TECHNICAL GUIDE
AND
PARTS LIST

CAL. V233A

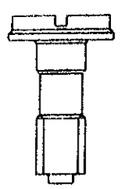
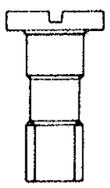
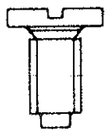
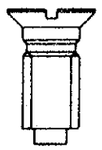
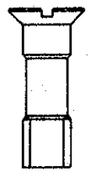
ANALOGUE QUARTZ

CONTENTS

I. SPECIFICATIONS

Item \ Cal. No.		V233A
Indication system		Three hands
Driving system		Step motor (fixed pulse system)
Additional mechanism		Second setting devise Electric reset switch
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 TR521SW, MAXELL SR521SW, SONY EVEREADY 379 Voltage: 1.55V Battery life: Approx. 2 years for SEIKO TR521SW and SONY EVEREADY 379 Approx. 1.5 years for MAXELL SR521SW
Jewels		1 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

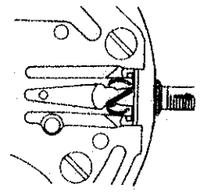
Disassembling procedures: Figs. ① → ㉘
Reassembling procedures: Figs. ㉘ → ①

Lubricating:

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

● Hands ~ Hour wheel

● How to remove the winding stem



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

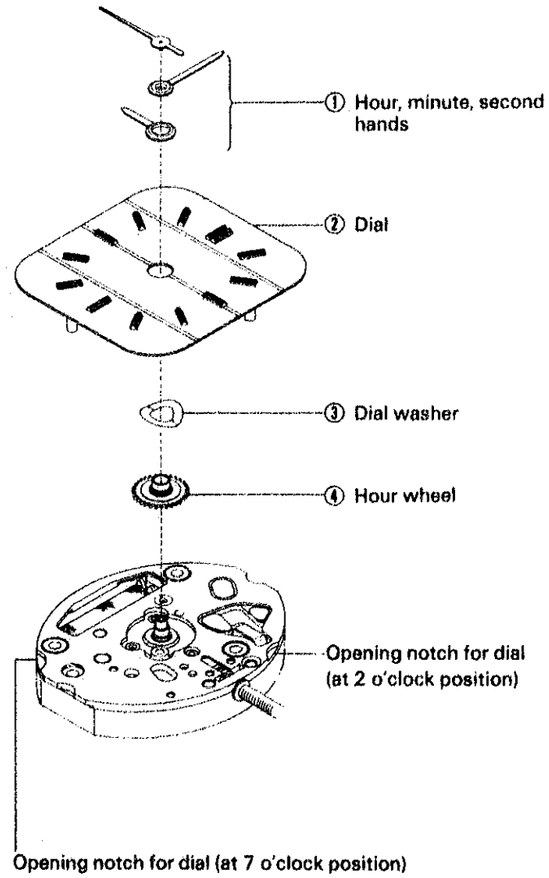
② Dial

The dial is fixed with its 2 legs inserted into the dial leg holes in the dial spacer ㉓.

* 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.

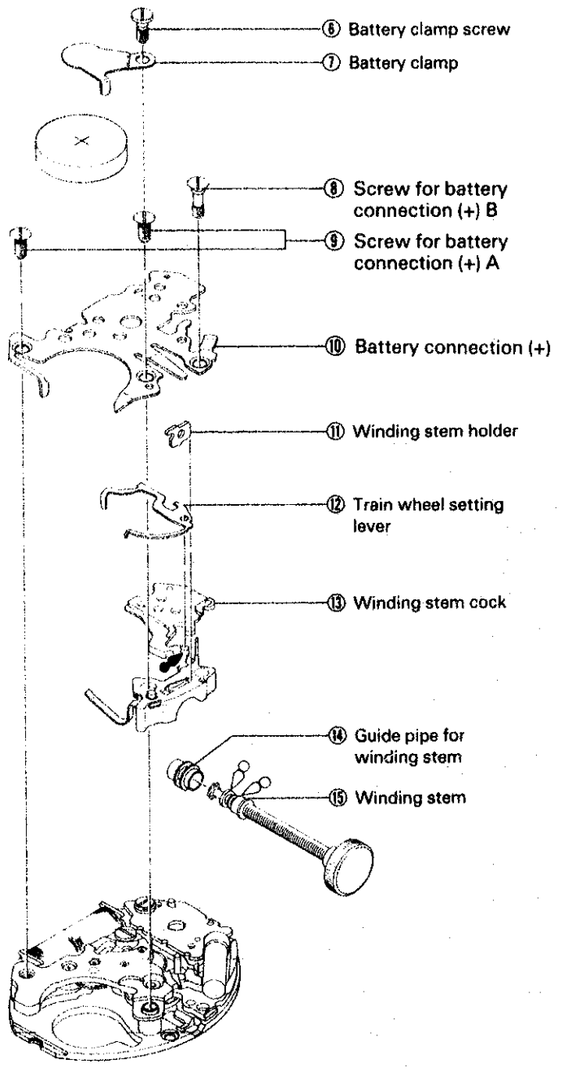
NOTES ON ATTACHING THE HANDS:

● When attaching the hands, place the movement on a flat metal plate.



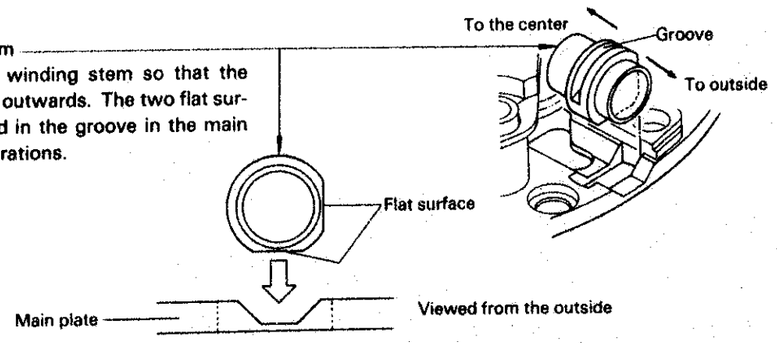
● Battery clamp screw ~ Winding stem

* In some models, a battery clamp and battery clamp screw are used.



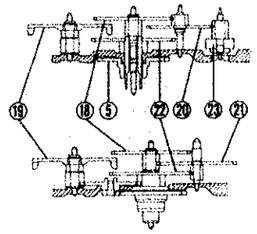
⑭ Guide pipe for winding stem

Install the guide pipe for winding stem so that the grooved side is positioned outwards. The two flat surfaces should be positioned in the groove in the main plate as shown in the illustrations.

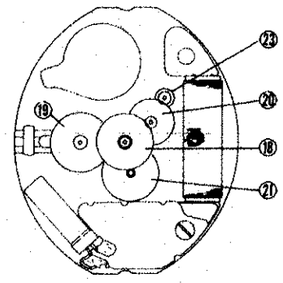


● Train wheel bridge screw ~ Main plate

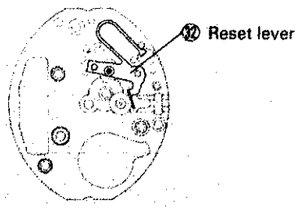
Cross-sectional view of gear train

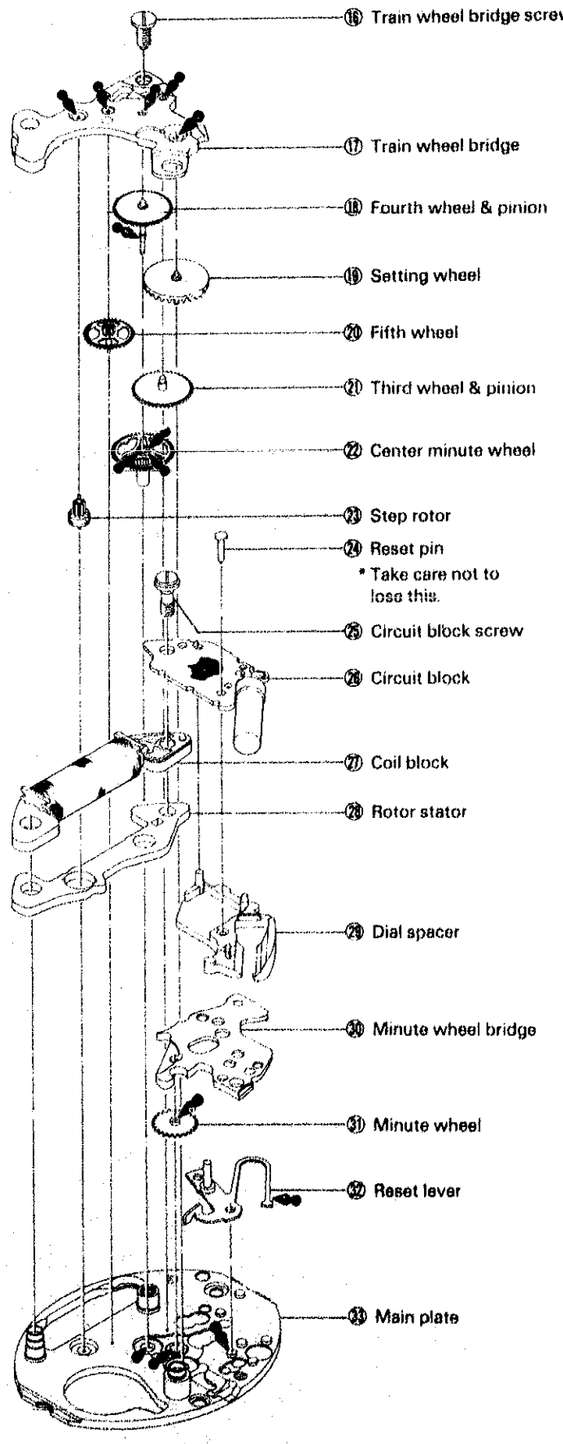


Plan figure



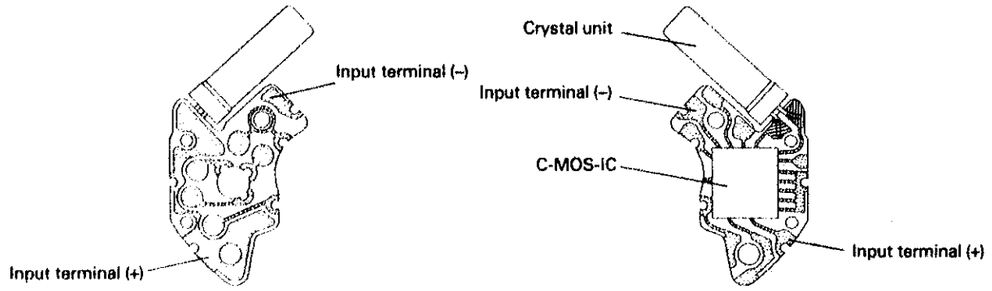
Set position of reset lever





IV. CHECKING AND ADJUSTMENT

1. Structure of circuit block



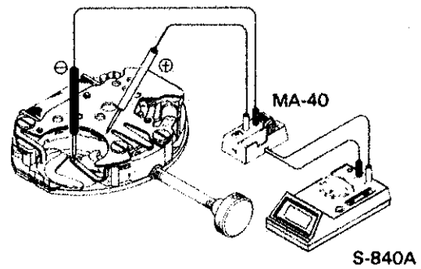
2. Procedure for checking and adjustment

- This section only gives the checking and adjustment procedure which is exclusive for this cal. V233A. 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 Check the coil block.

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: Ω	Result: 3.0kΩ ~ 3.4kΩ : Normal Less than 3.0kΩ (short circuit): Defective More than 3.4kΩ (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) Range to be used: μA Red probe: Battery connection (+) Black probe: Battery connection (–)  	Result: Less than 1.1 μA: Normal More than 1.1 μA: Defective • When measuring, cover the C-MOS-IC with a black sheet.

V. PARTS LIST

Cal. V233 A	
PARTS NO.	PARTS NAME
125 089	Train wheel bridge
231 089	Third wheel & pinion
238 003	Guide pipe for winding stem
***241 089**	Fourth wheel & pinion
***241 090**	Fourth wheel & pinion
***241 116**	Fourth wheel & pinion
261 024	Minute wheel
***270 072**	Center minute wheel
***270 073**	Center minute wheel
***270 116**	Center minute wheel
***271 116**	Hour wheel
***271 189**	Hour wheel
***271 190**	Hour wheel
281 013	Setting wheel
***351 134**	Winding stem (ϕ80)
***351 135**	Winding stem (ϕ90)
391 499	Train wheel setting lever
491 141	Dial washer
701 089	Fifth wheel & pinion
4000 499	Circuit block
4002 499	Coil block
4146 030	Step rotor
4225 067	Battery clamp
4239 499	Rotor stator
4270 061	Battery connection (–)
***4271 046**	Battery connection (+)
4408 499	Dial spacer
4455 002	Reset lever
011 583	Upper hole jewel for step rotor
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)
033 071	Reset pin
SEIKO TR521SW **MAXELL SR521SW** **SONY EVEREADY 379**	Battery

Remarks:

* Fourth wheel & pinion, Center minute wheel, Hour wheel
  There are three different types as specified below.

  Combination:

*Type	Fourth wheel & pinion	Center minute wheel	Hour wheel
S	241 089	270 072	271 189
M	241 090	270 073	271 190
L	241 116	270 116	271 116

*Abbreviation (Movement type) S..... Short type
M.....Standard type
L..... Long type

* Winding stem
  The type of winding stem is determined based on the design of case. Check the case number and refer to "Casing Parts Catalogue" to choose a corresponding winding stem.

* BATTERY CONNCTION (+) FOR PULSAR WATCHES
  4271045 (Pulsar marking)