TECHNICAL INFORMATION

CITIZEN QUARTZ

Cal. No. B876

CITIZEN

Contents

§1. OUTLINE

This product is a ladies', small-sized, analog, and solar-powered watch (for bracelet type). Solar cells are arranged on its dial to convert light energy into electrical energy to drive itself.

The dual time function of this watch indicates two different times by correcting only the hour hand independently.

§2. SPECIFICATIONS

Caliber NO.		**B876**
Type		Analog solar power watch (Three hands)
Movement size (mm)		ø28.2 x 3.8t
Accuracy (At normal temperature)		±15 sec/month (+5°C to +35°C/41°F to 104°F)
IC		1 unit of C/MOS-LSI
Operating temperature		–10°C to +60°C (14°F to 140°F)
Converter		Bipolar step motor
Time adjustment		No adjustment terminal for use in market
Measurement gate		10 sec.
Display functions		Time: Hours (localtime hours), Minutes, Seconds, 24 hour clock Calendar: Date
Additional functions		• Insufficient charge warning • Quick start • Time setting warning
Continuous operating time	From full recharge to stop	Approx. 6 months
	From two second interval movement to stop	Approx. 3 days
Secondary battery	Part No.	295-40
	Remarks	Secondary battery block (With welded lead plate)

§3. HANDLING OF WATCH

A. Solar Power Watch

This watch is powered not by an ordinary battery, but by converting light energy into electrical energy.

A secondary battery is used in this watch to store electrical energy. **This secondary battery is a clean energy battery which doesn't use any toxic substances such as mercury. Once fully charged, the watch will continue to run for about 6 months without further charging.**

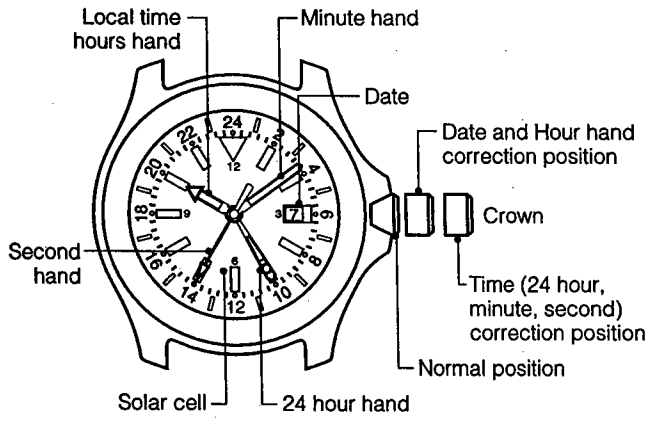
To use this watch comfortably, **make sure that the watch is always recharged before it finally stops.**

There is no concern for over-charging this watch. (Over-Charging Prevention Function is included)

Explain the user to expose the dial (solar cell) of this watch to light as long as possible.

B. Setting the Time and Date

* If the crown is of the screw- type, set the time and calendar after first loosening the screw. Retighten the screw after the time and calendar have been set.



<Setting the Time>

(1) Pull the crown out to the time correction position. (The second hand stops when the crown is pulled out.)

(2) Turn the crown to set the **24 hour hand and minute hand** to the current time. At this time, the movement of the our hand is linked with the movement of the 24 hour hand.

(3) **Push the crown back in to the normal position.** (The second hand begins to move when the crown is pushed in.)

(4) Pull the crown out to the date correction position. (1st click position)

(5) Turn the crown to the right (clockwise direction) and set the hour hand to the current time. Pay attention to AM and PM since the location of the hour hand where the date changes is approximately 12:00 midnight.

(6) Securely return the crown to the normal position.

<Setting the Date>

(1) Pull the crwon out to the date correction position.

(2) Turn the crown to the left (counter-clockwise direction) and set the date.

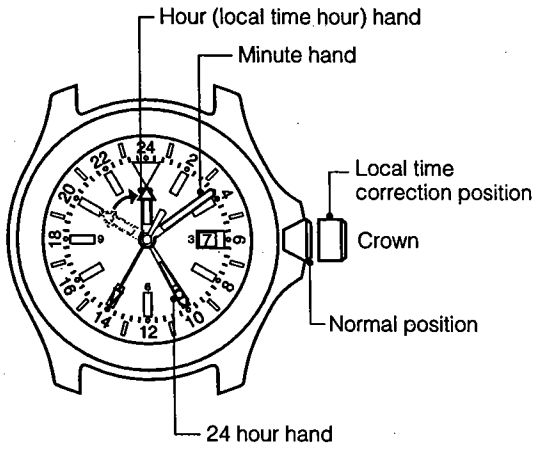
(3) Securely return the crown to the normal position.

* Since the date is linked to movement of the hour hand, the date changes when the hour hand approaches 12:00 midnight. Please note this operation when using as a dual time watch.

* Do not attempt to correct the calendar when the hour hand is between the hours of 9:00 PM and 1:00 AM. Setting the calendar during this time may result in the date not changing on the following day.

C. Using as a Dual Time Watch

This watch allows the hour hand only to be corrected independently without stopping the watch. It can be used as a dual time watch by setting the 24 hour hand and hour hand to different times. After correcting the time, the hour hand is used to indicate the "local time hours".



<Correcting the Local Time Hours>

(1) Pull the crown out to the local time correction position. (1st click position)

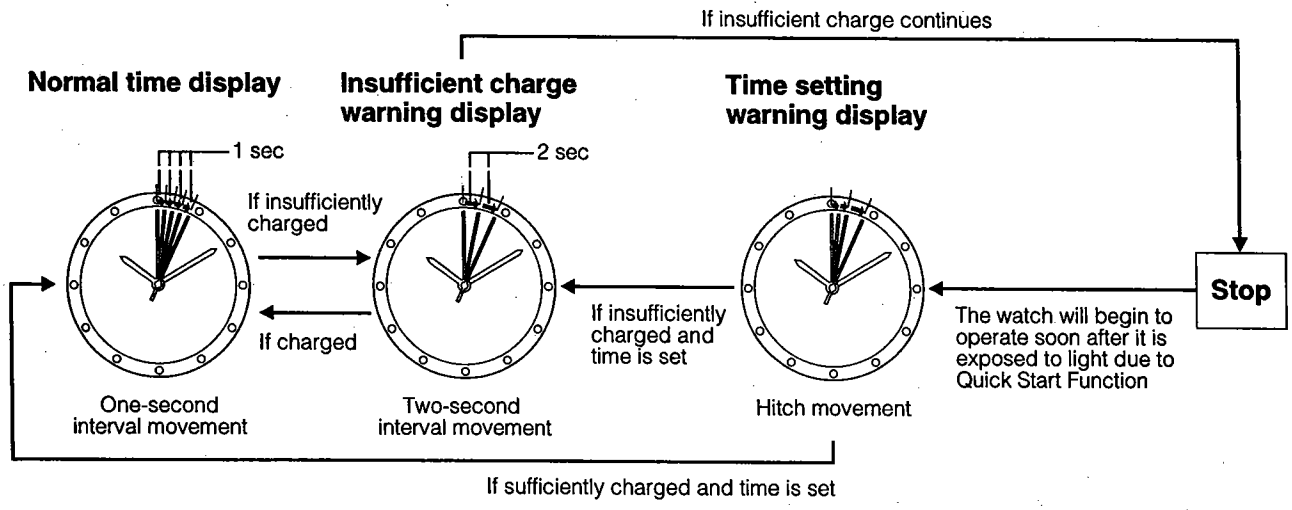
(2) Turn the crown to the right (clockwise direction) and set the hour hand to the desired time. The hour hand can be corrected in +1 hour increments in the clockwise direction. Set the time while paying attention to AM and PM.

(3) Securely return the crown to the normal position.

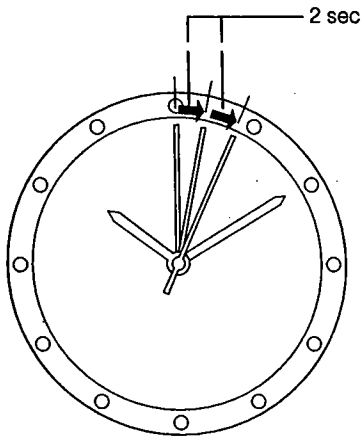
* The hour hand cannot be corrected in the counter-clockwise direction. In addition, since the calendar is linked with the operation of the hour hand, it may be necessary to correct the calendar after correcting the hour hand depending on the time to which the hour hand was set.

D. Functions of the Solar Power Watch

If the charge becomes insufficient, a warning function will operate and the display changes, as below.



■ Insufficient Charge Warning Function



Two-second interval movement

The second hand changes to two-second interval movement to indicate insufficient recharging.

Even in such a case, the watch keeps correct time, but about 3 days after two-second interval movement begins, the watch will stop.

After exposing the watch to light, recharging takes place and the watch returns to one-second interval movement.

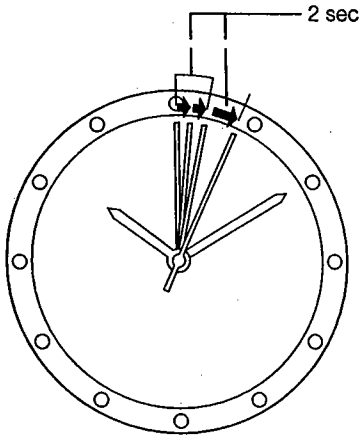
■ Quick Start Function

The watch will stop if it is completely discharged.

It will begin to operate soon after (within 10 second) it is exposed to light.

(However, the time to start may vary according to the brightness of the light.)

■ Time Setting Warning Function



Hitch movement

If the watch stops, subsequent exposure to light allows the 'quick start' function to start again, and **the second hand moves with a hitch to indicate that the time incorrect.**

In this case, quickly recharge the watch and reset the time.

Even if the secondary battery is fully recharged, the hitch movement will continue, unless the time is reset and the crown is returned to the normal position.

■ Over-charging Prevention Function

Once the secondary battery is fully recharged, the overcharging prevention feature comes into operation and prevents over-charging.

E. Time Required for Recharge

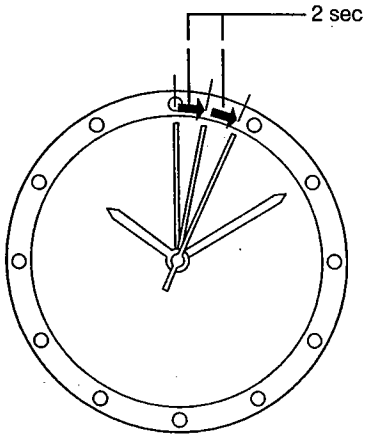
Time required for recharge may vary according to the design (color of the dial, etc.) and operating environment. The following table will serve you as rough reference.

"The recharging time is the time when the watch is continuously exposed to radiation."

Illuminance (lux)	Environment	Time required		
		From the stop state to the one second movement	One day usage	Empty to full
500	Inside an ordinary office	22 hours	1 hour 30 minutes	320 hours
1000	60–70cm (24-28in.) under a fluorescent light (30W)	11 hours	45 minutes	158 hours
3000	20cm (8in.) under a fluorescent light (30W)	3 hours 30 minutes	15 minutes	53 hours
10000	Exterior, cloudy	1 hour	5 minutes	17 hours
100000	Exterior, summer, sunny	14 minutes	2 minutes	6 hours

Full recharging time .....The time for fully recharge from stopped.
(Empty to full)
One day usage .....The time required for the watch to run for one day with one second interval movement.

F. In These Cases



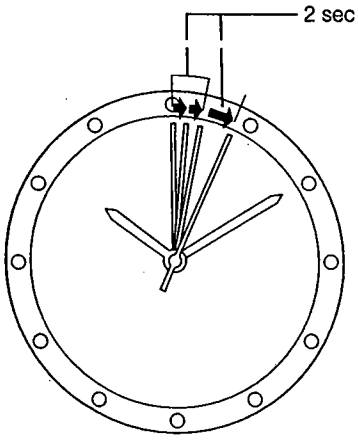
Two-second interval movement

[If the watch warns that the energy is running short]

The second hand starts moving at two-second increments in order to warn that the watch will stop functioning approximately after 3 days. **(Insufficient charge warning function)**

In such a case, expose the watch to light for a while to cancel the warning. (The second hand returns to the movement at one-second increments when the energy is recharged.)

If the watch is left short of energy, it will stop functioning after 3 days or so.



Hitch movement

[If the watch warns to set the time.]

When the watch that has stopped is exposed to light, the second hands starts hitch movement. **(Quick start function)**

The time elapsed before the second hand restarts moving depends on the illuminance of the light.

After this also, the second hand keeps hitch movement to show that the watch indicates an incorrect time because it once stopped. **(Time setting warning function)**

In such a case, set the hands to the correct time.

* If the watch is insufficiently exposed to light, the second hand will soon switch to the movement at two-second increments in order to warn that the energy is running short.

G. Care for Handling of Charge

■ Notes on Use <Give the following precaution and explanation to the user.>

Take care to charge during use.

Please note that if the user wears long sleeves, the watch can easily become insufficiently charged because it is hidden and not exposed to light.

- When the user takes off the watch, it should be placed in as bright a place as possible, and it will always continue to run poperly.

■ Notes on Recharge

- Avoid recharging at high temperatures (over about 60°C/140°F), otherwise the watch will be damaged during recharging.

  (eg) Charging the watch near a light source that easily becomes hot, such as an incandescent lamp or a halogen lamp.
  Charging in a place that easily becomes hot, such as a dashboard.

  When you charge the watch by an incondescent lamp, take a distance about 50cm (20in.) from the light source to prevent extremely high temperature.

H. Replacing the Secondary Battery

This watch uses the secondary battery, which does not have to be periodically replaced due to repeated charging and discharging, unlike ordinary batteries.

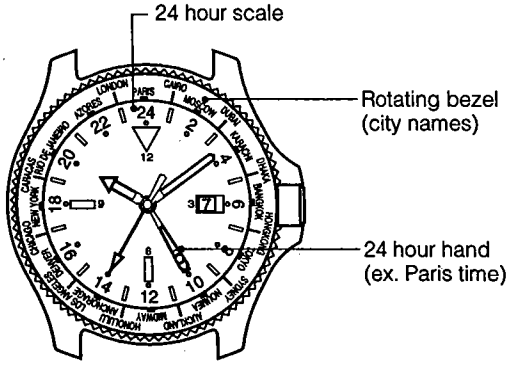
⚠ Caution

Never use a battery other than the secondary battery used in this watch.

The watch structure is so designed that a different kind of battery other than the specified cannot be used to operate it. In case a different kind of battery such as a silver battery is used by some chance, there is a danger that the watch will be overcharged to burst, causing damage to the watch and even to the human body.

I. Using the Rotating Bezel

This rotating bezel is provided on some models. This rotating bezel contains the names of 23 cities arranged in order by time difference. Using this bezel makes it possible to read the times in major cities (23) around the world.



(1) First check that the current time is correct.

(2) Turn the rotating bezel so that the city name at which the 24 hour hand has been set is aligned at the 24:00 position. The rotating bezel is normally used in this state.
Example: When the 24 hour hand has been set to Paris (FRANCE) time, align "PARIS" on the rotating bezel to the 24:00 position.

* This rotating bezel does not take daylight savings time into consideration.

<Reading the Time of Other Cities>

Turn the rotating bezel so that the city name at which the 24 hour hand has been set (example: Paris) is aligned at the position of the 24 hour hand.
Read the time of another city by using the "24 hour scale" as a reference.

Example: When desiring to know the time in Tokyo while in Paris, the 24 hour hand is assumed to be set to the time in Paris.

(1) Align "Paris" on the rotating bezel to the position of the 24 hour hand.

(2) Read the "24 hour scale" at the "TOKYO" position on the rotating bezel.

Pasris: 18:10 / Tokyo: 2:10

<Reference: Time Differences of Major Cities Based on UTC>

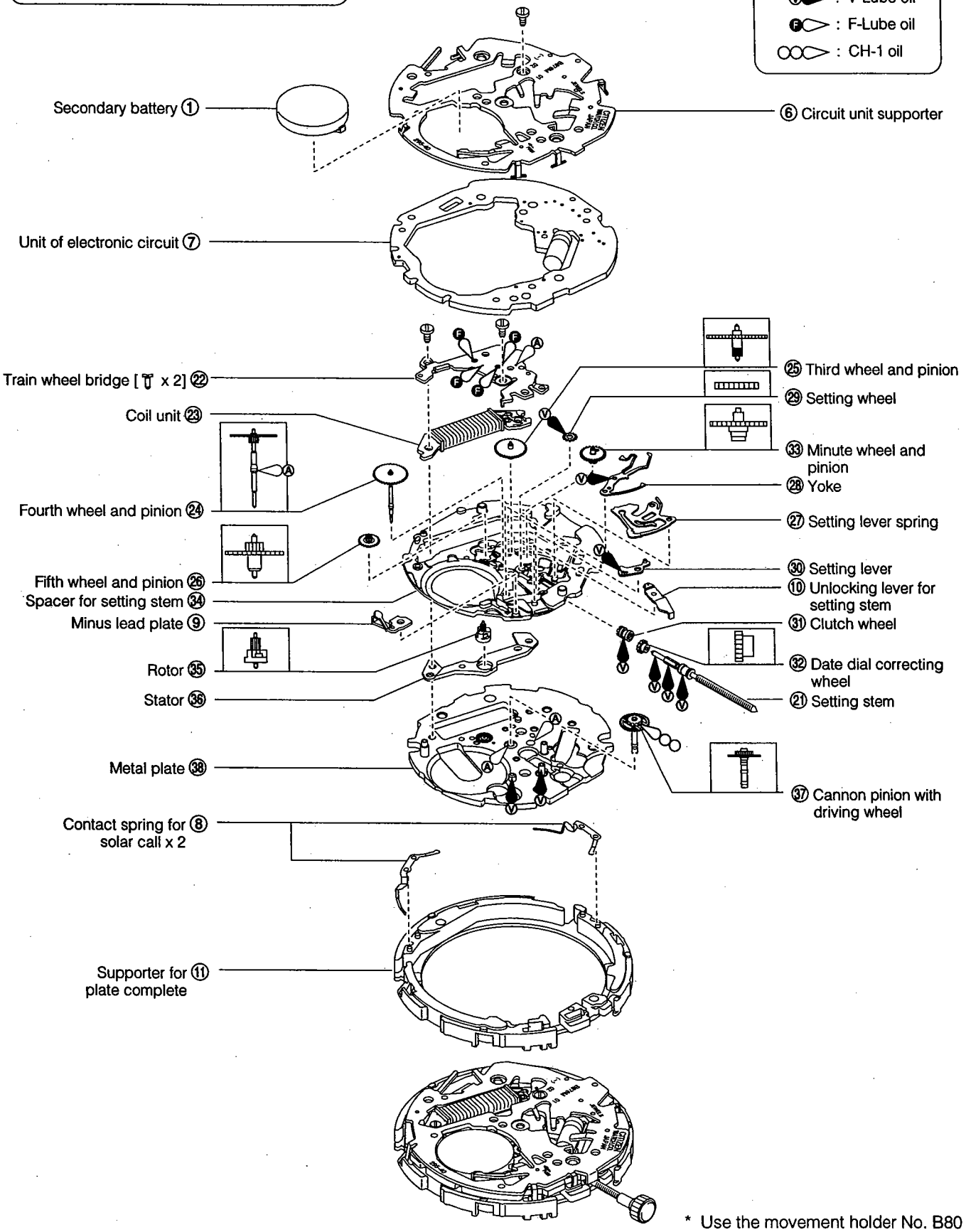
Indication (City)	Time Difference	Indication (City)	Time Difference
UTC (universal time coordinated)	±0	NOUMEA	+11
LONDON	±0	AUCKLAND	+12
PARIS	+1	MIDWAY (Islands)	–11
CAIRO	+2	HONOLULU	–10
MOSCOW	+3	ANCHORAGE	–9
DUBAI	+4	LOS ANGELES	–8
KARACHI	+5	DENVER	–7
DHAKA	+6	CHICAGO	–6
BANGKOK	+7	NEW YORK	–5
HONG KONG	+8	CARACAS	–4
TOKYO	+9	RIO DE JANEIRO	–3
SYDNEY	+10	AZORES (Islands)	–1

§4. DISASSEMBLY AND ASSEMBLY OF MOVEMENT

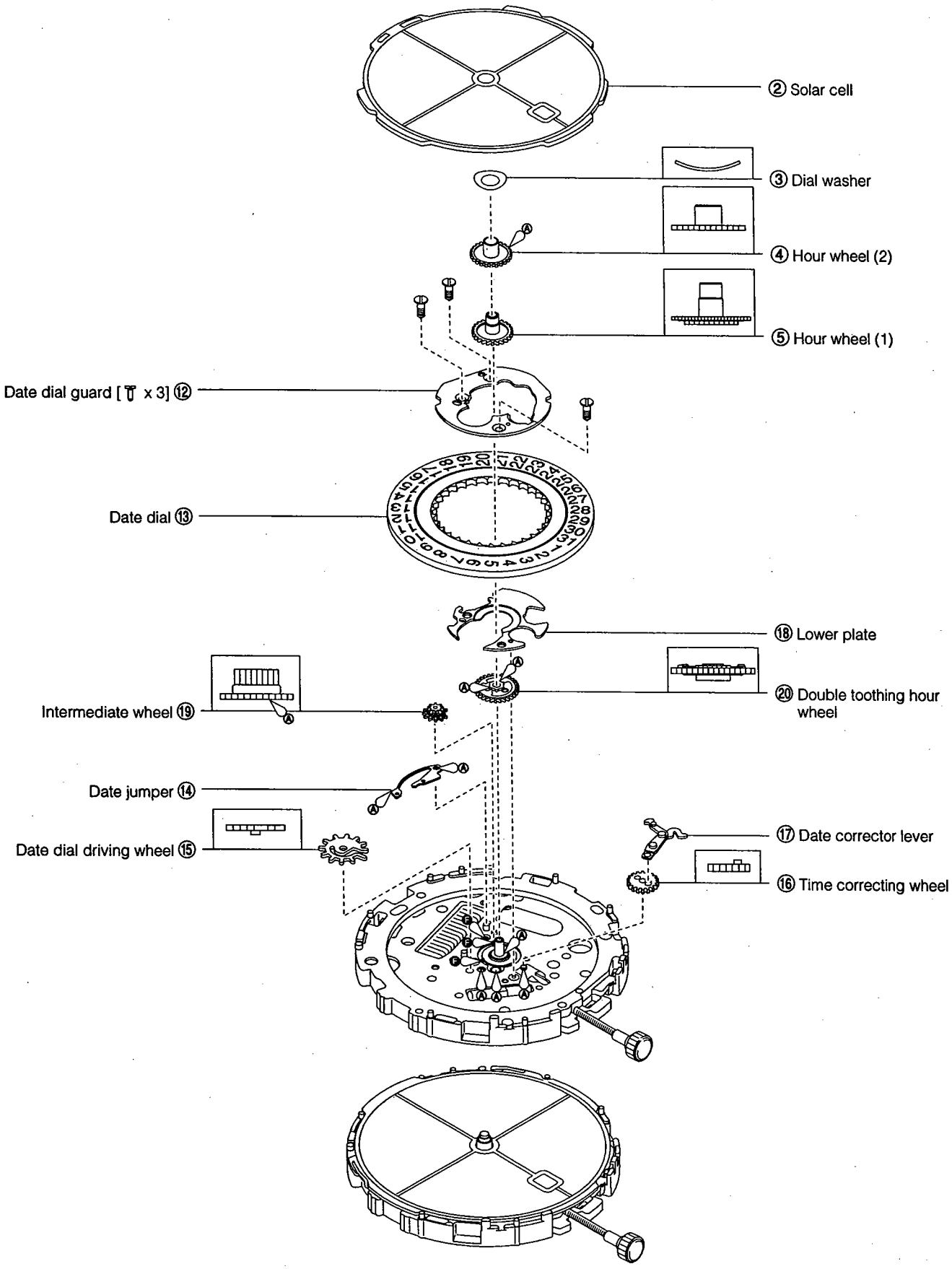
Disassembly procedure: ① → ㊳
Assembly procedure: ㊳ → ①

● Lubrication mark

Ⓐ▷ : A-Lube oil
Ⓥ▶ : V-Lube oil
Ⓕ▷ : F-Lube oil
○○▷ : CH-1 oil



* Use the movement holder No. B80 for disassembly and assembly.


② Solar cell
③ Dial washer
④ Hour wheel (2)
⑤ Hour wheel (1)
Date dial guard [x 3] ⑫
Date dial ⑬
⑱ Lower plate
⑳ Double toothing hour wheel
Intermediate wheel ⑲
Date jumper ⑭
Date dial driving wheel ⑮
⑰ Date corrector lever
⑯ Time correcting wheel

§5. PRECAUTIONS FOR DISASSEMBLY AND ASSEMBLY/ TROUBLESHOOTING AND ADJUSTMENT

Basic structure of movement is same to CAL. B800.
Refer to (CAL. B800/B810 Technical Information for precautions for disassembly and assembly, troubleshooting and adjustment.