

Service Bulletin

Recharging Issues in ASTRON

1) Recharging time

SWC has not received a single enquiry from any region in the world regarding Astron taking too long to charge, or charging status not reaching "F" even after recharging sufficiently. In fact, very few watches have been received at all, including those with a recharging problem. In most cases, the watch has simply not been charged sufficiently.

GPS reception requires 10,000 times more power than a standard quartz watch. Seiko's advanced power saving technology allows for constant use as a solar powered watch, with an ultra-low consumption GPS module, using a lithium ion rechargeable battery with a high energy capacity. It is about 20mAh; almost four times that of our current rechargeable battery for solar watches and Kinetic watches. Therefore, ASTRON requires a longer time for re-charging.

The indicator hand used on Cal.7X has only three positions to show the charging status. Even if the indicator hand indicates the Middle position (between E and F), actual stored energy in the rechargeable battery may significantly differ. In cases like this, the recharge time necessary for a full charge may sometimes be close to the time required to go from "E" to "F."

You are requested to remind the owner to recharge regularly and sufficiently for proper functioning of ASTRON watches.

<Identification of Recharging Problem>

Knowing such characteristics of ASTRON, identification of recharging problems at NSC's is requested. We suggest you follow the workflow steps below:

Prior inspection

↓ Ensure the recharging status.
Ensure the watch operation.

Charge Astron

↓ Recharge the watch securely.

Recharging status checking

Identify the recharging problem.

① Prior inspection of recharging status/watch operation

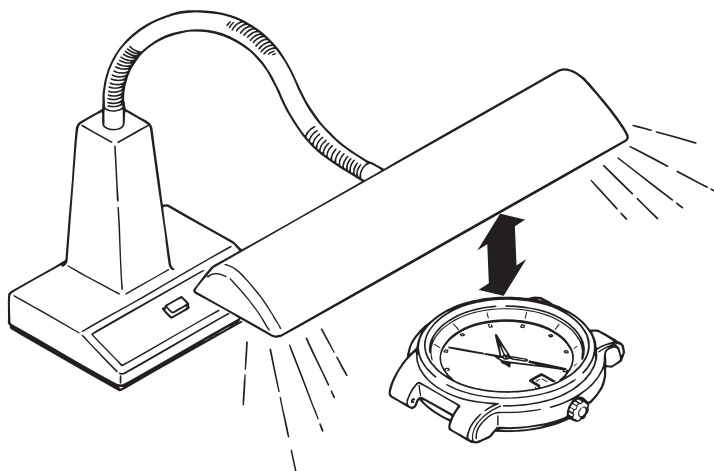
- Check the charging status of the indicator hand (if the status is "E," no function checking is available)
- Check the preliminary position of the indicator hand and adjust if necessary (See page 45 of Instruction Booklet, *Complete User Guide*.)
- Check if the hands are moving normally
- Check the functions

<Caution>

The depletion of energy in a rechargeable battery may be caused by carrying out GPS signal reception manually.

② **Charge ASTRON securely**

- Placing the watch 5–10cms from light source (table light, fluorescent light or LED bulb) with 10,000 Lux for 48 hours to 72 hours continuously.
Be sure to verify the light output using a light meter.



<Caution>

While charging the watch, make sure the watch temperature does not exceed 60 °C.

With the exception of daily charging we recommend using an artificial light source, not sunlight. The conditions of sunlight are not stable enough to receive sufficient light intensity (luminance) continuously, even though the user exposes the watch for a long time according to the instruction manual. Also, it may become cloudy while charging, and the angle of sunlight changes hourly.

Illumination lx (LUX)	Light source	Condition (Example)	From the state where the watch is stopped (not charged)		In the state where the hand moves (the watch is charged)
			To fully charged	To one-second interval movement is secured	To move for one day
700	Fluorescent light	General offices	—	—	6.5 hours
3,000	Fluorescent light	30W 20cm	530 hours	32 hours	1.4 hours
10,000	Fluorescent light Sunlight	Cloudy day 30W 5cm	135 hours	5 hours	22 minutes
100,000	Sunlight	Sunny day (Under the direct sunlight on a summer day)	65 hours	1.5 hours	6 minutes

③ **Recharging status checking**

Result: Position of the indicator hand is “F”

- The watch is fully recharged. (No malfunction was found in power generation)
- Charge the watch as a precaution to ensure it is fully charged before returning to the owner or retailer.

Result: Position of the indicator hand is “E” or the Middle (between “F” & “E”)

- Recharging problem was found. The watch has a potential malfunction of charging function or inside its movement.
- Send the watch to Japan or an ASTRON certified NSC for repair.

2) Abnormal watch movement after the recovery from Power Save mode

ASTRON watches are equipped with a power save function. If the watch is left without receiving an adequate light source for a certain length of time; the watch enters the power save mode to save energy consumption.

However, the watch consumes a small amount of electrical energy to carry the necessary data in the IC even in the power save mode which causes depletion of energy in a rechargeable battery with 1-2 years of storage.

In this case, even if the watch is exposed to an adequate light source, the watch will not display the current time/calendar; the hands move to 12H position rapidly and start normal movement, because the system reset activates automatically; time/calendar information stored will be lost.

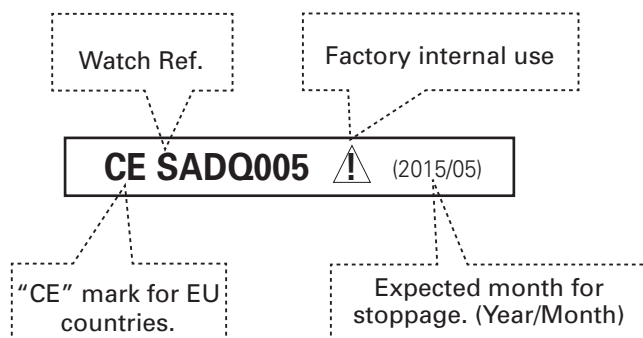
This reaction is not a quality problem issue, but it is a characteristic of the CPU IC. We are unable to modify or correct this.

This may happen if the owner does not expose the watch to a light source for a long time, for example if the watch is stored in a desk or individual box a long time.

If you receive such an inquiry or complaint, please ask the owner to charge the watch at least until the indicator hand points to the level position and carry out GPS reception as well as leap second reception.

The same problem may happen to your inventory watches. SWC informed your marketing team about this and asked them to carry out a periodical recharge of your stock watches. Your marketing team will advise you of this procedure shortly.

To accelerate periodical recharging, we will indicate the recharging period on the 5 pc box from June shipment onward as shown on the illustration below.



Further, Radio Wave Watches may also have the same problem. Abnormal movement differs according to the movement. Radio signal reception and preliminary position adjustment is required to correct the watch. Please refer to the corresponding Instruction Booklet.