

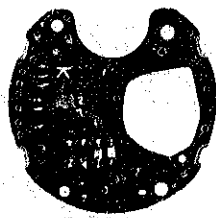
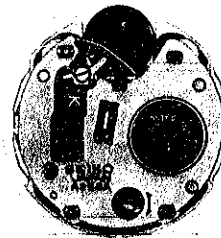
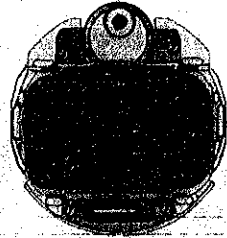
SEIKO

DIGITAL QUARTZ

Cal. A258A

PARTS LIST

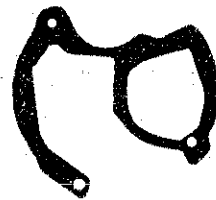
Cal. A258A



4001 235



4216 231



4216 233



4242 087



4242 088



4242 231



4242 232



☆4245 230



☆4245 231



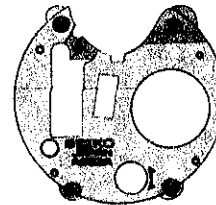
4246 230



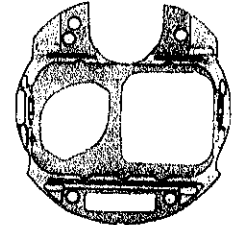
4270 230

4313 230

4313 231



4398 090



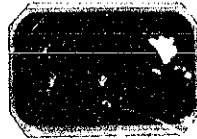
4398 092



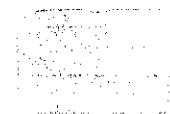
4398 241



☆4398 248



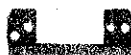
4510 461



4521 230



4530 230



4540 235



4540 236



4580 231



☆4580 235



4991 231



☆4991 236



☆Maxell XR9527W



012 158



012 458



017 144



017 145



017 220

2/1

Cal. A258A

Characteristics

Casing diameter : ϕ 28.0 mm
 Maximum height : 4.9 mm without battery
 Frequency of quartz crystal oscillator : 32,768 Hz (Hz=Hertz Cycles per second)
 Time and calendar display : Digital Display System, showing hour, minute, second, month, date and day of the week.
 Weekly alarm display : Can be set to operate at any desired hour and minute on designated day.
 Interval timer display : Can be set to operate at any desired interval (minute and hour) up to 15 hours and 59 minutes.
 Stop watch display : Digital Display System showing 12-hour, minute and second (or minute, second and 1/100 second up to 20 minutes measurement) on both the upper row and lower row. The lap time is displayed in the upper row and accumulated elapsed time in the lower row at the same time by simply depressing a button.
 Display medium : Nematic Liquid Crystal, FE-Mode.
 Regulation system : Trimmer condenser
 Illuminating light : Illuminates the display in the dark by depressing the light button.
 Battery recharge indicator : If all the digits in the display begin flashing, recharge is required.

| PART NO. | PART NAME | PART NO. | PART NAME |
|-----------------|--|----------|-----------|
| 4001 235 | Circuit block | | |
| 4216 231 | Insulator for battery | | |
| 4216 233 | Insulator for circuit block | | |
| 4242 087 | Plus terminal of battery connection (A) | | |
| 4242 088 | Plus terminal of battery connection (B) | | |
| 4242 231 | Speaker block lead terminal (A) | | |
| 4242 232 | Speaker block lead terminal (B) | | |
| ☆4245 230 | Switch spring (A) | | |
| ☆4245 231 | Switch spring (B) | | |
| 4246 230 | Solar battery lead terminal | | |
| 4270 230 | Battery connection | | |
| 4313 230 | Connector (A) | | |
| 4313 231 | Connector (B) | | |
| 4398 090 | Battery guard | | |
| 4398 092 | Liquid crystal panel frame | | |
| 4398 241 | Speaker block frame | | |
| ☆4398 248 | | | |
| 4510 461 | Liquid crystal panel | | |
| 4521 230 | Reflecting mirror | | |
| 4530 230 | Bulb | | |
| 4540 235 | Liquid crystal panel holder (A) | | |
| 4540 236 | Liquid crystal panel holder (B) | | |
| 4580 231 | Speaker block | | |
| ☆4580 235 | | | |
| 4991 231 | Speaker gasket | | |
| ☆4991 236 | | | |
| 012 158 | Screw for speaker block lead terminal (B) | | |
| 012 458 | Liquid crystal panel holder screw | | |
| 017 144 | Tube for liquid crystal panel holder screw (A) | | |
| 017 145 | Tube for speaker block lead terminal screw (B) | | |
| 017 220 | Tube for liquid crystal panel holder screw (B) | | |
| ☆Maxell XR9527W | Silver oxide battery (Secondary battery) | | |

☆ Please see remarks on the reverse page
 Part numbers in light letters are not shown in photos.

Cal. A258A

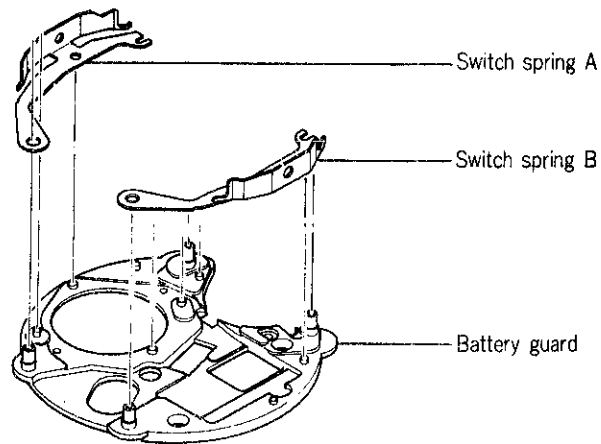
Remarks :

Speaker block frame, Speaker block, Speaker gasket.

- ☆4398 248 } The parts designated with these parts numbers are manufactured specially for the water
- ☆4580 235 }resistant case of a pressure of 10 atmospheres (100 meters or 300 feet). Be sure to
- ☆4991 236 } use these parts for maintaining high water-resistant quality.

Switch spring A, B

- ☆4245 230 }The switch springs A and B are similar in shape. Be sure to make sure of them referring
- ☆4245 231 } to the illustration below.



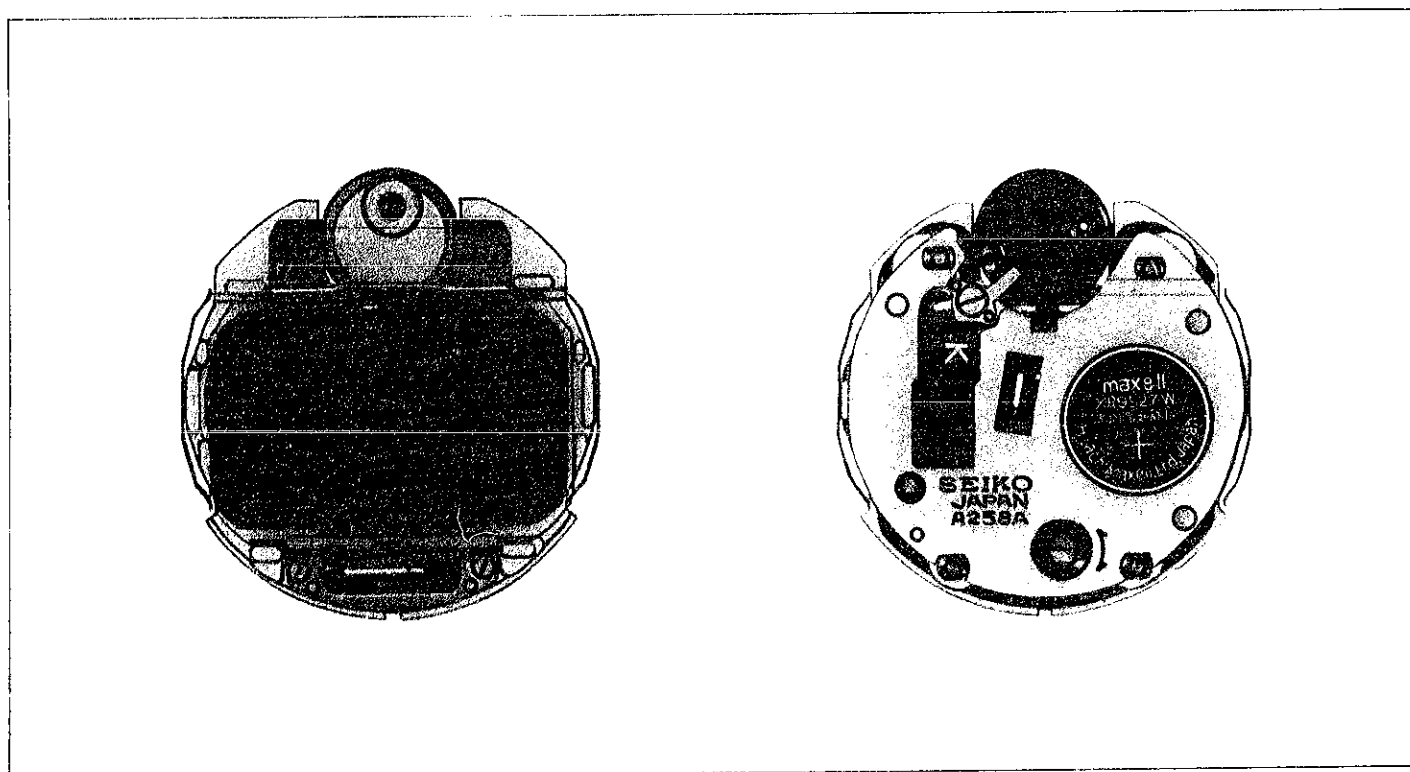
Battery

- ☆Maxell XR9527WThis battery is specially produced as secondary rechargeable battery for the solar cell. Be sure to use the battery Maxell XR9527W when replacing the battery with a new one.

TECHNICAL GUIDE

SEIKO DIGITAL QUARTZ

CAL. A258A



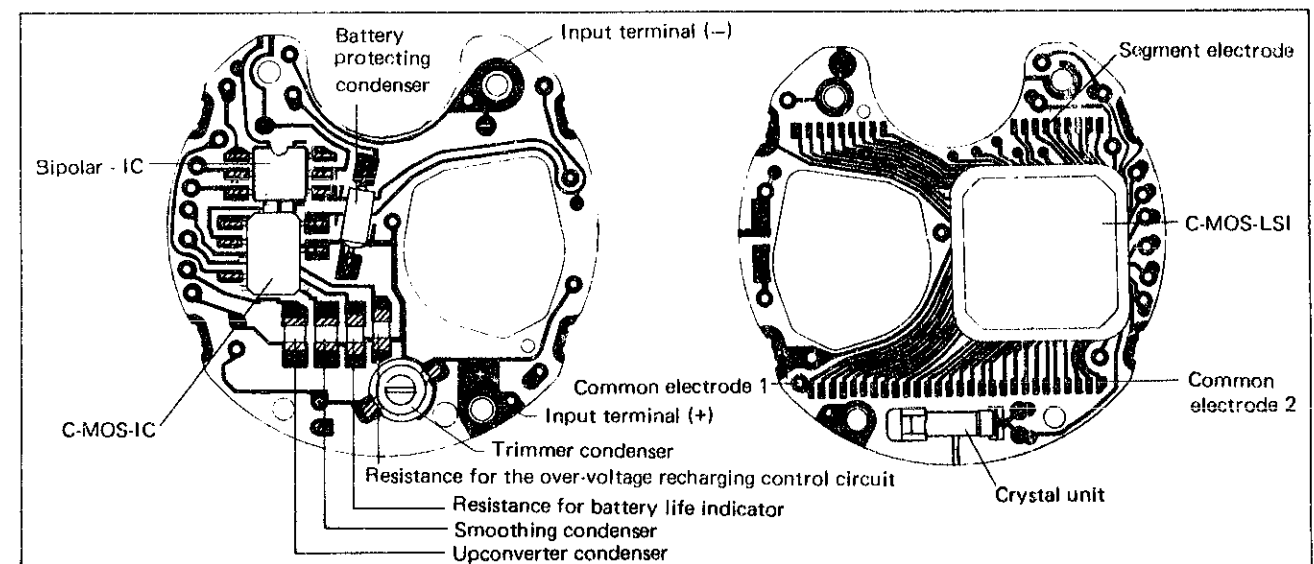
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I. SPECIFICATIONS

| Item | Cal. No. | A258A |
|---------------------------------|----------|--|
| Display medium | | Nematic Liquid Crystal, FEM (Field Effect Mode) |
| Liquid crystal driving system | | Multiplex driving system |
| Display system | | <ul style="list-style-type: none"> • Time and calendar function • Weekly alarm function • Interval timer function • Stopwatch function |
| Additional mechanism | | <ul style="list-style-type: none"> • Time signal • Alarm test system • Illuminating light • Battery recharge indicator |
| Loss/gain | | Loss/gain at normal temperature range Monthly rate: less than 10 seconds (Annual rate: less than 2 minutes) |
| Casing diameter | | φ 28.0 mm |
| Height | | 4.9 mm without battery |
| Regulation system | | Trimmer condenser |
| Measuring gate by Quartz Tester | | Any gate is available |
| Battery | | Primary battery (Solar battery): Silicon solar cell Secondary battery: Maxell XR9527W Battery life is approximately 7 years. Voltage: 1.55 V |

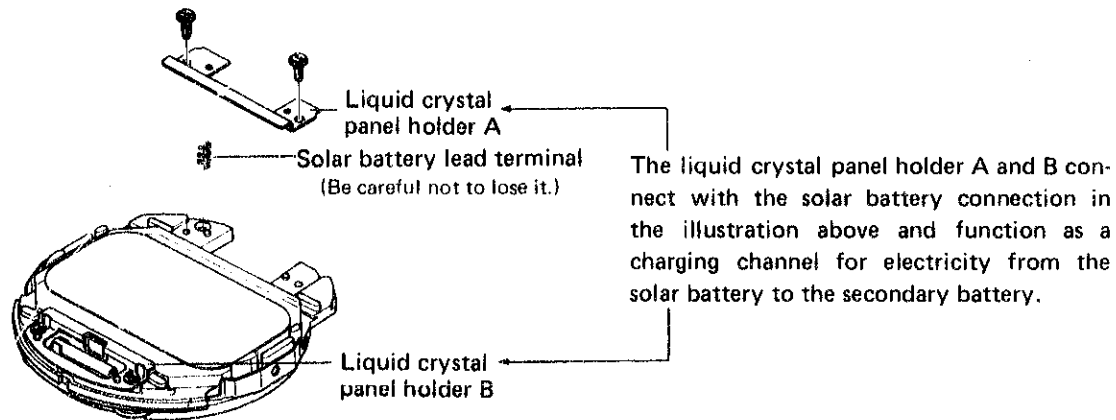
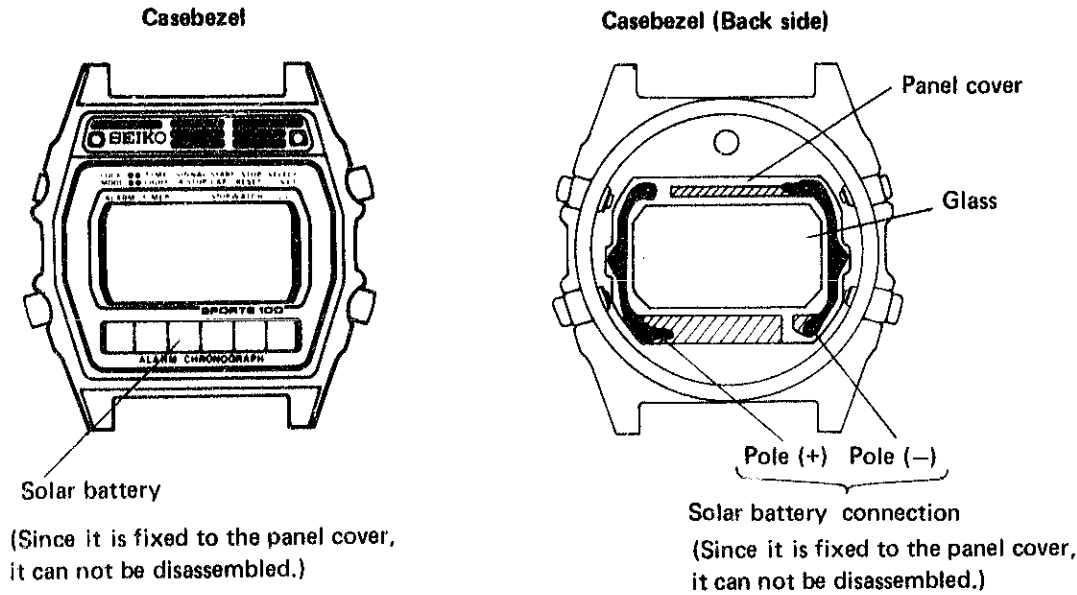
II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISASSEMBLING AND REASSEMBLING

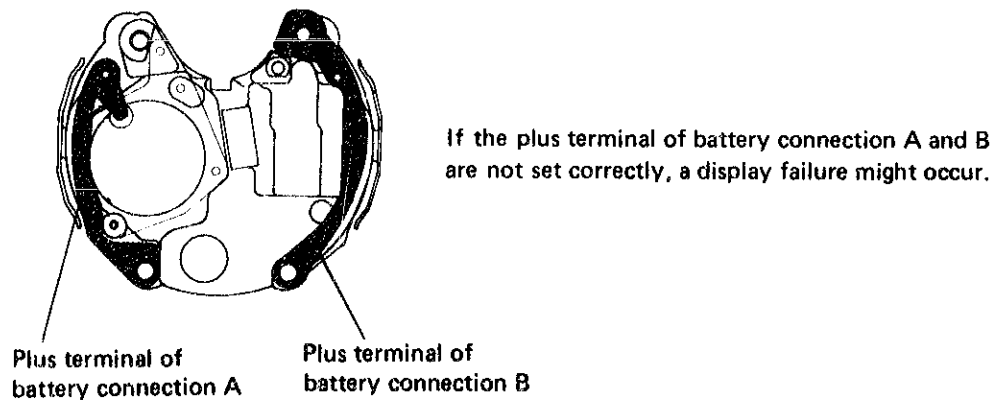
Refer to the Technical Guide of Cal. A259A for disassembling, reassembling of the module and the segment electrode of the liquid crystal panel.

• Solar battery position



• Plus terminal of battery connection A and B

Be sure to set them securely.



IV. CHECKING AND ADJUSTMENT

Refer to the "SEIKO QUARTZ TECHNICAL GUIDE GENERAL INSTRUCTION" for Digital Watches for details.

Procedure

CHECK RECHARGING CONDITION

- When the display is not shown or the entire digits are flashing, the cause might be a poor battery voltage. Under the complete condition, be sure to charge the solar battery to the standards charted below.

| Type of light | The charging time required to operate the watch one day | The charging time required to operate the watch one month |
|--|---|---|
| Direct sunlight (Fine day) | 2 to 3 minutes | 1.5 hour (90 minutes) |
| Outside on a cloudy day | 5 to 10 minutes | 5 hours |
| At the window (Fine day) | 20 minutes | 10 hours |
| White fluorescent lamp 40W 15 cm directly under the light | 2 hours | 60 hours |

- * Do not charge the battery with the light that has an extremely high temperature such as light bulbs that may cause the plastic casing parts defective.
- * When charging under direct sunlight, be sure to set the watch at the place where there is sufficient air circulation so that it does not heat up excessively.

Result:

The watch functions correctly — Insufficient charging
(Be sure to charge the battery sufficiently with the direct sunlight etc.)

The watch does not function correctly — Replace the secondary battery with a new one.
(Even if the watch is charged repeatedly, the watch malfunctions.)

CHECK SECONDARY BATTERY VOLTAGE

Result:

More than 1.5 V : Normal
Less than 1.5 V : Defective

Procedure

CHECK PATTERN SEGMENT CHECKING SYSTEM



- Depress button B for 3 to 4 seconds, all the segments light up.
- With all the segments lit, check to see if there are any defective segments.

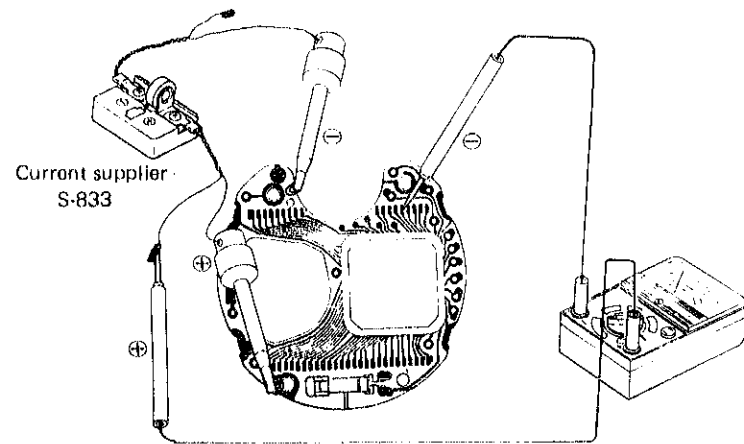
CHECK LIQUID CRYSTAL PANEL AND CIRCUIT BLOCK

- Check the output voltage for the circuit block.

Result:

More than 0.8 V : Normal
 Less than 0.8 V : Defective

Replace the circuit block with a new one.



- Check for broken wire, short circuit, etc. of the liquid crystal panel.

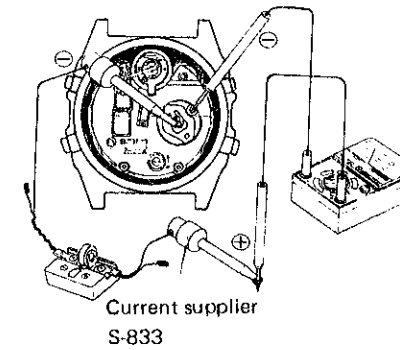
Result:

Lights up: Normal
 Does not light up: Defective

Replace the liquid crystal panel with a new one.

Procedure

CHECK CURRENT CONSUMPTION



Result:

Less than 2.0 μ A : Normal
 More than 2.0 μ A : Defective

* Replace the liquid crystal panel or the circuit block with a new one.

- * How to check if the liquid crystal panel or the circuit block is defective when the current consumption is more than 2.0 μ A.

Remove the liquid crystal panel, the connector and the reflecting mirror from the module. Then measure the current consumption after screwing the liquid crystal panel holder A and B.

Result:

Less than 1.6 μ A : Circuit block: Normal

Replace the liquid crystal panel with a new one.

More than 1.6 μ A : Circuit block: Defective

Replace the circuit block with a new one.

CHECK ACCURACY

- Depress button B for 3 to 4 seconds, and all the segments light up. That facilitates measuring the daily rate.

Check functioning and adjustment

Check conductivity of switch components

Check speaker block

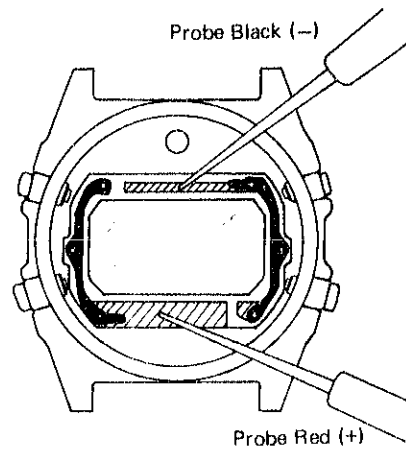
Refer to the Technical Guide of Cal. A259A.

Procedure

CHECK SOLAR BATTERY

1. Check to see if the solar battery functions correctly.

Apply the probes of the Volt-ohm-meter to the electrode of the solar battery connections on the back of the panel cover and check to see if the pointer of the Volt-ohm-meter swings.



Type of light: Direct sunlight or fluorescent lamp

Range to be used: DC, 3V – 6V

- The swinging range of the pointer varies depending upon the power and distance of the light source.
- Do not check by a high temperature such as light bulbs.

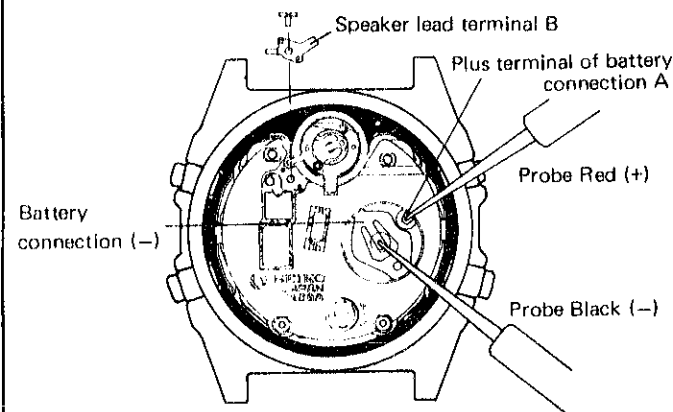
Result:

The pointer swings: Normal

The pointer does not swing: Defective

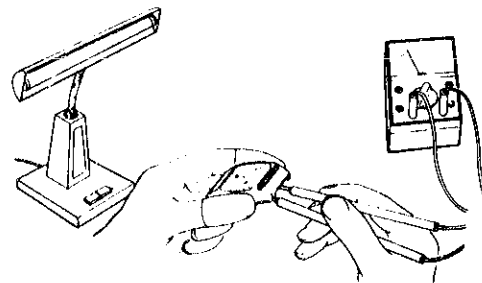
Replace the panel cover (with the solar battery) with a new one.

2. Check to see if the charging circuit functions correctly from the solar battery to the secondary battery.



- Remove the secondary battery and the speaker lead terminal B from the module and apply the probes of the Volt-ohm-meter to the module as shown in the illustration on the left.
- In this condition, expose the glass side of the casebezel to the light source and check to see if the pointer of the Volt-ohm-meter swings.

Note: Be careful not to shadow the solar battery side by your hand, and be sure to wipe the glass clean.



Result:

The pointer swings: Normal

The pointer does not swing: Defective

Replace the circuit block with a new one.

All procedures of Disassembling, Reassembling, Checking and Adjustment are completed.