

# **TECHNICAL GUIDE AND PARTS LIST**

CAL. V601A

## **ANALOGUE QUARTZ**

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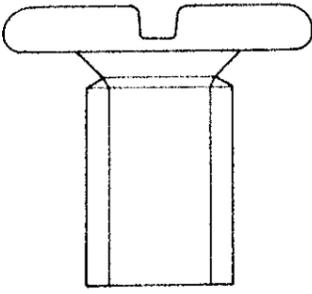
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## I. SPECIFICATIONS

| Item                         |                 | Cal. No.  | V601A |
|------------------------------|-----------------|---|-------|
| Time indication              |                 | Three hands (hour, minute, second) + Multi function hand  |       |
| Driving system               |                 | Step motor 3 pcs. (Fixed pulse system)  |       |
| Display system               |                 | <ul style="list-style-type: none"> <li>● Hands adjust display</li> <li>● Stopwatch display</li> <li>● Time display</li> </ul> |       |
| Loss/gain                    |                 | Monthly rate: Less than 20 seconds at normal temperature range  |       |
| Movement size                | Casing diameter | φ30.0 mm  |       |
|                              | Height          | 3.7 mm (with battery clamp)   |       |
| Regulation system            |                 | Trimmer condenser   |       |
| Quartz Tester measuring gate |                 | Any gate is available   |       |
| Battery                      |                 | SEIKO SR1130W, MAXELL SR1130W, SONY EVEREADY 389, U.C.C. 389<br>Voltage: 1.55V<br>Battery life: Approx. 2 years               |       |
| Jewels                       |                 | 0 jewel   |       |

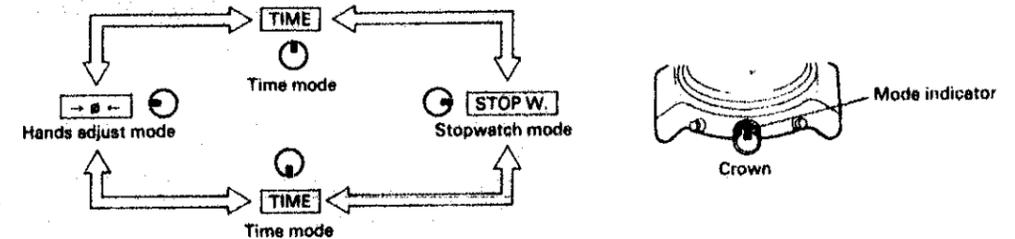
## II. LIST OF SCREWS USED

|  |   |
|--|---|
|  <p>012 201</p> | <p>Battery clamp screw (1 pce.)<br/>                 Switch spring screw (5 pcs.)<br/>                 Coil block screw (3 pcs.)<br/>                 Screw for additional train wheel bridge (2 pcs.)<br/>                 Train wheel bridge screw (2 pcs.)<br/>                 Center wheel bridge screw (1 pce.)</p> |
|--|---|

## III. OPERATION (Major Functions)

### 1. MODE AND BUTTON OPERATION

Mode change is made by turning the crown clockwise or counterclockwise as follows:

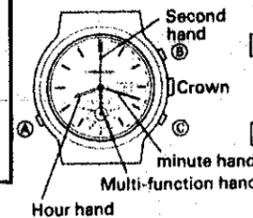


#### NOTES:

1. The crown can not be pulled out or pushed in.
2. "STOP W.", "TIME" and "→ φ ←" marks are printed on the case or dial of your watch to indicate the respective mode positions.

### 2. NECESSARY STEPS AFTER BATTERY REPLACEMENT

After replacing the battery, there will be a discrepancy between the information stored in the integrated circuit (IC) within the watch and the position the hands indicate. Be sure to follow right [1] to [3] steps to adjust:



1. Turn the crown to set the mode indicator at the "TIME" position and keep the three buttons pressed simultaneously for a few seconds. When the second hand stops, proceed to the following steps.
2. Turn the crown to set the mode indicator at the "→ φ ←" position. Set the hour hand and minute hand at the 12 o'clock position and the second hand and multi-function hand at the "12" position. (For hands setting, refer to item 3. [1] to [4] in this page.)
3. Turn the crown to set the mode indicator at the "TIME" position and set the current time. (For details, see "HOW TO SET THE TIME")

### 3. HOW TO CHECK AND ADJUST FOR HANDS POSITION



- A: Second hand reset
- B: Hour and minute hands reset
- C: Multi-function hand reset

1. Press button A repeatedly to set the second hand to the 12 o'clock position.
2. Press button B repeatedly to set the hour and minute hand to the 12 o'clock position.
3. Press button C repeatedly to set the multi-function hand to the 12 o'clock position.
4. After all the adjustments are completed, turn the crown to set the watch to the desired mode.

Before setting to other mode, turn the mode indicator at the "→ φ ←" position. Minute, second, and multi-function hands should point to the 12 o'clock position as above. If not, follow right [1] to [4] steps adjust:

### 4. HOW TO SET THE TIME



- A: Lock/Unlock
- B: Hour and minute hands setting (clockwise)
- C: Hour and minute hands setting (counterclockwise)

1. Turn the crown to set the mode indicator at the "TIME" position.
2. All hands move and stop at previously set time.
3. When the hands stop, proceed to [1] to [3] steps to adjust correct time.

1. After the hands stop, press A continuously for 1 second. The second hand is reset to the 12 o'clock position and the watch is unlocked for the time setting function.
2. Press B (clockwise setting) or C (counterclockwise setting) repeatedly to set the hour and minute hands.
  - \* If the buttons are kept pressed, the hands move automatically. To stop them, press B or C.
  - \*\* When setting the hour hand, check that AM/PM is correctly set.
3. After setting the desired time, press A in accordance with a time signal and the second hand will start immediately. The watch is locked for the "TIME" mode.

NOTE: REGARDING HOW TO USE THE STOP WATCH, REFER TO THE INSTRUCTION BOOKLET.

## IV. DISASSEMBLING, REASSEMBLING AND LUBRICATING

### ● Precautions on Disassembly/Reassembly

#### Removing/Assembling the Crown (with winding stem)

The crown (with winding stem) should be removed/assembled in the "TIME" mode.

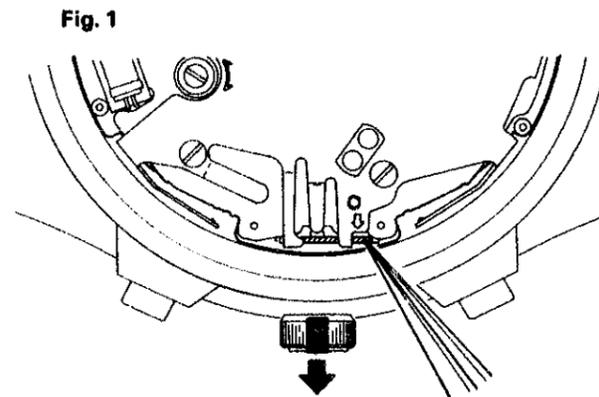
#### ● How to remove

Procedure 1 Turn the crown to set the mode indicator at the "TIME" position.

Procedure 2 Push the winding stem holder gently with tweezers or screwdriver.

The point to be pushed is indicated by the arrow (⇒) located at the 3 o'clock position on the switch spring. (fig. 1)

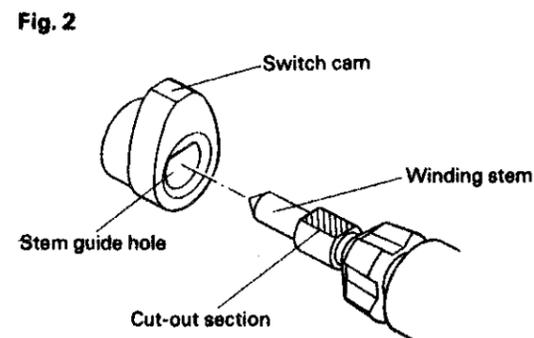
Procedure 3 Pull out the crown in the "TIME" position.



#### ● How to assemble

Phase should be matched between the crown (winding stem) and the switch cam.

Confirm the setting position so that the stem guide hole of the switch cam matches with the cut-out section of the winding stem, before assembling.

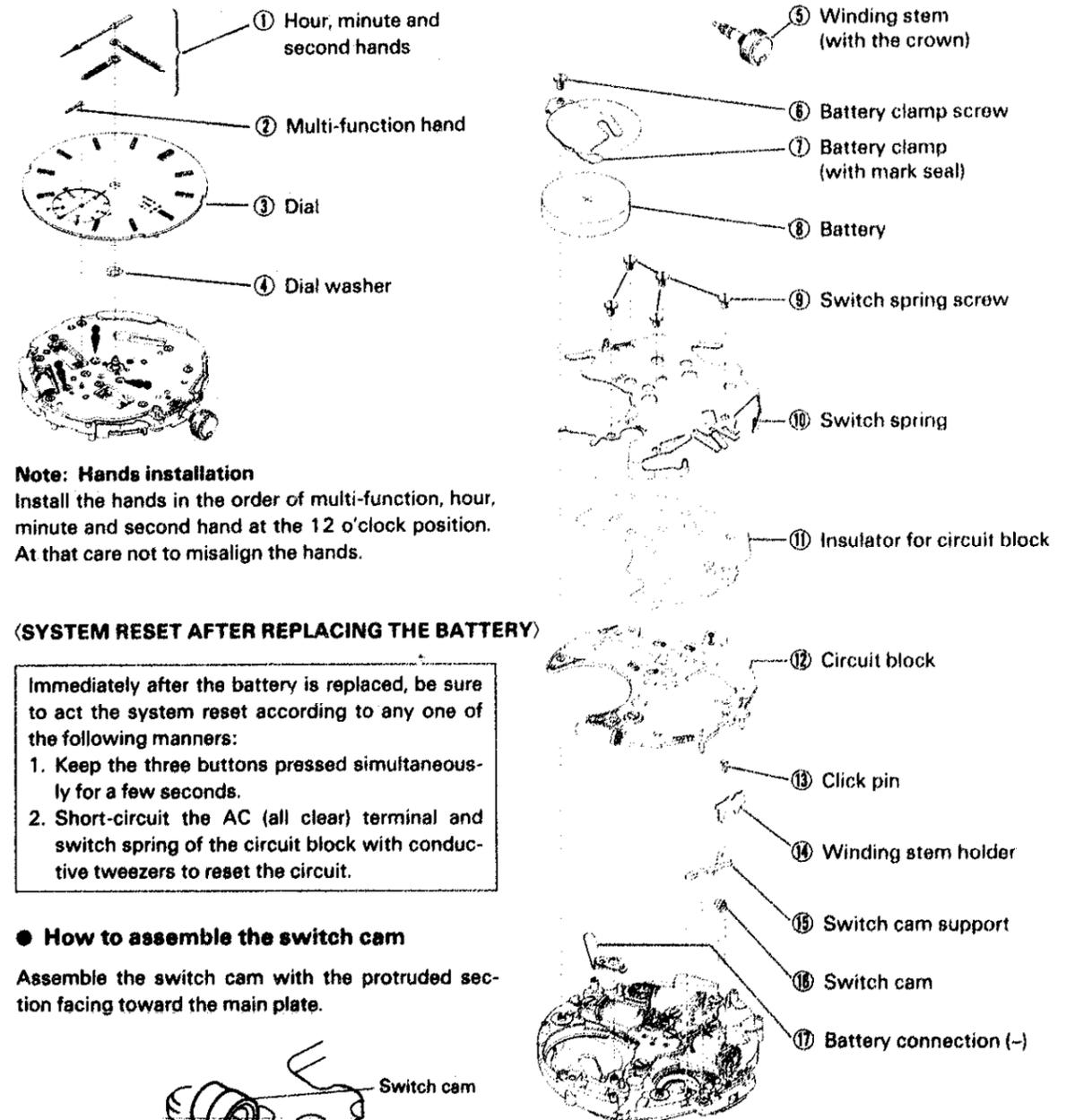


Disassembling procedures: Figs. ① → ⑭

Reassembling procedures: Figs. ⑭ → ①

| Types of oil        |  | Oil quantity |
|---------------------|--|--------------|
| Moebius A           |  | Small        |
| Seiko watch oil S-6 |  | Standard     |

### ● Hands ~ Battery connection (-)



#### Note: Hands installation

Install the hands in the order of multi-function, hour, minute and second hand at the 12 o'clock position. At that care not to misalign the hands.

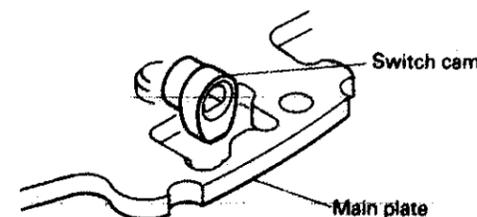
#### (SYSTEM RESET AFTER REPLACING THE BATTERY)

Immediately after the battery is replaced, be sure to act the system reset according to any one of the following manners:

1. Keep the three buttons pressed simultaneously for a few seconds.
2. Short-circuit the AC (all clear) terminal and switch spring of the circuit block with conductive tweezers to reset the circuit.

#### ● How to assemble the switch cam

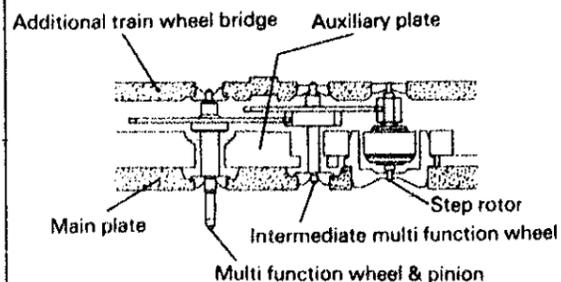
Assemble the switch cam with the protruded section facing toward the main plate.



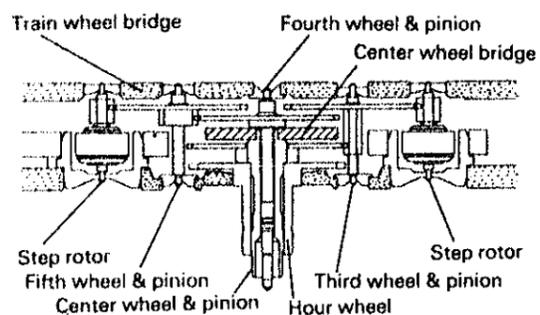
● Screw for additional train wheel bridge ~ Main plate

● Setting position of the train wheel

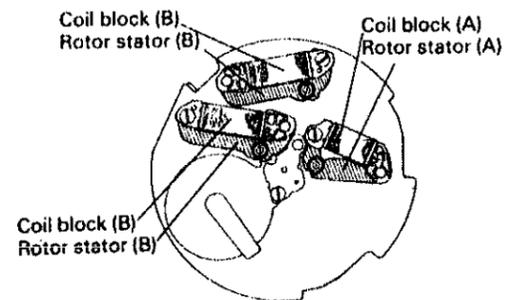
[Additional train wheel bridge]



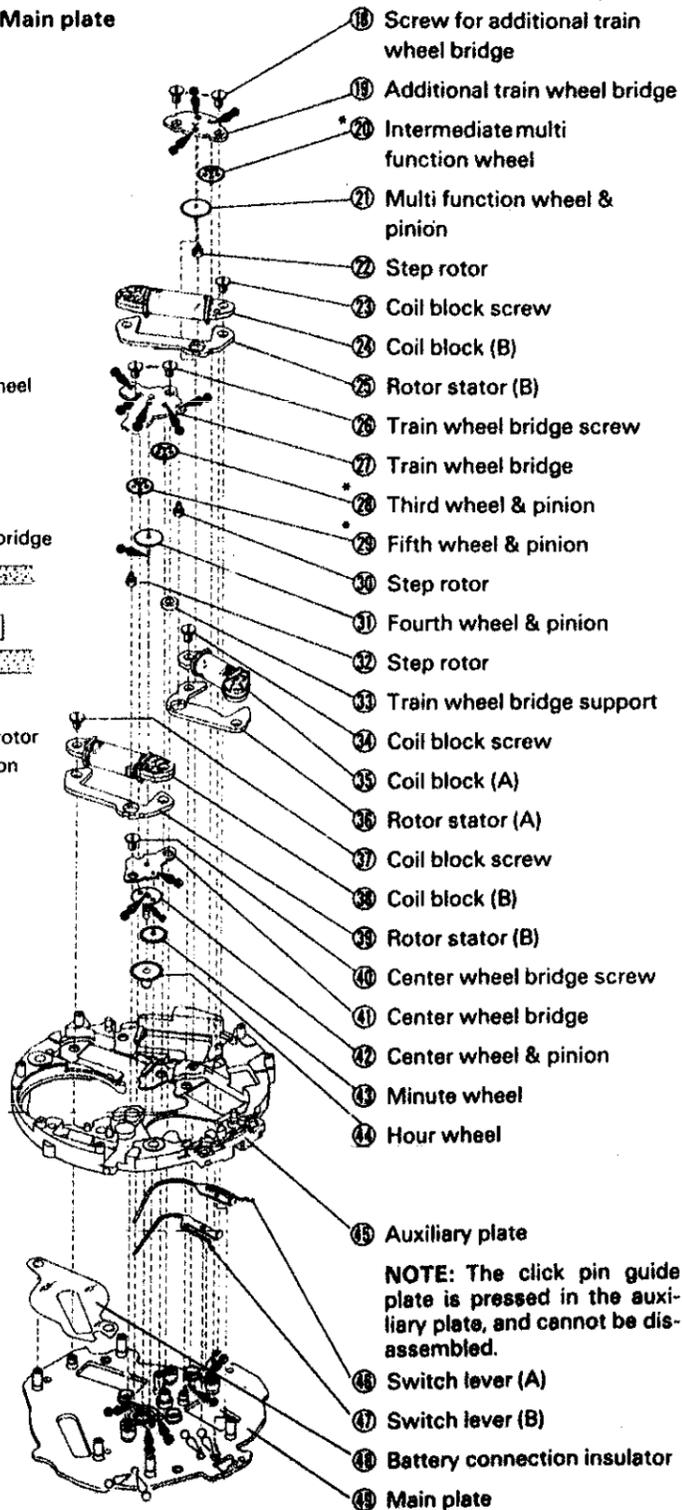
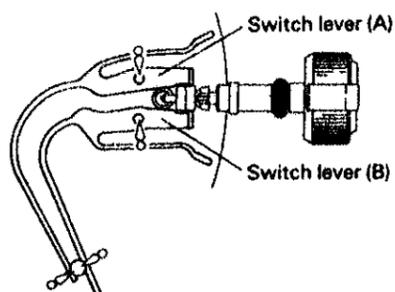
[Train wheel bridge]



● Setting position of the coil block and rotor stator



● Setting position and lubrication of switch lever

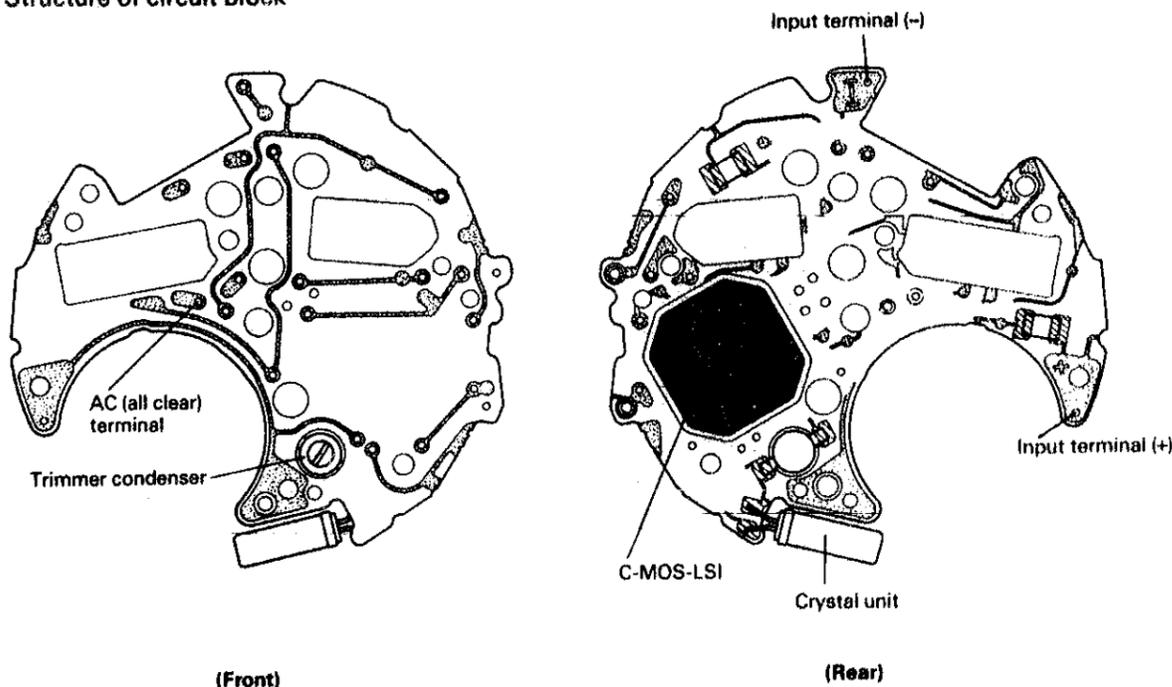


\* NOTE: The click pin guide plate is pressed in the auxiliary plate, and cannot be disassembled.

|                                     |                        |                        |
|-------------------------------------|------------------------|------------------------|
| ⑳ Intermediate multi function wheel | ㉓ Third wheel & pinion | ㉕ Fifth wheel & pinion |
|                                     |                        |                        |

V. CHECKING AND ADJUSTMENT

1. Structure of circuit block



2. Procedure for checking and adjustment

● This section only gives the checking and adjustment procedure which is exclusive for this cal. V601A. For the normal checking and adjustment, refer to the "TECHNICAL GUIDE GENERAL INSTRUCTION, Analogue Quartz".

COIL BLOCK

Check the coil blocks (A) and (B) for broken wire and short circuit using the SEIKO Digital Multi Tester S-840A.  
Range to be used:  $\Omega$

Result:  
Coil block (A)  
1.2 ~ 1.6k $\Omega$  : Normal  
Less than 1.2k $\Omega$  (short circuit): Defective  
More than 1.6k $\Omega$  (broken wire): Defective  
Replace the coil block (A) with a new one

Result:  
Coil block (B)  
1.9 ~ 2.3k $\Omega$  : Normal  
Less than 1.9k $\Omega$  (short circuit): Defective  
More than 2.3k $\Omega$  (broken wire): Defective  
Replace the coil block (B) with a new one

## CURRENT CONSUMPTION

Use the SEIKO Digital Multi Tester S-840A (with Multi Adaptor MA-40A)

Range to be used: mA →  $\mu$ A

Follow the procedures below also when using a S-831 volt-ohm-meter.

**NOTE:** When measuring, be sure to perform in the following manner:

### ① CHECK THE CURRENT CONSUMPTION FOR THE WHOLE OF THE MOVEMENT

**NOTE:** Set the crown to the TIME mode in either Complete or Movement condition before measurement.

#### [Procedures]

- (1) First set the Digital Multi Tester S-840A to mA range.
- (2) Connect and set the probes as shown in Fig. 1.
- (3) With condition (2), perform \*SYSTEM RESET as shown in Fig. 2.  
\* This operation is to initialize the IC data forcibly.
- (4) When the current value of the digital multi-tester becomes stable, set the range from mA to  $\mu$ A and read the value of the current consumption.

Fig. 1

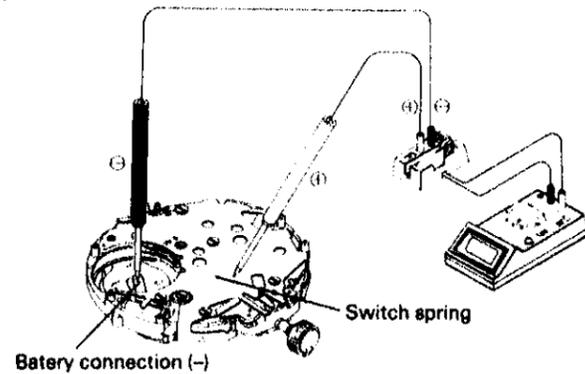
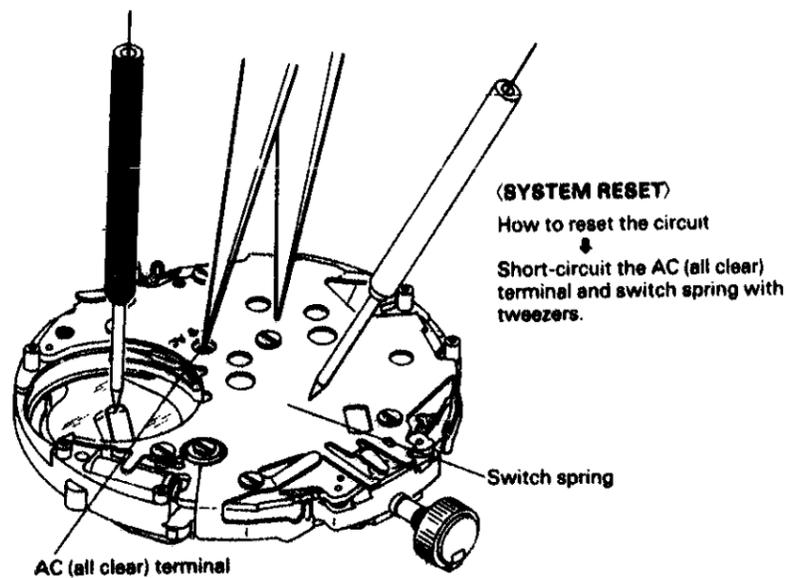


Fig. 2



**Result:**  
Less than 4.0  $\mu$ A: Normal  
More than 4.0  $\mu$ A: Defective  
Replace the circuit block.

### ② CHECK THE CURRENT CONSUMPTION OF THE CIRCUIT BLOCK ALONE.

#### [Procedures]

1. First set the Digital Multi Tester S-840A to mA range.
2. After setting as shown in Fig. 3, reset the circuit by connecting the AC (all clear) terminal and red probe using the lead wire as shown below (Fig. 4).
3. When the current reading of the Digital Multi tester is stabilized, set the range from mA to  $\mu$ A and measure the current consumption.

Fig. 3

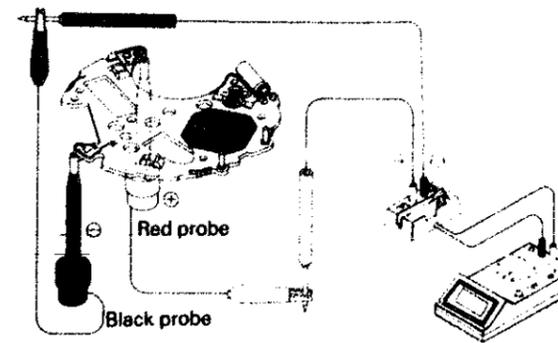
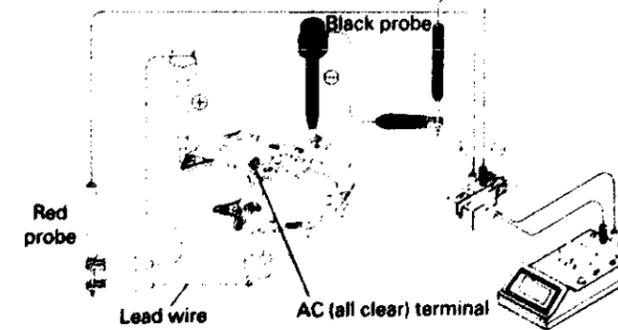


Fig. 4



#### (SYSTEM RESET)

Turn the circuit block upside down and connect the AC terminal and red probe.

**Result:**  
Less than 1.8  $\mu$ A: Normal  
More than 1.8  $\mu$ A: Defective  
Replace the circuit block.

## VI. PARTS LIST

| Cal. V601 A |                                   |                     |   |
|-------------|-----------------------------------|---------------------|---|
| PARTS NO.   | PARTS NAME                        | PARTS NO.           | PARTS NAME                              |
| 102 036     | Auxiliary plate                   | 4245 085            | Switch spring                           |
| 121 083     | Center wheel bridge               | 4270 082            | Battery connection (-)                  |
| 126 083     | Train wheel bridge                | 4283 006            | Switch cam support                      |
| 128 083     | Additional train wheel bridge     | 4295 005            | Switch cam                              |
| * 221 039   | Center wheel & pinion             | 4450 013            | Switch lever (A)                        |
| 231 039     | Third wheel & pinion              | 4450 014            | Switch lever (B)                        |
| * 241 097   | Fourth wheel & pinion             | 012 201             | Center wheel bridge screw               |
| 261 039     | Minute wheel                      | 012 201             | Train wheel bridge screw                |
| * 271 086   | Hour wheel                        | 012 201             | Screw for additional train wheel bridge |
| 354 101     | Winding stem                      | 012 201             | Coil block screw                        |
| 426 002     | Train wheel bridge support        | 012 201             | Switch spring screw                     |
| 491 220     | Dial washer                       | 012 201             | Battery clamp screw                     |
| 701 013     | Fifth wheel & pinion              | 032 048             | Tube for battery clamp screw            |
| 735 036     | Winding stem holder               | 032 048             | Tube for switch spring screw            |
| 817 022     | Intermediate multi function wheel | 032 049             | Tube for coil block screw               |
| 1002 011    | Multi function wheel & pinion     | 032 050             | Tube for train wheel bridge (A)         |
| 4000 357    | Circuit block                     | 032 051             | Tube for train wheel bridge (B)         |
| 4002 025    | Coil block (B)                    | 032 052             | Tube for center wheel bridge            |
| 4002 357    | Coil block (A)                    | 033 084             | Click pin                               |
| 4146 034    | Step rotor                        |                     |   |
| 4216 069    | Battery connection insulator      | ● SEIKO SR1130W     | Battery                                 |
| 4216 073    | Insulator for circuit block       | ● MAXELL SR1130W    |   |
| 4225 068    | Battery clamp                     | ● U.C.C. 389        |   |
| 4239 042    | Rotor stator (A)                  | ● SONY EVEREADY 389 |   |
| 4239 043    | Rotor stator (B)                  |                     |   |

REMARKS:

SWITCH SPRING FOR PULSAR WATCHES

4245084 (Pulsar marking)