TECHNICAL INFORMATION

CITIZEN QUARTZ

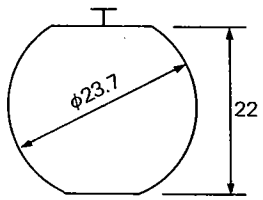
Cal. No. 38※※※

CITIZEN

■1. OUTLINE

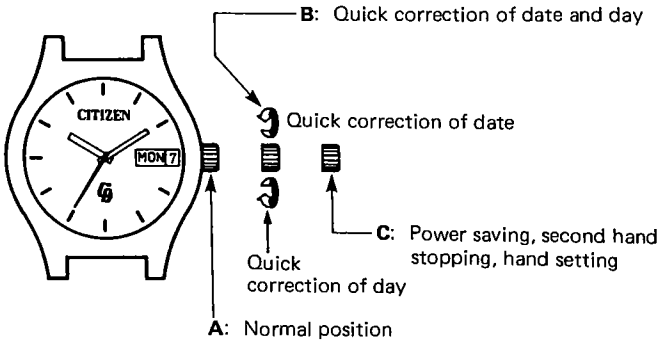
These are men's watches designed to make a pair with Cal. 36XXX-01 which is a ladies' watch already marketed at a popular price.

■2. SPECIFICATIONS

Caliber No.		3800A-01
Type		Analog quartz watch (with center second)
Movement (mm)		 Thickness: 2.9^t 3.2^t (measured when the power cell is included)
Accuracy		±20 sec./month at normal temperatures
Oscillation		32,768Hz
Integrated circuit		C/MOS-LSI (1 unit)
Effective temp. range		-10°C ~ +60°C (14°F ~ 140°F)
Converter		Bipolar step motor
Adjustment of time rate		DFC (having no adjustment terminal for customers' use)
Measurement of time rate		10 seconds
Additional functions	Date (with quick setting device)	Yes (O)
	Day (with quick setting device)	Yes (O)
	Selective display of bilingual day of the week	Yes (O)
	Second hand stopping device	Yes (O)
	Power saving switch	Yes (O)
	Power cell life indicator	No (X)
Power cell	Parts No.	280-31
	Cell code	SR920SW
	Size (mm)	9.5ϕ x 2.05^t
	Voltage	1.55V
	Capacity	39mAH
	Lifetime	About 5 years
Value of current		Within 1.1μA (for the operation of the module)
Value of coil resistance		1.8kΩ ~ 2.4kΩ
Remarks		

■3. HANDLING INSTRUCTIONS

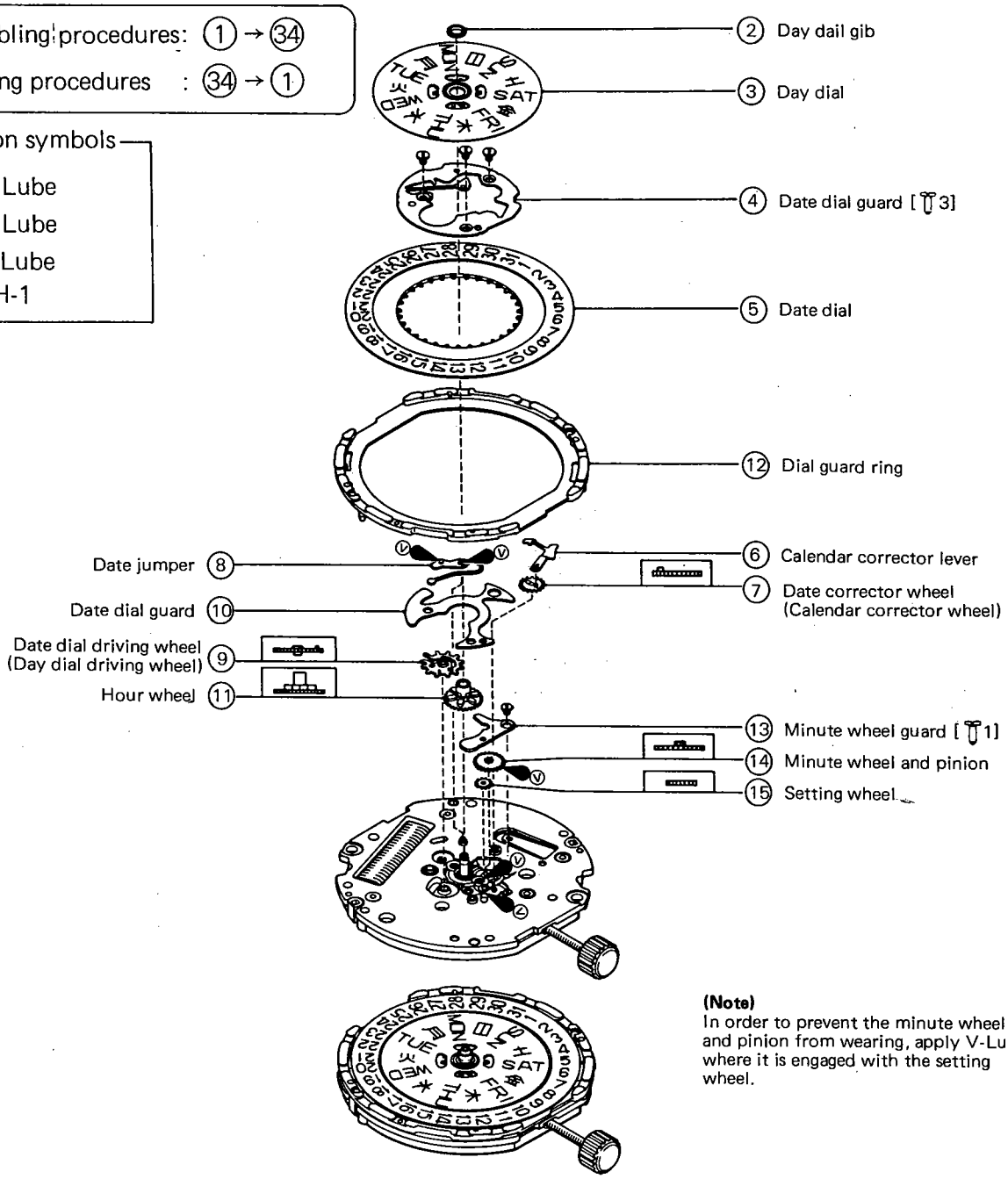
These calibers can be handled in the same way as the general type of analog watch has been.



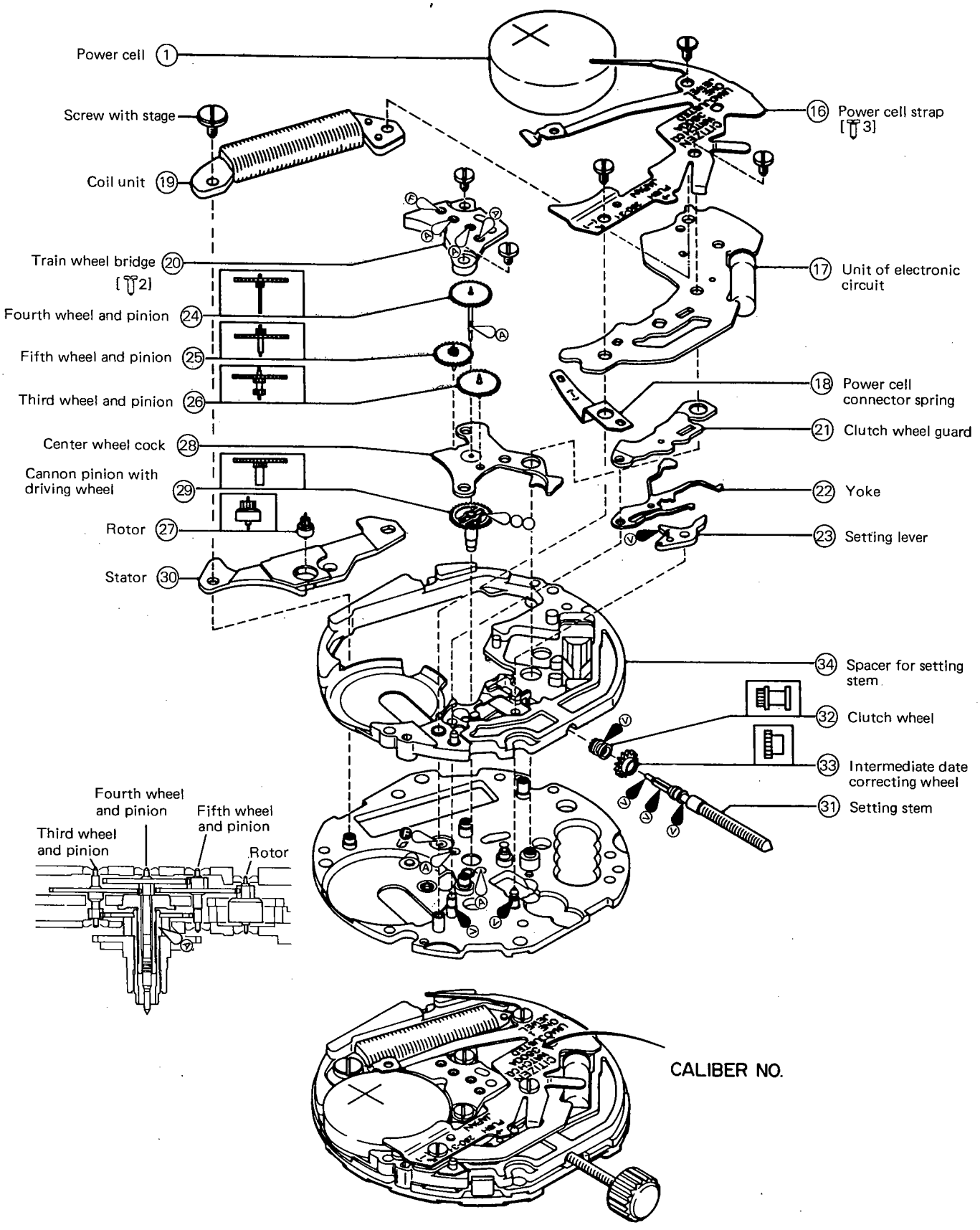
■4. DISASSEMBLY & ASSEMBLY OF THE MOVEMENT

Disassembling procedures: ① → ㉞
Assembling procedures : ㉞ → ①

Lubrication symbols
- Ⓐ A-Lube
- Ⓥ V-Lube
- Ⓕ F-Lube
- CH-1

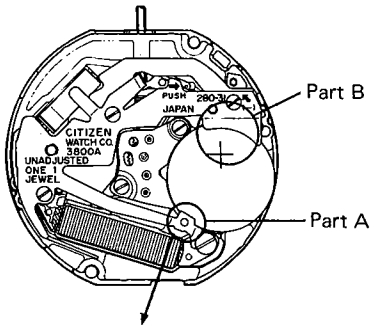


(Note)
In order to prevent the minute wheel and pinion from wearing, apply V-Lube where it is engaged with the setting wheel.


Power cell (1)
Screw with stage
Coil unit (19)
Train wheel bridge (20)
[T2]
Fourth wheel and pinion (24)
Fifth wheel and pinion (25)
Third wheel and pinion (26)
Center wheel cock (28)
Cannon pinion with driving wheel (29)
Rotor (27)
Stator (30)
(16) Power cell strap [T3]
(17) Unit of electronic circuit
(18) Power cell connector spring
(21) Clutch wheel guard
(22) Yoke
(23) Setting lever
(34) Spacer for setting stem
(32) Clutch wheel
(33) Intermediate date correcting wheel
(31) Setting stem
Fourth wheel and pinion
Fifth wheel and pinion
Third wheel and pinion
Rotor
CALIBER NO.

■5. NOTES ON DISASSEMBLY & ASSEMBLY

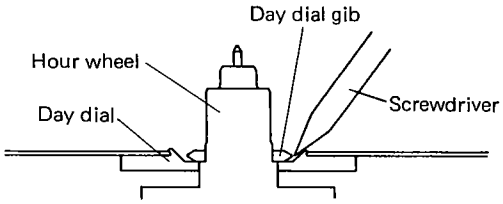
(1) Removal and mounting of the power cell



- Removal
  If sliding part A with the tweezers in the direction of the arrow, the power cell can be removed. At that moment, be careful not to scratch the coil unit with the tweezers.

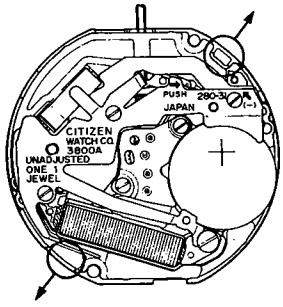
- Mounting
  Put the power cell under part B, first.
  Then insert the power cell into the right position while sliding part A in the direction of the arrow just as done in removal.

(2) Removal of the day dial gib



- Insert the small screwdriver into the gap between the day dial and the day dial gib, first. Remove the gib by gradually prying it up. At this moment, be careful not to damage the hour wheel.

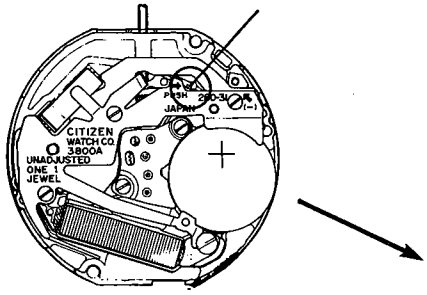
(3) Removal of the dial guard ring

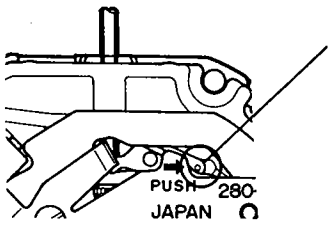


- The dial guard ring should be removed after the date dial has been.

- Release the two hooks circled in the left figure in the direction of the arrow, first and remove the dial guard ring by gradually prying it up.

(4) How to remove the setting stem

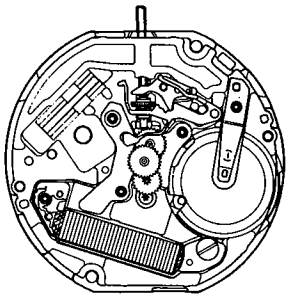




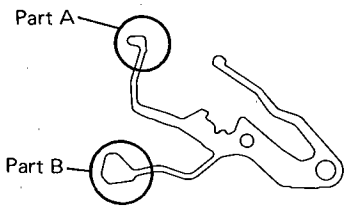
The setting stem should be removed only when it is in its normal position.

Remove the setting stem while pushing the part at the site indicated by the arrow in the figure below, with the tweezers.

(5) How to install the yoke



- Befor installing the yoke, be sure to check that the third wheel and pinion has been installed and also that the crown is in its normal position.
- Install the yoke correctly as shown in the left figure. Pay special attention to whether the yoke is well engaged with both the setting lever and the setting lever axis. After installation of the yoke, the yoke and the setting lever may sometimes come up. When installing the clutch wheel guard, be sure to check that the yoke is well engaged with the clutch wheel and also that the setting lever is well engaged with the setting stem.



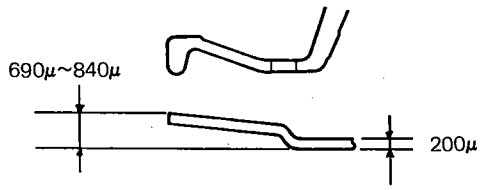
- The yoke incorporated by this caliber serves as the resetting lever and also as the brake lever.

  Part A, which corresponds to the pattern on the back surface of the unit of electronic circuit, serves as the resetting lever.

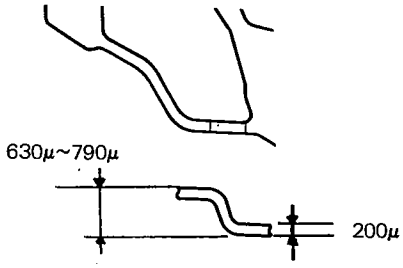
  Part B, which corresponds to the tooth-shaped section of the fourth wheel and pinion, serves as the brake lever that stops operation of the train wheel.
- Make sure that both parts A and B have been bent to the desired degree as shown in the figures below.

  In case they have not properly been bent, either bend them again to the desired degree or replace them with new ones.

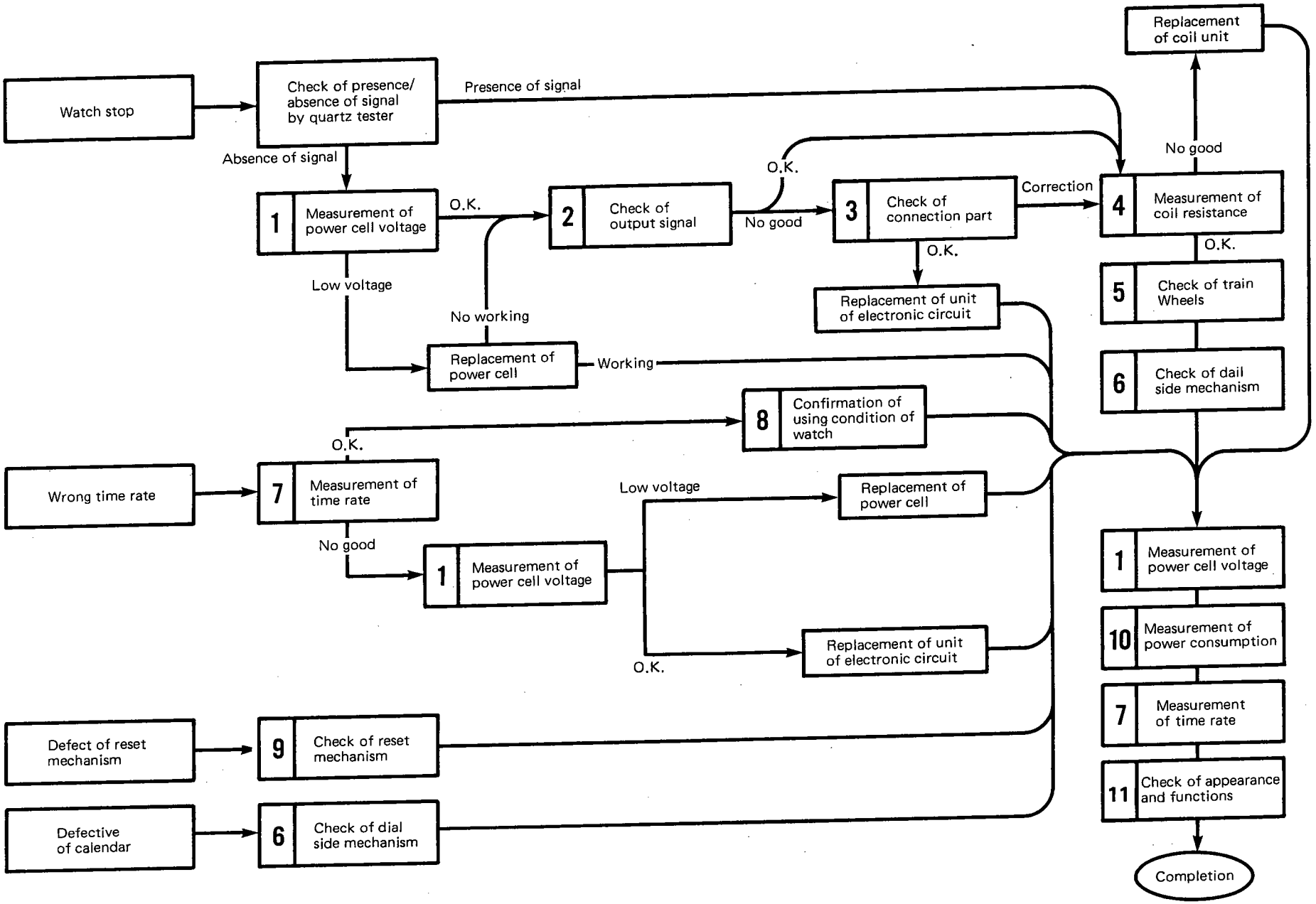
The resetting part should be bent to have the most suitable height of 690μ ~ 840μ.

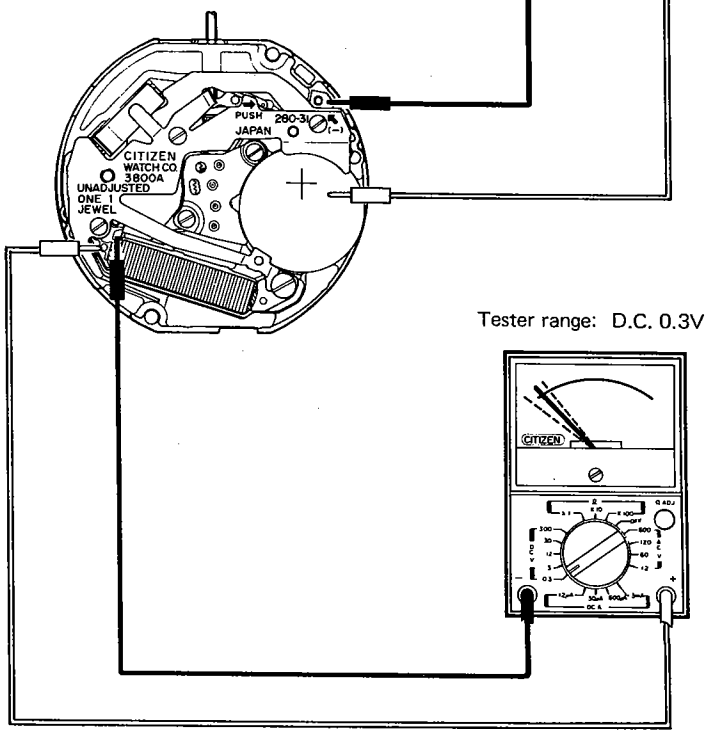


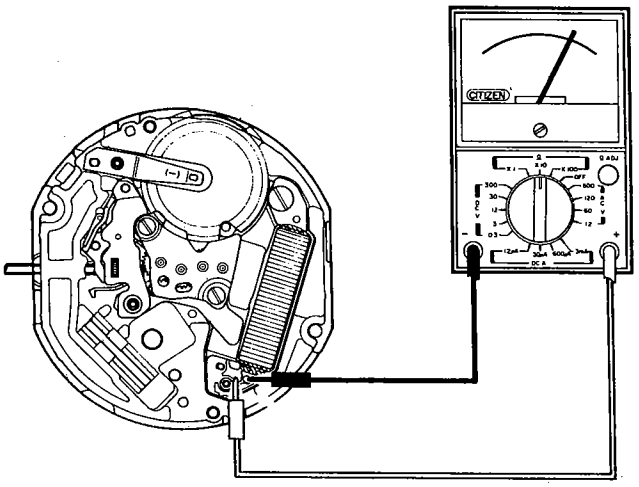
The brake part should be bent to have the most suitable height of 630μ ~ 790μ.

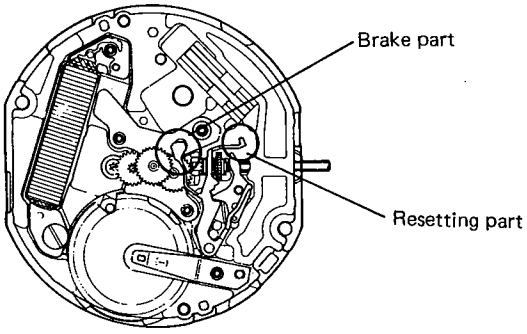
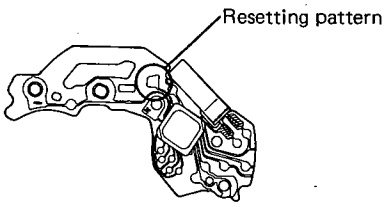


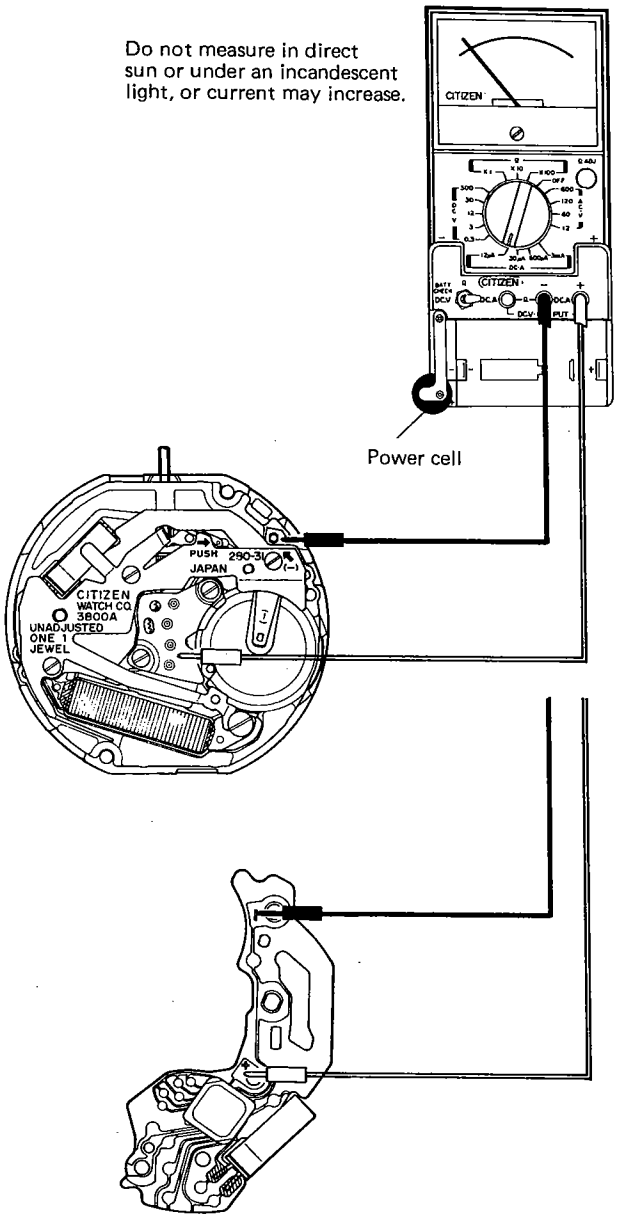
* The spring is 200μ in thickness, which you may find helpful when bending the two parts.


Watch stop
Check of presence/ absence of signal by quartz tester
Presence of signal
Absence of signal
1 Measurement of power cell voltage
O.K.
2 Check of output signal
O.K.
No good
3 Check of connection part
Correction
4 Measurement of coil resistance
No good
Replacement of coil unit
O.K.
5 Check of train Wheels
6 Check of dail side mechanism
Low voltage
No working
Replacement of power cell
Working
Replacement of unit of electronic circuit
8 Confirmation of using condition of watch
O.K.
Wrong time rate
7 Measurement of time rate
No good
1 Measurement of power cell voltage
Low voltage
Replacement of power cell
Replacement of unit of electronic circuit
O.K.
Defect of reset mechanism
9 Check of reset mechanism
Defective of calendar
6 Check of dial side mechanism
1 Measurement of power cell voltage
10 Measurement of power consumption
7 Measurement of time rate
11 Check of appearance and functions
Completion

Checking items	How to check	Result and treatment
1 Measurement of power cell voltage	Tester range: D.C. 3V	**Over 1.5V** → Nondefective **Under 1.5V** → Replacement of the power cell
2 Confirmation of output signal		If the tester pointer swings back and forth around "0" every second, there is no problem. If the tester pointer does not swing at all, check the connection parts.
3 Checking of the connection parts	In case the output signal is not detected, it is thought that the bad connection has been caused by the fact that the connection parts are clogged with dust or dirt and also that the screws for fitting the unit of electronic circuit have become loose or have been only partially fastened. Check each of the connection parts.	Dust or dirt → Removal Screws have become loose or have been only partially fastened. → Fasten all the necessary number of screws Nothing wrong is found → Replacement of the unit of electronic circuit

Checking items	How to check	Result and treatment
4 Measurement of coil resistance	Tester range: x 10Ω 	1.8kΩ ~ 2.4kΩ → Nondefective Beyond the above range → Replacement of the coil unit
5 Checking of train wheel	1. Make sure that the transmission goes smoothly with each gear with an appropriate clearance and with no backlash. 2. Make sure that no foreign matter gets in the gears. It is especially necessary to confirm that no cuttings adhere to the rotor part. 3. Make sure that the gears are fully lubricated with no shortage of oil and also that they are not oil-stained. 4. Make sure that each hole jewel has no crack or slant.	Backlash → Replacement of the gear Improper clearance → Adjustment of clearance Foreign matter → Removal Bad lubrication → Washing and then lubrication Bad hole jewel → Replacement
6 Checking of dial-side mechanism	1. Check that the hands go around properly, and also check that date and day displays change smoothly. 2. Check that quick correction of date and day can be made smoothly.	Turning of the hands does not go smoothly → Lubrication of the cannon pinion with driving wheel with CH-1 Quick correction does not go properly → Correction or replacement of the parts
7 Measurement of time rate	This caliber employs DFC. Set the measurement range of both CQT-101 and CQT-210 at 10 seconds. (Do not measure in direct sun or under an incandescent light, or accurate measurement may not be made due to a shift in time rate.)	The watch gains or loses time substantially → Replacement of the unit of electronic circuit

Checking items	How to check	Result and treatment
8 Confirmation of using conditions	Make sure whether the watch has been used in an appropriate environment, checking the following points: 1. If the watch has been used in a temperature beyond the effective temperature range. 2. If the watch has been used near an intense magnetism (health-care equipment, an electric mahjong table, a magnetic door, etc.)	Bad conditions as described on the left may create problems for the watch.
9 Confirmation of resetting mechanism	1. Make sure that the resetting and brake parts of the yoke have not been deformed. 2. Make sure that there is no dust or dirt on the pointed end of the resetting part and also on the resetting pattern of the unit of electronic circuit.  	When the resetting and brake parts have become distorted, bend them back to their proper shape or replace them with new ones. When they have become damaged, replace them with new ones. Dust or dirt → Removal

Checking items	How to check	Result and treatment
10 Measurement of current	Tester range: D.C. 12μA Do not measure in direct sun or under an incandescent light, or current may increase. 	(1) Current of the completed module **Under 1.1μA** → Nondefective **Over 1.1μA** → Measurement of the unit of electronic circuit alone for current. (2) Current of the unit of electronic circuit alone **Under 0.4μA** → Nondefective **Over 0.4μA** → Replacement of the unit of electronic circuit
11 Checking of appearance and functions	1. Make sure that the dial has no dust or dirt on its surface. 2. Check to see whether the crown properly operates. 3. Make sure that there is no problem with the second hand stopping and time setting, with the crown remaining pulled out to the second clicking position. 4. Make sure that quick correction of date and day can be made smoothly, with the crown remaining pulled out to the first clicking position.	

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