

CITIZEN QUARTZ ECO-DRIVE

Model No. AP0XXX
Cal. No. 782*, 783*
787*, 789*

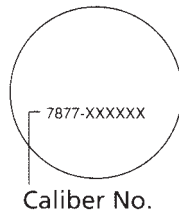
• INSTRUCTION MANUAL

CTZ B6796

If your watch is a diver's watch, please read surely "10. USING FOR DIVER'S WATCHES" for proper usage. To know whether it is a diver's watch or not, check the caliber number by the stamp on the case back.

Diver's watch model numbers are:

7822	7872
7827	7877
7832	7892
7837	7897



1. FEATURES

This is a solar power analog quartz watch with a solar cell incorporated in its dial.

We recommend that you first read these instructions.

2. BEFORE USING

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

**Before using, expose to light and make sure the watch is sufficiently charged.
See "9. TIME REQUIRED FOR CHARGE" for charging time reference.**

■ How to use the solar power watch well

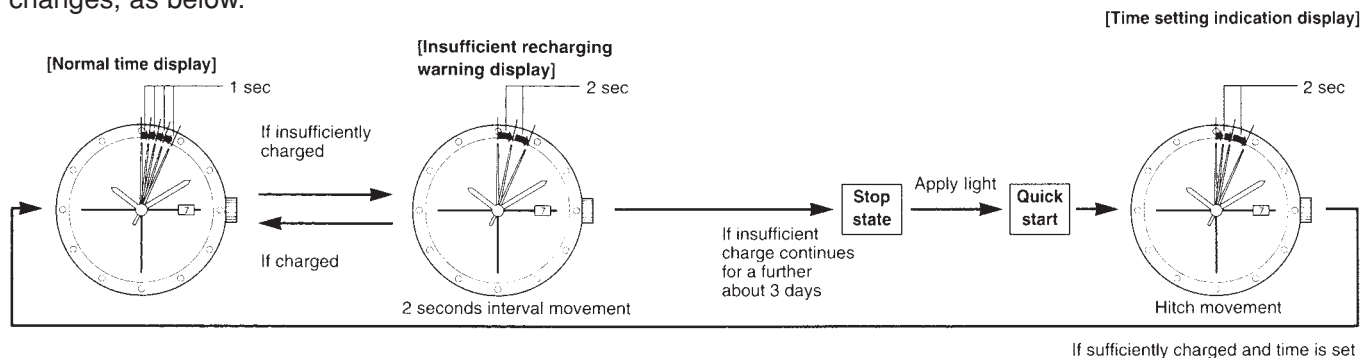
To use this watch comfortably, **make sure that the watch is always recharged before it stops.**

There is concern of overcharging this watch.

(Overcharging Prevention Feature) **we recommend that you recharge the watch every day.**

3. FUNCTIONS OF SOLAR POWERED WATCH

These functions are only found in the solar power watch. If the watch becomes insufficiently charged, a warning comes into operation and the display changes, as below.



■ Quick Start Feature

The watch will stop if it is completely discharged. **It will begin to operate soon after it is exposed to light.**

(However, the time it takes to start may vary according to the brightness of the light.) Please note that if the light is blocked the watch might stop again as a result of being insufficiently recharged.

■ Overcharging Prevention Feature

You can recharge without worry

Once the secondary battery is fully recharged, the overcharging prevention feature comes into operation and prevents further recharging, so that the secondary battery is not overcharged.

■ Insufficient Recharging Warning Feature

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

Even in such a case, the watch keeps the correct time, but if about 3 days pass after the two-second interval movement begins, the watch stops operating. After exposing the watch to light, recharging takes place and the watch returns to one-second interval movement.

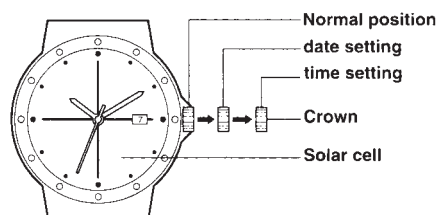
■ Time Setting Indication Feature

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

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

Otherwise hitch movement will continue.

4. SETTING THE TIME AND CALENDAR



■ Setting the time

1. Stop the second hand at the 0 second position by pulling out the crown to the 2nd click.
2. Turn the crown to set the time.
3. After setting the time, firmly push the crown back in to the normal position.

■ Setting the date

1. Pull the crown out to the 1st click.
2. Set the desired date by turning the crown.
 - If you adjust the date when the watch display is reading between 9:00 pm and 1:00 am, the date might not change on the following day. After you have set the calendar, be sure to firmly return the crown to its normal position.

5. WHEN THE SECOND HAND MOVEMENT IS ABNORMAL

■ Two-second interval movement

Insufficient recharging warning feature is working. **Recharge the watch by quickly exposing it to light until it has returned to one-second interval movement.**

During two-second interval movement, the watch continues to keep the correct time.

If two-second interval movement continues for about 3 days, the watch stops.

■ Hitch movement

Time setting indication feature is working.

Quickly expose the solar cell to light in order to recharge it, then reset to the correct time.

6. MAKE SURE THE WATCH IS CONTINUALLY RECHARGED

Please note that if you wear long sleeves, the watch may stop as a result of being hidden and not exposed to light.

- When you take the watch off, try to place it in as bright a place as possible, and it will always continue to run properly.
- Please note that, right after a 'quick start', the watch might stop as a result of insufficient recharging if light is blocked.

7. CAUTION

Never use another battery apart from the secondary battery (Titanium Lithium Ion Battery) used in this watch.

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

When you replace the secondary battery, be sure to use a designated secondary battery (Titanium Lithium Ion Battery/component number 295-34)

8. CAUTION WHEN RECHARGING

- 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 incandescent lamp, take a distance about 50cm from the light source to prevent extremely high temperature.

9. TIME REQUIRED FOR CHARGE

Time required for recharge may vary according to the design (colour of the dial, etc.) and operating environment. The following table will serve you as a rough reference. *The recharging time is the time when the watch is continuously exposed to radiation.

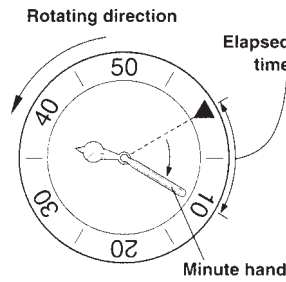
Illuminance (lux)	Environment	Time required		
		One day usage	From the stop state to the one second movement	Empty to full
500	Inside an ordinary office	1 hour	30 hours	250 hours
1000	60-70cm under a fluorescent light	35 minutes	15 hours	125 hours
3000	20cm under a fluorescent light	10 minutes	5 hours	40 hours
10000	Exterior, cloudy	3 minutes	1 hour 30 minutes	12 hours
100000	Exterior, summer, sunny	1 minute	25 minutes	3 hours 30 minutes

Full recharging time....The time from when watch (Empty to full) stopped to when it is fully recharged.

One day usage.....The recharging time required for the watch to run for one day.

10. USING FOR DIVER'S WATCHES

■ Using the register ring



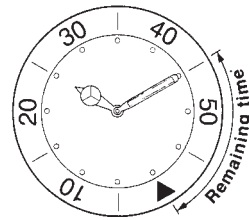
Elapsed time measurement

Adjust the triangle mark (▼) to the current minute indication when you start diving. You can easily read the elapsed time on the scale of the register ring while diving.

Example

The figure shows 10 minutes have elapsed after the dive began.

The ring rotates in a counter-clockwise direction only.



Calculating the remaining time

Align the register ring zero mark (▼) with the target time and use the ring's calibrations to calculate the remaining time.

■ Screw locked crown

This product is equipped with a screw lock crown to avoid water penetration and damage to the mechanism of the watch. Confirm that the crown is tightly locked for daily use and for diving.

■ Check points at the diving site

Before the dive

- If the crown is tightly locked.
- If there are any scratches or cracks on the wrist band or on the glass.
- If the watch is securely linked with the wrist band.
- If the register ring rotates correctly. (Normally it is possible to rotate it only in a counter clockwise direction)
- If the time and date settings are correct.
- If the second hand movement is correct. Recharge the secondary battery if the second hand does not advance in 1 second interval movement.

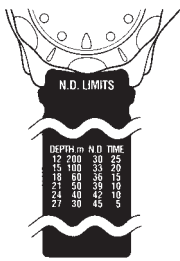
■ While diving

- **Never operate the crown in water.**
- Be careful not to hit a rock or hard material with the watch.
- **Obey the rules of safe diving.**

■ After the dive

- Wash the watch with fresh water with the crown tightly locked. Wash away any seawater, mud and/or sand. Completely wipe off any water with a dry cloth.
- **Do not allow chemicals to touch the water.**

■ No decompression limits
No decompression limits



*These N.D. LIMITS for decompression are for one dive.

When a diver has completed a dive, and is ascending to the surface, the speed at which a diver can ascend to a surface, without stopping for decompression, is decided according to the diving depth and diving time. These limits are marked as no decompression limits which are on the watchband, are based on the U.S. Navy diving manual (1985 edition).

(These are some models on which this is not printed.)

How to read no decompression limits

DEPTH m	N.D. TIME
12m	200Min
15m	100Min
18m	60Min
21m	50Min
24m	40Min
27m	30Min
30m	25Min
33m	20Min
36m	15Min
39m	10Min
42m	10Min
45m	5Min

Example

If you dive deeper than 21m for more than 50mins, or shorter, then according to this chart there is no need to stop for decompression.

★ Caution

The no decompression limits is different depending on body condition, or personal differences. Please use the no decompression limits on this watch as a guide line.

When a dive requires no decompression limits make sure you follow a specialised diver's manual.

Resistance to water

Check the chart to determine the water resistant properties of this watch.

- Confirm that the crown is tightly locked before use.
- Do not use the watch during saturation diving.

Indication		Water-related use					
Watch face	Caseback	Light spray, perspiration, light rain, etc.	Swimming, etc.	Skin diving (without air tank)	Scuba diving (Diving with air tank)	Saturation diving (helium enriched environment)	Pulling out the crown when the watch is wet.
—	WATER RESIST	OK	NO	NO	NO	NO	NO
WATER RESISTANT (5 bar)	WATER RESIST(ANT)	OK	OK	NO	NO	NO	NO
WATER RESISTANT (10-20 bar)	WATER RESIST (ANT)	OK	OK	OK	NO	NO	NO
WATER RESISTANT (200 m)	WATER RESIST(ANT)	OK	OK	OK	OK	NO	NO

*"WATER RESISTANT" may sometimes be abbreviated as "WATER RESIST"

* Always set the crown in the normal position.

* Tighten screwlock crown completely.

Moisture may build up on the glass surface inside when the ambient temperature is lower than the temperature inside the watch.

This is a temporary condition and will not interfere with the normal operation of the watch. Consult your Citizen dealer should this condition persist for an extended period.

11. PRECAUTIONS

1. Avoid temperature extremes

Avoid leaving your watch in extremely warm or cold locations for long periods of time.

- This may cause your watch to gain or lose time and affect its other function.
- The watch restores its original accuracy if it is placed in normal temperature.

2. Avoid strong shock

This watch will withstand the bumps and jars normally incurred while playing and during sports activities. Avoid dropping your watch on the ground or subjecting the watch to severe shock which may cause malfunction or damage.

3. Avoid strong magnetic fields

Keep your watch out of the immediate vicinity of strong magnets. Generally, your watch is not affected by magnetic fields from such household appliances as television sets and stereo equipment.

4. Static electricity

The integrated circuits used in the watch are sensitive to static electricity. If exposed to intense static electricity, the watch's display may lose its accuracy.

5. Avoid harmful chemicals, solvents and gases

Avoid wearing your watch in the presence of strong chemicals, solvents and gases. If your watch comes in contact with materials such as gasoline, benzene, paint thinner, alcohol, spray cosmetics, nail polish, nail polish remover, adhesives or paint, discoloration, deterioration or damage to the case, band, and other components may occur.

6. Keep your watch clean

It may become difficult to pull out the crown due to dirt and dust getting caught between the crown and the watch case when the watch is worn for long periods of time. To help prevent this from happening, turn the crown freely back and forth occasionally while it is in the normal set position.

Wipe off any water and moisture that adheres to the case, glass and band with a soft, clean cloth. Any dirt left on the case or band may cause skin rash.

A watchband will easily become soiled with dust and perspiration because it is in direct contact with the skin. Even a stainless or gold-plated band may begin to corrode if it has not been cleaned for a long period of time.

Mesh bands, because the meshes are very fine, will lose their particular "flexibility" if they are left soiled for a long time.

Metal watch bands should be washed periodically to keep them looking beautiful at all times.

Metal watchbands are usually washed with a brush in mild, soapy water and well wiped with a soft, absorbent cloth to make sure all water is removed.

Pay attention to prevent any water from getting inside your watch when the band is washed.

7. Periodic inspection

Getting your watch checked once in two or three years is recommended to ensure long use and trouble-free operation.

12. SPECIFICATIONS

- | | |
|----------------------------------|---|
| 1. Quartz oscillation | 32,768Hz (Hz = number of oscillations in 1 second) |
| 2. Accuracy: | Within ± 20 sec per month at normal temperature range of (5°C/41°F to +35°C/95°F) |
| 3. Effective temperature: range | -10°C ~ +60°C (14°F ~ 140°F) |
| 4. Converter: | Step motor |
| 5. Additional features: | Quick start feature
Overcharging prevention feature
Insufficient recharging warning function feature
Time setting indication feature |
| 6. Secondary battery used: | Titanium lithium ion secondary battery (Parts number 295-34) |
| 7. IC (Integrated Circuit) used: | C/MOS-LSI-1 |

* Specifications are subject to change without prior notice.