

# TECHNICAL GUIDE AND PARTS LIST

CAL. Y580A

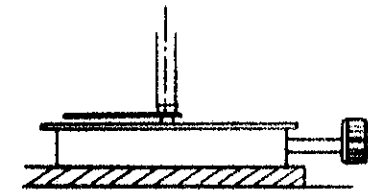
## ANALOGUE QUARTZ

### FOREWORD

In Cal. Y580A, 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.

#### 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.



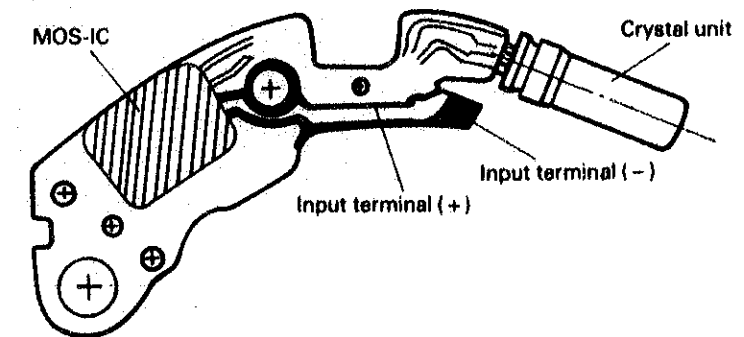
## CONTENTS

I. SPECIFICATIONS .....	1
II. STRUCTURE OF CIRCUIT BLOCK.....	1
III. LIST OF SCREWS USED.....	1
IV. STEP MOTOR COMPENSATION DRIVING PULSE SYSTEM.....	2
V. DISASSEMBLING, REASSEMBLING AND LUBRICATING .....	3
VI. CHECKING AND ADJUSTMENT .....	5
A. Check output signal.....	5
B. Check battery voltage .....	5
● How to repair the movement when battery electrolyte leakage occurs .....	5
C. Check battery conductivity .....	5
D. Check circuit block conductivity.....	5
E. Check coil block.....	6
F. Check gear train mechanism .....	6
G. Check accuracy .....	6
● Check current consumption.....	6
VII PARTS LIST.....	7

## I. SPECIFICATIONS

Cal. No.		Y580 A
Item		
Time indication		2-hand
Loss/gain		Monthly rate: Less than 20 seconds at normal temperature range
Movement size	Size of main plate	13.0 mm (3H - 9H) x 15.55 mm (6H - 12H)
	Casing diameter	13.0 mm x 15.15 mm
	Height (including battery)	2.59 mm (2.65 mm)
Regulation system		None
Measuring gate		10-second gate
Battery		SEIZAIKEN TR616SW, MAXELL SR616SW Battery life: Approx. 3 years Voltage: 1.55V
Jewels		0 jewels (2 jewels in some models)

## II. STRUCTURE OF CIRCUIT BLOCK

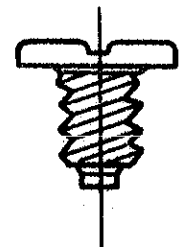


## III. LIST OF SCREWS USED

All screws used in Y580A are the same.

Code No. 022247

Train wheel bridge screw .....	1
Circuit block cover screw .....	3
Coil block screw .....	1



#### IV. STEP MOTOR COMPENSATION DRIVING PULSE SYSTEM

(Special motor drive circuit with a low current consumption)

- With the current quartz circuit, the pulse width supplied from the electric circuit to step motor is constant (Fig.1).

- In Cal. Y580A, the drive pulse width changes according to the load required to drive the step motor. In the normal conditions, the circuit supplies the minimum power to drive the hands. If the extra load is applied (at a low ambient temperature), an enough pulse is supplied to overcome the load (Fig. 2).

- As the minimum pulse width is required to drive the step rotor in normal conditions, the minimum power consumption results. (For checking the current consumption, refer to page 6.)

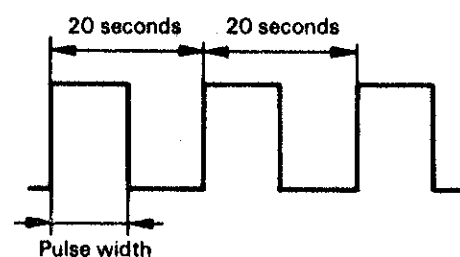


Fig. 1

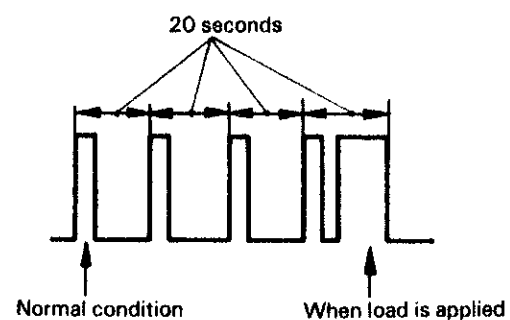


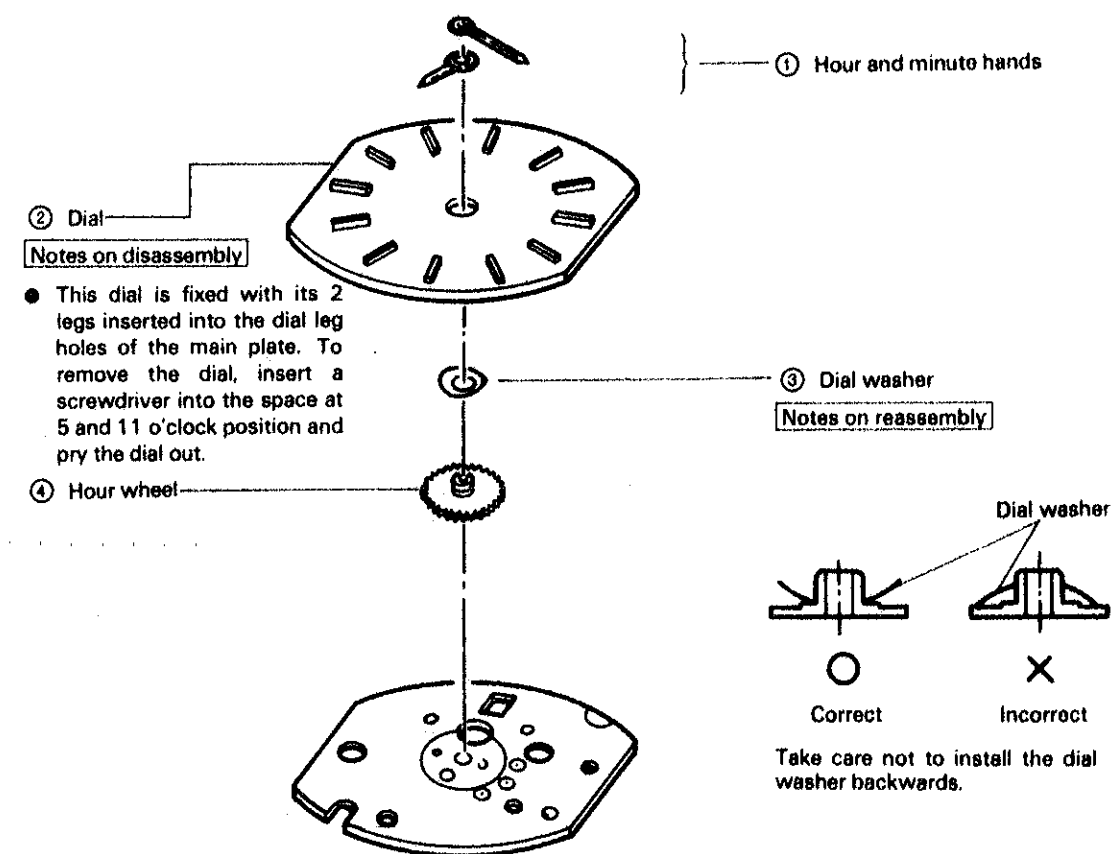
Fig. 2

#### V. DISASSEMBLING, REASSEMBLING AND LUBRICATING

- Disassembling procedures: Figs ① - ②①
- Reassembling procedures: Figs ②① - ①

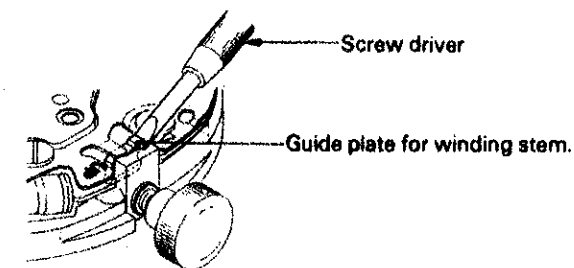
● Lubrication: ●→ Moebius A

##### 1. Hands ~ Hour wheel

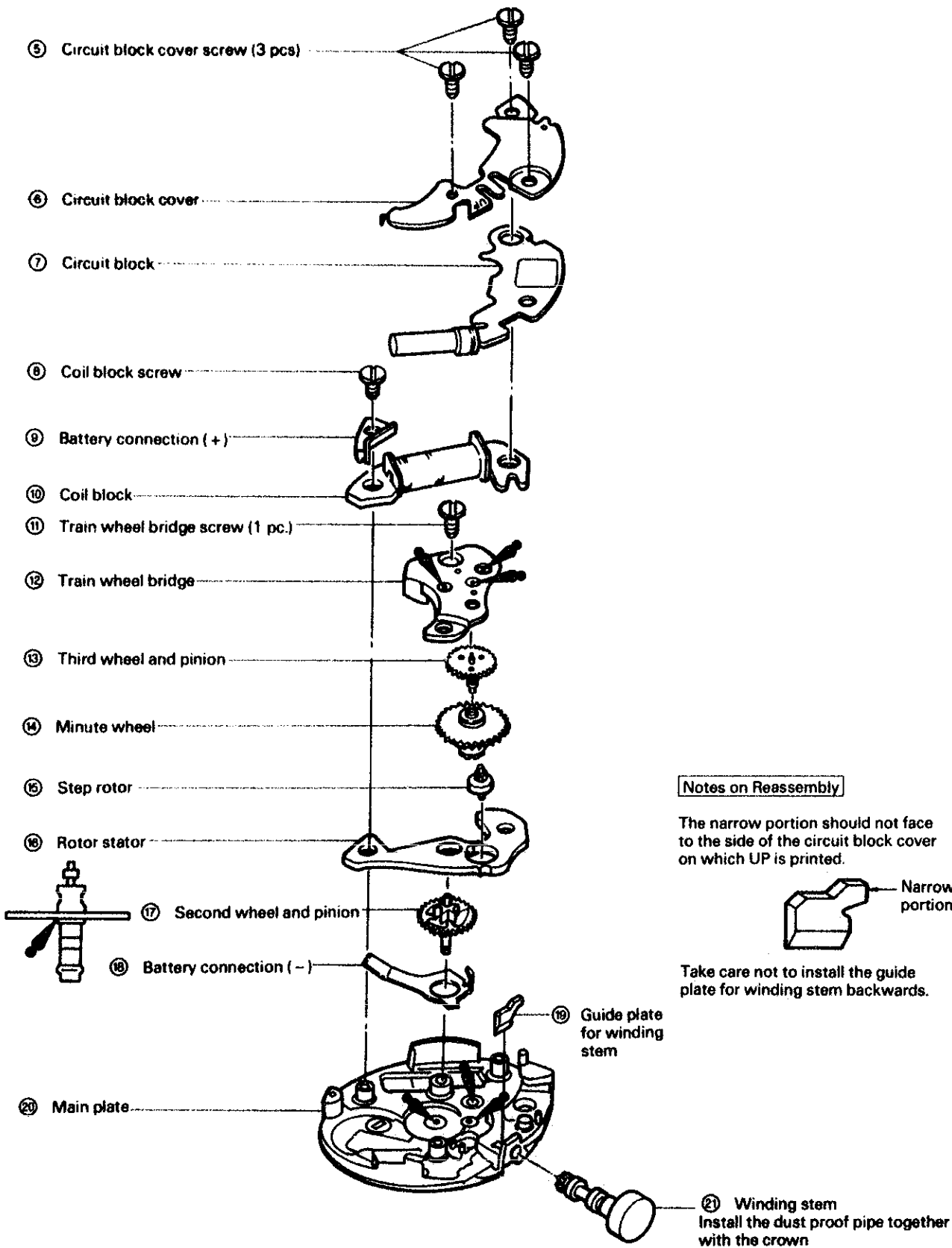


##### How to remove the winding stem

Lift the guide plate for winding stem by using the tip of screw driver and remove the winding stem.



## 2. Disassembling, reassembling and lubricating the gear train, coil block and circuit block



## VI. CHECKING AND ADJUSTMENT

- This section describes the adjustment and maintenance procedures required for this watch.
- For other adjustment and maintenance, refer to the "TECHNICAL GUIDE GENERAL INSTRUCTION, An-

- alogue Quartz"
- The page numbers in this section correspond to those in the "TECHNICAL GUIDE GENERAL INSTRUCTION, Analogue Quartz".

### A OUTPUT SIGNAL p.6

Use the quartz tester to check the output signal of every 20 seconds with the crown in the normal position.

Result:  
Output signal → Normal  
No output signal → Defective

### B BATTERY VOLTAGE p.7

Use Digital Multi Tester S-840A.  
Range to be used : DCV

Result:  
1.5 V or more → Normal  
Less than 1.5 V → Replace the battery

NOTE: Before measuring, short circuit the probes and confirm that the display shows "AUTO 00.0 mV" or "AUTO 00.1 mV."

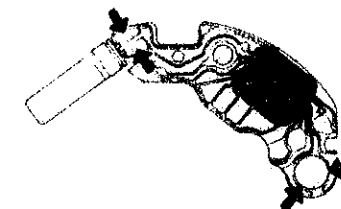
### HOW TO REPAIR THE MOVEMENT WHEN BATTERY ELECTROLYTE/LEAKAGE OCCURS p.8

### C BATTERY CONDUCTIVITY p.9

Check to see if the battery current flow to the circuit is normal.

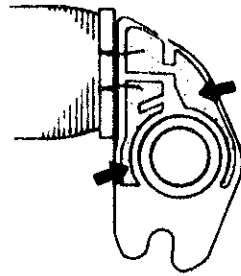
### D CIRCUIT BLOCK CONDUCTIVITY p.9

Remove the circuit block and check the conductivity at the points indicated by the arrows with a microscope.



**E COIL BLOCK p.10**

1. Check for any contamination on the coil lead terminal.



2. Check the coil block for broken wire or short circuit.  
Use Digital multi-tester S-840A.  
Range to be used:  $\Omega$

Result:  
2.0 – 2.5 k $\Omega$  → Normal

Less than 2.0 k $\Omega$  → Defective (short-circuit)

More than 2.5 k $\Omega$  → Defective (Broken coil wire)

Note: Before measuring, short circuit the probes and confirm that the beep signal sounds and the display shows "AUTO 00.2  $\Omega$ " or "AUTO 00.4  $\Omega$ ".  
The resistance can be obtained by subtracting the measured value from the initial value (00.2 – 00.4).

**F GEAR TRAIN MECHANISM p.11**

**G ACCURACY p.13**

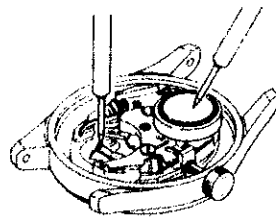
Use the Quartz Tester with the electromagnetic microphone

Result:  
Monthly rate:  
Less than 20 seconds → Normal  
More than 20 seconds → Defective  
Replace the circuit block

**CURRENT CONSUMPTION**

- If frequent battery change is required, a current consumption test is recommended.
- Measure the current consumption with the Digital Multi Tester S-840 A and Multi Adapter MA-40.

Result:  
Less than 2.0  $\mu$ A → Normal  
2.0  $\mu$ A or more → Defective



Note:  
Before measuring, press the reset switch to display "00.0  $\mu$ A".  
Red probe (+) ... Battery connection ⊖  
Black probe (-) ... Battery surface ⊖  
When measuring that the current consumption under the incandescent lamp, cover the movement with black cloth. Otherwise the measured value sometimes becomes higher than the actual value.

**VII. PARTS LIST**

Cal. Y580 A			
PARTS NO.	PART NAME	PARTS NO.	PARTS NAME
125 902	Train wheel bridge	4457 832	Circuit block cover
221 902	Center wheel & pinion	022 247	Train wheel bridge screw
231 706	Third wheel & pinion	022 247	Circuit block cover screw
261 902	Minute wheel	022 247	Coil block screw
271 902	Hour wheel	027 166	Tube for train wheel bridge
354 902	Winding stem	027 166	Tube for circuit block cover screw (c)
491 546	Dial washer	027 167	Tube for circuit block cover screw (a)
711 902	Guide plate for winding stem	027 168	Tube for circuit block cover screw (b)
4001 832	Circuit block	027 169	Tube for coil block screw
4002 832	Coil block	SEIZAIKEN TR616SW	Battery
4146 833	Step rotor	MAXELL SR616SW	
4239 832	Rotor stator		
4270 832	Battery connection (-)		
4271 832	Battery connection (+)		