

TECHNICAL GUIDE AND PARTS LIST

CAL. Y14 SERIES

ANALOGUE QUARTZ

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I. FOREWORD

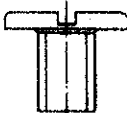
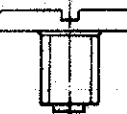
In Cal. Y14 series, many plastic parts (engineering plastic) are used, compared with the current models. Compared with the current plastic, engineering plastic has superb strength, is solvent and heat proof. It has been developed as a material for watch components as a substitute for metal. However, special care should be taken when checking or servicing the watch. Especially, take care for handling and cleaning the parts. For details, refer to the corresponding sections in this Technical Guide.

II. SPECIFICATIONS

Item	Cal. No.	Y143A	Y148A	Y142A	Y147A	Y142B	Y147B
		Indication system	Three Hands				
Additional mechanism	Day	Day					
	Date	Date	Date	Date	Date	Date	
	Day and Date quick re-setting device		Date quick resetting device				
	Second setting device (Stops at every second)						
	Electronic reset switch						
Loss/gain	Monthly rate: less than 20 seconds at normal temperature range						
Movement size	Size of main plate	φ26.4 x 23.5 (3H - 9H) x 23.5 (6H - 12H) mm					
	Casing diameter	φ25.6 x 22.5 x 23.5 mm					
	Height	3.4 mm			3.1 mm		
Regulation system	None						
Measuring gate	10-second gate						
Battery	SEIZAIKEN TR927SW (TR926SW), Maxell SR927SW (SR926SW) Battery life: Approx. 3 years Voltage: 1.55V						
Jewels	None						

III. LIST OF SCREWS USED

Two types of screws are used in Cal. Y14. When servicing the watch, refer to the table below.

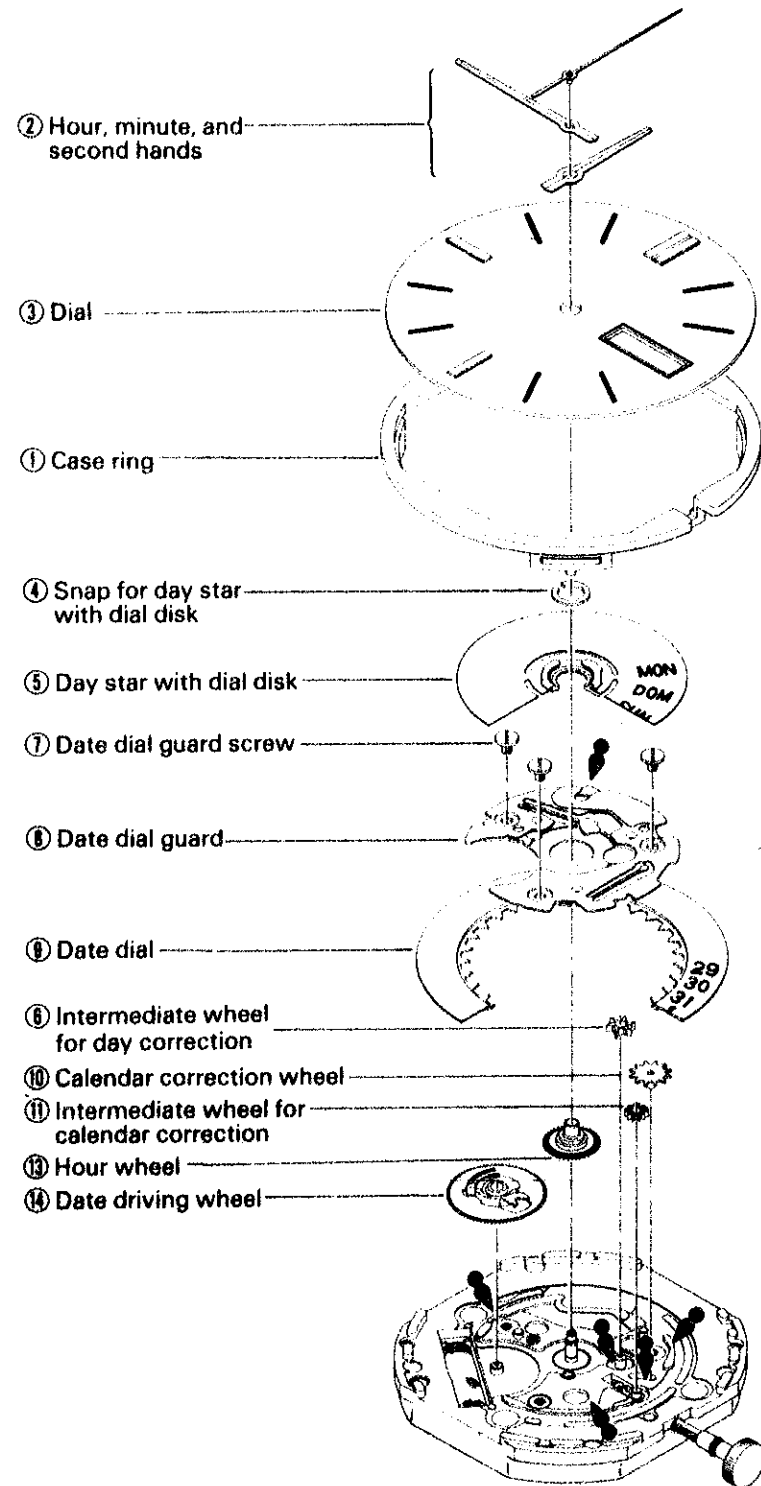
Type	Parts No.	Parts Name	Screw classification Screw head dia.
	022 247	Battery connection (+) screw 3 pcs Date dial guard screw 3 pcs	Small (φ1.5 mm)
	022 238	Train wheel bridge screw 2 pcs Coil block screw 1 pc	Large (φ1.8 mm)

IV. DISASSEMBLING, REASSEMBLING AND LUBRICATING

Disassembling procedures: Figs ① ~ ⑳

Reassembling procedures: Figs ㉑ ~ ①

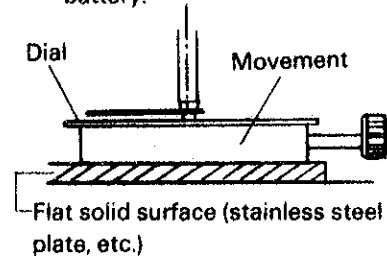
1. Calendar mechanism



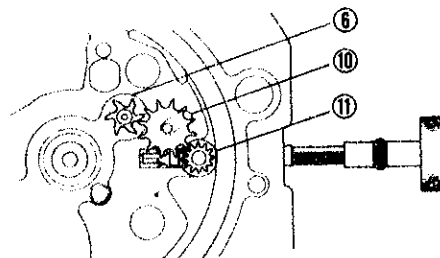
● Lubricating: Moebius A

Notes on fitting the hands

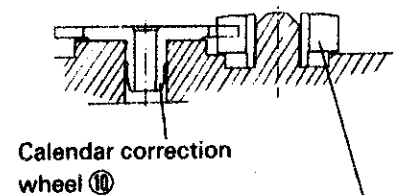
● When fitting the hands, support the train wheel bridge with a flat solid material (stainless steel, glass, etc.) and press in the hands. Never use a universal movement holder which does not support the train wheel bridge. When fitting the hands, remove the battery.



Note: Assemble the calendar correction mechanism as shown in the figure.



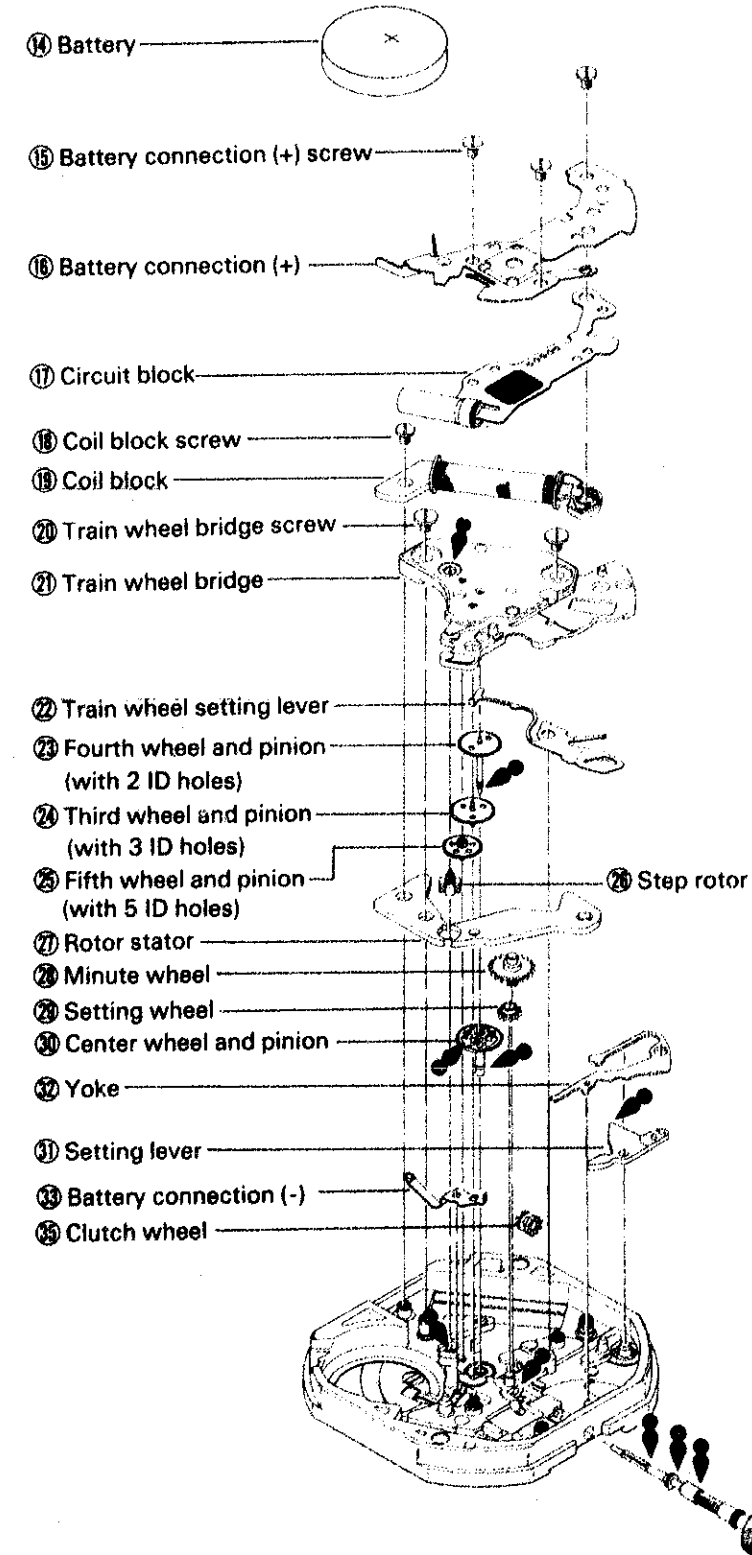
Especially, pay attention to the mounting direction of the intermediate wheel for day correction ⑨ and Calendar correction wheel ⑩. (The intermediate wheel for calendar correction ⑪ can be mounted in any direction.)



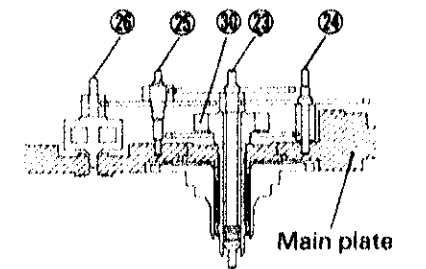
Note: Disassembling/reassembling the dial

The dial is mounted with its two legs inserted into the dial leg holes in main plate, providing some interference. To remove the dial, carefully pry out the dial with a screwdriver inserted into the gap in 2 and 8 o'clock position.

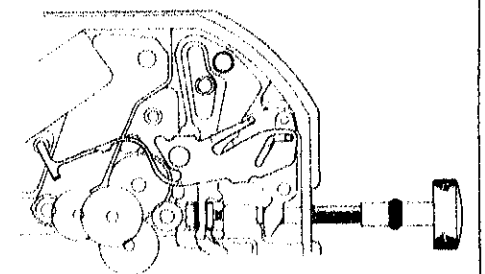
2. Circuit block · Drive Coil · Gear train, Selector mechanism



● Cross sectional view of gear train

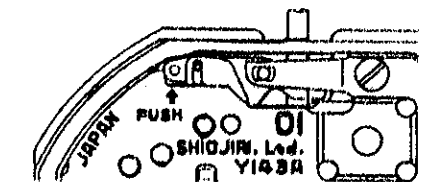


Note: Install the train wheel setting lever as shown.


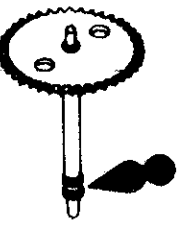


Note: Handling the step rotor
Be sure to hold the cam or magnet part of the step rotor.

Note:
To remove the winding stem, press the portion indicated with PUSH ⇨ in the below figure with the crown set to the normal position.



«Lubrication list»

Date dial guard	<ul style="list-style-type: none"> ● Tip of the day jumper ● Sliding part of date dial (3 portions) ● Rear surface of calendar correction wheel ● Setting wheel shaft ● Step rotor shaft hole ● Intermediate wheel for day correction shaft 	Center wheel and pinion	Fourth wheel and pinion
Main plate			
Setting lever	<ul style="list-style-type: none"> ● Contact portion with yoke ● Whole surface ● Step rotor shaft hole 		
Winding stem			
Train wheel bridge			

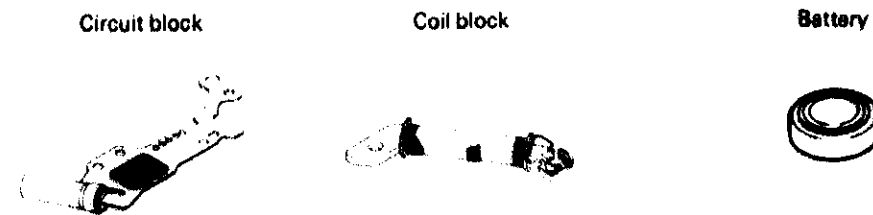
V. CLEANING

- The Cal. Y14 employs many plastic parts. Carefully clean the parts referring to the table below.

(1) How to clean

Name of parts	Cleaning	Drying	Solution	Remarks
<ul style="list-style-type: none"> ● Plastic parts (main plate, train wheel bridge, minute wheel) ● Step rotor 	<ul style="list-style-type: none"> ● Rinse or scrub with a soft brush. 	<ul style="list-style-type: none"> ● Warm air drying 	<ul style="list-style-type: none"> ● Benzine ● DIFLON S-3 ● Alcohol 	<ul style="list-style-type: none"> ● As the step rotor is a magnetic parts, clean with a pure solution. ● Use Rodico to wipe off the hard contamination. ● Clean with benzine for a short time.
<ul style="list-style-type: none"> ● Other parts (excluding parts that must not be cleaned.) 	<ul style="list-style-type: none"> ● Clean with a cleaner, rinse or gently scrub with a soft brush. 	<ul style="list-style-type: none"> ● Warm or hot air drying 	<ul style="list-style-type: none"> ● Benzine ● DIFLON S-3 ● Alcohol ● Trichloroethylene 	

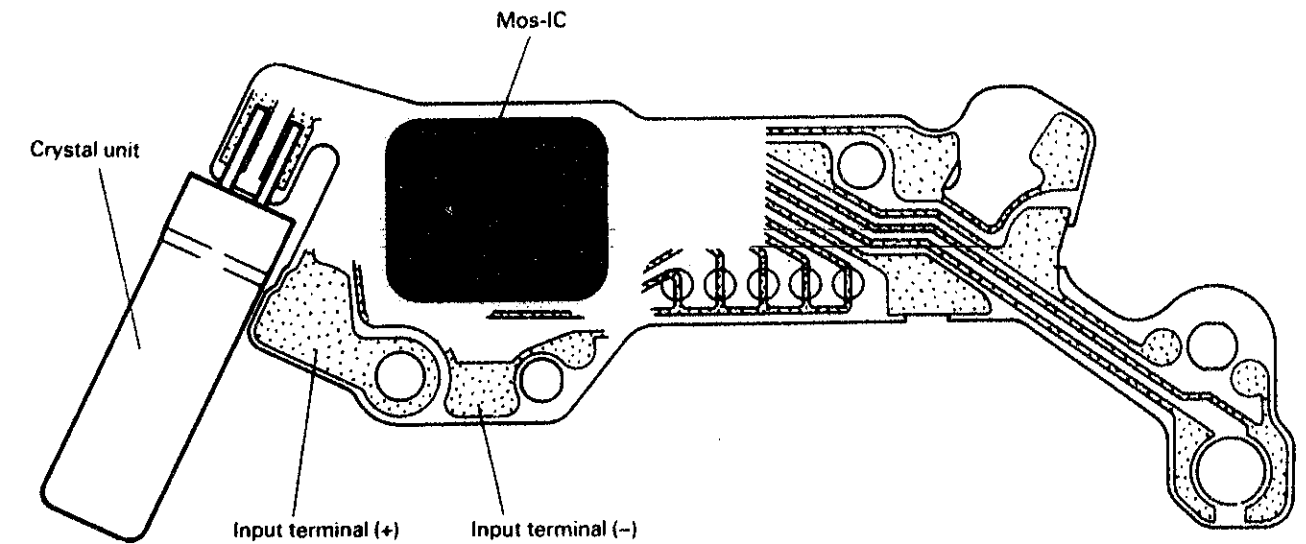
(2) Parts that must not be cleaned



- Be sure to clean only stains on the conductive portions of the circuit block, etc. with a cloth moistened with benzine, DIFLON S-3 or alcohol and dry them with warm air.

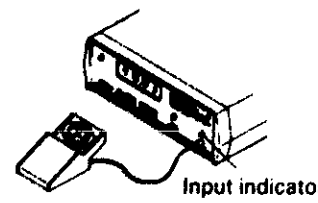
VI. CHECKING AND ADJUSTMENT

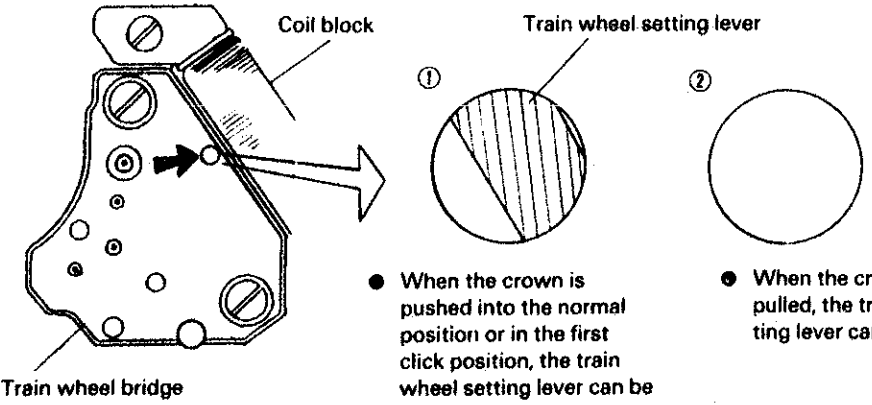
1. Structure of circuit block

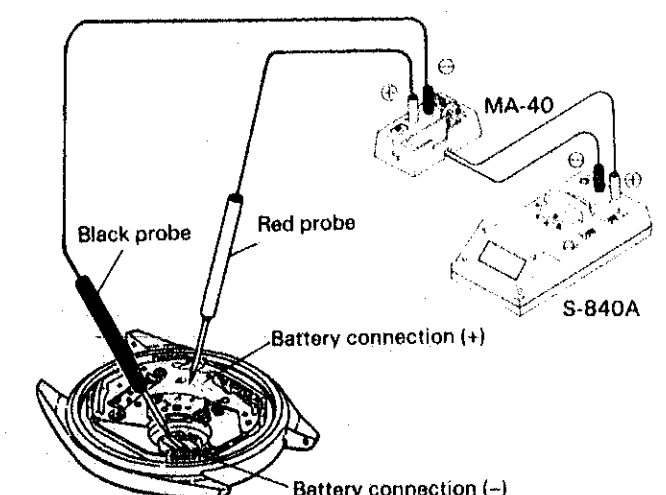
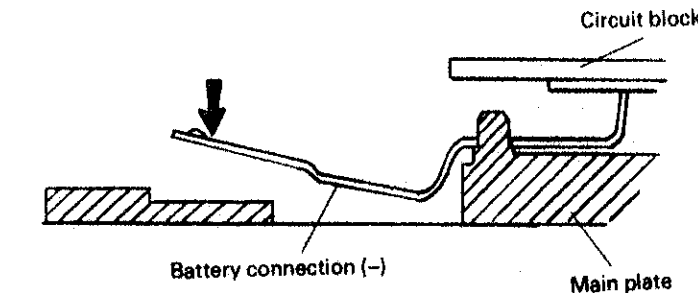


2. Procedures for checking and adjustment

- This section only gives the checking and adjustment procedures which is exclusive for Cal. Y14. For the normal checking and adjustment, refer to the "TECHNICAL GUIDE GENERAL INSTRUCTION, Analogue Quartz".
- The page numbers in the item correspond to those in the "TECHNICAL GUIDE GENERAL INSTRUCTION, Analogue Quartz."

<p>OUTPUT SIGNAL P.6</p> <p>1. Use the Quartz Tester. 2. Check to see if the input indicator light blinks.</p>  <p>Note: Checking should be made with the crown set to normal position.</p>	<p>Result: Output signal: Normal (Blinking) No output signal: Defective (No Blinking) Check the battery voltage is normal. When the battery voltage is normal, check the electronic circuit.</p>
<p>BATTERY VOLTAGE</p> <p>Use the Digital Multi Tester S-840A Range to be used: DC V</p> <p>Note: Before measuring, short circuit the probes and confirm the tester reads AUTO 00.0 mV or AUTO 00.1 mV.</p>	<p>Result: 1.50V or more: Normal Less than 1.50V: Defective Replace the battery.</p>
<p>BATTERY CONDUCTIVITY P.9</p> <p>Check the conductivity between battery and battery connection (-), etc.</p>	

CIRCUIT BLOCK CONDUCTIVITY P.9	
Check the output terminal and pattern section contamination in the circuit block and check if the circuit is broken or short.	
COIL BLOCK	
<p>Check the coil block for broken wire and short circuit using the Digital Multi Tester S-840A.</p> <p>Range to be used: Ω</p> <p>Note:</p> <ul style="list-style-type: none"> Before measuring, short circuit the probes and check to see if the tester sounds and reads from AUTO 00.2Ω to AUTO 00.4Ω. The actual resistance can be obtained by subtracting the initial value (00.2 - 00.4) from the measured value. When measuring, take care not to break the coil block leads. 	<p>Result:</p> <p>2.2 ~ 2.8kΩ: Normal</p> <p>More than 2.8kΩ (broken wire): Defective</p> <p>Less than 2.2kΩ (short circuit): Defective</p> <p>Replace the coil block.</p>
GEAR TRAIN MECHANISM P.11	
Check the gear train mechanism for play of step rotor and wheels and pinions, mis-installation, dust, lint, foreign matter and lubrication, etc.	
ACCURACY	
<p>Check accuracy using Quartz Tester (10-second gate) and an electromagnetic microphone (DM-1).</p> <p>Note: Check accuracy with the crown at normal position.</p>	<p>Result:</p> <p>Monthly rate (at normal temperature range)</p> <p>Less than 20 seconds: Normal</p> <p>More than 20 seconds: Defective</p> <p>Replace the circuit block</p>
RESET CONDITION	
<p>(1) When the crown is fully pulled, the second hand should be stopped completely. When the crown is set to the normal position, the second hand should start moving after 1 second.</p> <p>(2) Check the condition of the train wheel setting lever viewing through the hole in the train wheel bridge near the coil block as shown in the figure.</p>	<p>Result:</p> <p>Moves after 1 second: Normal</p> <p>Does no stop: Defective</p> <p>Proceed to (2)</p> <p>Correct (figure ①, ②): Normal</p> <p>Fault: Defective</p> <p>Replace the train wheel setting lever.</p>
 <p>Labels: Coil block, Train wheel setting lever, Train wheel bridge.</p> <ul style="list-style-type: none"> When the crown is pushed into the normal position or in the first click position, the train wheel setting lever can be seen. When the crown is fully pulled, the train wheel setting lever cannot be seen. 	

(3) When the crown is fully pulled, check the output signal of the Quartz Tester.	Result: No output signal: Normal Output signal: Defective Replace the circuit block.
CURRENT CONSUMPTION	
<p>Use the Digital Multi Tester S-840A (with Multi Adaptor MA-40)</p> <p>Mode: μA</p> <p>Red probe: Battery connection (+) Black probe: Battery connection (-)</p> 	<p>Result:</p> <p>1.9μA or less : Normal</p> <p>More than 1.9μA: Defective</p> <p>Replace the circuit block.</p>
<p>Note:</p> <p>The battery connection (-) has the following construction to come into contact with battery. When checking the current consumption, be sure to press in the battery connection (-) with the probe.</p>  <p>Labels: Circuit block, Battery connection (-), Main plate.</p>	

VII. PARTS LIST

PARTS NO.			PARTS NAME
Y147A, Y142A	Y147B, Y142B	Y148A, Y143A	
125865	125865	125865	Train wheel bridge
221865	* 221866	221865	Center wheel & pinion
-	* 221867	-	Center wheel & pinion
231865	231865	231865	Third wheel & pinion
241865	* 241866	241865	Fourth wheel & pinion
-	* 241867	-	Fourth wheel & pinion
261865	261865	261865	Minute wheel
271865	* 271866	271865	Hour wheel
-	* 271867	-	Hour wheel
281865	281865	281865	Setting wheel
282865	282865	282865	Clutch wheel
* 354866	* 354866	* 354866	Winding stem
383865	383865	383865	Setting lever
384865	384865	384865	Yoke
390865	390865	390865	Setting lever pin
391865	391865	391865	Train wheel setting lever
-	-	* 470698	Day star with dial disk
-	-	* 470705	Day star with dial disk
701865	701865	701865	Fifth wheel & pinion
737865	737865	737865	Calendar correction wheel
* 801666	* 801664	* 801666	Date dial
* 801667	* 801665	* 801667	Date dial
802865	802866	802865	Date driving wheel
808865	808865	808865	Date dial guard
962865	962865	962865	Intermediate wheel for calendar correction
-	-	963781	Snap for day star with dial disk
-	-	989865	Intermediate wheel for day correction
4001882	4001882	4001882	Circuit block
4002882	4002882	4002882	Coil block
4146883	4146883	4146883	Step rotor
4239882	4239882	4239882	Rotor stator
4270882	4270882	4270882	Battery connection (-)
* 4271889/4271887	* 4271892/4271890	* 4271886/4271884	Battery connection (+)
022238	022238	022238	Train wheel bridge screw
022238	022238	022238	Coil block screw
022247	022247	022247	Battery connection (+)
022247	022247	022247	Date dial guard screw
428 865	428 866	428 865	Center pipe
*SEIZAIKEN TR927SW	*SEIZAIKEN TR927SW	*SEIZAIKEN TR927SW	Battery
*Maxell SR927SW	*Maxell SR927SW	*Maxell SR927SW	

Remarks:

* Winding stem

The type of winding stem is determined based on the design of case.

* Date dial

Y147A, Y142A	*801666	Black figures on white background
Y148A, Y143A	*801667	White figures on black background
Y147B, Y142B	*801664	Black figures on white background
	*801665	White figures on black background

Used for both the crown and calendar frame at 3 o'clock position.

If any other type of date dial is required, specify ① Cal. No. ②. The crown position ③.

The calendar frame position and ④ Dial No.

* Day star with dial disk (Y148A, Y143A)

*470698	Black figures on white background	English + Spanish
*470705	White figures on black background	English + Spanish

Used for both crown and calendar frame at 3 o'clock position.

If any other type of day star with dial disk is required, specify the number printed on the disk.

* Center wheel & pinion, Fourth wheel & pinion, Hour wheel (Y147B, Y142B)

There are two different types as specified below.

Combination:

Type	Center wheel & pinion	Fourth wheel & pinion	Hour wheel
S	221866	241866	271866
M	221867	241867	271867

* Battery

SEIZAIKEN TR926SW and Maxell SR926SW are interchangeable.

* Battery Connection (+)

4271889/4271887 4271892/4271890 4271886/4271884
(Y147A) (Y142A) (Y147B) (Y142B) (Y148A) (Y143A)