## TECHNICAL GUIDE

# SEIKO

CAL. 1E20A CAL. 1E50A





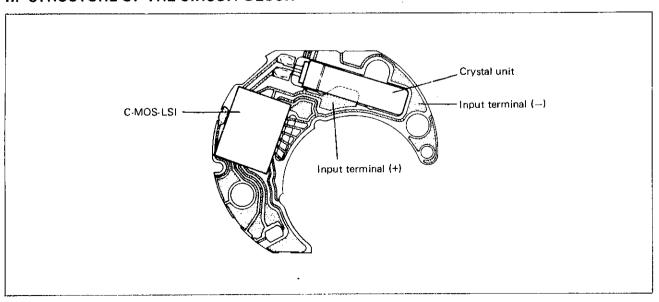
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#### I. SPECIFICATIONS

Cal. No.		1E20A	1E50A	
Time indication		2 hands (Hand motion: 20-second step)		
Driving system	m	Step motor (Load compensative driving pulse system)		
Additional m	echanism	Electronic circuit reset switch		
Loss/gain		Monthly rate at normal temperature range: less than 15 seconds		
Movement size	Outside diameter	φ9.5 mm 9.0 mm between 3 o'clock and 9 o'clock sides	<ul> <li>φ12.8 mm</li> <li>9.0 mm between 3 o'clock and 9</li> <li>o'clock sides</li> <li>10.0 mm between 12 o'clock and</li> <li>6 o'clock sides</li> </ul>	
	Casing diameter	8,5 mm between 3 o'clock and 9 o'clock sides	φ12.3 mm	
	Height	2.7 mm		
Regulation system		Regulating switch lever		
Measuring gate by quartz tester		Use the 10-second gate,		
Battery		Maxell SR512SW Battery life is approximately 2 years. Voltage: 1.55V		
Jewels		5 jewels		

#### II. STRUCTURE OF THE CIRCUIT BLOCK



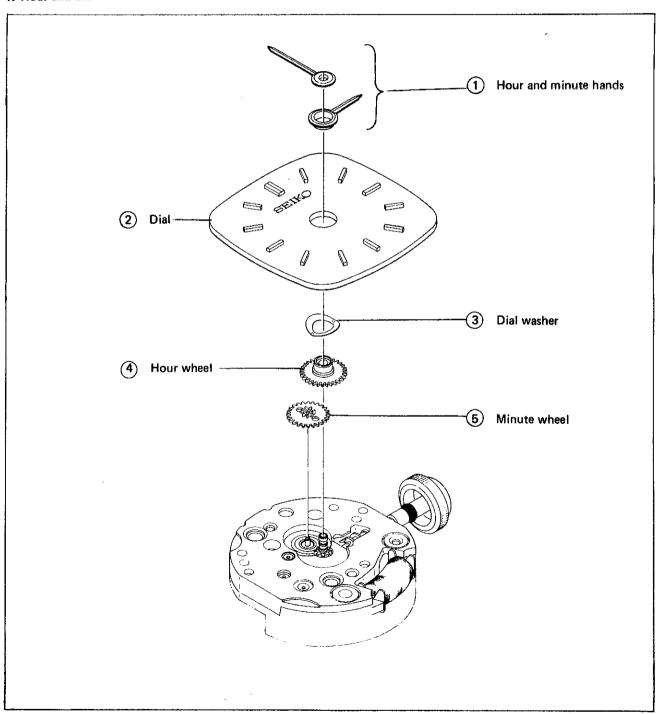
#### III. DISASSEMBLING, REASSEMBLING, AND LUBRICATING

#### List of the screws used

Shape	Part No.	Name	Shape	Part No.	Name
	022 342	Train wheel bridge screw Setting lever spring screw Battery connection (+) screw		022 343	Regulating switch lever screw

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

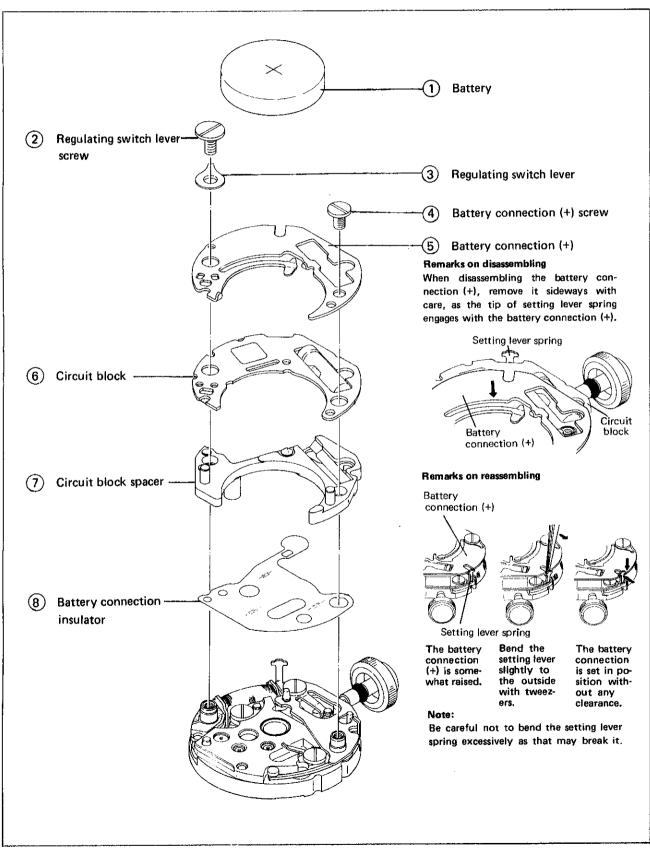
#### 1. Hour and minute hands ~ Minute wheel



Disassembling procedures Figs.: ① → ②7

Reassembling procedures Figs.: ②7 → ①

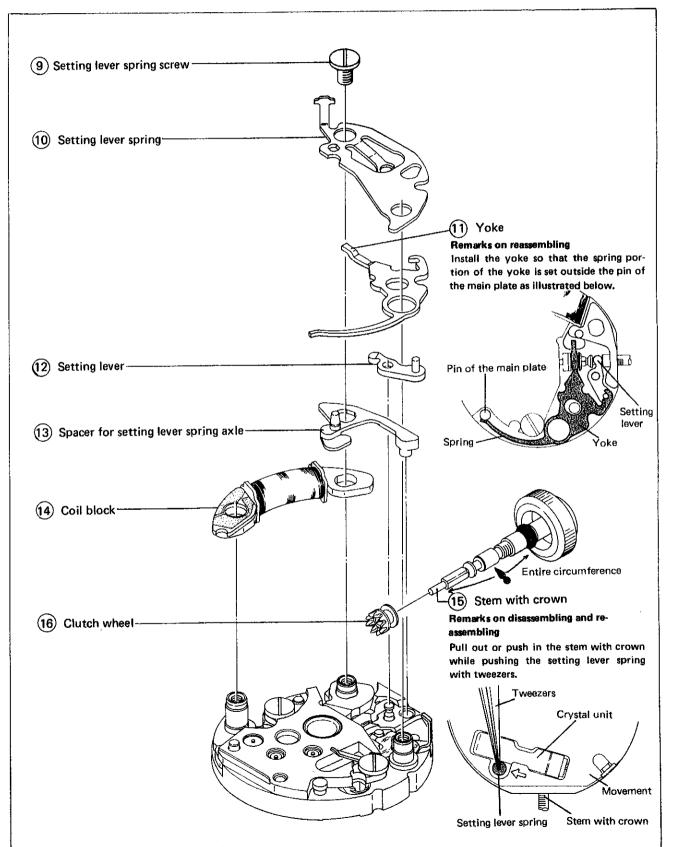
#### 2. Battery $\sim$ Battery connection insulator



#### 3. Setting lever spring screw $\sim$ Clutch wheel

Lubricating:

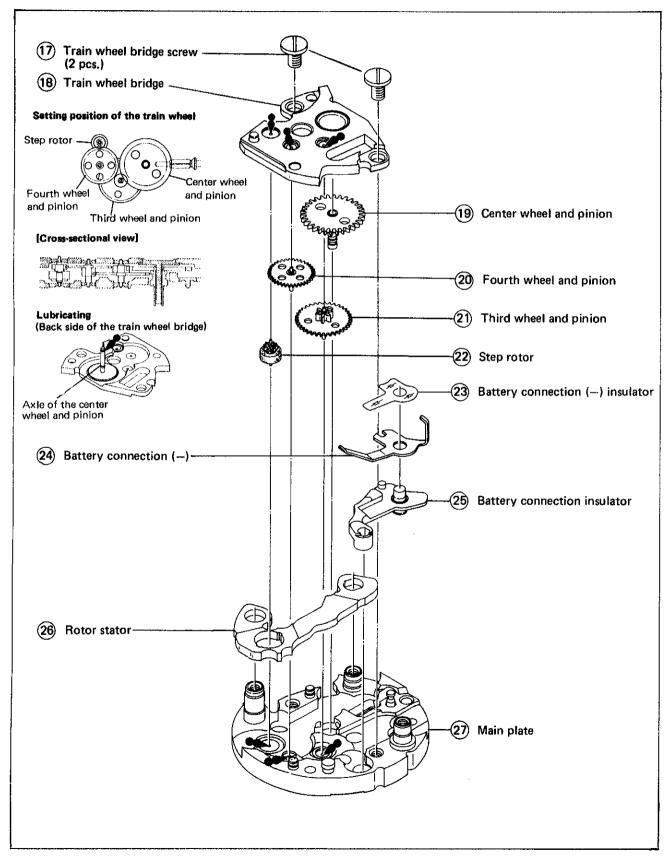
Moebius A
Normal quantity



#### 4. Train wheel bridge screw ~ Main plate

Lubricating:

Moebius A Normal quantity

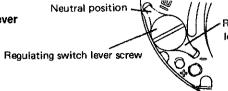


#### IV. CHECKING AND ADJUSTMENT

• The explanation here is only for the particular points of Cals. 1E20A and 1E50A.

### Refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTION" for SEIKO Analogue Quartz for details. **Procedure CHECK OUTPUT SIGNAL** Use the quartz tester. Range to be used: 10-second gate **CHECK BATTERY VOLTAGE** Result: Use the Digital Multi-Tester. Normal: More than 1.57V Range to be used: DC V Defective: Less than 1.57V CHECK COIL BLOCK Result: Use the Digital Multi-Tester. Rante to be used: $\Omega$ Normal: $1.6 \text{ K}\Omega \sim 2.8 \text{ K}\Omega$ Less than 1.6 K $\Omega$ Defective - (Short circuit) LMore than 2.8 KΩ (Broken wire) **CHECK RESET CONDITION** Pull the crown out completely, and push it in to see if the minute hand moves after 20 seconds. Note: Protect the movement from light while checking. **CHECK ACCURACY** Measuring time accuracy Use the 10-second gate of the quartz tester. Do not measure accuracy under an incandescent lamp, since strong light adversely affects time accuracy. Be sure to protect the movement from light with case back or black paper while measuring. Ex.: The illustration below shows that the Adjusting time accuracy end of the regulating switch lever is set Loosen the regulating switch lever screw, and fix the end in the (-) hole. of the regulating switch lever in the (+) hole to gain time

- and in the (-) hole to lose time.
- The range to be regulated by the regulating switch lever is approximately ±0.26 sec./day.



#### Procedure

#### CHECK CURRENT CONSUMPTION

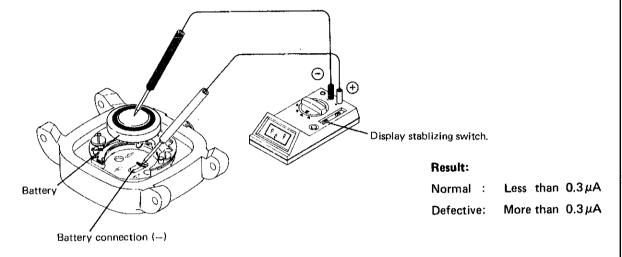
Be sure to protect the movement from light with black paper while measuring.

Do not check current consumption under an incandescent lamp, since strong light may cause a watch to consume excess current.

Check current consumption for the whole of the movement.

Use the Digital Multi-Tester S-840.

Range to be used: μA



Set the display stabilizing switch of the tester to the "B" position.

When the (+) and (-) probes of the tester are applied as shown in the illustration above, the tester displays a value, indicating that electric current is flowing in the IC.

The value displayed is increased, since the motor driving current flows in the step motor once every 20 seconds. Read a maximum value to judge the current consumption value. (When the display stabilizing switch is set to the "B" position, the tester's value-averaging calculation function works.)