the most standard center second type.

4-2. Date mechanism

⦿ The power transmittance process is as follows.



4-3. Quick date setting device

- The crown actuating position changes from A (Mainspring winding) to B (Time setting) and to C (B ↔ C is date setting). Fig. 2 shows time setting, whereas Fig. 3 shows date setting.

- When the winding stem is pulled out from B to C, the date corrector rotates through the movement of the setting lever pin. Through the rotation of the date corrector, the date corrector finger moves along the date dial guard hole and as the tip of the date corrector finger hits against the date dial teeth, the date is advanced by one day.

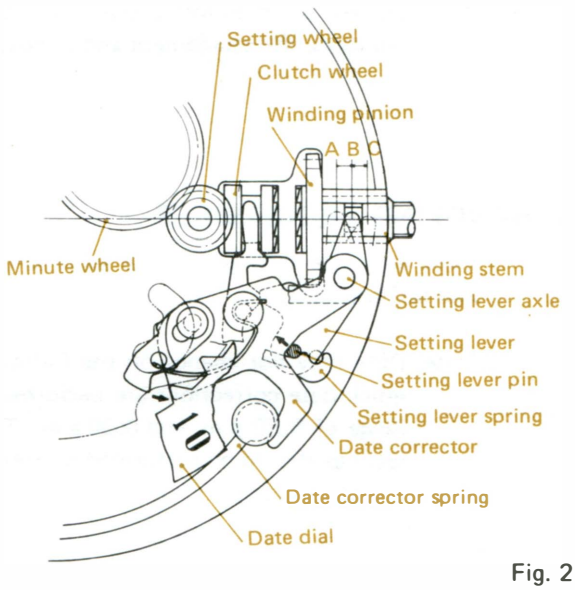


Fig. 2

- At C position, the meshing between the setting wheel and the clutch wheel disengages so the hands do not move although the crown is rotated. When the crown is released to C position, the date corrector, setting lever and the winding stem return to B position by the date corrector spring power. When the date corrector returns, the date corrector finger moves by contacting the date dial guard hole through the date corrector finger spring so the tip of the date corrector finger returns without hitting the date dial teeth.

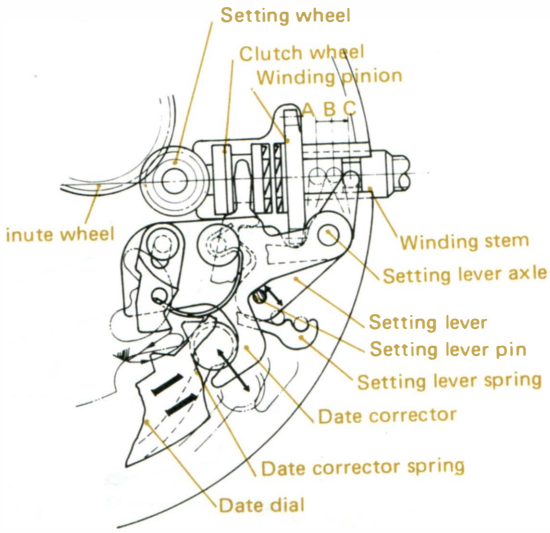


Fig. 3

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

Bridge side

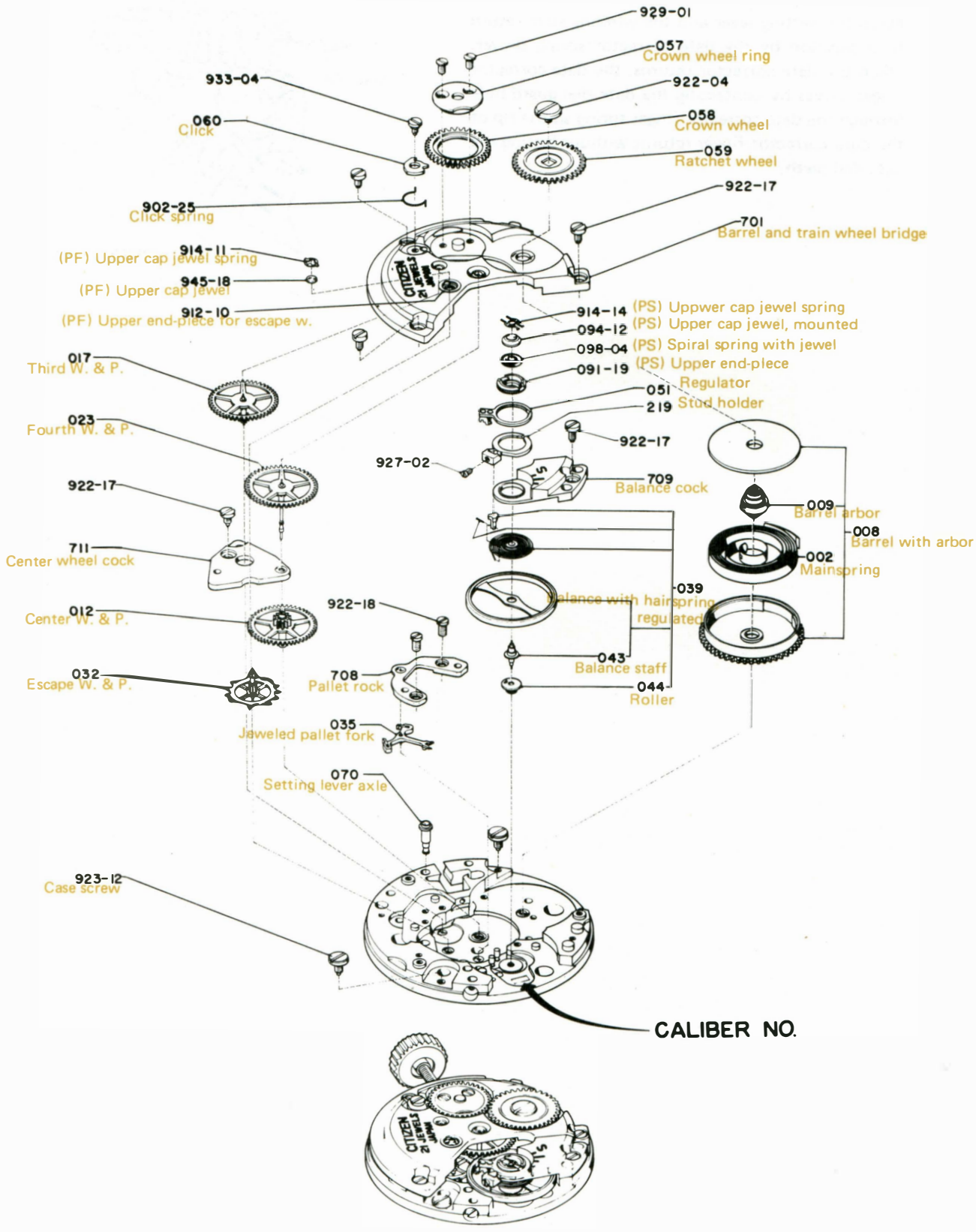


Fig. 4

4-5. Structure (Exploded view and parts name)

Dial side

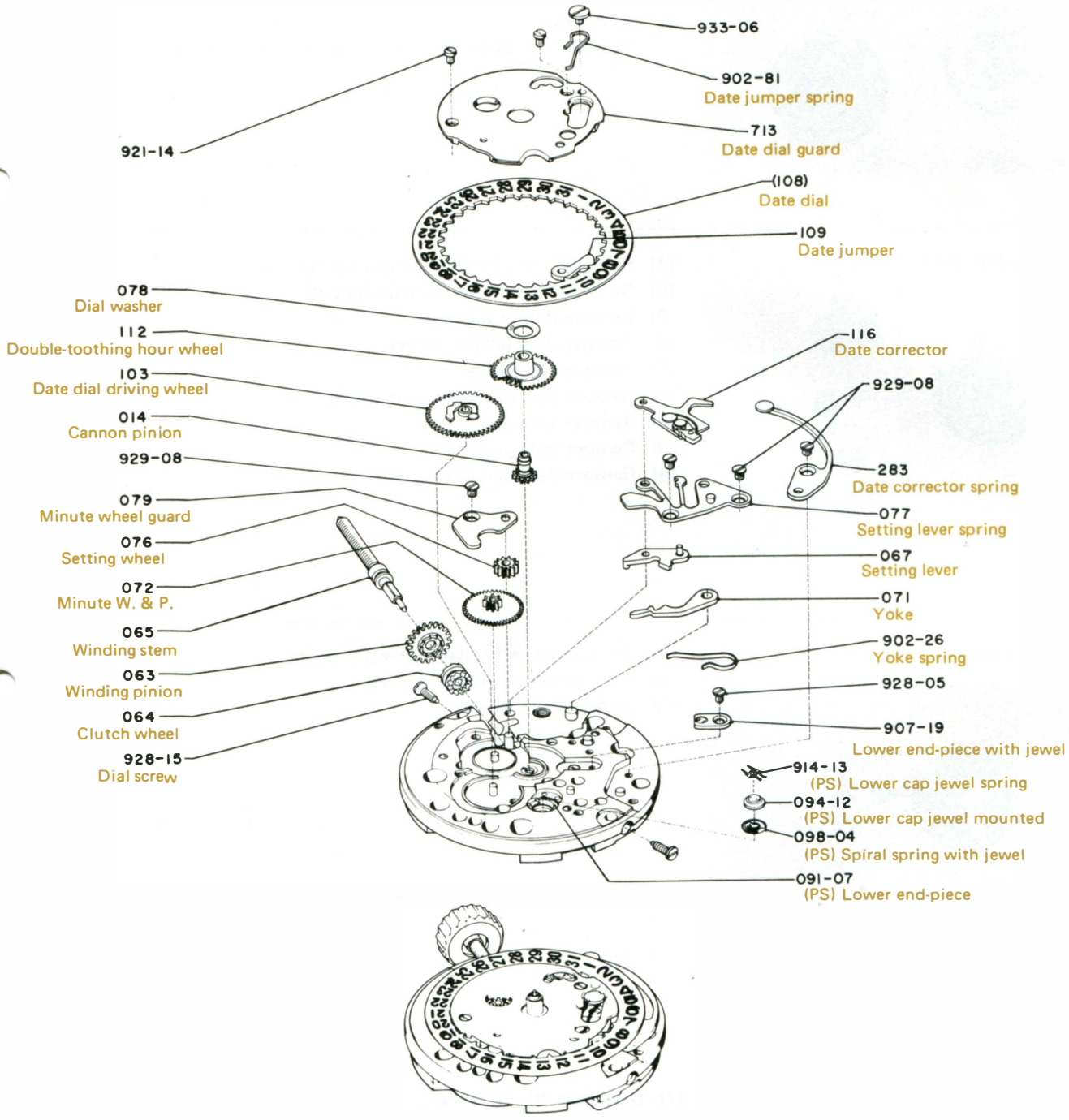


Fig. 5

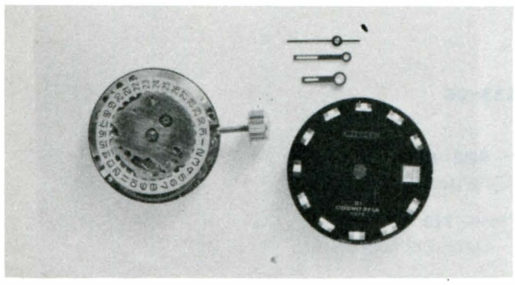
Please refer to the PARTS CATALOG for parts with more than two parts numbers.

5. DISASSEMBLY

Contents of disassembly

5-1. Date mechanism

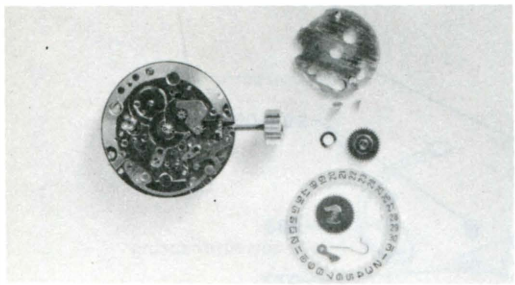
1. Hands. Dial



(1) Remove second, minute and hour hands.
(2) Loosen 2 dial screws and remove dial.
(3) For Cal. No. 611*, remove dial, dial guard ring and setting lever.

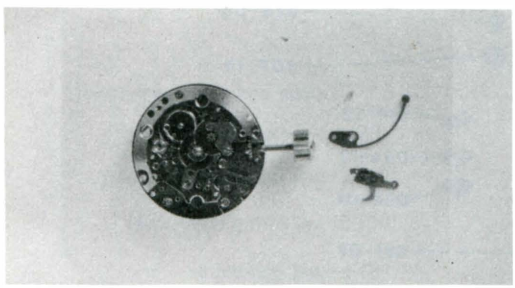
Remarks:
For Cal. No. 620*, remove dial washer and hour wheel.

2. Date dial guard. Date dial



(1) Remove screw for date jumper spring.
(2) Remove 2 screws for date dial guard.
(3) Remove date dial guard.
(4) Remove date jumper spring.
(5) Remove dial washer.
(6) Remove double-toothing hour whee.
(7) Remove date dial.
(8) Remove date jumper.
(9) Remove date dial driving wheel.

3. Date corrector



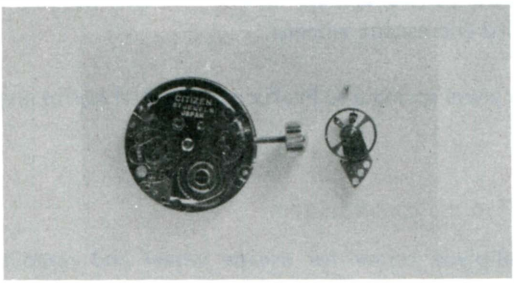
(1) Remove screw for date corrector spring.
(2) Remove date corrector spring.
(3) Remove date corrector.

5-2. Movement

1. Mainspring unwinding

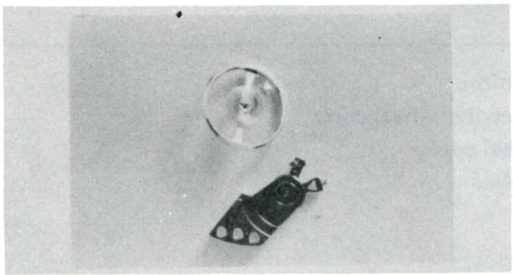
(1) Disengage the meshing between the click and the crown wheel and gradually unwind the mainspring.

2. Balance cock



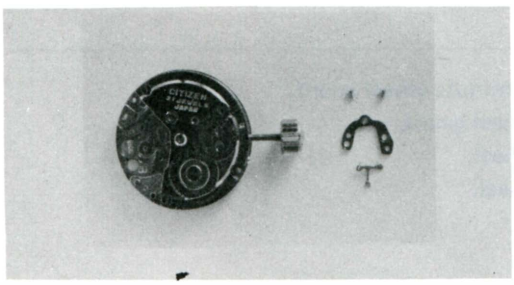
(1) Remove balance cock screw.
(2) Remove balance cock with the balance.

3. Balance



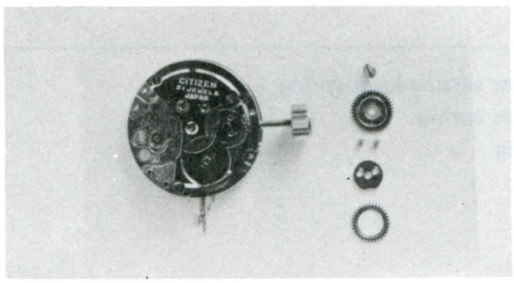
(1) Turn the regulator key and loosen hairspring stud screw.
(2) Remove balance.

4. Pallet cock



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

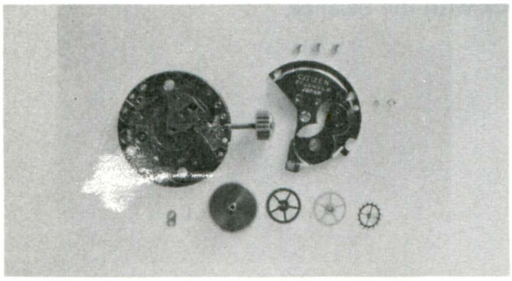
5. Ratchet wheel, Crown wheel



(1) Remove ratchet wheel screw (left hand).
(2) Remove ratchet wheel.
(3) Remove 2 crown wheel screws.
(4) Remove crown wheel ring.
(5) Remove crown wheel.

Remarks:
Not necessary to remove click.

6. Barrel and train wheel bridge

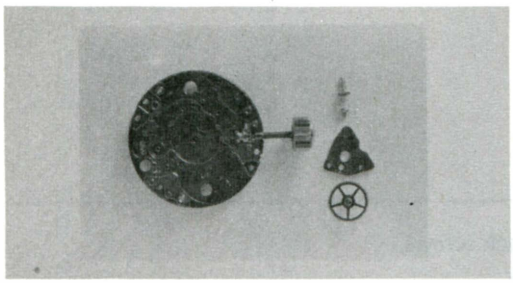


(1) Remove 3 screws for barrel and train wheel bridge.
(2) Remove barrel and train wheel bridge.
(3) Remove fourth, third and escape wheels.
(4) Remove barrel.
(5) Remove Profix cap jewel spring and Profix cap jewel of barrel and train wheel bridge.

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

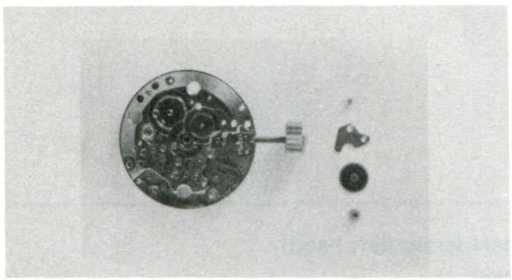
(6) Remove lower end-piece screw for escape wheel and remove lower end-piece with cap jewel for escape wheel.

7. Center wheel cock



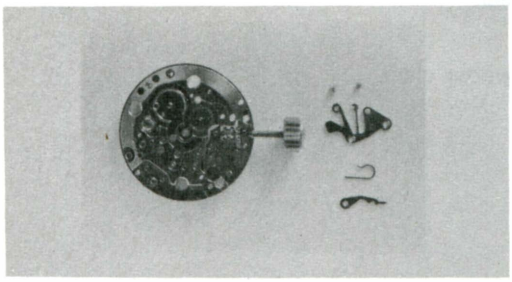
(1) Remove cannon pinion.
(2) Remove screw for center wheel cock.
(3) Remove center wheel cock.
(4) Remove center wheel.

8. Minute wheel guard



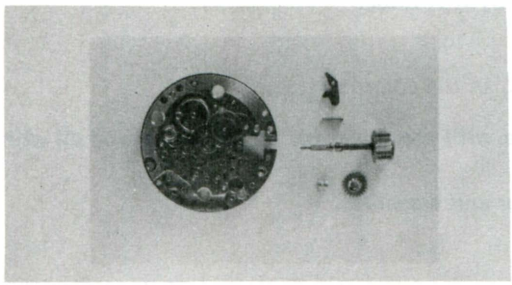
(1) Remove screw for minute wheel guard.
(2) Remove minute wheel gaurd.
(3) Remove minute wheel.
(4) Remove setting wheel.

9. Setting lever spring



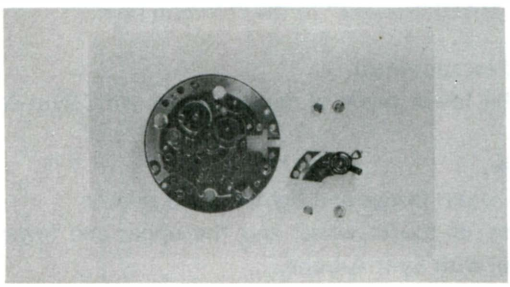
(1) Remove 2 screws for setting lever spring.
(2) Remove setting lever spring.
(3) Remove yoke spring.
(4) Remove yoke.

10. Winding stem



(1) Remove setting lever.
(2) Remove setting lever axle.
(3) Remove winding stem, winding pinion and clutch wheel.

11. Parashock



(1) Remove Parashock cap jewel spring of the plate and the balance cock.
(2) Remove Parashock cap jewel, mounted.
(3) Remove Parashock spiral spring with jewel.
(4) Insert Parashock cap jewel spring back into the endpiece groove.

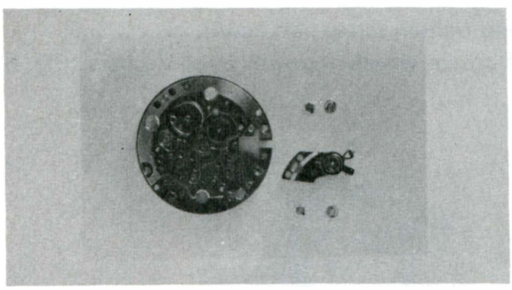
Remarks:
Refer to "PARASHOCK" in the common item.

6. ASSEMBLY

Contents of assembly

6-1. Movement

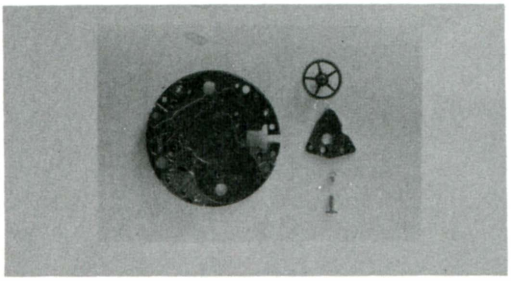
1. Parashock



(1) Remove Parashock cap jewel spring from the end-piece and have it placed down on its stationary side.
(2) Set Parashock spiral spring with jewel to the plate and the balance cock.
(3) Oil Parashock cap jewel, mounted with Synt-A-Lube and set it in position.
(4) Set Parashock cap jewel spring in position.

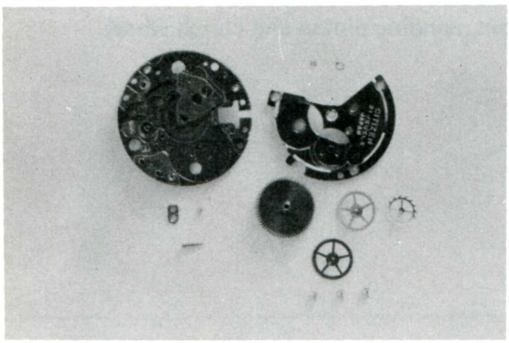
Remarks:
Refer to "PARASHOCK" in the common item.

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, and the friction fitting portion of center wheel and pinion with CA-1 oil.
(4) Push in cannon pinion.

3. Barrel and train wheel bridge



(1) Set Profix cap jewel and Profix cap jewel spring to the barrel bridge and oil with Synt-A-Lube.

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

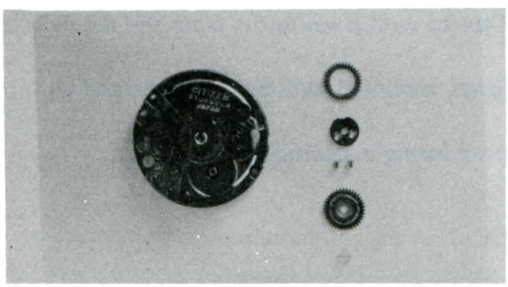
(2) Set lower end-piece with cap jewel for escape wheel and oil with Synt-A-Lube.
(3) Oil barrel with arbor and assemble.

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

(4) Set third wheel and escape wheel.
(5) Oil 2 places on the lower pivot of fourth wheel with Synt-A-Lube.
(6) Set setting lever axle.
(7) Set barrel and train wheel bridge and tighten the 3 screws.
(8) Oil the upper pivot of fourth wheel and the upper and lower pivots of third wheel with Synt-A-Lube.

Remarks:
Wind the mainspring a little (turn the crown 2 or 3 times) and check whether or not the train wheels rotate smoothly.

4. Crown wheel, Ratchet wheel



(1) Set crown wheel and crown wheel ring and tighten the 2 screws.
(2) Set ratchet wheel and tighten screw (left hand).
(3) Oil the crescent of crown wheel ring with Synt-V-Lube. (Fig. 6)

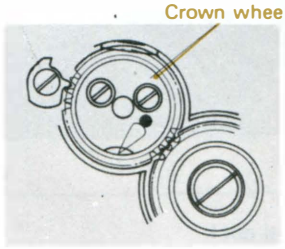
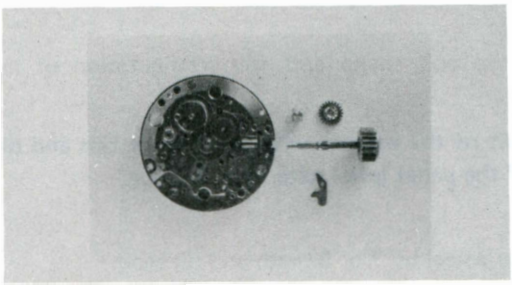


Fig. 6

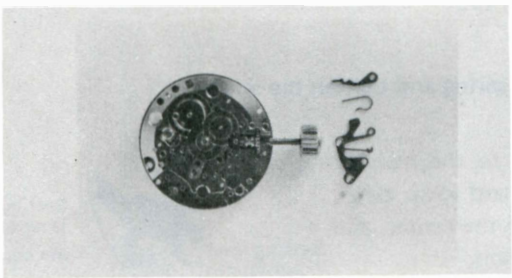
: Synt-V-Lube

5. Winding stem



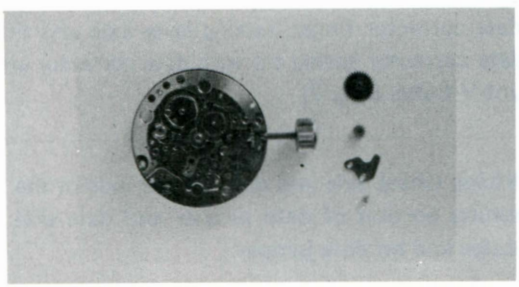
(1) Set clutch wheel and winding pinion.
(2) Oil winding stem with Synt-V-Lube and set in position.
(3) Oil the contact portion of setting lever axle and the plate with Synt-V-Lube and set setting lever.

6. Setting lever spring



(1) The yoke axle of the plate, setting wheel axle, minute wheel axle, the contact portion of clutch wheel with yoke and the meshing portion of winding pinion with clutch wheel are to be oiled with Synt-V-Lube.
(2) Set yoke and yoke spring.
(3) Set setting lever spring and tighten the 2 screws.
(4) The contact portion of setting lever and yoke and the contact point of pin of setting lever and setting lever spring are to be oiled with Synt-V-Lube.

7. Minute wheel guard



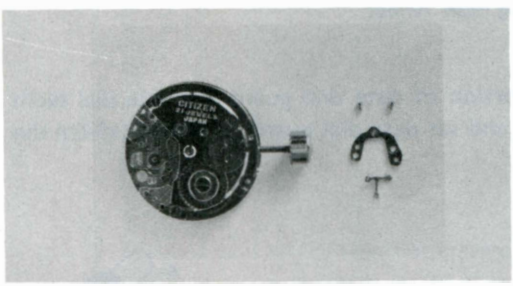
(1) Set minute wheel and setting wheel.

Remarks:
The stepped portion of setting wheel is the bottom side.

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

Remarks:
Wind the mainspring a little (2 or 3 times by the crown) and whether or not the train wheels rotate smoothly.

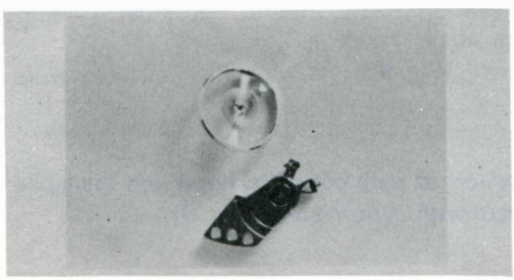
8. Pallet cock



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

Remarks:
Perform mainspring winding a little (2 or 3 times by the crown) and check the operation of jeweled pallet fork.

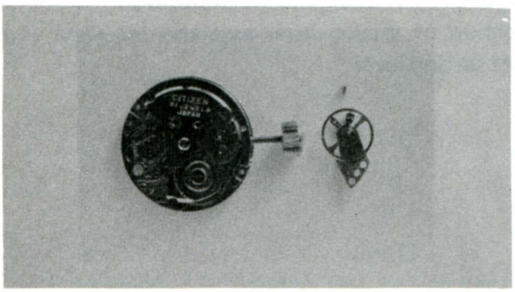
9. Balance



(1) Insert the hairspring between the regulator pin and the regulator key while inserting the hairspring stud of the balance into the hairspring sutd hole of the balance cock.
(2) Turn the regulator key.
(3) Tighten hairspring stud screw.

Remarks:
Be careful not to deform the hairspring configuration.

10. Balance cock



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

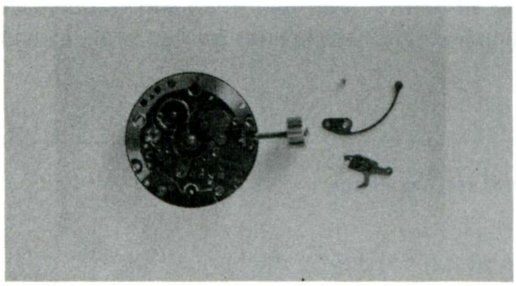
Remarks:
Carefully check the end shake and the configuration of the hairspring.

(2) Stop the movement of the balance with your finger-tips and oil the impulse face of the pallet jewel with Synt-A-Lube.

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

6-2. Date mechanism

1. Date corrector



(1) Set date corrector spring and tighten the screw.

Remarks:
Set winding stem to the mainspring winding position and wrap date corrector spring to the center, and then set it in position.

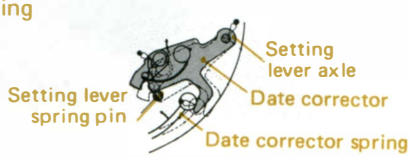
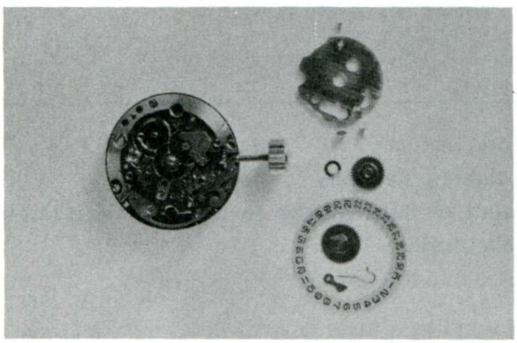


Fig. 7 : Synt-V-Lube

(2) Set date corrector.

(3) The oval hole of date corrector finger, setting lever axle and the contact point of date corrector spring tip with date corrector are to be oiled with Synt-V-Lube. (Fig. 7)

2. Date dial, Date dial guard



(1) Oil the date dial driving wheel axle and date jumper axle of the plate, and the meshing portion of date jumper and date dial teeth with Synt-V-Lube and set date jumper.

(2) Set date dial driving wheel.

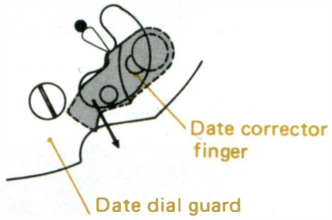
(3) Set date dial.

(4) Set double-toothing hour wheel.

(5) Set dial washer.

(6) Oil the contact portion of date dial guard and date dial teeth with Synt-V-Lube and set date dial guard, and then tighten the 2 screws.

Remarks:
As a part of date corrector finger is placed underneath date dial guard when date dial guard is matched to the positioning pins, move down the date corrector finger shown in an above figure and set date dial guard. (Fig. 8)



: Synt-V-Lube

(7) Oil the contact portion of date corrector finger and the guide hole of date dial guard with Synt-V-Lube. (Fig. 8)

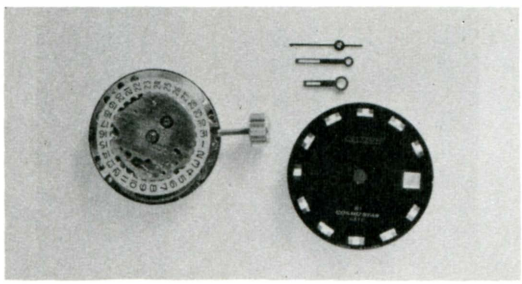
(8) Set date jumper spring and tighten the screw.

Remarks:
Insert date jumper spring to the slot of date dial guard.

(9) For Cal. No. 611*, set setting lver and dial guard ring.

Remarks:
Check the activation of date dial by turning hands. Check the function of quick date setting.

3. Dial, Hands



(1) Attach dial and tighten the 2 screws.

(2) Attach hour, minute and second hands.

Remarks:
Fix hands so as to the date changes at 12 o'clock midnight.

Check the clearance of hands.

7. 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	Automatic center second	Date mechanism	Day mechanism	Quick date setting device
660*	19.4	5.53	28,800	o	o	o	o
690*	"	5.25	"	o	o	x	o

- Out-of-beat correcting device, Triangle hairspring stud, Parashock (shockresistant device) Profix (For 23j only) and unbreakable main spring are employed on all calibers.

2. GENERAL OUTLINE

- The 66 series is a ladies' automatic winding center second wristwatch with day and date mechanism which has been newly designed considered on performance and function. It is the world's first product which has adopted all of these features.

Cal. No. 66** Bridge side

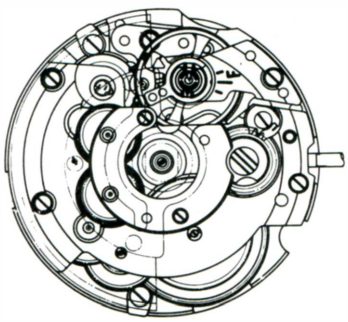


Fig. 1

Cal. No. 66** Dial side

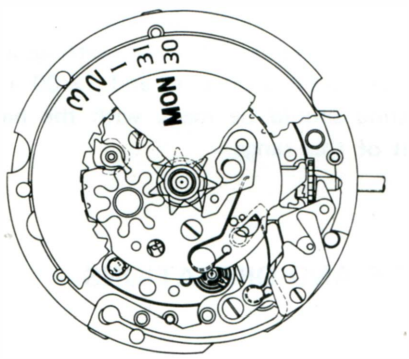


Fig. 2

- The balance vibrates 28,800 times per hour (8 times/second = Super beat) and throught the adoption of new shaped tooth with small torque fluctuation on the train wheels, power increased mainspring, hairspring with a high elasticity coefficient, etc., superior performance and stabilization of accuracy has been provided.
- Positions where jewels are used.

Jeweled position	6600-21J	6600-23J	6601-21J	6900-17J	6900-21J
Barrel	1	1	1		1
Center W.	2	2	2	2	2
Third W.	2	2	2	2	2
Fourth W.	2	2	2	1	2
Sweep second P.	1	1	1	1	1
Escape W.	2	4(PF)	2	2	2
Pallet	4	4	4	4	4
Balance	5	5	5	5	5
2nd reduction W	2	2	2		2

3. HANDLING PROCEDURES

Set in the sequence of Day → Date → Time.
The crown can be pulled out to 2 positions, B and C (Fig. 3).

(1) Mainspring winding
Wind the mainspring at the crown A position 15 to 20 times or by shaking the watch sufficiently.

(2) Day setting
Set the day by performing a reciprocating motion between 8:00 a.m. and 1:00 p.m. with the crown at B position.

Note: For Cal. No. 6600 the reciprocating motion is to be performed between 1:00 a.m. and 3:00 p.m.

(3) Date setting
The date changes instantly when the crown is pulled out from position B to C. Set to required date by performing a reciprocating motion between B and C positions.

Note: There are cases that the date will not change on the following day when date settings are made between about 9:00 p.m. and 12:00 a.m. so date setting should be made with the hands moved out of this range.

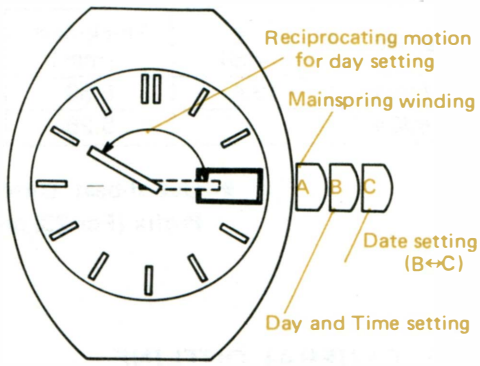


Fig. 3

4. STRUCTURE AND OPERATIONS

4-1. Basic Movement

(1) Train wheels

- The Cal. No. 66**, 69** adopts a standardized center second type which uses a friction spring similar to Cal. No. 68**.
(Figs. 4 and 5)

- The balance has a high vibration (Super beat) of 28,800 times per hour (8 times/second).

- The hairspring with a high elasticity coefficient and the balance with a large moment of inertia enable obtaining a superior time performance which lessen exterior effects (shock, etc.) during usage.

- Through the adoption of an escape wheel with a new material and a jeweled pallet fork balanced, the escapement error has been minimized.

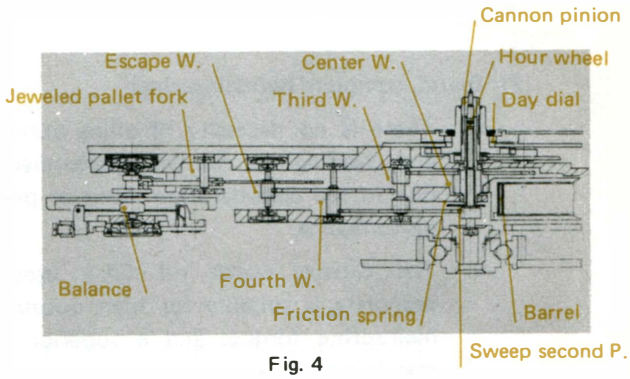


Fig. 4

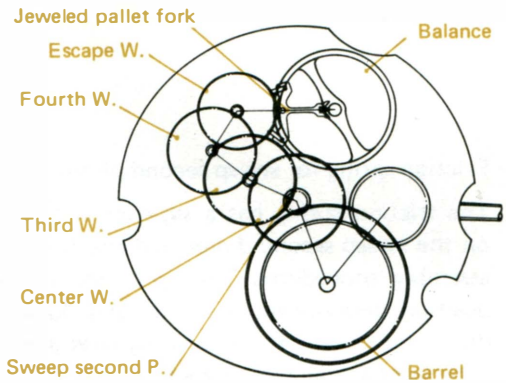


Fig. 5

- Since the click is attached to the barrel bridge and meshes with the crown wheel, handling is simple. (Fig. 6)

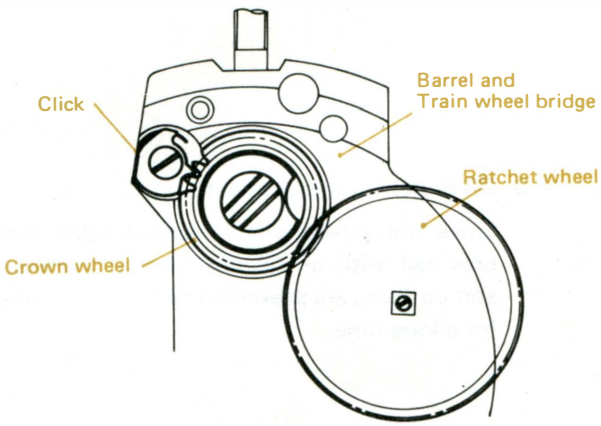
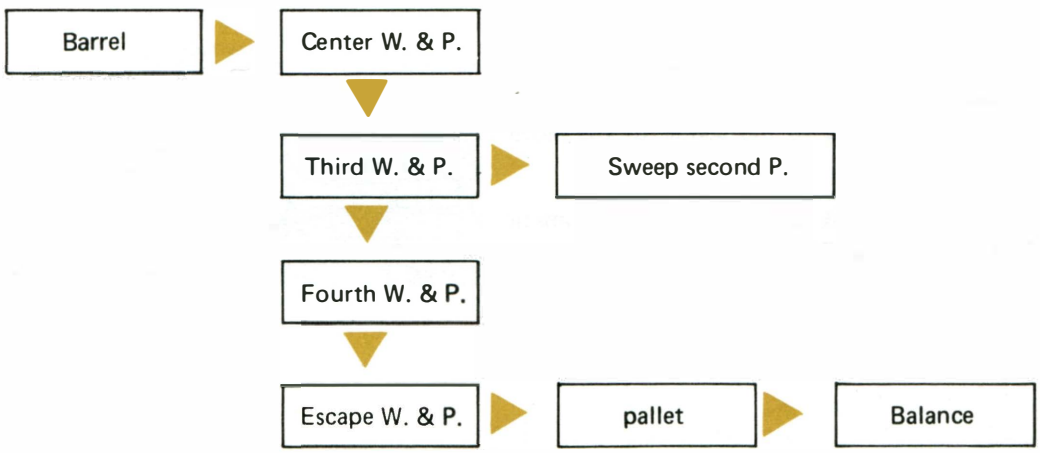


Fig. 6

⊙ The power transmittance process is as follows:



(2) Barrel, complete (w/mainspring)

- There is no necessity of oiling although disassembling and cleaning has not been performed for several years due to the consideration given of preserving the initial performance.
- The Citizen watch oil CA-2 used for this barrel complete, is suitable for high output and a stabilized mainspring torque, and a superior durability can be maintained.

(3) Friction spring for sweep second pinion

The friction spring has a superior stabilized pressing power on the sweep second pinion and also has a superior nature on assembly procedures. The tip of the friction spring has its position determined in the up and down or left and right directions by the friction spring rivet and is easy to handle. (The same as Cal. No. 68 **).

(4) Oil preservation treatment

Since the escape wheel, jeweled pallet fork and jewels are provided with an oil preservation treatment, oil dispersion and oil flows are prevented and the lubricated oil is preserved for a long time.

4-2. Automatic winding mechanism

- On the oscillating weight, we have used ball bearings similar to those used for Cal. No. 52**and 72**and the rotating weight is attached to the center of the movement.
- A clutch wheel system is adopted in the automatic winding train wheels (Fig. 7).

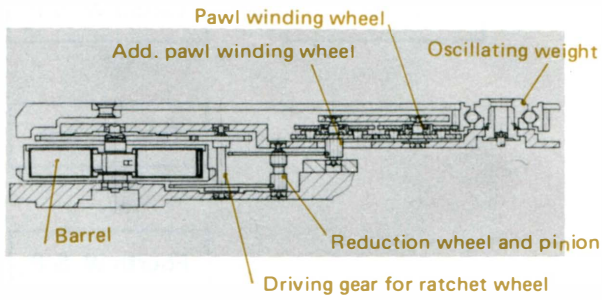


Fig. 7

- The clutch wheel, similar as in Cal. No. 52** and 72** Leopal, performs clutch operations by means of the star shaped pinion (Fig. 8).

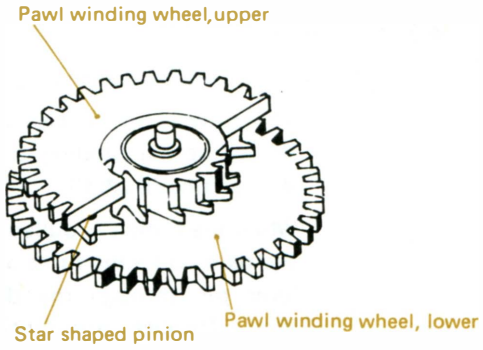


Fig. 8

- The rotation of the oscillating weight is transformed to a fixed directional rotation by the two clutch wheels and upon being reduced by the reduction wheel & pinion driving gear for ratchet wheel, the power is transmitted to the ratchet wheel which winds up the mainspring. (Fig. 9).

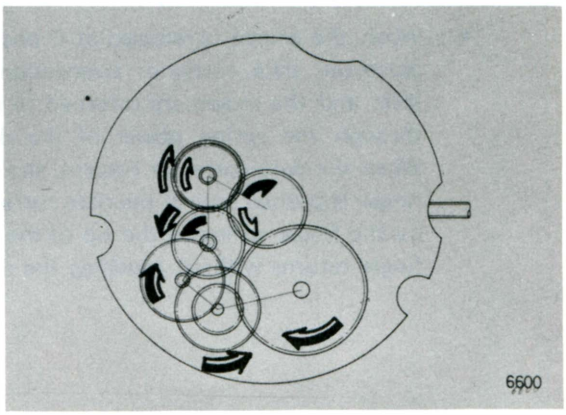
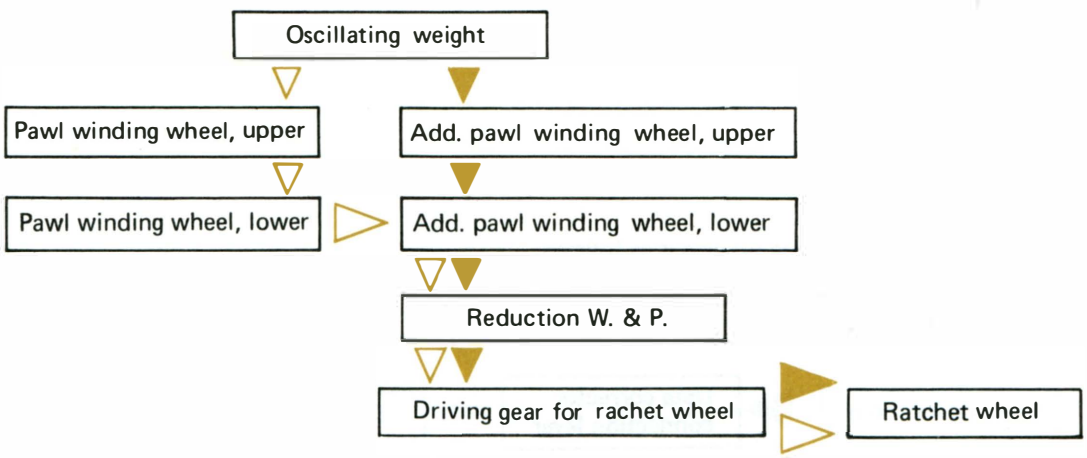


Fig. 9

⊙ The power transmitting process of the automatic winding train wheels are as follows:



When the weight rotates in the clockwise direction.

When the weight rotates in the counter-clockwise direction.

4-3. Dial side mechanism

(1) Quick date setting device (Fig. 10).

- The crown position can be switched to 3 positions: A, mainspring winding; B, day and time settings; C, date setting (B⇄C).
- When the crown is pulled out from position B to C, the date corrector turns a fixed angle by the setting lever pin through the date corrector connection lever. Through this motion, the tip of the date corrector hits against the date dial teeth to advance the date dial by one day.
- When the crown is released at C position, the date corrector, date corrector connection lever, setting lever and the crown are returned to the B position through the spring power of the date corrector. When the date corrector returns, the date corrector finger is pushed against the date corrector finger pin by the finger spring so the tip of the date corrector finger returns without touching the date dial teeth.

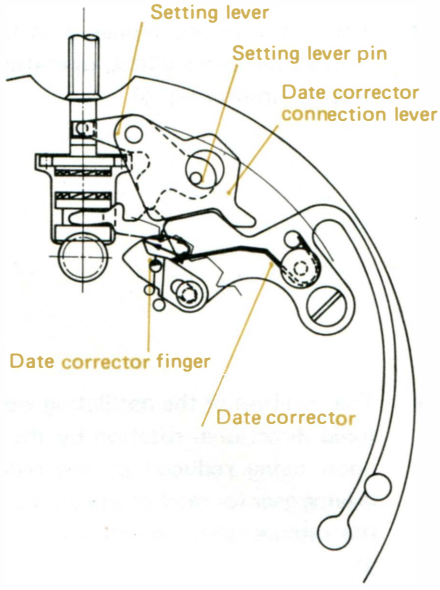
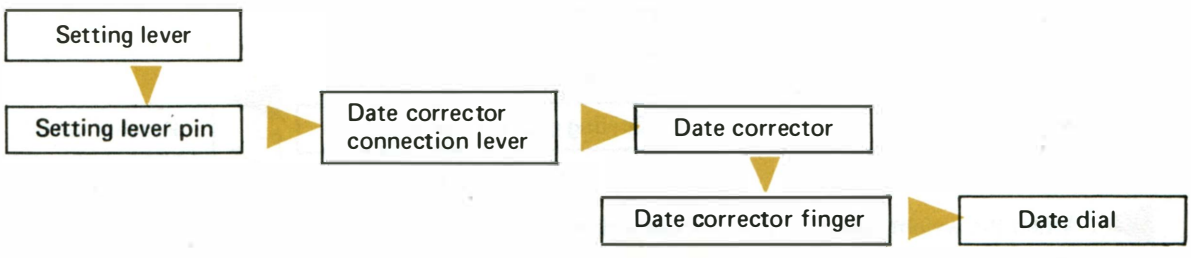


Fig. 10

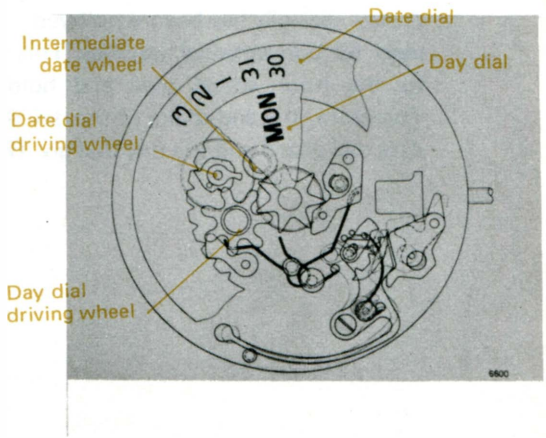
⊙ The power transmitting process is as follows:



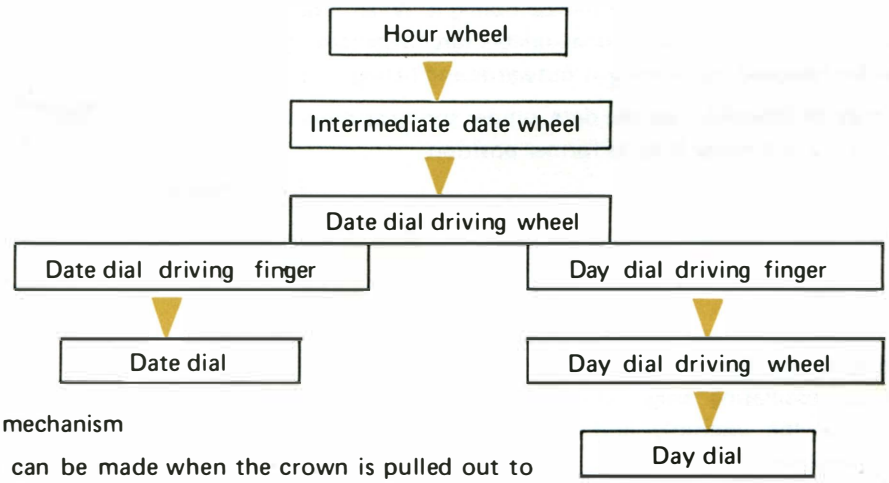
(2) Day and date mechanism

The day and date mechanism is the same type as those used in Cal. No. 52**and 72**.

The rotation of the hour wheel is transmitted to the date dial driving wheel, which rotates once a day, via the intermediate date dial driving wheel and the date dial is advanced by the date dial driving finger, whereas the day dial is advanced by the day dial driving wheel via the day dial driving finger.



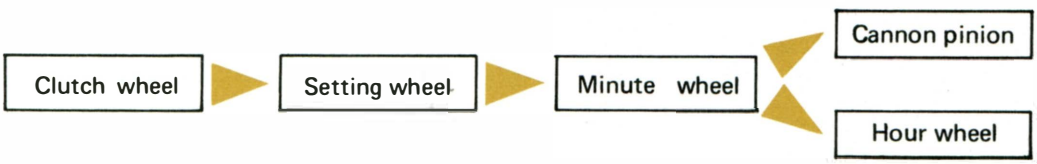
⊙ The power transmitting process is as follows:



(3) Hand setting mechanism

Hand setting can be made when the crown is pulled out to the 2nd position.

⊙ The power transmitting process is as follows:



(4) Date dial guard

On the date dial guard, the date jumper and the day dial driving wheel are attached as one body.
The date jumper spring can be removed, however, it is not necessary to remove it when disassembly or cleaning is performed. It will not come off even during cleaning.

(5) Day dial gib

A day dial gib has been employed in place of a dial washer used for conventional watches. This day dial gib is attached to the hour wheel pipe and holds down the day dial. Therefore, the end-shake of the day dial is determined by the date dial guard and the day dial giv (Fig. 12).

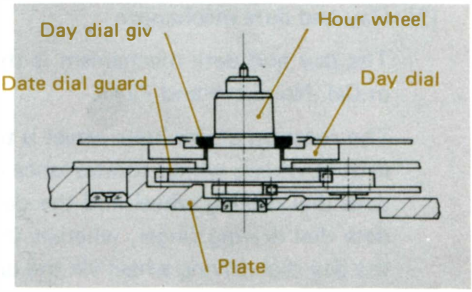


Fig. 12

(6) Date jumper spring

- There is no worry of the date jumper spring falling off and there is no necessity of disassembling it. When it has to be disassembled due to unavoidable circumstances, it can be removed by moving it outwards and lifting it up.
- In case of assembly, set the date jumper spring as shown in Fig. 13 and move it to its former position.

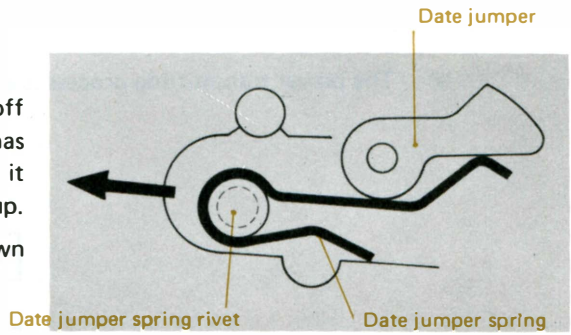


Fig. 13

4-4. Exclusive tools

Oscillating weight driver

The Citizen oscillating weight driver (52 series) can be used in common for the assembly and disassembly of the oscillating weight, complete.

4-5. Structure (Exploded view and parts name)

Bridge side

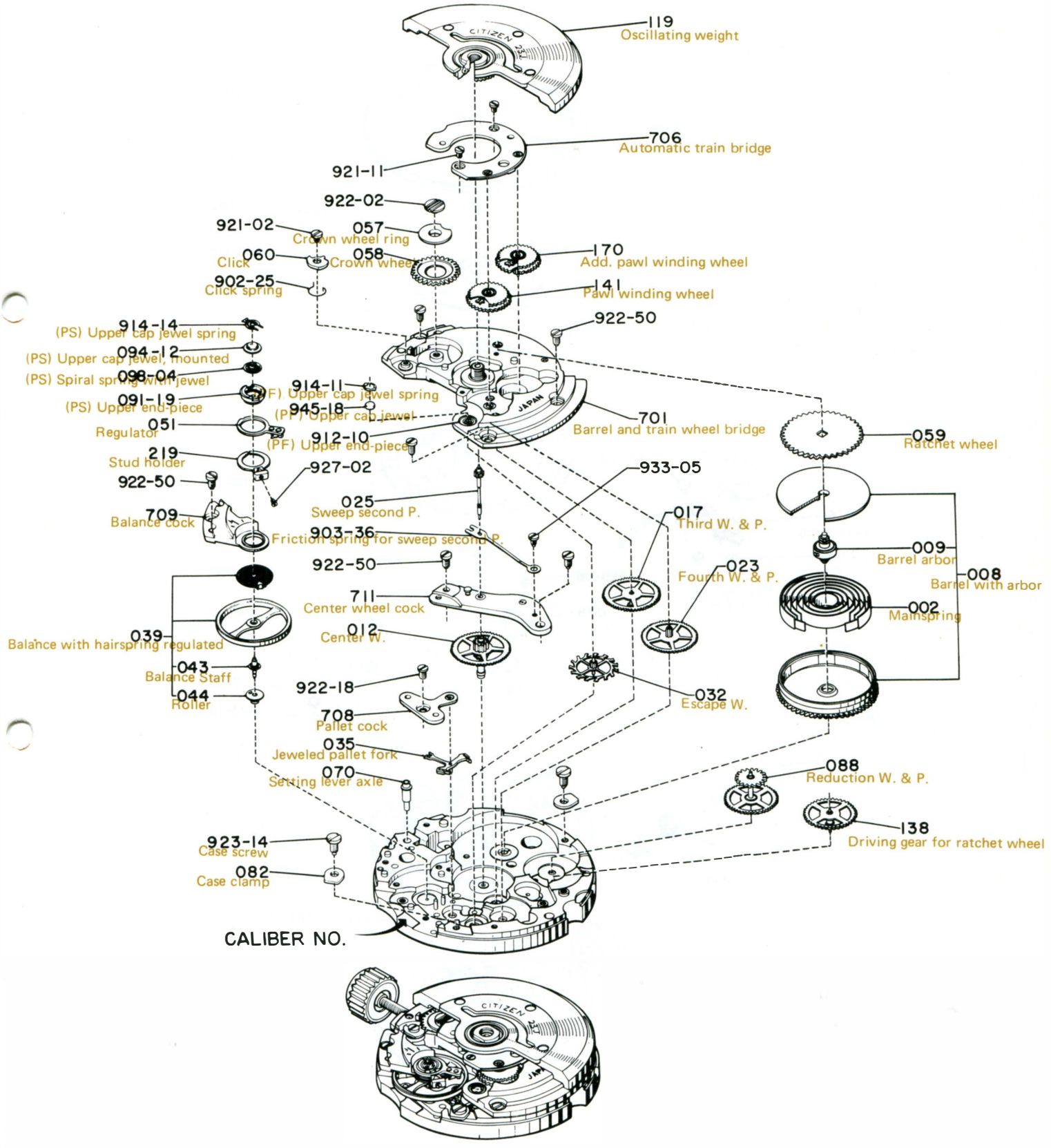


Fig. 14

4-5. Structure (Exploded view and parts name)

Dial side

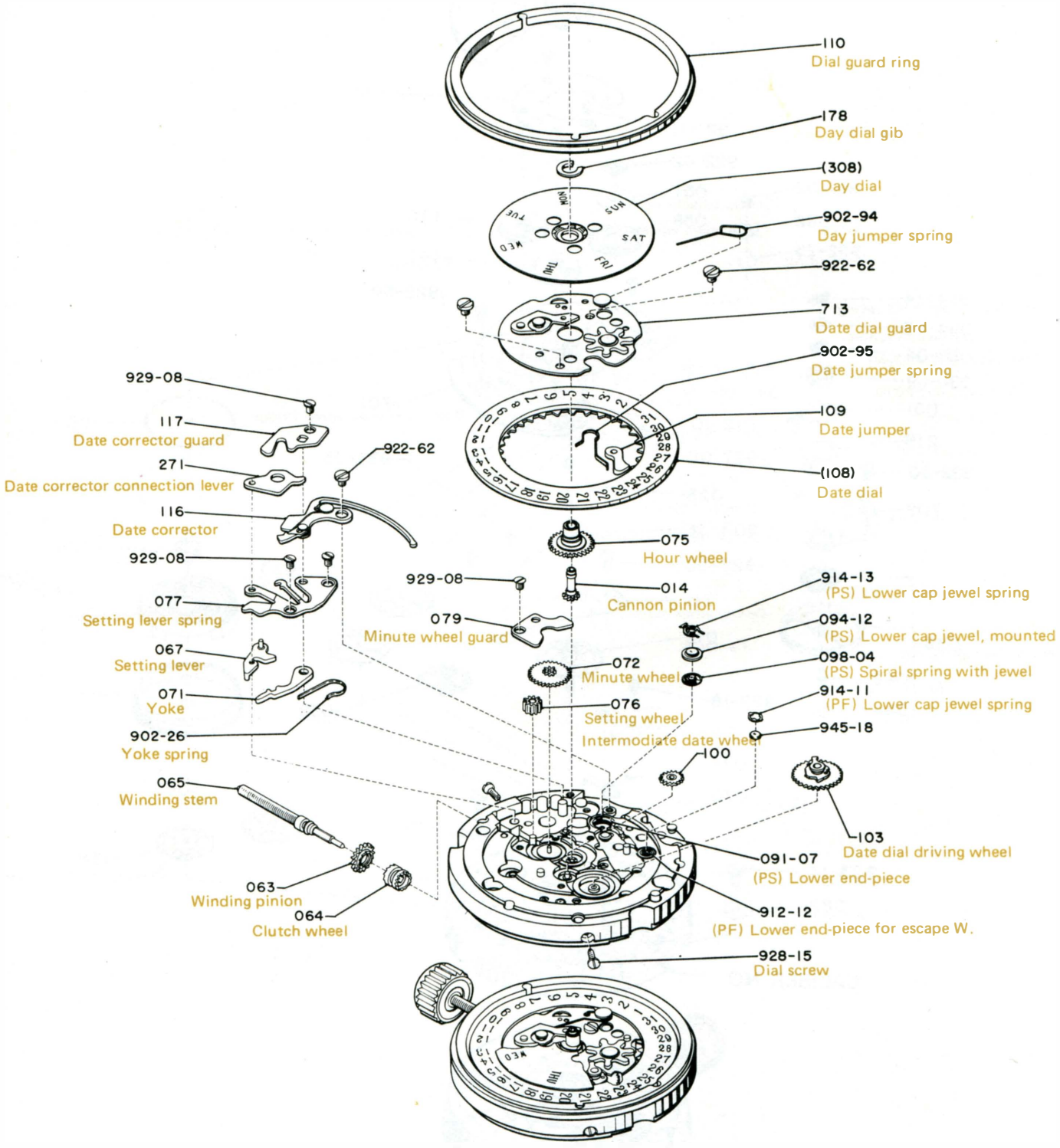


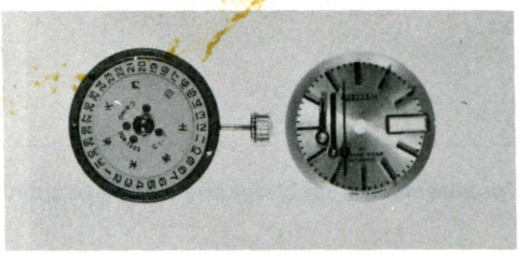
Fig. 15

5. DISASSEMBLY

Contents of disassembly

5-1. Day and date mechanism

1. Hands Dial

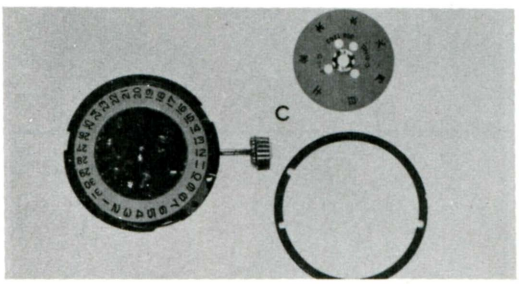


(1) Remove second, minute and hour hands.

(2) Loosen 2 dial screws and remove dial.

Remarks:
The dial guard ring should not be removed.

2. Dial guard ring Day dial



(1) Remove dial guard ring.

(2) Remove day dial gib and day dial (Fig. 16).

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

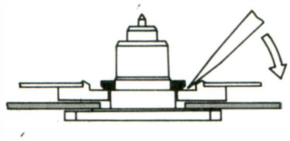
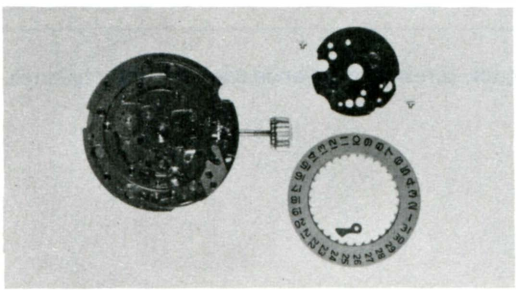


Fig. 16

3. Date dial guard Date dial



(1) Remove 2 date dial guard screws and date dial guard.

Remarks:
The date dial driving finger is to be matched to the wedge of the date dial guard.

(2) Remove date dial.

(3) Remove date jumper.

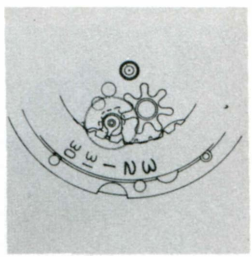
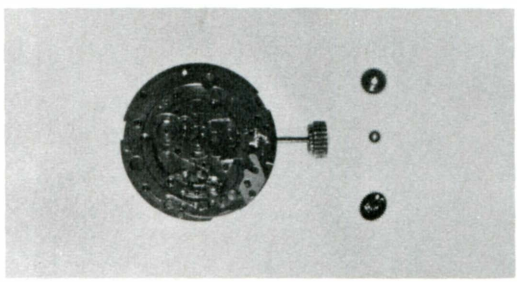


Fig. 17

4. Hour wheel Date dial driving wheel



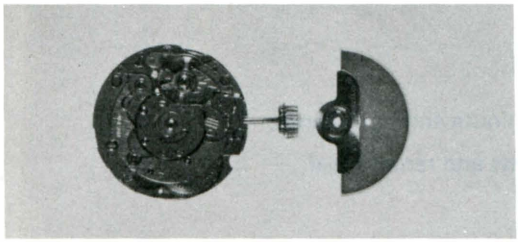
(1) Remove hour wheel.

(2) Remove intermediate date wheel.

(3) Remove date dial driving wheel.

5-2. Automatic winding mechanism

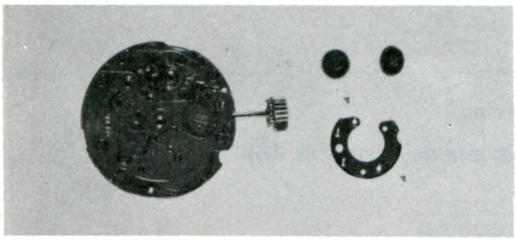
1. Oscillating weight, complete



(1) Remove oscillating weight, complete.

Remarks:
Turn the not left with a Citizen oscillating weight driver.

2. Pawl winding wheel



(1) Remove 2 screws for automatic train bridge and automatic train birdge.

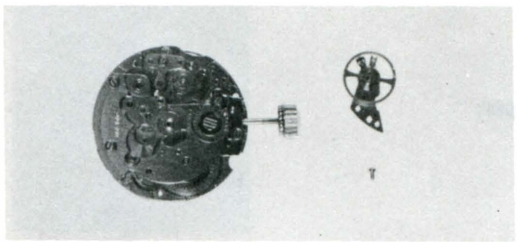
(2) Remove pawl winding wheel and additional and pawl winding wheel.

5-3. Movement

1. Mainspring unwinding

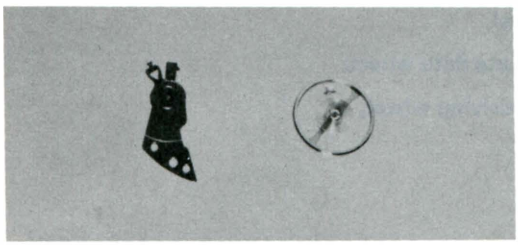
(1) Grasp the crown and disengage the meshing between the click and the crown wheel and unwind the mainspring.

2. Balance cock



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

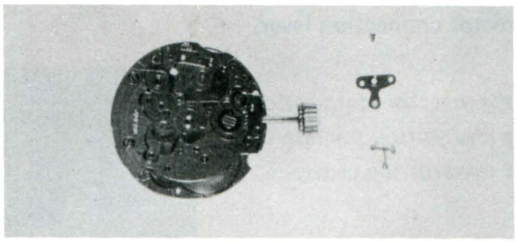
3. Balance



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

(2) Remove the balance.

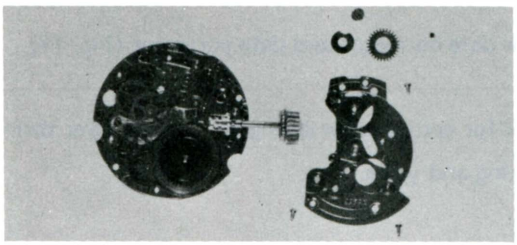
4. Jeweled pallet fork



(1) Remove pallet cock screw and pallet cock.

(2) Remove jeweled pallet fork and staff.

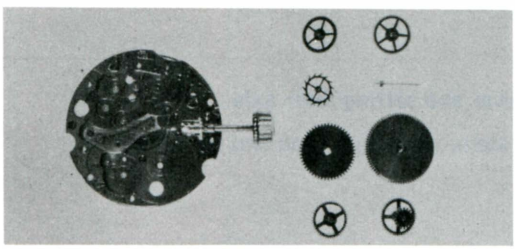
5. Barrel and train wheel bridge
Crown wheel



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

(2) Remove crown wheel screw, crown wheel core and crown wheel.

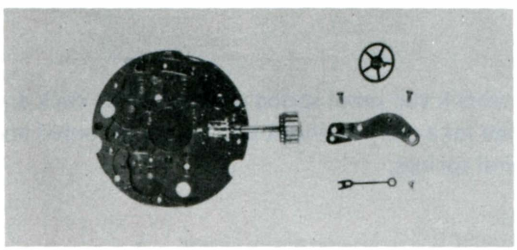
6. Train wheels Barrel



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

(2) Remove ratchet wheel, barrel complete, reduction wheel and pinion and driving gear for ratchet wheel.

7. Cannon pinion Center wheel



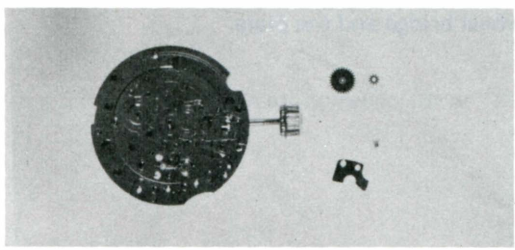
(1) Remove cannon pinion.

(2) Remove 2 screws for center wheel cock and center wheel cock.

(3) Remove center wheel.

(4) Remove screw for friction spring of sweep second pinion and friction spring for sweep second.

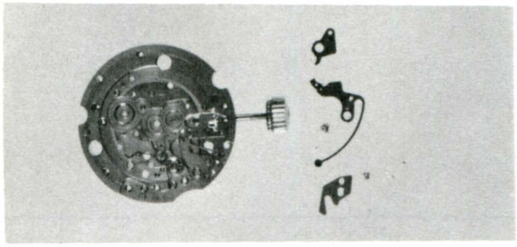
8. Minute wheel Setting wheel



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

(2) Remove minute wheel and setting wheel.

9. Date corrector
Date corrector connection



(1) Remove screw for date corrector guard and date corrector guard.

(2) Remove date corrector connection lever.

Remarks:
Remove the date corrector connection lever by pushing the spring portion of the date corrector towards the center (Fig. 17).

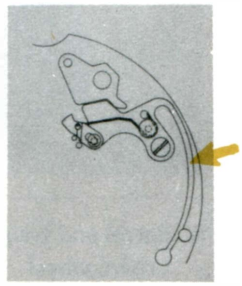
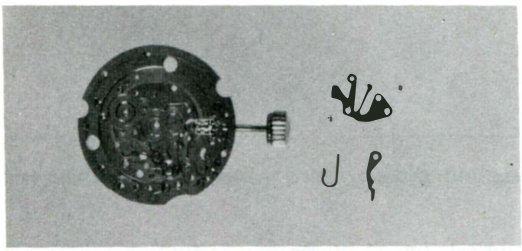


Fig. 18

(3) Remove screw for date corrector and date corrector (Fig. 17).

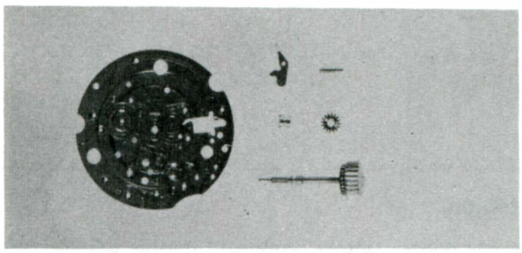
10. Setting lever spring Yoke



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

(2) Remove yoke spring and yoke.

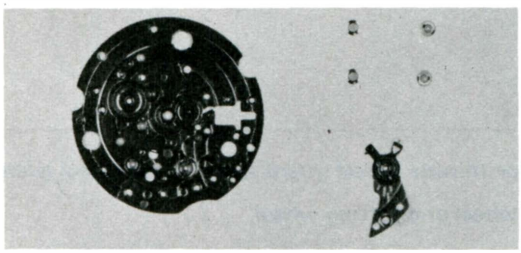
11. Setting lever, winding stem



(1) Remove setting lever and setting lever axle.

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

12. Parashock
Profix



(1) Remove and Parashock cap jewel spring of the balance cock and the plate, and then take out Parashock cap jewels, mounted and the Parashock spiral springs.

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

(2) Insert Parashock cap jewel spring back into the endpiece.

(3) Remove Profix cap jewel spring and Profix cap jewel of the barrel and train wheel bridge and the plate.

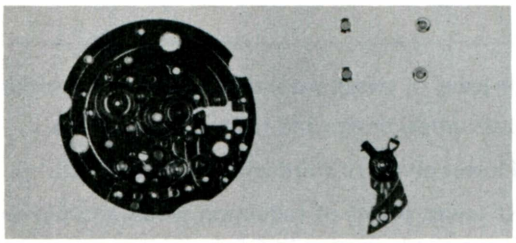
Remarks:
Refer to "PROFIX" in the common item.

6. ASSEMBLY

Contents of assembly

6-1. Movement

1. Parashock Profix



(1) Remove one side of Parashock cap jewel spring of the plate and balance cock from the endpiece and face it down on its stationary side.

(2) Set Parashock spiral spring.

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

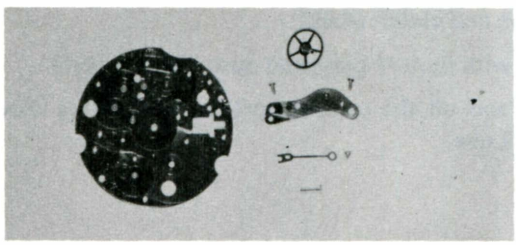
(4) Set Parashock cap jewel spring in position.

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

(5) Set Profix cap jewel and Profix cap jewel spring in to the plate and the barrel and train wheel bridge and oil with Synt-A-Lube.

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

2. Center wheel, Cannon pinion



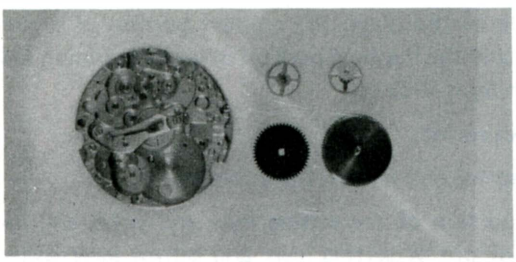
(1) Set center wheel and center wheel cock and tighten the 2 screws.

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

(3) Push in cannon pinion.

(4) Set friction spring for sweep second pinion and tighten the screw.

3. Barrel, Ratchet wheel, Reduction wheel



(1) Oil the pinion of reduction wheel & pinion and driving gear for ratchet wheel with CA-1 and set them inposition.

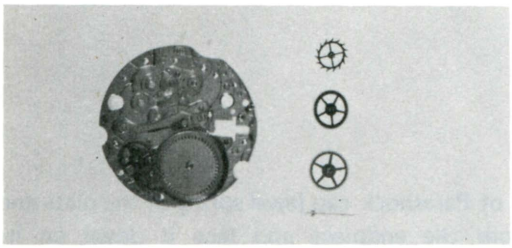
(2) Oil the upper and lower pivots of the barrel arbor and the bearings of the barrel and the arbor with CA-1 oil.

Remarks:
When disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING" in the common item.

(3) Set ratchet wheel to the square portion of the barrel arbor and assemble.

(4) Oil the contact portion of setting lever axle with the plate with Synt-V-Lube.

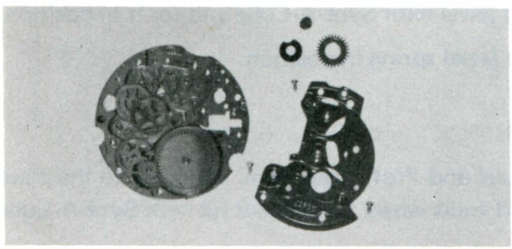
4. Train wheels



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

(2) Oil the lower pivot of sweep second pinion in 2 places and the contact portion with friction spring with Synt-A-Lube and set in position.

5. Barrel and train wheel bridge, Crown wheel



(1) Oil the upper hole jewel of sweep second pinion from the inside.

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

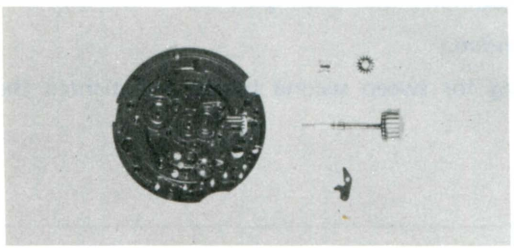
(3) Oil the upper and lower pivots of third wheel with CA-1 oil.

(4) Oil the upper and lower pivots of reduction wheel and pinion and driving gear for ratched wheel with CA-1 oil.

(5) Oil the bearing portion of crown wheel with crown wheel core with Synt-V-Lube.

(6) Set crown wheel and crown wheel core and tighten the screw.

6. Winding stem, Setting lever

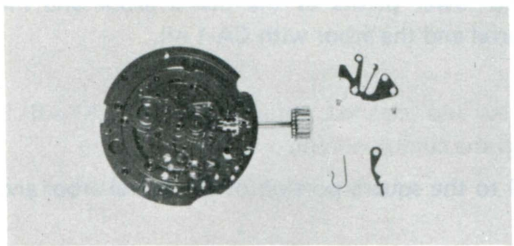


(1) Set winding pinion and clutch wheel.

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

(3) Set setting lever and oil the contact portion with setting lever axle with Synt-V-Lube.

7. Setting lever spring



(1) Oil the yoke axle of the plate, the contact portion of clutch wheel with yoke and the meshing portion of winding pinion and clutch wheel with Synt-V-Lube.

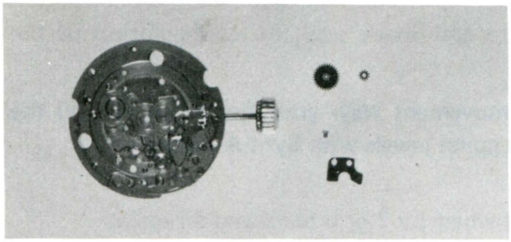
(2) Set yoke and yoke spring.

(3) Set setting lever spring and tighten the 2 screws.

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

Remarks:
Wind the mainspring a little (Small the crown 2 to 3 times) and check whether or not the train wheels turn smoothly.

8. Setting wheel, Minute wheel

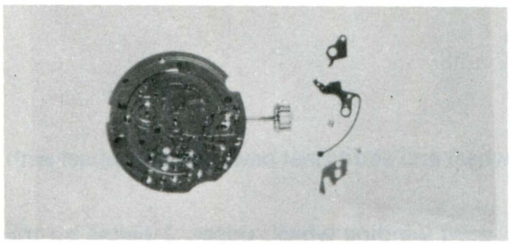


(1) Oil the setting wheel axle minute wheel axle and guide surface of the plate with Synt-V-Lube.

(2) Set setting wheel and minute wheel.

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

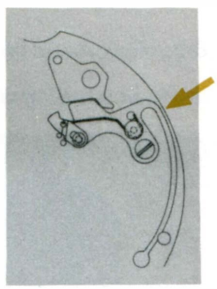
9. Date Corrector
Date corrector connection lever



(1) Set date corrector and tighten the screw.

(2) Set date corrector connection (Fig. 18).

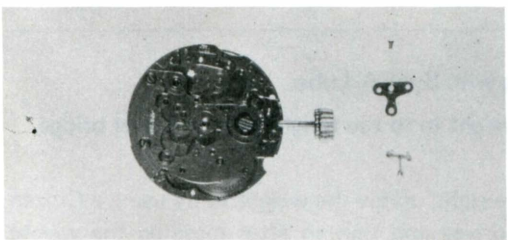
Remarks:
Set date corrector connection lever while pushing the spring portion of date corrector towards the center (Fig. 18).



(3) Oil date corrector axle date corrector finger pin, the contact portion of date corrector connection lever and setting lever, and the contact portion of date corrector connection lever and date corrector with Synt-V-Lube.

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

10. Jeweled pallet fork



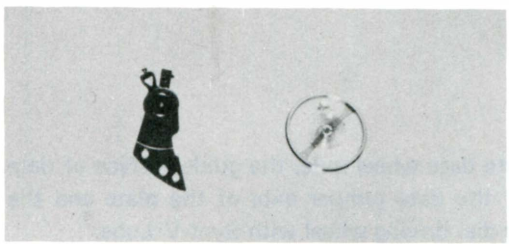
(1) Set jeweled pallet fork.

(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 2 or 3 times) and check the operation of jeweled pallet fork.

11. Balance



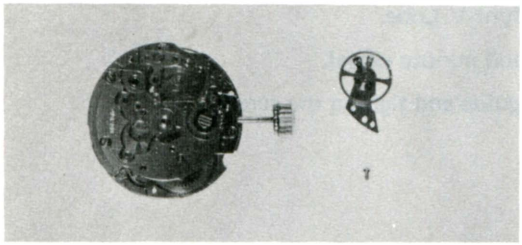
(1) While inserting the hairspring stud into the hairspring stud hole of the balance cock, insert the hairspring between the regulator pin and the regulator key.

(2) Turn the regulator key.

(3) Tighten the hairspring stud screw.

Remarks:
Be careful not to deform the hairspring configuration.

12. Balance cock



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

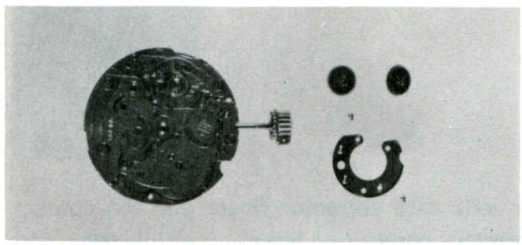
Remarks:
Carefully check the end shake and the configuration of the hairspring.

(2) Stop the balance movement with your finger-tips 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 winding mechanism

1. Pawl winding wheel



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

Oil the bearing of pawl winding wheel, upper, 2 places on the teeth of pawl winding wheel, upper and lower, 2 places on the star shaped pinion and axle with Synt-V-Lube.

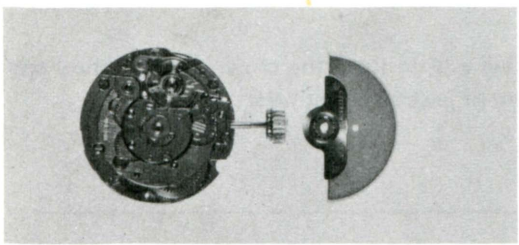
(2) Oil the lower hole jewel of pawl winding wheel and additional pawl winding wheel with CA-1 oil.

(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 additional pawl winding wheel with CA-1 oil.

2. Oscillating weight complete



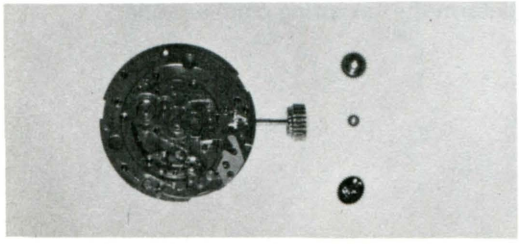
(1) Oil the ball bearing with Synt-A-Lube.

(2) Screw oscillating weight in to the weight post of barrel bridge.

Remarks:
While turning the weight, screw the weight in by using a Citizen oscillating weight driver and tighten after meshing the weight pinion with the pawl winding wheels.
Slant the movement and check whether or not the weight turns smoothly to the right and left.

6-3. Day and date mechanism

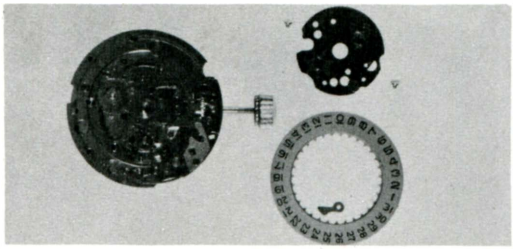
1. Date dial driving wheel, Hour wheel



(1) Oil the intermediate date wheel axle, the guide surface of date dial driving wheel the date jumper axle of the plate and the lower pivot of date dial driving wheel with Synt-V-Lube.

(2) Set date dial driving wheel, intermediate date wheel and the hour wheel.

2. Date dial, Date dial guard



(1) Oil the day dial driving wheel axle, the contact portion of the axle and the rivet of day jumper of date dial guard with Synt-V-Lube.

(2) Oil the contac portion of the plate with the date dial teeth tip, the date jumper axle, the meshing portion of date jumper with the date dial teeth with Synt-V-Lube.

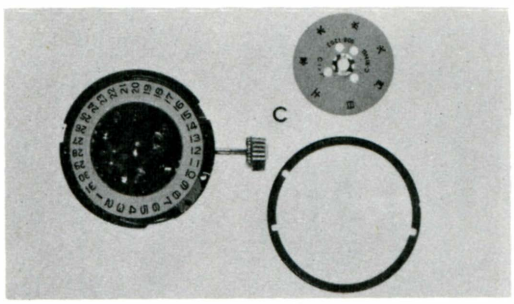
(3) Set date jumper and date dial.

Remarks:
Determine the position of the date dial guard with the winding stem pulled so the pin for determining date correction position (protrudes from the date dial guard) does not ride on the date corrector finger and slide and assemble the date dial guard with the date corector finger in working condition.

(4) Set date dial guard and tighten the 2 screws.

Remarks:
Turn the hands and check the date dial operation. Check the quick date changing condition by performing a reciprocating motion of the crown.

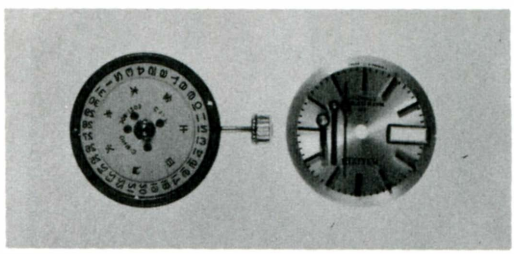
3. Day dial, Dial guard ring



(1) Set day dial and attach the day dial gib.

Remarks:
The day dial gib is assembled to the pipe portion of the hour wheel and is pushed in by tweezers, etc.

4. Dial Hands



(1) Attach dial and tighten 2 dial screws.

Remarks:
Tighten the screws securely while pushing the dial so it will not rise up.
Turn the hands and check the operation of the day dial.

(2) Attach hour, minute and second hands.

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

7. TROUBLE SHOOTING

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

1. SPECIFICATIONS

Cal. No.	Size (mm)	Thick-ness (mm)	Vibrations per hour	Without second hand	Center second	Fine adjuster
670*	13.0x15.15	3.7	21,600	o	x	o
671*	"	"	"	o	x	x
681*	"	4.2	"	x	o	x

- Parashock (Shockproofing device) is employed on all calibers, while the Profix (Oil Preservation device) is employed on all watches with more than 19 jewels.

Cal. No. 68** Bridge side

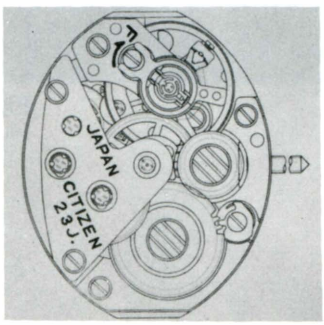


Fig. 1

Cal. No. 67** Bridge side

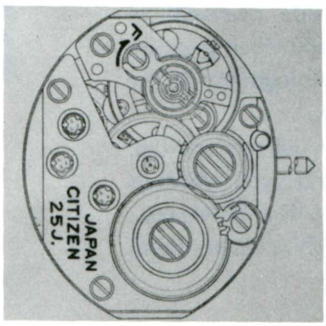


Fig. 2

Cal. No. 67**
68** Dial side

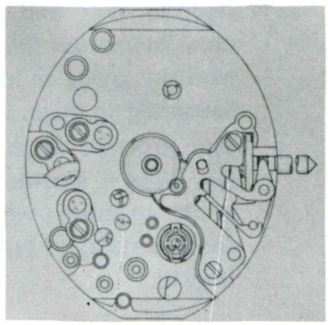


Fig. 3

2. CHARACTERISTICS

The 67 series is newly designed small-sized wrist watches of the without second hand type and the center second type which places its main emphasis on the high performance. Through the adoption of a balance with a large moment of inertia, train wheel with new tooth shape, triangle hai-spring stud, out-of-beat correcting device regulating device for fine adjustment, etc., it maintains a stabilized high precision.

3. POSITIONS WHERE JEWELS ARE USED

Jeweled position	670*	671*			681*	
	23j	17j	19j	21j	19j	21j
Center W.	2	2	2	2	2	2
Third W.	4	2	2	4	2	2
Fourth W.	4	2	2	2	2	3
Sweep second P.					1	1
Escape W.	4	2	4	4	3	4
Pallet	4	4	4	4	4	4
Balance	5	5	5	5	5	5

4. STRUCTURE AND OPERATIONS

4-1. Movement

(1) Train wheels

- In the train wheels of Cal. No. 67** and Cal. No. 68**, a newly designed tooth shape has been adopted. Due to this, the transmittance efficiency has been promoted and the periodical rate variation has been improved.
- The arrangment of the train wheels for Cal. No. 67** and Cal. No. 68** differing from conventional ladies' watches has been reversed (left and right side inversed) in order to improve the accuracy when they are worn by giving an ideal pinningpoint of the hairspring on them. (Fig. 4)
- The structure of the train wheels for Cal. No. 68** is a center second type which is similar to those used in Cal. No. 53**, etc., and is a standard type which is widely used. (Fig. 5).

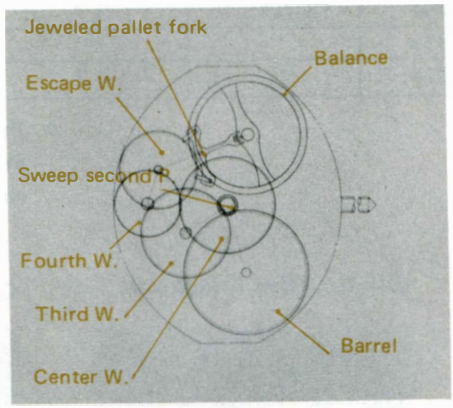


Fig. 4

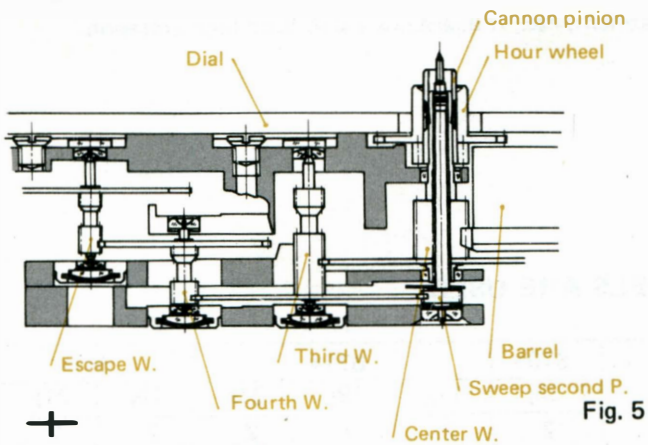
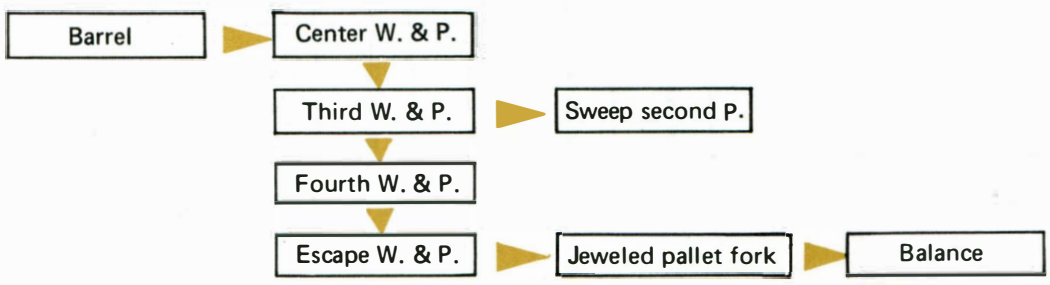


Fig. 5

⊙ The power transmitance process is as follow:



(2) Balance

A superior time performance is obtained through the adoption of a hairspring with a high elasticity coefficient (1.75 times that of watches for the Cal. No. 43 series) and a balance with a large moment inertia.
The winding direction of the hairspring is in reverse to conventional watches and the effect of the gravity error of the hairspring which occurs during accommodation of the watch has been minimized.

(3) Escapement

Through the adoption of a newly designed escape wheel and a jeweled pallet fork, the efficiency of the escapement device has been promoted and the escapement error has been minimized.

(4) Bridges and cocks (Fig. 6)

- A single guide system has been employed for the attachment of the barrel bridge and the sweep second cock. Due to this, the accuracy on the bearing positions of the plate, bridges and cocks is obtainable.
- The accuracy of the escapement is stabilized as a bridge form has been employed on the pallet cock.
- A unique and new oil preservation treatment which has been developed by Citizen is provided on the jewels.

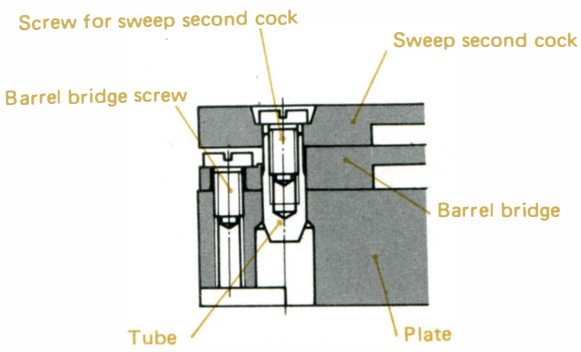


Fig. 6

(5) Friction spring for sweep second pinion (Figs. 7 and 8)

- The friction spring has a nwe structure which improves the pressing stability and facilitation for assembly of the sweep second pinion.
- The friction spring has its position determined in the up and down and left and right directions at its tip by the friction spring rivet. Thus, the power and position in which the friction spring holds down sweep second pinion becomes stabilized and assemble is also simplified.

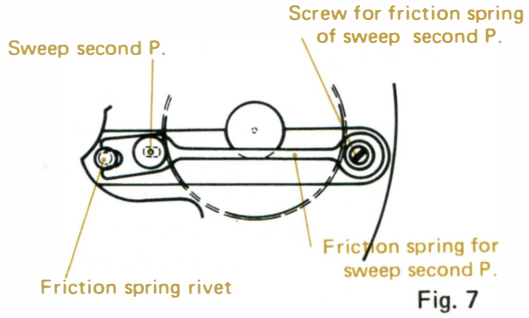


Fig. 7

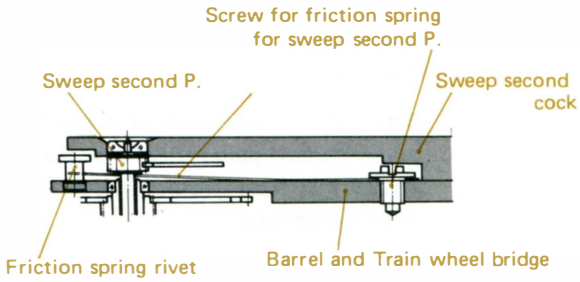
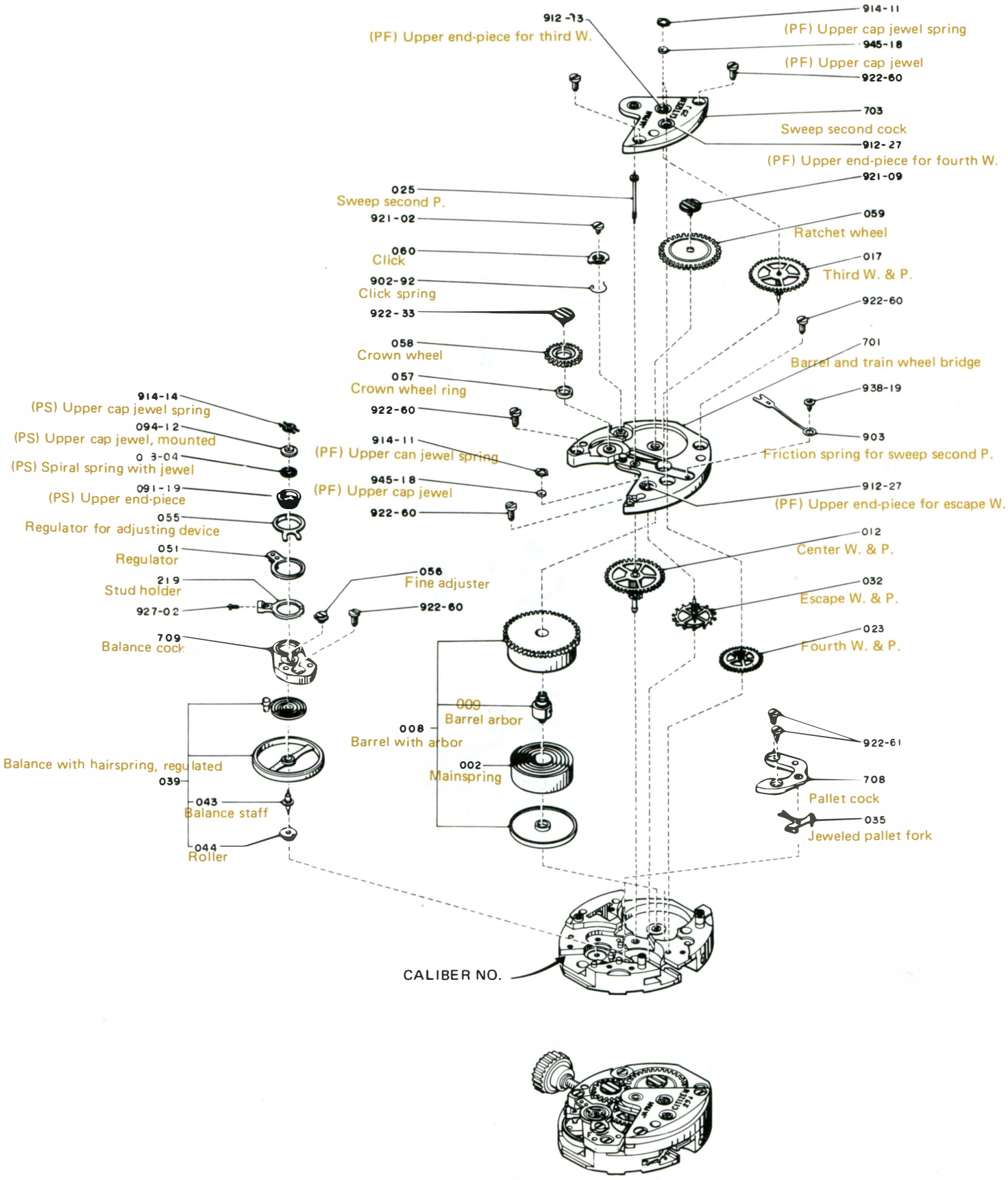


Fig. 8

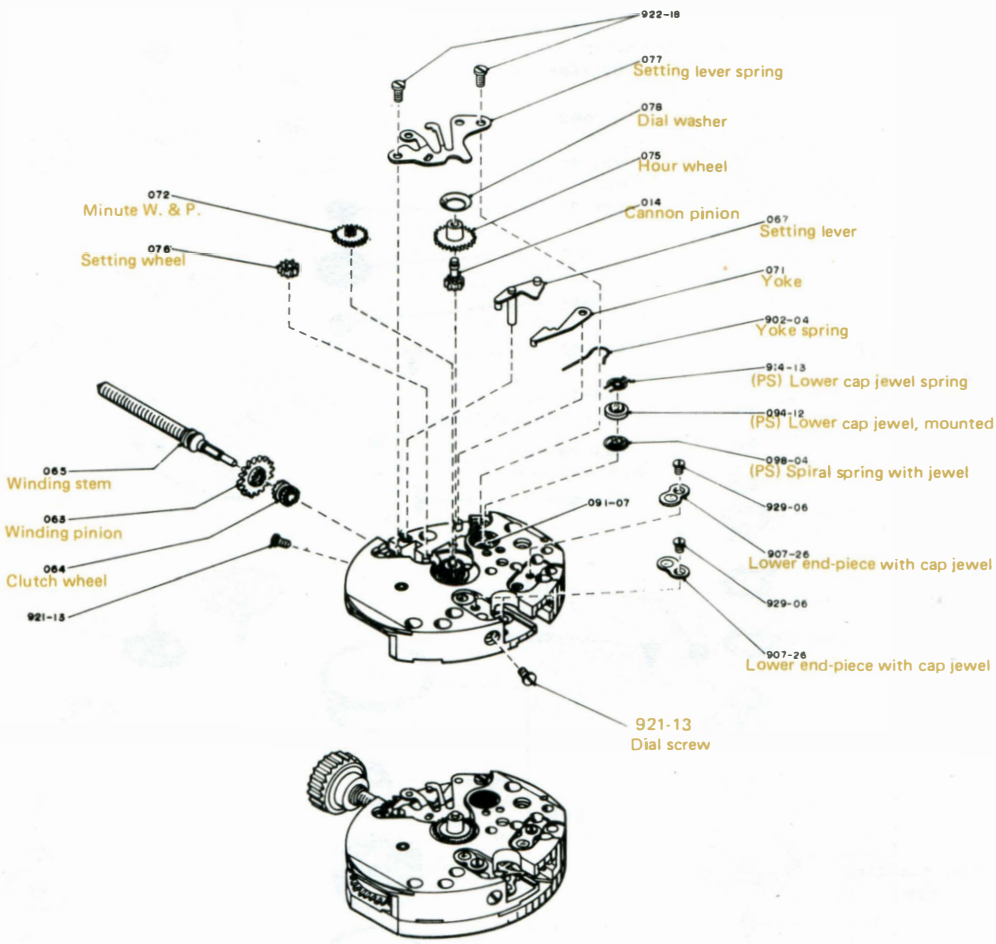
4-2. Structure (Exploded view and parts name)

Bridge side



4-2. Structure (Exploded view and parts name)

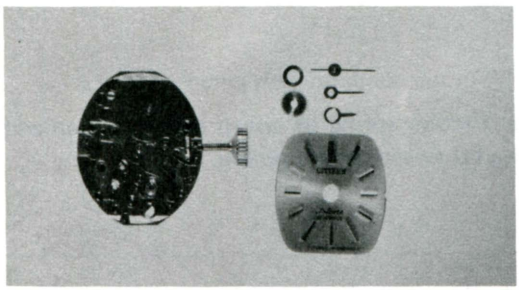
Dial side



5. DISASSEMBLY

Contents of disassembly

1. Hands. Dial



(1) Remove second, minute and hour hands.

Remarks:
For Cal. No. 67** remove minute and hour hands.

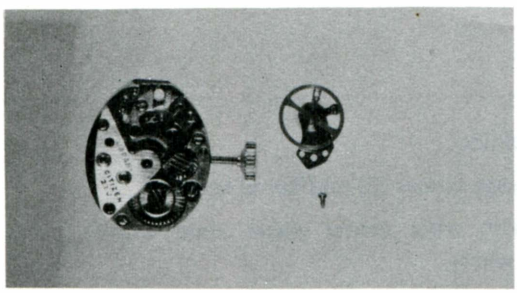
(2) Loosen dial screws (2) and remove dial.

(3) Remove dial washer and hour wheel.

2. Mainspring unwinding

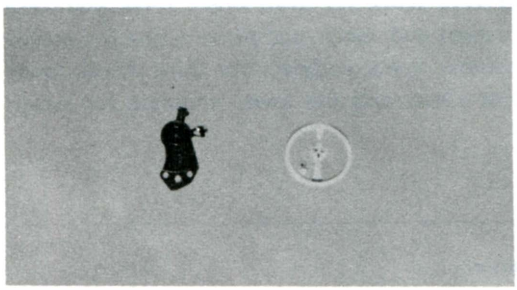
(1) Grasp the crown and disengage the meshing of the click with the ratchet wheel and gradually unwind the mainspring.

3. Balance cock



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

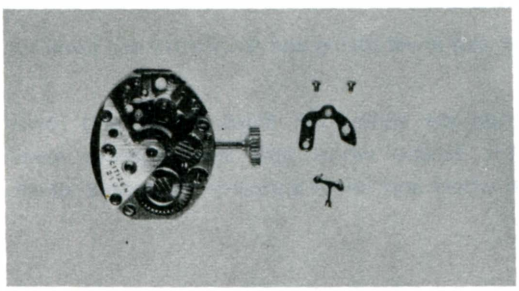
4. Balance



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

(2) Remove the balance.

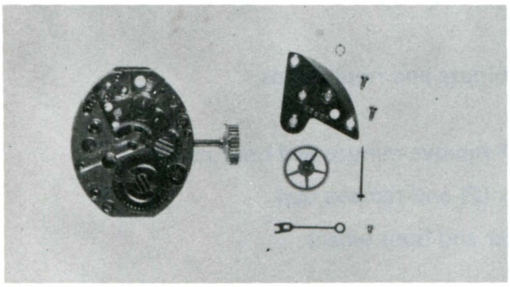
5. Jeweled pallet fork



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

(2) Remove jeweled pallet fork.

6. Sweep second cock
(Exclude Cal. No. 67**)



(1) Remove screw for sweep second cock and then, sweep second cock.

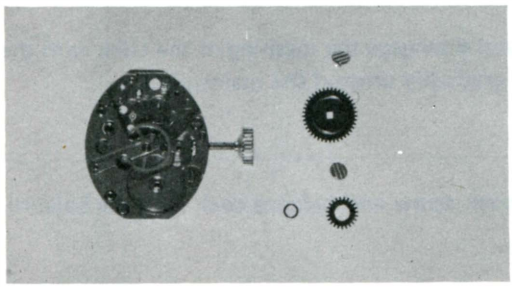
(2) Remove third wheel and sweep second pinion.

(3) Remove Profix cap jewel spring and Profix cap jewel for third and fourth wheel.

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

(4) Remove screw for friction spring of sweep second pinion and then, friction spring for sweep second pinion.

7. Ratchet wheel, Crown wheel

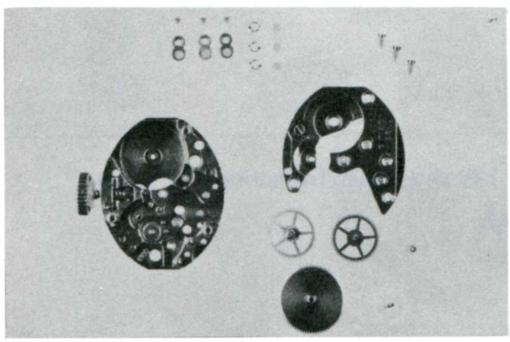


(1) Remove tatchet wheel screw and ratchet wheel.

(2) Remove crown wheel screw, crown wheel core and crown wheel.

Remarks:
Not necessary to remove click and click spring.

8. Barrel and train wheel bridge
(Applicable for Cal. No. 67**)



(1) Remove cannon pinion.

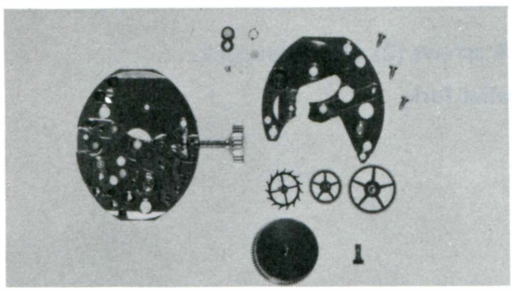
(2) Remove barrel bridge screws (3) and barrel bridge.

(3) Remove barrel with arbor center wheel, third wheel, fourth wheel and escape wheel.

(4) Remove Profix cap jewel spring and Profix cap jewel for third, fourth and escape wheels.

(5) Remove lower end-piece screw for third wheel, lower end-piece screw for fourth wheel and lower end-piece screw for escape wheel and then, remove lower endpiece for third wheel, lower end-piece for fourth wheel and the lower endpiece for escape wheel.

8'. Barrel and train wheel bridge
(Applicable for Cal. No. 68**)



(1) Remove cannon pinion.

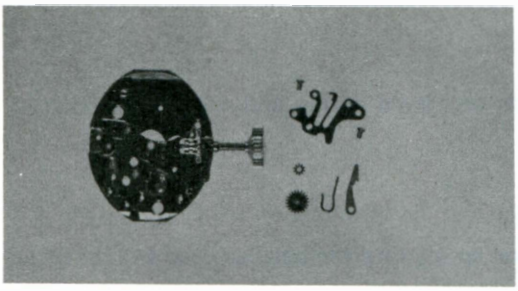
(2) Remove barrel bridge screws (3) and barrel bridge.

(3) Remove barrel with arbor, center wheel, third wheel, fourth wheel and escape wheel.

(4) Remove the Profix cap jewel spring and the Profix cap jewel for escape wheel.

(5) Remove lower endpiece screw for third wheel and lower endpiece screw for escape wheel and then, remove lower endpiece for third wheel and lower endpiece for escape wheel.

9. Setting lever spring

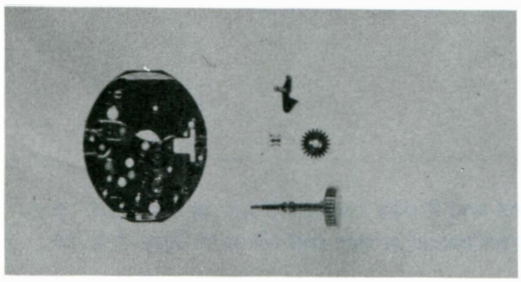


(1) Remove screws for setting lever spring (2) and the setting lever spring.

(2) Remove minute wheel and setting wheel.

(3) Remove yoke and yoke spring.

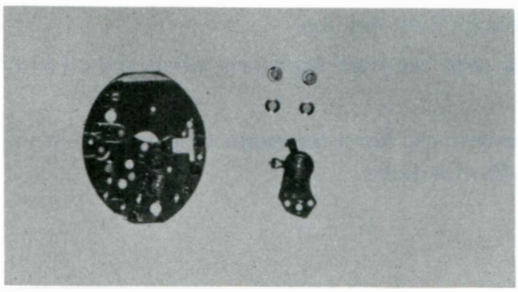
10. Winding stem



(1) Remove setting lever.

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

11. Parashock



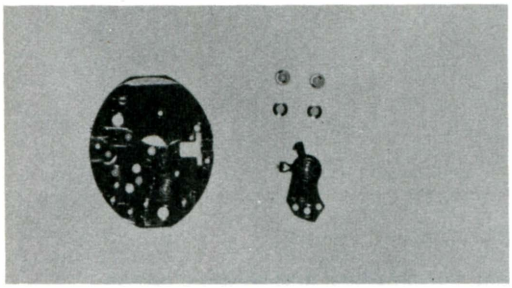
(1) Remove Parashock cap jewel spring, Parashock cap jewel, mounted and the Parashock spiral spring, lower and upper.
Remarks:
Refer to "PARACHOCK" in the common item.

(2) Insert Parashock cap jewel spring back into the endpiece.

6. ASSEMBLY

Contents of assembly

1. Parashock



(1) Remove Parashock cap jewel spring and face it down on its stationary side.

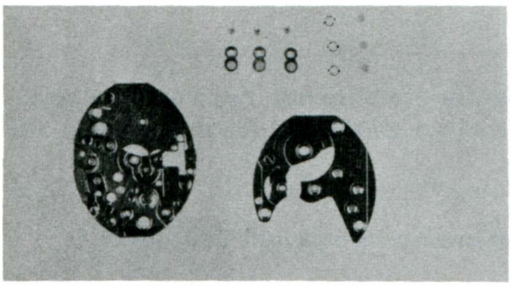
Remarks:
Refer to "PARASHOCK" in the common item.

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

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

(4) Set Parashock cap jewel spring in position.

2. Profix
(Applicable for Cal. No. 67**)



(1) Set Profix cap jewel and Profix cap jewel spring for third, fourth and escape wheels on barrel bridge and oil with Synt-A-Lube.

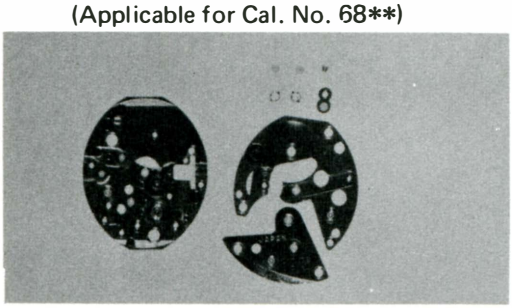
Remarks:
Refer to "PROFIX" in the common item.

(2) Assemble lower end-piece with jewel for third wheel and oil from the back side with Synt-A-Lube.

(3) Set lower endpiece with cap jewel for fourth wheel and oil with Synt-A-Lube.

(4) Set lower endpiece with cap jewel for escape wheel and oil from the back side with Synt-A-Lube.

2'. Profix
(Applicable for Cal. No. 68**)



(1) Set Profix cap jewel and Profix cap jewel spring for escape wheel on to barrel bridge and oil with Synt-A-Lube.

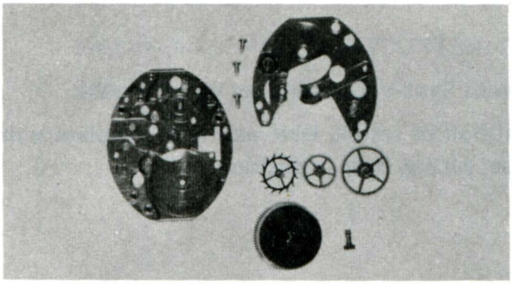
Remarks:
Refer to "PROFIX" in the common item.

(2) Set Profix cap jewel and Profix cap jewel spring for third and fourth wheels on to sweep second cock and oil with Synt-A-Lube.

(3) Set lower end-piece with cap jewel for third wheel and oil from the back side with Synt-A-Lube.

(4) Set lower end-piece with cap jewel for escape wheel and oil from the back side with Synt-A-Lube.

3. Barrel and train wheel bridge



(1) Oil the upper and lower pivots of barrel arbor and the bearings of barrel with the arbor with CA-1 oil and assemble.

Remarks:
When barrel with arbor is disassembled and cleaned, refer to "UNBREAKABLE MAINSPRING" in the common item.

(2) Set center wheel, third wheel, fourth wheel and escape wheel.

(3) Set barrel bridge and tighten the 3 screws.

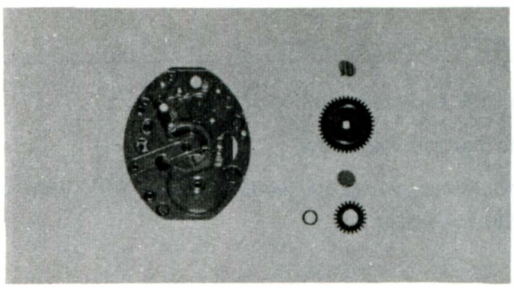
(4) Oil the upper and lower pivots of center wheel and the friction fitting portion of cannon pinion.

Remarks:
For Cal. No. 6710-21j oil the upper and lower pivots of fourth wheel with Synt-A-Lube.

(5) Push in cannon pinion.

Remarks:
For Cal. No. 6710-19j, oil the upper and lower pivots of third and fourth wheel with Synt-A-Lube.
For Cal. No. 6710-17j, oil the upper and lower pivots of third fourth and escape wheel with Synt-A-Lube.

4. Crown wheel, Ratchet wheel



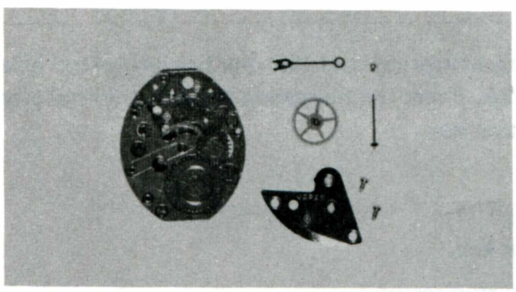
(1) Set crown wheel core.

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

(3) Set crown wheel and tighten the screw.

(4) Set ratchet wheel and tighten the screw.

5. Sweep second cock
(Applicable for Cal. No. 67**)



(1) Set friction spring for sweep second pinion and tighten the screw.

(2) Set thrid wheel.

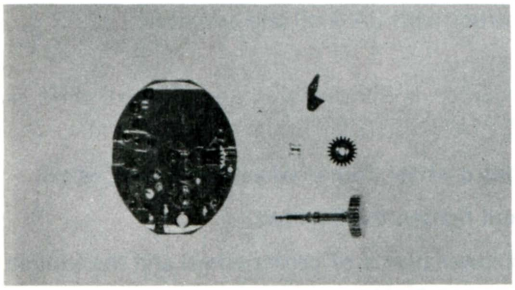
(3) Oil the lower pivot of sweep second pinion and its contacting portion with the friction spring with Synt-A-Lube and assemble.

(4) Set sweep second cock and tighten the screws(3).

(5) Oil the upper pivot of sweep second pinion and lower pivot of fourth wheel with Synt-A-Lube.

Remarks:
For Cal. No. 6810-19j, oil the upper and lower pivots of third wheel the upper pivot of fourth wheel and the lower pivot of escape wheel with Synt-A-Lube.
For Cal. No. 6870-21j, oil the upper and lower pivots of third wheel with Synt-A-Lube.

6. Winding stem



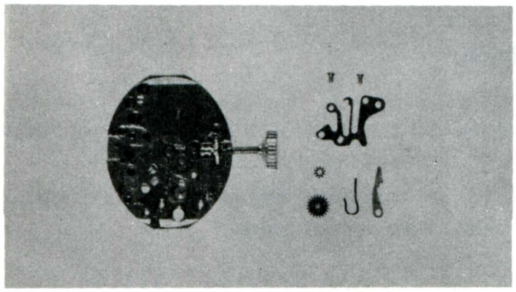
(1) Set winding pinion and clutch wheel.

Remarks:
Refer to "OILING INSTRUCTION" in the common item.

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

(3) Oil the contact protion of setting lever axle with the plate with Synt-V-Lube and set setting lever in position.

7. Setting lever spring



(1) Oil the yoke axle setting wheel axle, minute wheel axle of the plate and the contact portion of the yoke with clutch wheel and the meshing portion of winding pinion with clutch wheel with Synt-V-Lube.

(2) Set yoke and yoke spring.

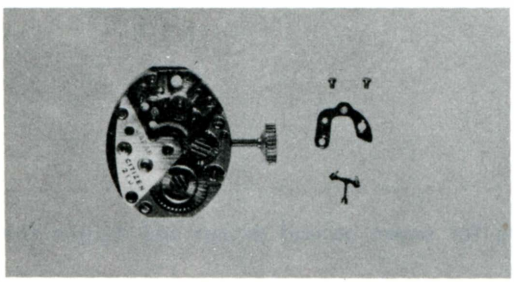
(3) Set setting wheel and minute wheel.

(4) Set setting lever spring and tighten the screws (2).

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

Remarks:
Wind the mainspring a little (turn the crown 2 or 3 times) and check whether or not the train wheels rotate smoothly.

8. Jeweled pallet fork



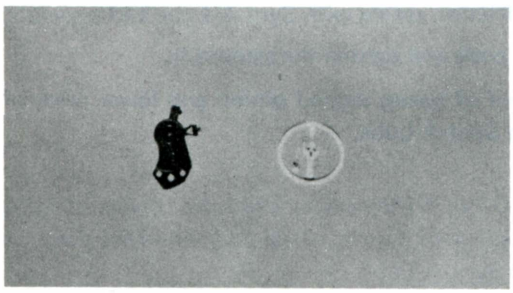
(1) Set jeweled pallet fork and staff.

(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 2 or 3 times) and check the operation of jeweled pallet fork.

9. Balance



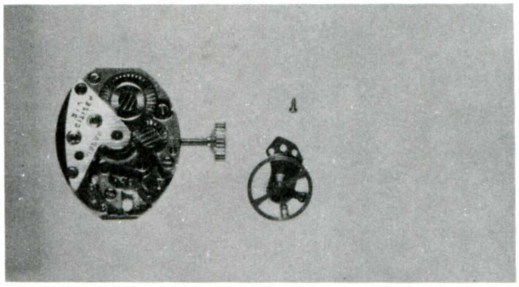
(1) While inserting the hairspring stud into the hairspring stud hole of the balance cock, insert the hairspring between the regulator pin and the regulator key.

Remarks:
Be careful not to deform the configuration of hairspring.

(2) Turn the regulator key.

(3) Tighten hairspring stud screw.

10. Balance cock



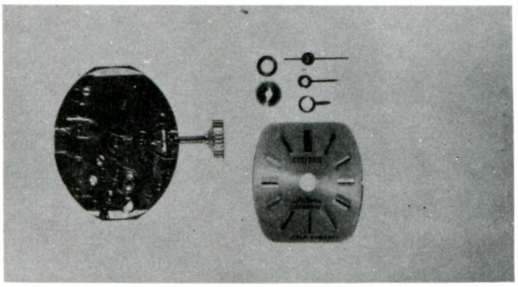
(1) Set balance cock with the balance and tighten the screw.

Remarks:
Carefully check the end shake and the configuration of hair-spring.

(2) Stop the movement of the balance with your fingertips 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.

11. Dial, Hands



(1) Set hour wheel and dial washer.

(2) Attach dial and tighten screws (2).

(3) Attach hour, minute and second hands.

Remarks:
For Cal. No. 67**, attach hour and minute hands.

7. TROUBLE SHOOTING

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