

## Repairs

All repairs performed on this watch, with the exception of repair of the band, are to be performed at CITIZEN. This is because special technologies and equipment are required to perform repairs, inspections and adjustments. Please make requests for repairs to Citizen Service Center when having your watch repaired.

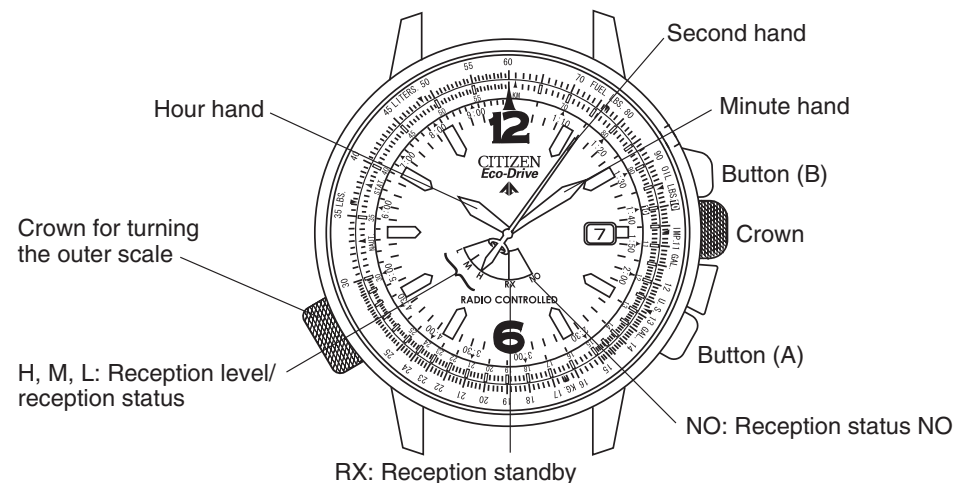
■ **This radio wave watch receives standard time radio signals broadcast in the People’s Republic of China in order to adjust the time and date.■**

- Only standard time radio signals broadcast from in the People’s Republic of China (BPC) are received.
- The radio wave watch has no effect on the human body or medical equipment.

■ **Fully charge your watch before use by exposing it to sufficient light.■**

The second hand will move at 2-second intervals when the watch is insufficiently charged. Charge your watch as indicated in “Guide to Charging Time” on page 180.

- Charge the watch in direct sunlight for a whole day once a month.



- This watch indicates the reception level and reception status with the short side of the second hand.
- The illustrations shown in this manual may differ from the actual watch you have purchased.

## Table of Contents

1. Your Watch.....	142
2. Operating the Crown .....	143
3. Before Use .....	144
A. Check the Movement of the Second Hand .....	144
B. Check the Reference Position .....	146
4. Functions List .....	148

### Radio Signal Reception

5. Reception .....	150
6. Poor Reception Areas.....	153
7. Position of the Second Hand During Reception .....	154
8. Confirming Reception Status .....	155
9. Reception Area Standards.....	156

### Manually Setting the Time and the Date

10. Setting the Time.....	158
11. Setting the Calendar.....	160

Correcting the Time Difference.....	164
-------------------------------------	-----

12. Adjusting the Reference Position .....	166
--	-----

Troubleshooting .....	168
-----------------------	-----

### Solar Power

13. Solar Power Function.....	172
-------------------------------	-----

14. Characteristics of the Solar Powered Watch .....	174
--	-----

A. Power Saving Function .....	176
--------------------------------	-----

B. Insufficient Charge Warning Function .....	178
---	-----

C. Overcharging Prevention Function .....	179
---	-----

D. Guide to Charging Time .....	180
---------------------------------	-----

E. Handling Your Solar Powered Watch .....	182
--	-----

15. Using the Slide Rule Bezel .....	184
--------------------------------------	-----

16. Precautions.....	196
----------------------	-----

17. Specifications .....	202
--------------------------	-----

## 1. Your Watch

### <Radio Signal Reception Function>

This watch automatically receives standard time radio signals broadcast from radio signal transmitters in the People's Republic of China (BPC), which contain information that automatically adjusts the time and the date of your watch. (P. 150)

- ⊙ Regular automatic reception: The watch will automatically receive the radio signals at 2 a.m. every day and adjust the time and date accordingly. If a signal cannot be received at 2 a.m., it will try again automatically at 4 a.m.
- ⊙ On demand reception function: The radio signals can be received at the desired time to adjust the time and date. \* Not possible when the radio wave is interrupted.

### <Eco-Drive Function>

This solar powered Eco-Drive watch is powered by photo energy converted into electrical energy.

- ⊙ Power saving function: If the watch face is not exposed to light for one week or longer, the hands are stopped in order to restrict the power consumption of the watch. (P. 176)

### <Overseas Use>

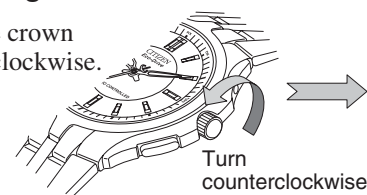
- ⊙ Time difference correction function: A simple method is available for changing to the local time if you are going to an area in a different time zone. (P. 164)

## 2. Operating the Crown

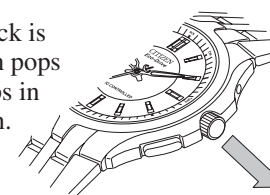
There are two models available for the crown: normal and screw lock.

### <Operating the Screw Lock Crown>

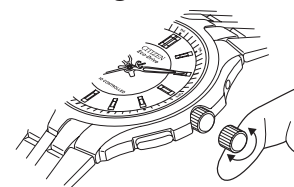
- Turn the crown counterclockwise.



- When the screw lock is released, the crown pops out a little and stops in the normal position. After finishing the operation, lock the crown again.



### <Moving the Hands Continuously>



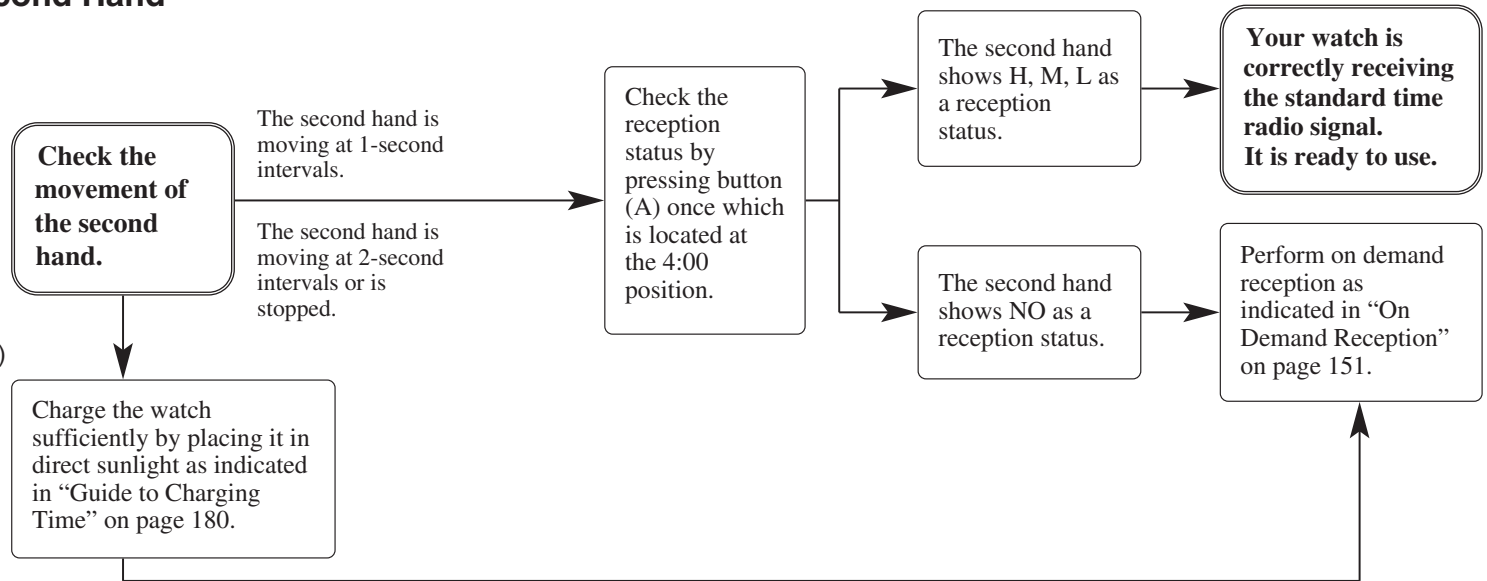
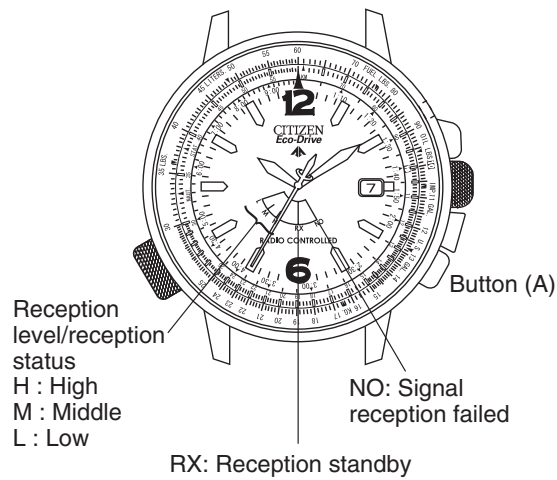
Using the side of your finger, quickly turn the crown by two or more clicks.

With the crown in position 1 or position 2, quickly and continuously turn the crown clockwise or counterclockwise by two clicks or more to make a hand (hour, minute or second hand) move continuously.

To stop the continuous movement of the hands, turn the crown clockwise or counterclockwise by one click.  
\* Your fingertips will feel the crown click slightly.

### 3. Before Use

#### A. Check the Movement of the Second Hand



## B. Check the Reference Position

Before using the watch, check that the hands are aligned with “0”, similar to when setting weighing scales

- The reference position may become misaligned by environmental factors such as magnetism, static electricity or an external impact. Even if radio signals are received, if the watch hands are not aligned to the correct reference position, it will not be possible to indicate the correct time. Check that the hands are properly aligned with “0”.

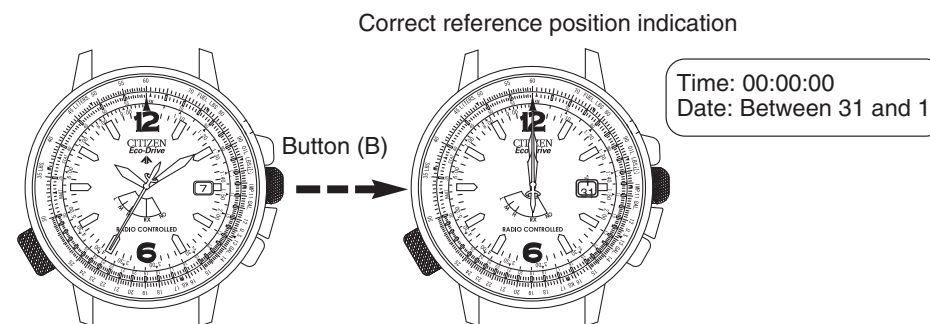
Examples of magnetic products that can affect the watch

- Health products (for example, medical necklaces and waist bands that have magnetic fields)
- Refrigerators (magnetic part of the door)
- Electromagnetic cookers
- Bags (with magnet fasteners)
- Mobile phones (speaker part)

Keep the watch away from items similar to those above.

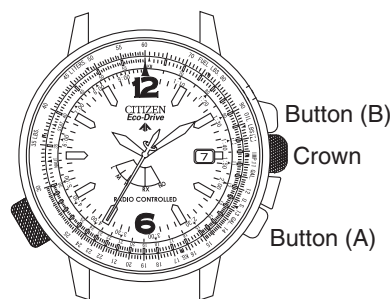
The reason why analog quartz watches are affected by strong magnetic fields:  
The step motor operates through a magnet, so when it is exposed to a strong external magnetic field, the motor operation is affected and the correct time is no longer displayed.

## [Checking the Reference Position]



- (1) With the crown in the normal position, press and hold button (B) for more than 5 seconds, and release when the second hand starts to move.
- (2) All the hands and the date will move rapidly, stopping at the reference position.
  - \* This could take up to a maximum of about 7 minutes.
- (3) If the reference position is correct, the check is complete.  
If an incorrect position is indicated, the reference position must be adjusted.
- (4) After completing the check, press button (B) once to return to the original time.  
Refer to “Adjusting the Reference Position” on page 166.

## 4. Functions List



Function	Button or Crown Operation
On Demand Reception (P. 151)	Press and hold button (A) for more than two seconds and release when the second hand stops in the RX position.
Confirming Reception Status (P. 155)	Press button (A) once.
Correcting the Time Difference (P. 164)	Press button (B) once and turn the crown.
<ul style="list-style-type: none"> <li>Manually Setting the Time (P. 158)</li> </ul>	Pull out the crown to position 2. Press button (A) once. * The adjustment changes between the minute hand and hour hand each time button (A) is pressed.
<ul style="list-style-type: none"> <li>Manually Setting the Calendar (P. 160) (Elapsed years after the most recent leap year)</li> </ul>	Pull out the crown to position 1.

Hand Movement
The second hand will stop in the RX position and then move to the H, M or L level. If the reception level is not shown, normal hand movement will return without a signal being received.
The second hand will stop at H, M, L or NO.
The second hand will stop at the 12:00 position. (If a time difference setting has been made, it will stop at the position appropriate for the time difference.) Turn the crown clockwise to move ahead by 1 hour and turn it counterclockwise to move back by 1 hour.
Second hand: Turn the crown clockwise to rotate the second hand clockwise once and move the minute hand ahead by 1 minute. Turn the crown counterclockwise to rotate the second hand counterclockwise once and move the minute hand back by 1 minute. * Turn the crown quickly to advance rapidly. Hour hand, date: Turn the crown clockwise to move the hour hand ahead by 1 hour. Turn the crown counterclockwise to rotate the hour hand counterclockwise and back by 1 hour. * Turn the crown quickly to advance rapidly. * The hour hand and the date are linked together. Move the hour hand to change the date.
The second hand will stop at the "Elapsed years after the most recent leap year" position recorded in the watch memory. Turn the crown clockwise to move the second hand ahead by 1 step and turn it counterclockwise to move it back. * Turn the crown quickly to advance rapidly.

## Radio Signal Reception

### 5. Reception

Three types of radio signal reception are possible: regular automatic reception, on demand reception and automatic reception recovery.

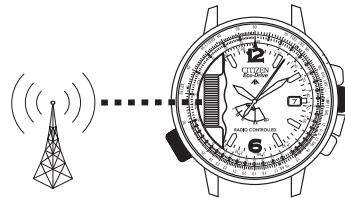
#### Regular Automatic Reception

(To receive signals automatically)

- It is not necessary to operate buttons during regular automatic reception.

#### <Receiving the radio signals>

1. Remove the watch from your wrist and place on a stable surface near a window, with the 9:00 position (antenna for receiving the radio signals side) facing in the direction of the radio signal transmitter from which the radio signal can be easily received.
2. The watch will receive the radio signals at 2 a.m. every day. If a signal cannot be received at 2 a.m., it will try again automatically at 4 a.m. and the time will be adjusted.



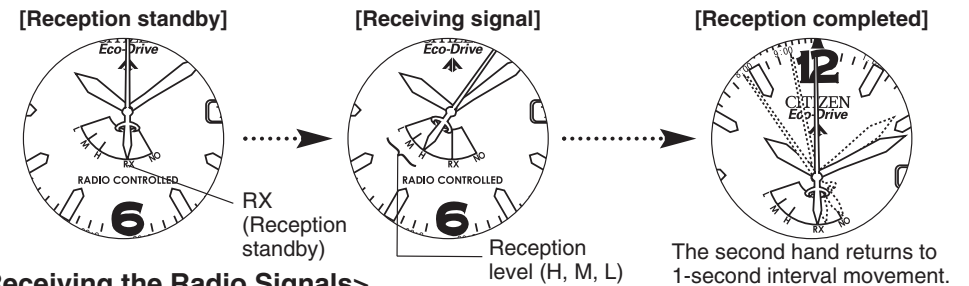
An antenna for receiving the radio signals is located inside the watch (on the 9:00 position).

#### On demand reception (Manual reception)

- Signals can be received at any time in this mode.

\* Not possible when the radio wave is interrupted.

Use this function when regular automatic reception is impossible due to changes in the reception environment.



#### <Receiving the Radio Signals>

##### • Step

1. Find the direction of the radio signal transmitter.
2. Remove the watch from your wrist and place on a stable surface near a window where the radio signal can be easily received.
3. Point the 9:00 position of the watch in the direction of the radio signal transmitter, and press and hold button (A) for more than 2 seconds. Release when it stops at RX.
4. The second hand will then move to H, M or L.

5. Do not move the watch during reception.
  6. When the signal has been properly received, the second hand will automatically move from H, M or L to the time that was received, all the hands will be adjusted, and the second hand will return to 1-second interval movement.
- The reception level may be affected by the surroundings in which the watch is being used. While referring to reception levels H, M and L, keep changing the watch direction or location and try to receive the signals.

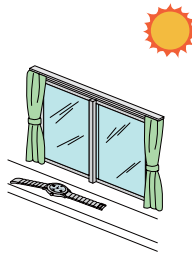
### Automatic Reception Recovery

- ◎ After the watch has stopped due to an insufficient charging, charge the watch in sunlight sufficiently. When the watch is recharged sufficiently, it will automatically receive the radio signal once.

Regularly charge your watch so that it does not become insufficiently charged.

To confirm, refer to “Confirming Reception Status” on page 155.

- When the watch is receiving the radio wave signal, all of the hands will stop. To check the time, hold button (A) for 2 seconds to cancel radio wave reception. The hands will then return to the current time.

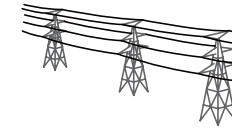


## 6. Poor Reception Areas

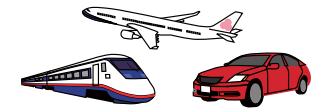
It may be difficult to properly receive the radio signals under certain environmental conditions or in areas susceptible to radio noise.



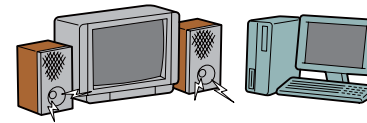
- ◆ Inside reinforced concrete buildings, or underground



- ◆ Near high-tension electrical lines, railway overhead wires or communication facilities



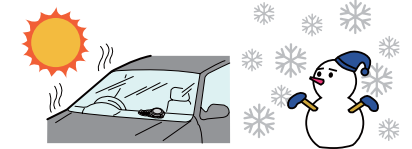
- ◆ Inside vehicles, including cars, trains and aero planes



- ◆ Near TVs, refrigerators, computers, fax machines and other home electronic devices or electrical appliances



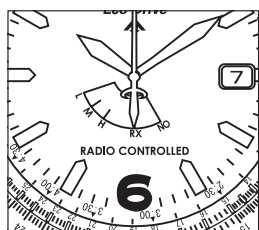
- ◆ Near cellular phones in use



- ◆ Extremely hot or cold locations

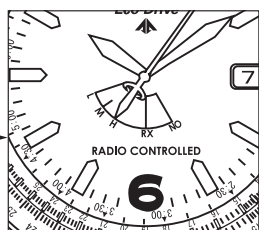
## 7. Position of the Second Hand During Reception

[Reception standby]



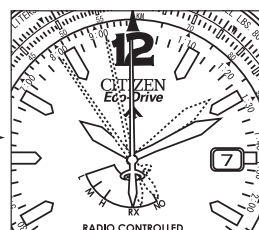
- ◆ Second hand moves to RX and stops.

[Receiving signal]



- ◆ The second hand will move from RX to reception level H, M or L and will begin receiving signals.

[Reception completed]



- ◆ When reception is successful, the second hand will return to 1-second interval movement and the positions of the other hands will be automatically adjusted.

### <Time Necessary for Reception>

Reception can take from between about 2 minutes to a maximum of 15 minutes, depending on factors such as the weather or noise. If the signal reception fails, the watch may return immediately to the normal indication.

#### NOTE:

If the signal is blocked while it is being received due to changes in the environment or other factors, the second hand may rotate once and show the reception level again. Do not move the watch until the second hand has returned to moving at 1-second intervals.

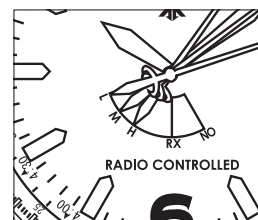
## 8. Confirming Reception Status

☉ The reception status can be confirmed.

**Step 1:** Press button (A) once to confirm the reception status. The second hand will move to H, M, L or NO.

**Step 2:** The reception status will be indicated for 10 seconds before the watch automatically returns to normal hand movement. You can also press button (A) again while the reception status is indicated to return to 1-second interval movement.

- If NO is indicated, find a location or direction where the reception is better and perform “On Demand Reception” again.



\* H, M and L only indicate the reception level, and do not affect the performance.

Reception level	Reception status
H	Received at a strong reception level
M	Received at a quite strong reception level
L	Received at a weak reception level
NO	Signal reception failed

<The time display may shift slightly depending on the reception environment and internal watch processing even if radio waves are properly received.>

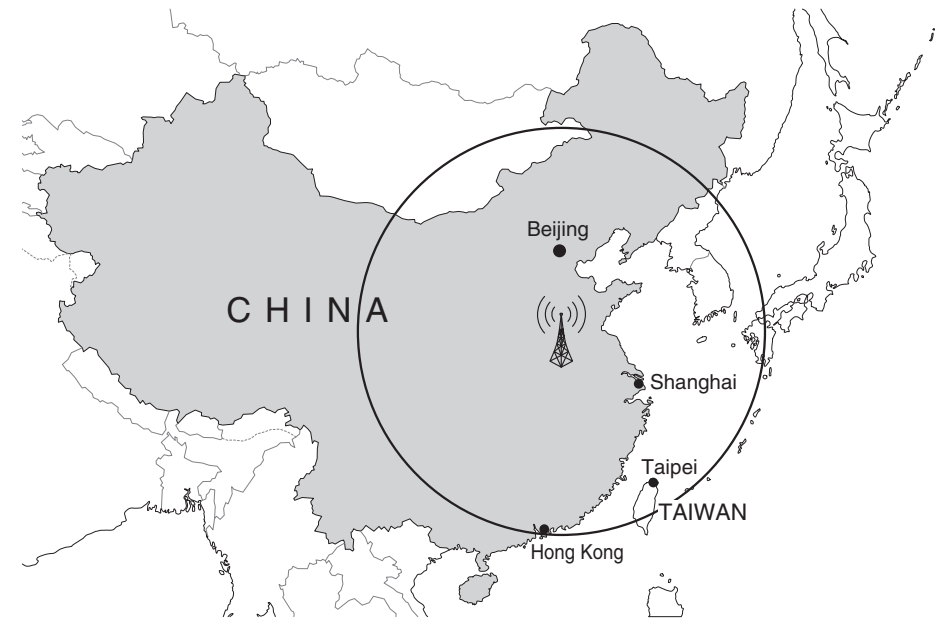
## 9. Reception Area Standards

The map shows a standard of the reception area. However, note that the signal condition could change due to factors including the weather (such as lightning) and changes in the season or sunrise/sunset time.

The reception area on the map should be used only as a standard, and it may be difficult to receive the radio signal even within the areas indicated on the map.

Standard time radio signal	Location of the radio signal transmitter
BPC	Shanggiu, Henan

The standard time radio wave used by this radio controlled watch is broadcast almost continuously, but may be interrupted occasionally due to special circumstances at the radio wave transmitter. Radio waves cannot be received during this period. Even if reception of the standard time radio signal has failed, the watch will continue to be accurate to within  $\pm 15$  seconds per month.



## Manually Setting the Time and the Date

### 10. Setting the Time

When using the watch in an environment where radio signals cannot be received, manually adjust the time and the date.

- After pulling out the crown to position 2, press button (A) to repeatedly change between [Second Hand/Minute Hand] adjustment and [Hour Hand/Date] adjustment.

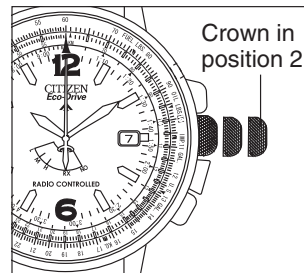
**Step 1:** Pull out the crown to position 2.

- The second hand will stop at the 0 second position.

**Step 2:** Turn the crown to set the minute hand.

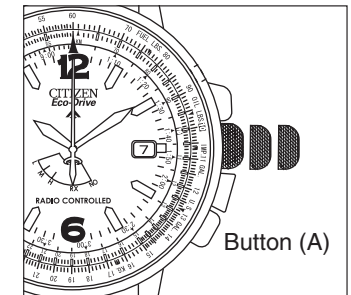
- (1) Turn clockwise by 1 click to rotate the second hand clockwise once and to move the minute hand ahead by 1 minute.
- (2) Turn counterclockwise by 1 click to rotate the second hand counterclockwise once and to move the minute hand back by 1 minute.

- Continuously turn the crown by 2 or more clicks to make the second and minute hands move continuously. Turn the crown by one click clockwise or counterclockwise to stop the continuous movement of the hands.



**Step 3:** Press button (A) once to enter the hour hand/date adjustment mode.

- (1) Rotate the crown clockwise by one click to move the hour hand ahead by 1 hour.
  - (2) Rotate the crown counterclockwise by one click to move the hour hand back by 1 hour.
- Turn the crown by two or more clicks to make the hour hand move continuously.
  - (3) The hour hand and the date are linked together. Move the hour hand continuously to change the date.



**NOTE:**

The date changes at midnight. Pay close attention to a.m. and p.m. when setting the date.

**Step 4:** Set the time by using a time signal, and then press the crown back into its normal position.

## 11. Setting the Calendar

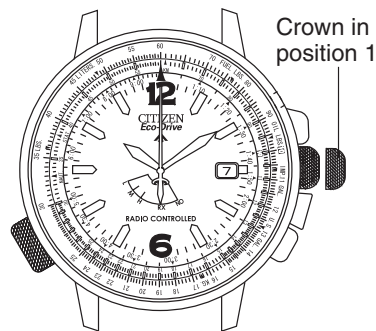
### <Procedure for Month and Year (Elapsed Years after the Most Recent Leap Year) Adjustment>

**Step 1:** Pull out the crown to position 1.

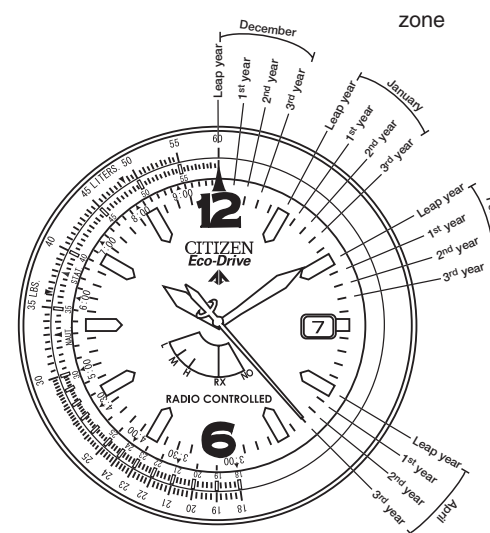
- The watch will enter the calendar adjustment mode and the second hand will stop at the month and elapsed year positions recorded in the watch memory.

**Step 2:** Use the quick reference for the elapsed years after the most recent leap year to confirm the number of elapsed years, and turn the crown clockwise by one click to align the second hand with the month and elapsed years. Turn the crown counterclockwise by one click to move the second hand counterclockwise.

- Turn the crown by two or more clicks to make the second hand move continuously. Turn the crown by one click clockwise or counterclockwise to stop the continuous movement of the hands.



### <Reading the Month and Year (Elapsed Years after the Most Recent Leap Year) with the Second Hand>



#### \* Reading the Month Shown by the Second Hand

Second hand between 1:00 and 2:00:

January

Second hand between 2:00 and 3:00:

February



Second hand between 12:00 and 1:00:

December

### Quick reference for the elapsed years after the most recent leap year

Year	Elapsed years	Year	Elapsed years	Year	Elapsed years
2004	Leap year	2008	Leap year	2012	Leap year
2005	1 <sup>st</sup> year	2009	1 <sup>st</sup> year	2013	1 <sup>st</sup> year
2006	2 <sup>nd</sup> year	2010	2 <sup>nd</sup> year	2014	2 <sup>nd</sup> year
2007	3 <sup>rd</sup> year	2011	3 <sup>rd</sup> year	2015	3 <sup>rd</sup> year

#### \* Reading the Elapsed Years Shown by the Second Hand

Leap year: The second hand points to the 1<sup>st</sup> position in each month zone

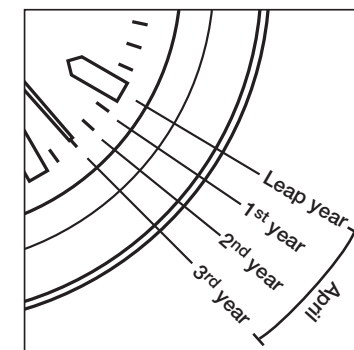
1<sup>st</sup> year after the most recent leap year: The second hand points to the 1<sup>st</sup> position in each month zone

2<sup>nd</sup> year after the most recent leap year: The second hand points to the 2<sup>nd</sup> position in each month zone

3<sup>rd</sup> year after the most recent leap year: The second hand points to the 3<sup>rd</sup> position in each month zone

#### Example:

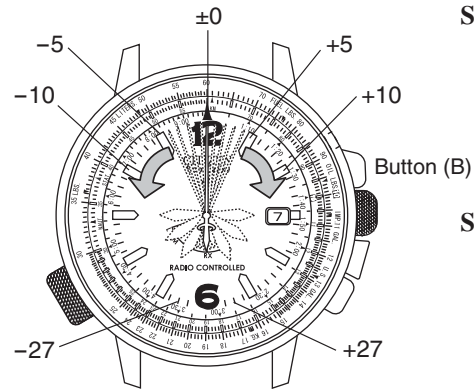
- April of the 3<sup>rd</sup> year after the most recent leap year  
Read the elapsed years after the most recent leap year from the quick reference for the elapsed years.
- Align the second hand with the 23 seconds position (in the zone between 4:00 and 5:00).



**Step 3:** Press the crown back into its normal position.

## Correcting the Time Difference

The watch can be adjusted to the local time when going to an area in a different time zone, by using the second hand to set the time difference in units of 1 hour.



**Example:** When going to an area with a time difference of +1 hour relative to China, align the second hand with the 1 second position.

**Step 1:** Press button (B) once and the second hand will stop in the 12:00 position. The second hand 12:00 position indicates a time difference of  $\pm 0$  hours.

\* If a time difference setting has been made, it will stop at the position appropriate for the time difference.

**Step 2:** Do not pull out the crown. Turn the crown clockwise by 1 click to set a time difference of +1 hour with 1 step of the second hand. Turn the crown counterclockwise to set a time difference of -1 hour with 1 step of the second hand.

- The 12:00 position of the second hand is Chinese time. A time difference in a range of  $\pm 27$  hours relative to Chinese time can be set.

**Step 3:** Press button (B) once after setting the time difference to return to 1-second interval movement. Alternatively, do not perform any operations for 10 seconds and the watch will indicate the time difference setting time and then return to 1-second interval movement.

## 12. Adjusting the Reference Position

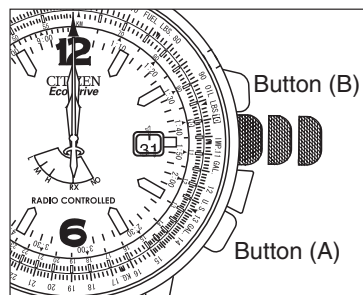
### <Adjusting the Reference Position for the Date and Hands>

- After pulling out the crown to position 2, press button (A) to repeatedly change between [Second Hand/Minute Hand] adjustment and [Hour Hand/Date] adjustment.

**Step 1:** Press and hold button (B) for more than 5 seconds, release when the second hand starts to move rapidly and immediately pull out the crown to position 2.

**Step 2:** Align the date between 31 and 1.

- (1) Continuously turn the crown by 2 or more clicks. Since the hour hand and the date are linked together, the date will change when the hour hand is moved continuously.
- (2) When 31 and 1 are visible in the frame on the watch face, move the crown clockwise or counterclockwise to make the hour hand stop in the 0:00 position.



**Step 3:** Press button (A) once and turn the crown to set the minute and second hands.

- (1) Turn the crown clockwise by 1 click to rapidly move the second hand ahead by 1 minute and turn it counterclockwise to move it back.
- (2) Continuously turn the crown by 2 or more clicks to rapidly rotate the second hand. Since the minute hand and the second hand are linked together, the minute hand will move continuously.

**Step 4:** After adjusting the reference position, return the crown to the normal position, and press button (B) once to make the hands and the date rapidly return to the current time.

- This completes the reference position adjustment, but if the watch does not return to the current time, perform “On Demand Reception” on page 151.

## Troubleshooting <Radio Signal Reception Function>

Consult the following chart:

Problem	Check	Remedy
Radio signals cannot be received.	• Radio waves may be interrupted occasionally due to special circumstances at the radio wave transmitter.	• Try to receive the wave again after a few hours.
	• Are you moving the watch while receiving a signal and the second hand is showing RX, H, M or L?	• Do not move the watch until the signal has been properly received (until normal hand movement returns).

Problem	Check	Remedy
Radio signals cannot be received.	• Are there objects nearby that could block radio signals or generate noise? Are you attempting to receive the radio signal in a location far from a window?	• Avoid objects that block radio signals or generate noise. Try to receive radio signals by pointing the 9:00 position of the watch in the direction of the radio signal transmitter. Find a location such as window that is conducive to radio signal reception and change the watch location, direction and angle. (P. 153)

<b>Problem</b>	<b>Check</b>	<b>Remedy</b>
Radio signals cannot be received.	<ul style="list-style-type: none"> <li>• Is the watch moving at 2-second intervals?</li> </ul>	<ul style="list-style-type: none"> <li>• The watch changes to 2-second interval movement if the battery voltage is low. At this time, neither on demand reception nor regular automatic reception can be performed. Charge the watch sufficiently by placing it in sunlight.</li> </ul>
Does not receive radio signals.	<ul style="list-style-type: none"> <li>• Does the second hand move to the reception standby (RX) position?</li> </ul>	<ul style="list-style-type: none"> <li>• Press and hold button (A) until the second hand indicates the reception standby (RX) position, and then release.</li> </ul>

<b>Problem</b>	<b>Check</b>	<b>Remedy</b>
The watch can receive the radio signal, but it does not show the correct time.	<ul style="list-style-type: none"> <li>• Is the reference position set correctly?</li> </ul> <p>Check the Reference Position. (P. 146)</p>	<ul style="list-style-type: none"> <li>• Even if radio signals are received, if the watch hands are not aligned to the correct reference position, it will not be possible to indicate the correct time.</li> </ul> <p>If the reference position is not correctly set, adjust it as indicated in “Adjusting the Reference Position” on page 166.</p>

## Solar power

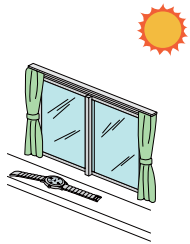
### 13. Solar Power Function

This watch uses a secondary battery to store electrical energy. When the watch is fully charged, it will maintain its accuracy for about 6 months.

#### <Ensuring Best Operation of the Watch>

**Always store the watch in a bright location for best results.**

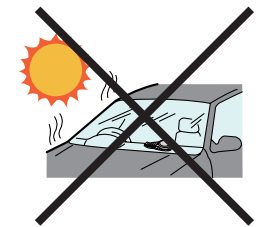
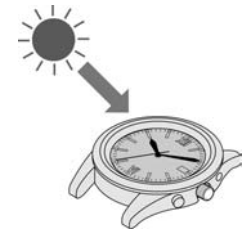
- ◆ Placing the watch near a window where its face can receive sunlight or near another source of light when you are not wearing it will ensure that the watch is regularly charged, allowing it to maintain its accuracy.



- ◆ Charge watch by exposing the watch face to direct sunlight or to a fluorescent lamp.
- ◆ Wearing clothes with long sleeves makes it difficult for the watch to get the necessary light, resulting in insufficient charging. It is recommended that the watch is charged in direct sunlight once a month.

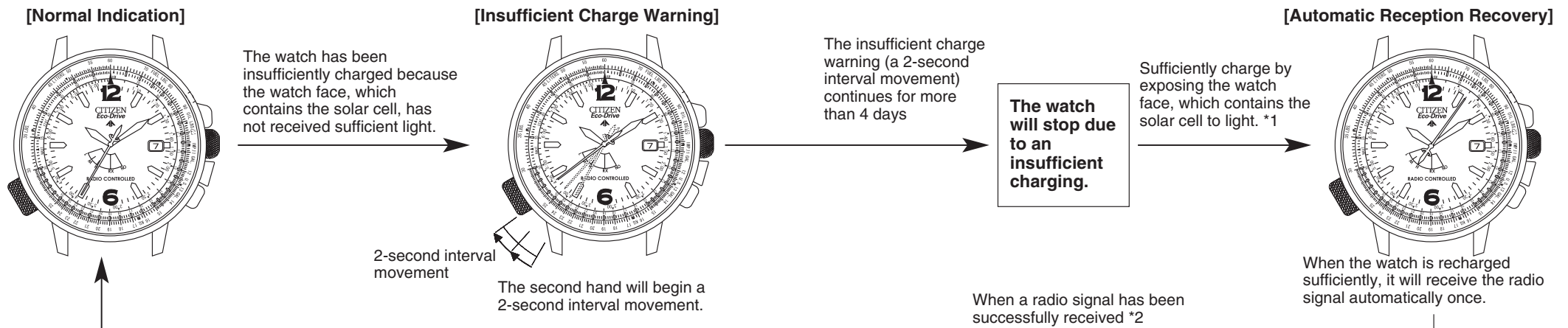
#### NOTE:

Do not charge on surfaces that can easily become hot, such as a car dashboard.



## 14. Characteristics of the Solar Powered Watch

☉ When the watch is insufficiently charged, the indication will be changed as follows:



**\* 1. The watch stopped due to insufficient charging.**

- It takes at least 30 minutes to recharge sufficiently to perform automatic reception recovery, even if the watch is being exposed to light.  
After recovery, refer to “Guide to Charging Time” on page 180 and sufficiently charge the watch.

**\* 2. The watch failed to perform automatic reception recovery**

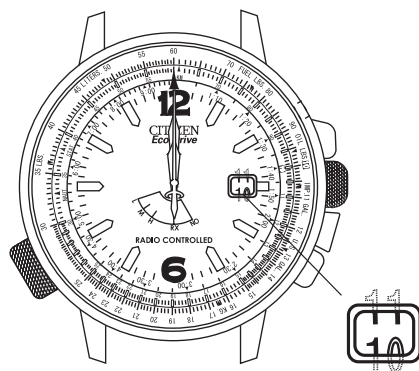
- The time is incorrect even if the second hand moves at 1-second intervals, so after fully charging the watch, set the time manually or with on demand reception.

## A. Power Saving Function

If the watch face is kept in a place with no light for 1 week, the hands will stop at the 12:00 position and the watch will enter power saving mode.

### [The following functions are available even during power saving mode]

- Regular automatic reception.  
The watch will receive the radio signals at 2 a.m. every day. If a signal cannot be received at 2 a.m., it will try again automatically at 4 a.m.
- The time is always being kept inside the watch.
- The date will stop at the position between yesterday and today. Thereafter the date will be automatically adjusted once every day at midnight.



The hands will stop at the 12:00 position and the date will stop at the position between yesterday and today.

## <Turning Off the Power Saving Function>

The power saving mode will be automatically canceled when the watch face is exposed to light.

- After the power saving mode has been canceled, the hands will rapidly move to the current time and return to 1-second interval movement.
- If the watch is insufficiently charged, the second hand will begin the 2-second interval movement. When this happens, sufficiently charge the watch so that it returns to 1-second interval movement.

### NOTE:

- Although the watch will continue to automatically receive radio signals when in the power saving mode, it may not be able to receive the signals depending on the environmental in which the watch is stored. After the power saving mode has been canceled, press button (A) once to see the reception status. If the time is incorrect, use on demand reception to set the correct time before using the watch.
- The power saving mode cannot be canceled with crown or button operations. Cancel the mode by placing the watch in light.

## B. Insufficient Charge Warning Function

The second hand's movement changes from 1-second intervals to 2-second intervals to show that the watch is insufficiently charged. The watch will stop due to insufficient charging about 4 days after starting the 2-second interval movement if kept in a place with no light.

### NOTE:

If the second hand is moving in 2-second intervals, the time cannot be adjusted manually, or by using regular automatic reception or on demand reception.

- ◆ If the charging insufficiency occurs during “Radio signal reception”, “Confirming reception status”, “Time difference correction” or “Checking/adjusting the reference position”, the operation will stop automatically, the watch will return to the time before the operation, and 2-seconds interval movement will begin.

Regularly charge your watch so that it does not become insufficiently charged.



## C. Overcharging Prevention Function

No matter how much the watch is charged, it will not affect the secondary battery, timekeeping, functions or performance of the watch.

Whenever the secondary battery becomes fully charged by exposing the watch face to light, the overcharging prevention function is automatically activated to prevent the battery from being charged further.

## D. Guide to Charging Time

The charging time varies according to the model (including the color of the watch face). The following should only be used as a guideline.

\* The charging time is based on continuous exposure.

Luminescence (lx)	Environment	Charging time (approximate)		
		For a 1-day movement	Time from stopping to resuming the 1-second interval movement	Time for full charging
500	Indoor lighting	3 hours	-----	-----
1,000	60–70 cm (24–28 in) beneath a 30 W fluorescent light	1.5 hours	35 hours	-----
3,000	20 cm (8 in) beneath a 30 W florescent light	30 minutes	10 hours	130 hours
10,000	Cloudy sky	8 minutes	3.5 hours	40 hours
100,000	Direct summer sunlight	2 minutes	1 hour	8.5 hours

\* If the second hand is moving at 2-second intervals, refer to “Time for full charging” and charge sufficiently.

### For a 1-day movement charging time

The charging time to run the watch for one day with normal movement.

### Time for full charging

The time for full charging after the watch has stopped due to an insufficient charging.

**NOTE:** A fully charged battery will run the watch for about 6 months without further charging.

The watch will maintain its accuracy for about 2 years when running in the power saving mode.

Charge the watch every day, as it will take a long time to recharge it, as is indicated in the table, when it stops due to an insufficient charging.

It is recommended that the watch is charged in direct sunlight once a month.

## E. Handling Your Solar Powered Watch

### **WARNING Handling the Secondary Battery**

- ◆ Do not remove the secondary battery from the watch yourself, unless unavoidable. If you must remove the battery, store it out of reach of children to avoid accidental ingestion.  
If the secondary battery is ingested, consult a doctor immediately.
- ◆ Do not throw away with regular trash.  
Doing so could cause a fire or environmental damage. Follow the collection procedures as specified by your local authority.

### **WARNING Do not use anything other than the specified secondary battery**

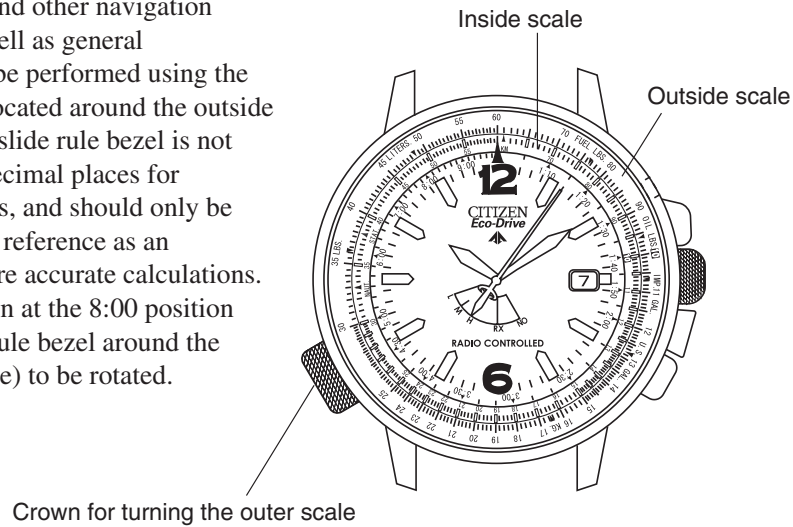
- ◆ The watch will not operate if incorrect battery types are inserted.  
Never use a regular silver battery. The battery could overcharge during the charging process and burst, causing damage to the watch or injuries to the wearer.

### **CAUTION Charging Precautions**

- ◆ Do not charge the watch in a high-temperature environment (about 60°C/140°F or more).  
Overheating while charging can cause the watch exterior to become discolored, the watch to deform or the movement to be damaged.  
**Example:**
  - Charging close to incandescent lighting, halogen lamps, or other lighting sources that easily become hot.
  - Charging on surfaces that can easily become hot, such as a car dashboard.
- ◆ When charging with incandescent lighting, halogen lamps, or other lighting sources that easily become hot, place the watch at least 50 cm (20 in) away from the source to avoid overheating.

## 15. Using the Slide Rule Bezel

Flying distance and other navigation calculations as well as general calculations can be performed using the slide rule bezel located around the outside of the dial. This slide rule bezel is not able to display decimal places for calculation results, and should only be used as a general reference as an alternative to more accurate calculations. Turning the crown at the 8:00 position allows the slide rule bezel around the dial(Outside Scale) to be rotated.

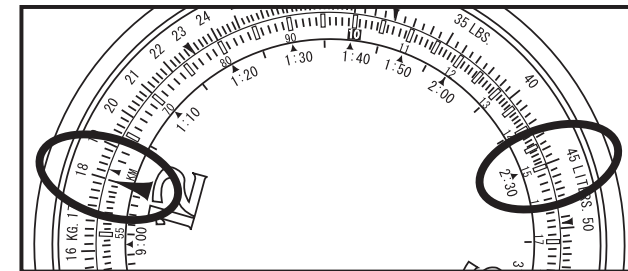


## A. Navigation Calculator

### 1. Calculation of time required

**Problem:** How long does it take an airplane flying at 180 knots to fly a distance of 450 nautical miles?

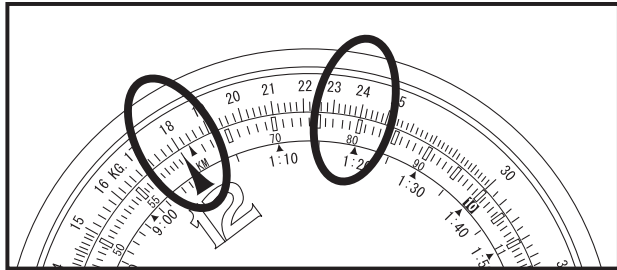
**Solution:** Set the 18 mark on the outside scale to the SPEED INDEX (▲). At this time, the point on the inside scale that is aligned with 450 on the outside scale indicates (2:30), and the answer is 2 hours and 30 minutes.



## 2. Speed (Ground Speed) Calculation

**Problem:** What is the speed (ground speed) of an airplane when it takes 1 hour and 20 minutes to fly a distance of 240 nautical miles?

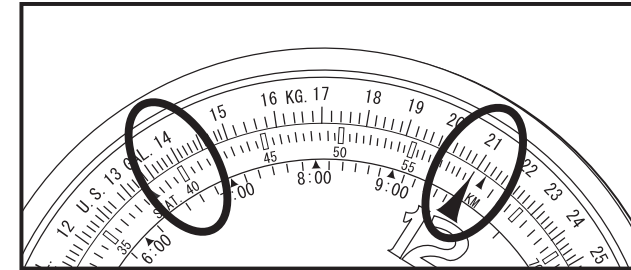
**Solution:** Align the 24 on the outside scale with 1:20 (80) on the inside scale. At this time, 18 is aligned with the SPEED INDEX (▲) on the inside scale, and the answer is 180 Kt.



## 3. Flying distance calculation

**Problem:** What is the flying distance traveled in 40 minutes at a speed of 210 knots?

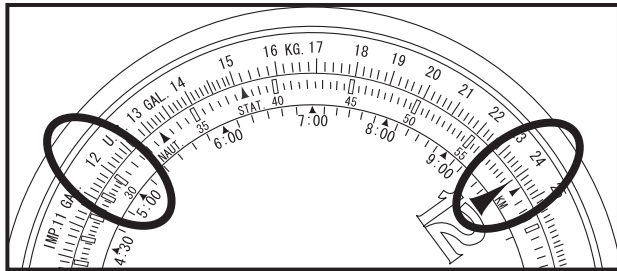
**Solution:** Align the 21 on the outside scale with the SPEED INDEX (▲) of the inside scale. The 40 of the inside scale is now pointing to 14, and the answer is 140 nautical miles.



4. Fuel consumption rate calculation

**Problem:** If 120 gallons of fuel are consumed in 30 minutes' flying time, what is the fuel consumption rate?

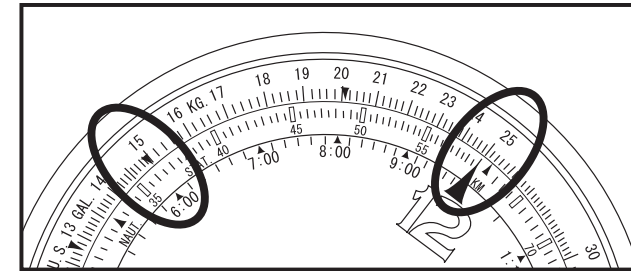
**Solution:** Align the 12 of the outside scale with 30 of the inside scale. The SPEED INDEX (▲) now points to 24, and the answer is 240 gallons per hour.



5. Fuel consumption calculation

**Problem:** How much fuel is consumed in 6 hours at a fuel consumption rate of 250 gallons per hour?

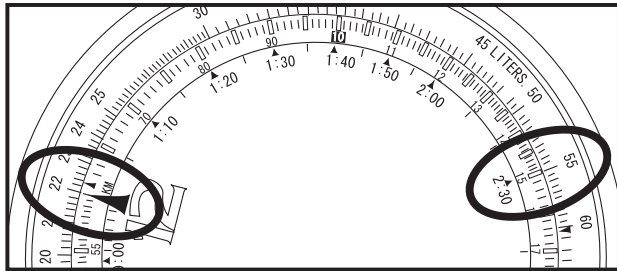
**Solution:** Align the 25 of the outside scale with the inside scale's SPEED INDEX (▲) of the inside scale. The 6:00 is aligned with 15, and the answer is 1500 gallons.



### 6. Maximum flying hours

**Problem:** With a fuel consumption rate of 220 gallons per hour and a fuel supply of 550 gallons, what is the maximum number of flying hours?

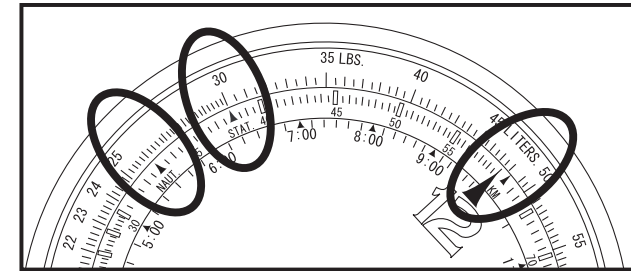
**Solution:** Align the 22 of the outside scale with the inside scale's SPEED INDEX (▲) of the inside scale. The 55 of the outside scale is now aligned with 2:30, and the answer is 2 hours and 30 minutes.



### 7. Conversion

**Problem:** How do you convert 30 miles into nautical miles and kilometers?

**Answer:** Align the 30 on the outside scale with the STAT (▲) mark on the inside scale. At this time, 26 nautical miles is aligned at the NAUT (▲) mark on the inside scale, while the answer of 48.2 kilometers is aligned at the kilometers on the inside scale.

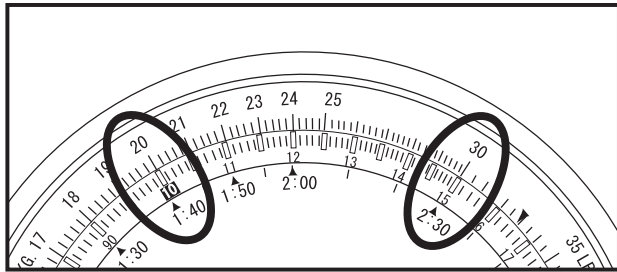


## B. General calculation functions

### 1. Multiplication

**Problem:**  $20 \times 15$

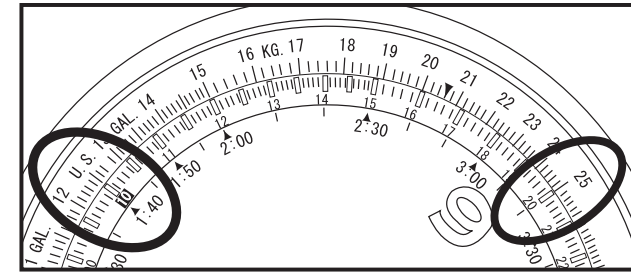
**Solution:** Align 20 on the outside scale with 10 on the inside scale, and read the outside scale at the 30 mark which is aligned with 15 of the inside scale. Figure the number of decimal places, and the answer is 300.  
Remember: decimal places cannot be read on this scale.



### 2. Division

**Problem:**  $250/20$

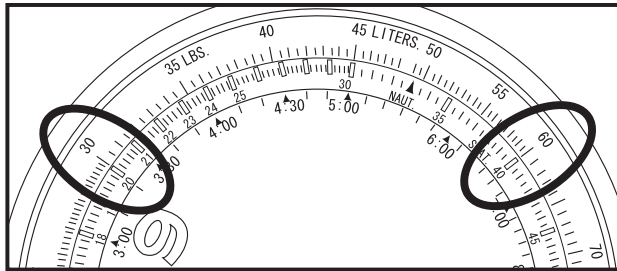
**Solution:** Align 25 on the outside scale with 20 on the inside scale. On the outside scale read the 12.5 mark that is aligned with 10 on the inside scale. Figure the number of decimal places, and the answer is 12.5.



### 3. Reading Ratios

**Problem:**  $30/20 = 60/x$

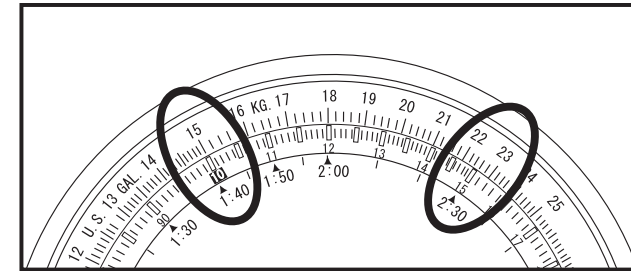
**Solution:** Align 30 on the outside scale with 20 on the inside scale. At this time, the answer of 40 can be read from the inside scale corresponding to 60 on the outside scale. In addition, the ratio of the value on the outside scale to the value on the inside scale is 30:20 at all positions on the scales.



### 4. Determining Square Root

**Problem:** What is the square root of 225?

**Solution:** Rotate the scales so that the value on the inside scale corresponding to 22.5 on the outside scale is equal to the value on the outside scale corresponding to  $\boxed{10}$  on the inside scale, and read off the answer of 15 at that location.



## 16. Precautions



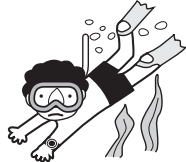


### WARNING: Water-resistance performance

There are several types of water-resistant watches, as shown in the following table.

The unit "bar" is roughly equal to 1 atmosphere.

\* WATER RESIST(ANT) xx bar may also be indicated as W.R. xx bar.

For correct use within the design limits of the watch, confirm the level of water-resistance of your watch, as indicated on the dial and case, and consult the table.

Indication		Specifications	Examples of use				
Dial	Case (case back)						
WATER RESIST or no indication	WATER RESIST(ANT)	Water-resistant to 3 atmospheres	Minor exposure to water (washing face, rain, etc.)	Moderate exposure to water (washing, kitchen work, swimming, etc.)	Marine sports (skin diving)	Scuba diving (with air tank)	Operation of the crown or button with moisture visible
WR 50 or WATER RESIST 50	WATER RESIST(ANT) 5 bar or WATER RESIST(ANT)	Water-resistant to 5 atmospheres	<b>OK</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
WR 100/200 or WATER RESIST 100/200	WATER RESIST(ANT) 10bar/20 bar or WATER RESIST(ANT)	Water-resistant to 10/20 atmospheres	<b>OK</b>	<b>OK</b>	<b>OK</b>	<b>NO</b>	<b>NO</b>

**WARNING: Water-resistance performance**

- Water-resistance for daily use (to 3 atmospheres): This type of watch is water-resistant to minor exposure to water. For example, you may wear the watch while washing your face; however, it is not designed for use underwater.
- Upgraded water-resistance for daily use (to 5 atmospheres): This type of watch is water-resistant to moderate exposure to water. You may wear the watch while swimming; however, it is not designed for use while skin diving.
- Upgraded water-resistance for daily use (to 10/20 atmospheres): This type of watch may be used for skin diving; however, it is not designed for scuba or saturated diving using helium gas.

**CAUTION**

- Be sure to use the watch with the crown pressed in (normal position). If your watch has a screw-lock type crown, be sure to tighten the crown completely.
- Do NOT operate the crown or button with wet fingers or when the watch is wet. Water may enter the watch and compromise water-resistance.
- If the watch is used in seawater, rinse with fresh water afterward and wipe with a dry cloth.
- If moisture has entered the watch, or if the inside of the crystal is fogged up and does not become clear within a day, immediately take the watch to your dealer or Citizen Service Center for repair. Leaving the watch in such a state will allow corrosion to form inside.

- If seawater enters the watch, place the watch in a box or plastic bag and immediately take it in for repair. Otherwise, pressure inside the watch will increase, and parts (crystal, crown, buttons, etc.) may come off.

**CAUTION: Keep your watch clean.**

- Leaving dust and dirt deposited between the case and crown may result in difficulty in pulling the crown out. Rotate the crown while in its normal position, from time to time, to loosen dust and dirt and then brush it off.
- Dust and dirt tend to be deposited in gaps in the back of the case or band. Deposited dust and dirt may cause corrosion and soil your clothing. Clean the watch occasionally.

**Cleaning the Watch**

- Use a soft cloth to wipe off dirt, perspiration and water from the case and crystal.
- Use a soft, dry cloth to wipe off perspiration and dirt from the leather band.
- To clean a metal, plastic, or rubber watchband, wash away dirt with mild soap and water. Use a soft brush to remove dust and dirt jammed in the gaps in the metal band. If your watch is not water-resistant, take it to your dealer.

**NOTE:** Avoid using solvents (thinner, benzine, etc.), as they may damage the finish.

**CAUTION: Operating environment**

- Use the watch within the operating-temperature range specified in the instruction manual. Using the watch where temperatures are outside the specified range, may result in deterioration of functions or even stoppage of the watch.
- Do NOT use the watch in places where it is exposed to high temperature, such as in a sauna.  
Doing so may result in a skin burn.
- Do NOT leave the watch in a place where it is exposed to high temperature, such as the glove compartment or dash-board of a car.  
Doing so may result in deterioration of the watch, such as deformation of plastic parts.
- Do NOT place the watch close to a magnet.  
Timekeeping will become inaccurate if you place the watch close to magnetic health equipment such as a magnetic necklace or a magnetic latch of a refrigerator door or handbag clasp or the earphone of a mobile phone. If this has occurred, move the watch away from the magnet and reset the time.
- Do NOT place the watch close to household appliances that generate static electricity.  
Timekeeping may become inaccurate if the watch is exposed to strong static electricity, such as is emitted from a TV screen.
- Do NOT subject the watch to a strong shock such as dropping it onto a hard floor.

- Avoid using the watch in an environment where it may be exposed to chemicals or corrosive gases.  
If solvents, such as thinner and benzine, or substances containing such solvents come in contact with the watch, discoloration, melting, cracking, etc. may result. If the watch comes in contact with mercury used in thermometers, the case, band or other parts may become discolored.

**Periodical inspections**

Your watch needs inspection once in every two or three years for safety and long use. To keep your watch water-resistant, the packing needs to be replaced regularly. Other parts need to be inspected and replaced if necessary. Ask for Citizen genuine parts upon replacement.

## 17. Specifications

1. **Cal. No.:** H486
2. **Type:** Analogue Solar Powered Watch
3. **Time accuracy:** Without reception (when watch is not receiving a radio signal)  
±15 seconds per month on average (at a room temperature of +5°C/41°F to +35°C/95°F)
4. **Acceptable temperature range:** -10°C/14°F to +60°C/140°F
5. **Indication functions:**
  - Time: Hours, minutes, seconds (the hour hand moves every 2 minutes)
  - Date
6. **Additional functions:**
  - Radio signal reception function (regular automatic reception, on demand reception, automatic reception recovery)
  - Reception standby indication function (RX)
  - Reception level indication function (H, M, L)
  - Reception status confirmation function (H, M, L or NO)
  - Time difference correction function

- Reference position checking/adjustment function
- Solar power function
- Power saving function
- Insufficient charge warning function (2-second interval movement)
- Overcharging prevention function
- Time from a full charge until the watch stops without charging

### 7. Duration:

- : About 2 years (when in the power saving mode)
- : About 6 months (when not in the power saving mode)  
Note that this duration may vary depending on the number of times that signals are received.
- Time from insufficient charge warning to watch stopping  
: About 4 days

### 8 Battery: Secondary battery 1

\* Specifications may change without notice.