

# **TECHNICAL GUIDE**

**AND**  
**PARTS LIST**

CAL. V232A

## **ANALOGUE QUARTZ**

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### **CONTENTS**


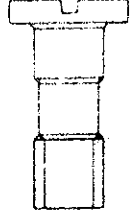
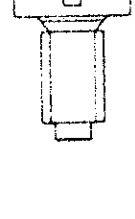
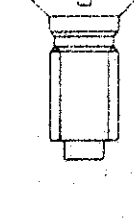

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I. SPECIFICATIONS .....	1
II. LIST OF SCREWS USED .....	1
III. DISASSEMBLING, REASSEMBLING AND LUBRICATING .....	2 ~ 4
IV. CHECKING AND ADJUSTMENT .....	5 ~ 6
V. PARTS LIST .....	7

## I. SPECIFICATIONS

Item		Cal. No.	V232A
Indication system		Two hands (hand moves at 20 sec. intervals)	
Driving system		Step motor (fixed pulse system)	
Additional mechanism		—	
Loss/gain		Monthly rate: Less than 20 seconds at normal temperature range	
Movement size	Size of main plate	15.5 mm (6-12H), 13.0 mm (3-9H)	
	Casing diameter	15.1 mm	
	Height	2.4 mm	
Regulation system		—	
Quartz Tester measuring gate		10-second gate	
Battery		SEIKO (SEIZAIKEN) TR521 SW Voltage: 1.55V Battery life: Approx. 3 years	
Jewels		0 jewel	





## II. LIST OF SCREWS USED

				
012 010	012 064	012 495	012 818	012 819
Battery clamp screw (1 pce.)	Train wheel bridge screw (1 pce.)	Circuit block screw (1 pce.)	Screw for battery connection (+) A (2 pcs.)	Screw for battery connection (+) B (1 pce.)

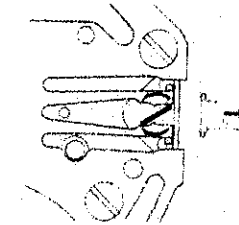
## III. DISASSEMBLING, REASSEMBLING AND LUBRICATING

Disassembling procedures: Figs. ① → ⑤  
Reassembling procedures: Figs. ⑤ → ①

Lubricating:


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

- Hands ~ Hour wheel
- How to remove the winding stem



Insert a little bit large (-) screwdriver and turn it to right and left (in the direction of the arrow shown in the above figure) to remove the winding stem.

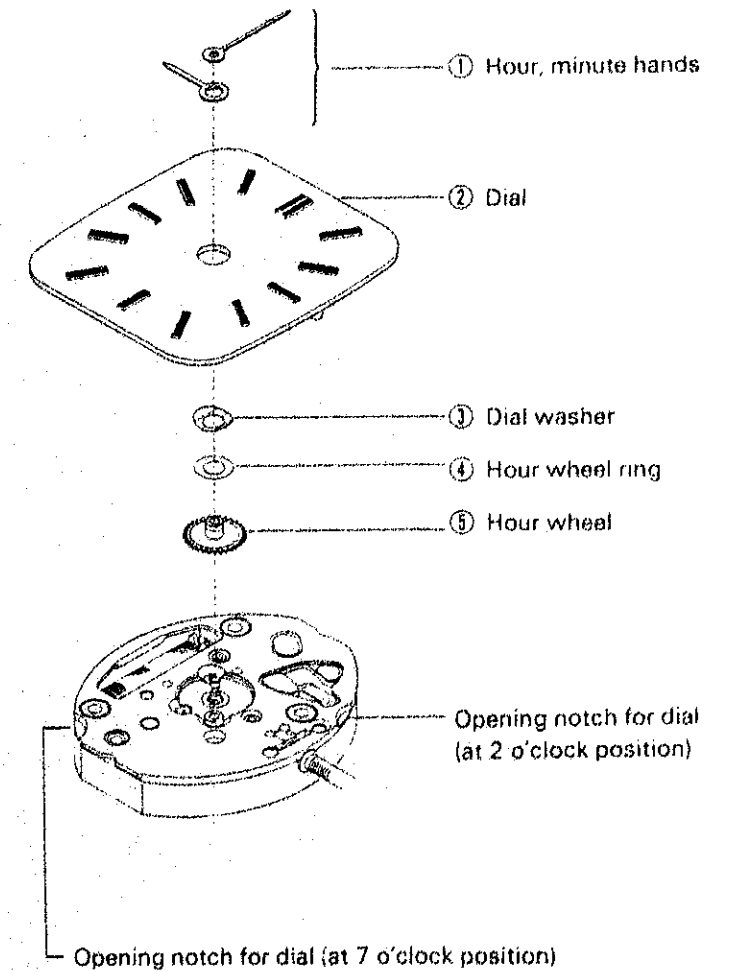
### ② Dial

The dial is fixed with its 2 legs inserted into the dial leg holes in the dial spacer .

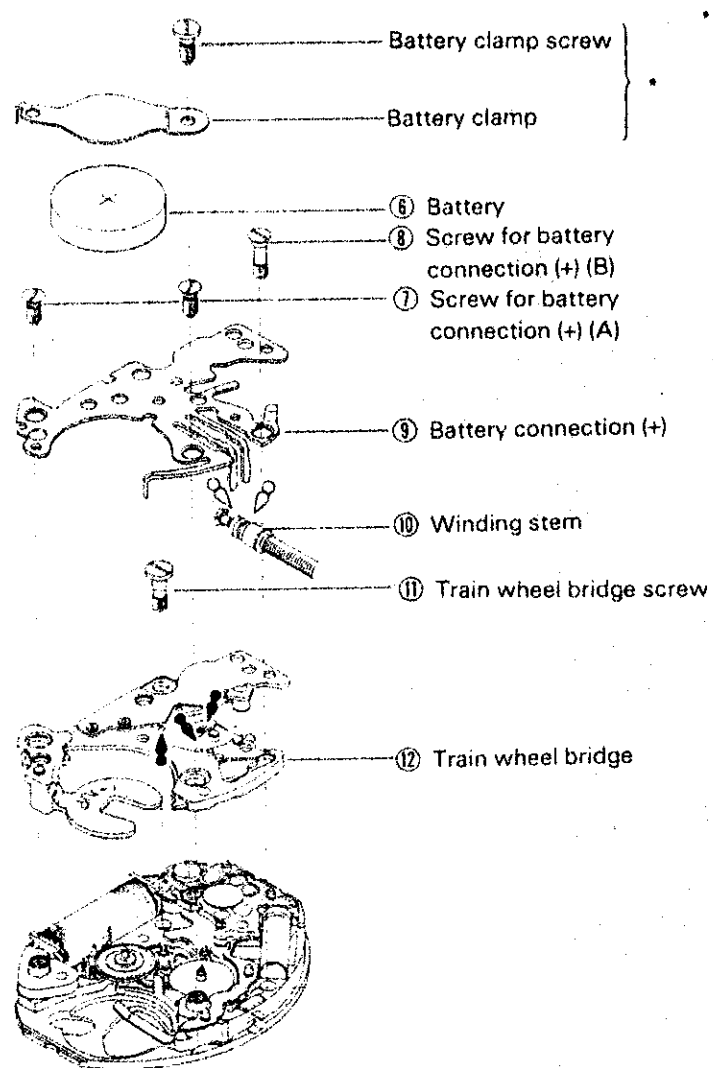
\* To remove the dial, insert a (-) screwdriver into the opening notch for dial at 2 and 7 o'clock position and pry out the dial alternately.

### ④ Hour wheel ring

Used to determine the clearance of the hour wheel, but in some cases, it is not used.



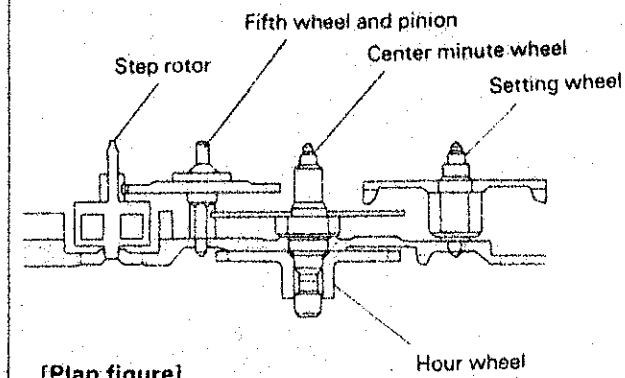
● Battery clamp screw ~ Train wheel bridge



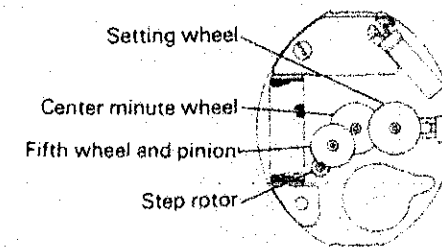
• In some models, a battery clamp and battery clamp screw is used.

● Battery connection (-) ~ Main plate

● Setting position of the gear train  
[Cross-sectional view]

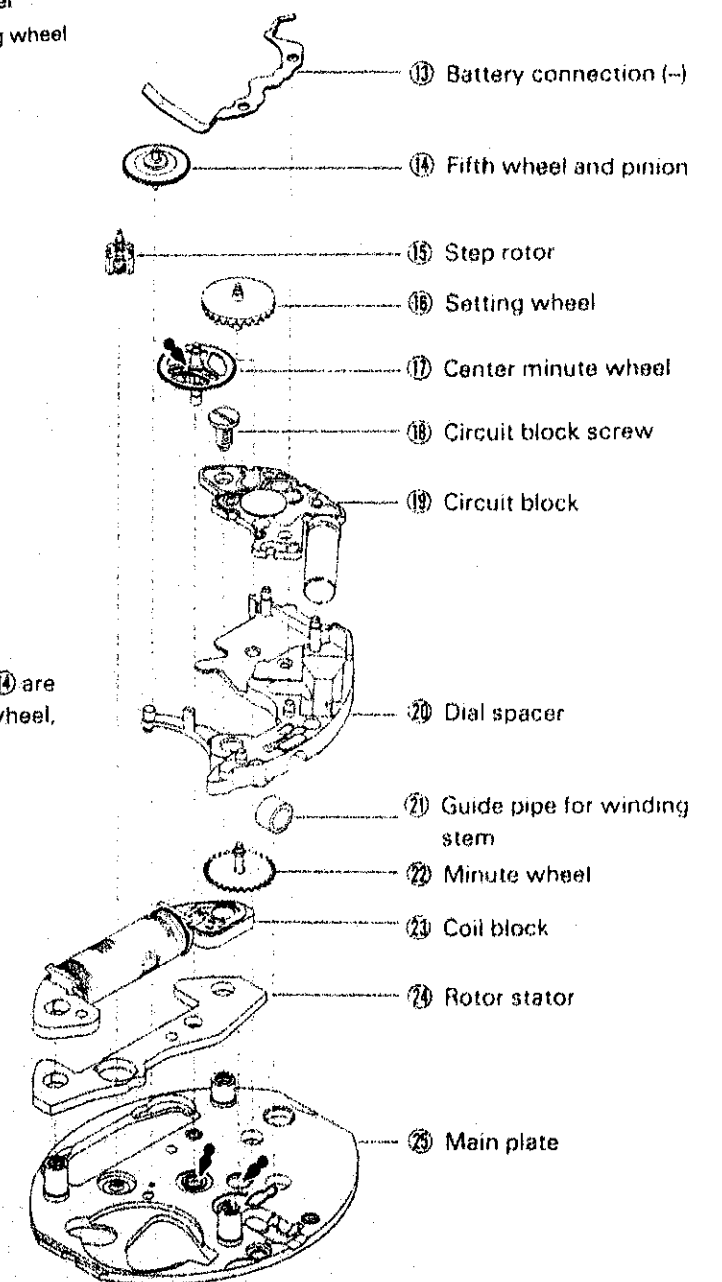


[Plan figure]



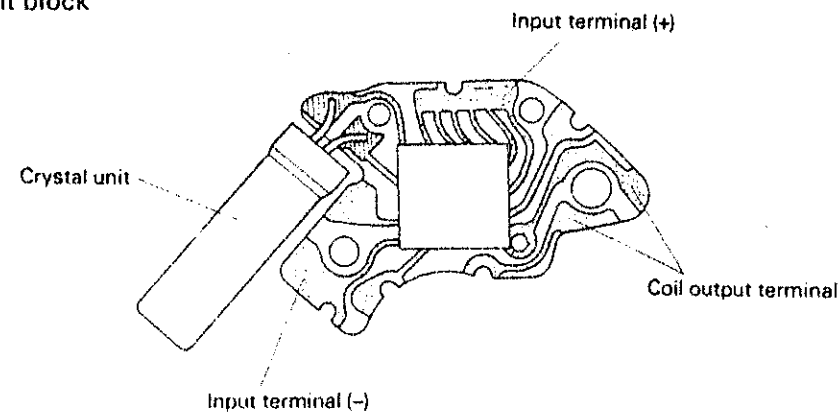
Note:

As the step rotor (15) and fifth wheel and pinion (14) are made of plastic, take care not to damage the wheel, pinion and shaft.



## IV. CHECKING AND ADJUSTMENT

### 1. Structure circuit block



### 2. Procedure for checking and adjustment

- This section only gives the checking and adjustment procedure which is exclusive for this cal. V232A. For the normal checking and adjustment, refer to the "TECHNICAL GUIDE GENERAL INSTRUCTION, Anglogue Quartz".

#### OUTPUT SIGNAL

1. Use the Quartz Tester.
2. Turn the measuring gate selection to "10-second" gate.

#### NOTE:

Checking should be made with the crown set to normal position.

Result:  
Output signal: Normal  
No output signal: Defective

#### BATTERY VOLTAGE

Use the SEIKO Digital Multi Tester S-840A  
Range to be used: DC V

#### NOTE:

Before measuring, short circuit the probes and confirm that the tester reads AUTO 00.0 mV or AUTO 00.1 mV.

Result:  
More than 1.57V: Normal  
Less than 1.57V: Defective  
Replace the battery.

#### COIL BLOCK

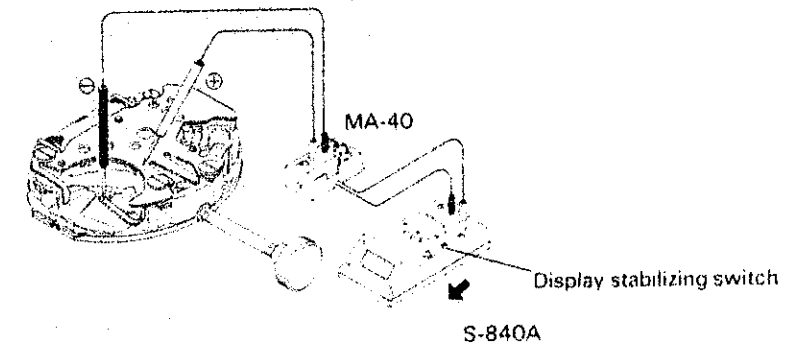
Check the coil block for broken wire and short circuit using the SEIKO Digital Multi Tester S-840A.  
Range to be used:  $\Omega$

Result:  
1.7 ~ 2.1k $\Omega$  : Normal  
{ Less than 1.7k $\Omega$  (short circuit):  
Defective  
More than 2.1k $\Omega$  (broken wire):  
Defective  
Replace the coil block with a new one

## CURRENT CONSUMPTION

Use the SEIKO Digital Multi-Tester S-840A (with Multi Adaptor MA-40)  
Mode to be used:  $\mu$ A

Red probe: Battery connection (+)  
Black probe: Battery connection (-)



#### Result:

Less than 0.8  $\mu$ A: Normal  
More than 0.8  $\mu$ A: Defective  
\* When measuring, cover the C-MOS-IC with a black sheet.

#### Notes on the current consumption measurement

- (1) Set the display stabilization switch to B position (in the direction of the arrow shown in the above figure).
- (2) Apply the red (+) and black (-) probes of the tester to battery connection (+) and battery connection (-) as shown in the above figure. The tester displays a value, indicating that electric current is flowing in the IC.
- (3) In addition to above, the measured value increases once every 20 seconds, since the step motor drive pulse is supplied to move the hand.
- (4) After approximately 60 seconds, the maximum figure at this time (hand moves every 20 seconds) indicates the average current consumption.

## V. PARTS LIST

Cal. V232 A	
PARTS NO.	PARTS NAME
125 036	Train wheel bridge
238 001	Guide pipe for winding stem
261 021	Minute wheel
* 270 059	Center minute wheel
* 270 066	Center minute wheel
* 271 083	Hour wheel
* 271 084	Hour wheel
281 013	Setting wheel
* 351 134	Winding stem (φ80)
* 351 135	Winding stem (φ90)
491 122	Dial washer
493 130	Hour wheel ring (Thickness 0.03 mm)
493 131	Hour wheel ring (Thickness 0.05 mm)
493 132	Hour wheel ring (Thickness 0.07 mm)
701 232	Fifth wheel & pinion
4000 118	Circuit block
4002 020	Coil block
4146 019	Step rotor
4225 067	Battery clamp
4239 031	Rotor stator
4270 061	Battery connection (-)
4271 032	Battery connection (+)
4408 035	Dial spacer
012 010	Battery clamp screw
012 064	Train wheel bridge screw
012 495	Circuit block screw
012 818	Screw for battery connection (+) (A)
012 819	Screw for battery connection (+) (B)
032 046	Tube for train wheel bridge (B)
032 047	Tube for train wheel bridge (A)
• SEIKO (SEIZAIKEN) TR521SW	Silver (II) oxide battery

### Remarks:

\* Center minute wheel, Hour wheel

There are two different types as specified below.

Combination:

*Type	Center minute wheel	Hour wheel
M	270 066	271 083
L	270 059	271 084

\*Abbreviation M..... Standard type  
(Movement type) L..... Long type

\* Winding stem

The type of winding stem is determined based on the design of case.  
Please refer to "Casing Parts Catalogue."