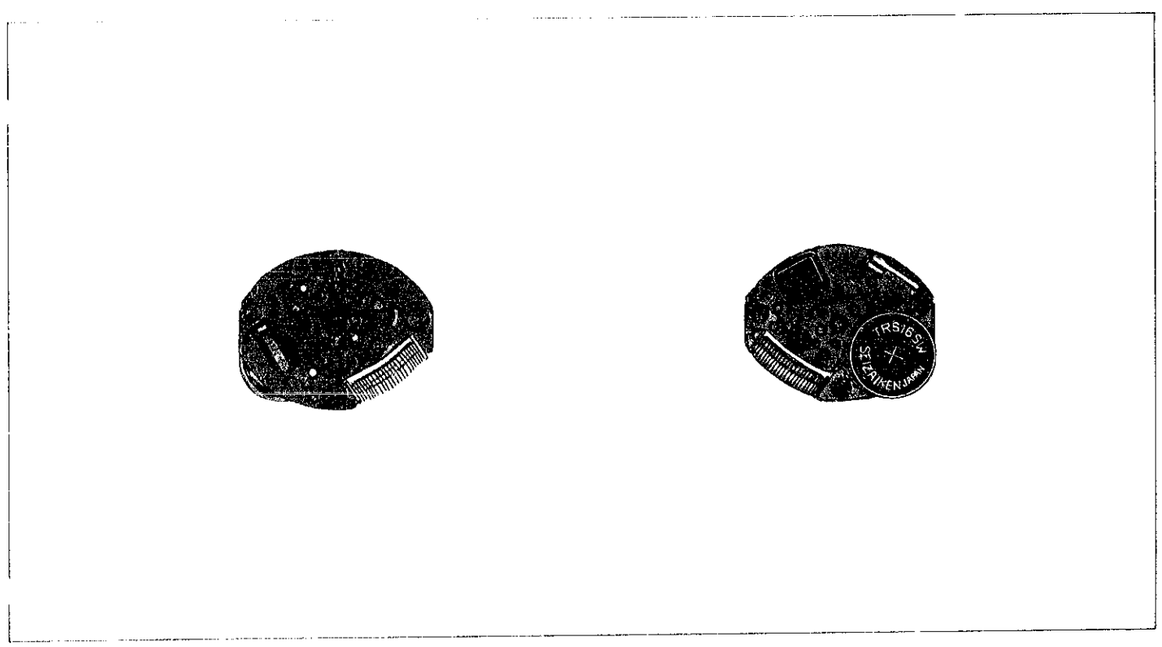
TECHNICAL GUIDE

SEIKO

QUARTZ

CAL. 7320A
CAL. 7321A

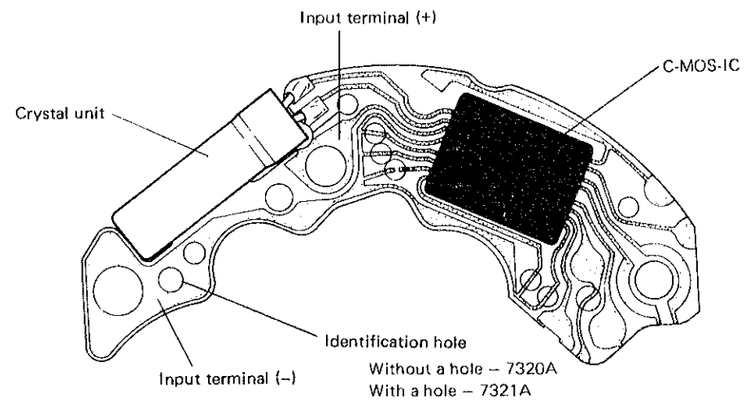


CONTENTS

I. SPECIFICATIONS

Item \ Cal. No.		7320A	7321A
Time indication		2 hands (moves at every 20 seconds)	3 hands
Driving system		Step motor	Step motor (Load compensated driving pulse type)
Additional mechanism		Train wheel setting device	
		Electronic circuit reset switch	
		—	Battery life indicator
Loss/gain		Monthly rate at normal temperature: less than 15 seconds	
Movement size	Outside diameter	ϕ15.5mm (between 6 o'clock and 12 o'clock) ϕ13.0mm (between 3 o'clock and 9 o'clock)	
	Casing diameter	ϕ15.1mm	
	Height	1.8mm without battery	
Regulation system		Regulating switch lever (one step equals a loss or gain of approx. 0.5 sec./day)	
Measuring gate by quartz tester		Use the gate of 10 seconds.	
Battery		Battery life is approximately 2 years for SEIKO (SEIZAIKEN) TR616SW. Battery life is approximately 3 years for Maxell SR616SW.	
		Voltage: 1.55V	
Jewels		5 jewels	

II. STRUCTURE OF THE CIRCUIT BLOCK



III. DISASSEMBLING, REASSEMBLING AND LUBRICATING

- **All parts for Cal. 7320A and Cal. 7321A are the same except for the following:**

Parts Name	Cal. 7320A	Cal. 7321A
Main plate	101737	101735
Train wheel bridge	125737	125735
Center wheel and pinion	221732	221735
Third wheel and pinion	231736	231735
Fourth wheel and pinion	—	241735
Fifth wheel and pinion	701736	701735
Hour wheel	271732	271735
Train wheel setting lever	391736	391735
Rotor stator	4239736	4239735
Coil block	4002736	4002735
Circuit block	4001737	4001735
Circuit block cover	4457738	4457735
Dial washer	491546	491735

- **List of screws used**

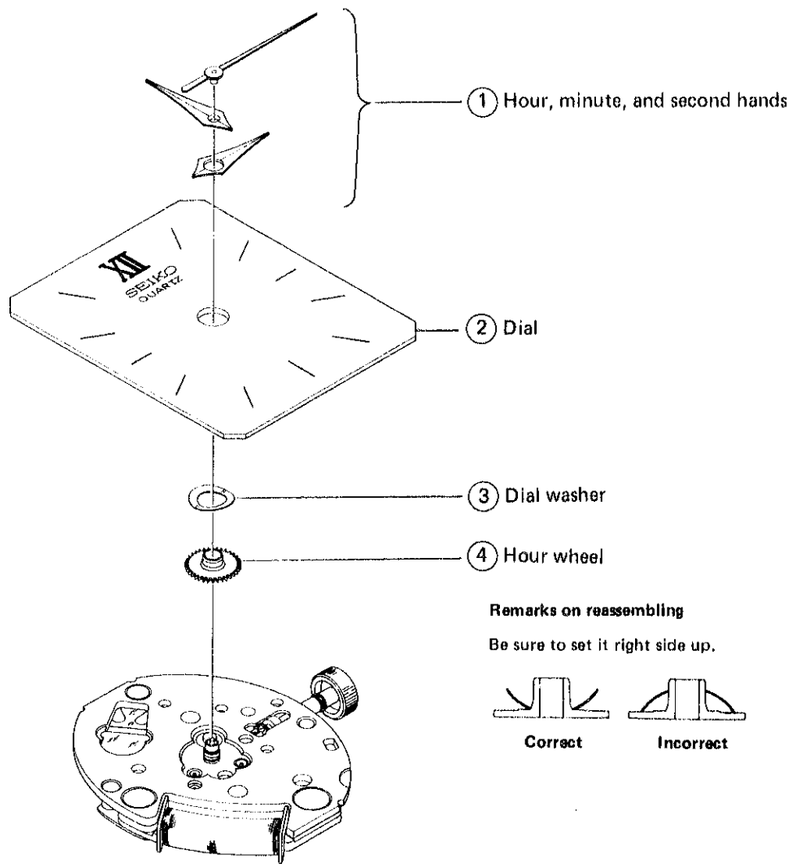
Shape	Part No.	Part Name	
	022413	Setting lever spring screw (1 pc.)	
	022411	Train wheel bridge screw (2 pcs.) Circuit block cover screw (2 pcs.)	Regulating switch lever screw (1 pc.) Battery connection (+) screw (1 pc.)

Cal. 7321 is taken as an example to describe the disassembling, reassembling, and lubricating procedures.

Disassembling procedures Figs.: (1) → (34)
Reassembling procedures Figs.: (34) → (1)

* Use the universal movement holder for disassembling and reassembling.

1. Hour, minute, and second hands ~ hour wheel

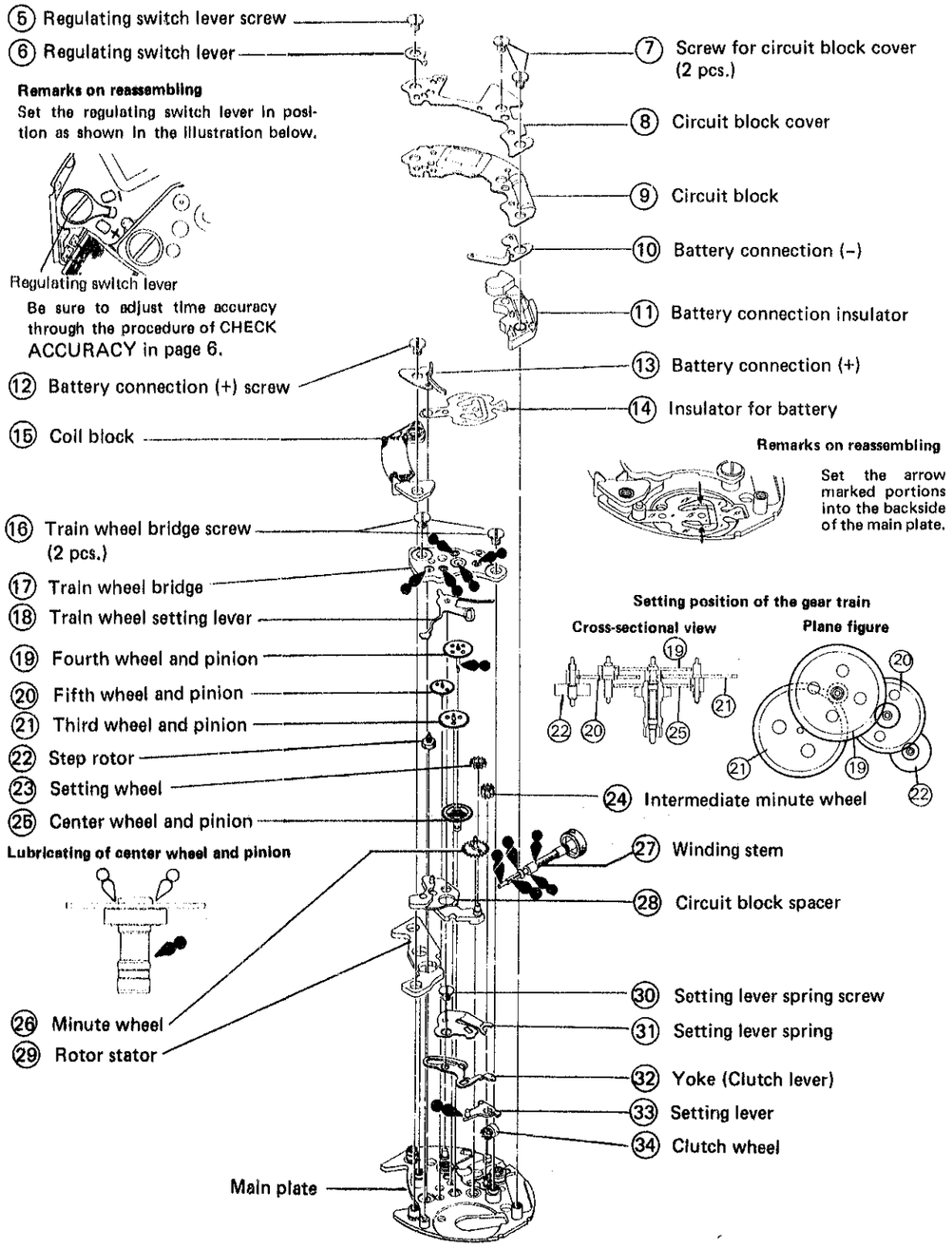


2. Regulating switch lever screw ~ clutch wheel

Types of oil

SEIKO Watch Oil S-6

Moebius A



IV. CHECKING AND ADJUSTMENT

The explanation here is only for the particular points of Cal. 7320A and 7321A.
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	**Result:** Cal. 7320A Normal : Input indicator blinks every 10 seconds. Defective : Input indicator does not blink every 10 seconds. Cal. 7321A Normal : Input indicator blinks every second. Defective : Input indicator does not blink every second.
CHECK HAND SETTING CONDITION	
CHECK BATTERY VOLTAGE	
Use the volt-ohm-meter. Range to be used: DC 3V	**Result:** Normal : More than 1.5V Defective : Less than 1.5V
CHECK BATTERY CONDUCTIVITY	
CHECK CIRCUIT BLOCK CONDUCTIVITY	
CHECK COIL BLOCK	
Use the volt-ohm-meter. Range to be used: OHMS x 100	**Result:** Cal. 7320A Normal : 1.8kΩ ~ 2.3kΩ Defective — Less than 1.8kΩ (Short circuit); More than 2.3kΩ (Broken wire) Cal. 7321A Normal : 2.8kΩ ~ 3.3kΩ Defective — Less than 2.8kΩ (Short circuit); More than 3.3kΩ (Broken wire)

CHECK RESET AND TRAIN WHEEL SETTING CONDITIONS

Check to see if the step rotor stops promptly when the crown is pulled out fully and if it starts twenty seconds for Cal. 7320A and one second for Cal. 7321A respectively after the crown is pushed in to the normal position.

CHECK GEAR TRAIN MECHANISM

CHECK ACCURACY

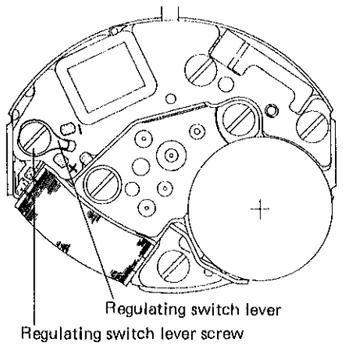
- Use the 10-second gate of the quartz tester.

Be sure to protect the C-MOS-IC from light with case back or black paper, etc. while measuring.

- Be sure to adjust time accuracy by the regulating switch lever.

① Unscrew the regulating switch lever screw.
② Remove the regulating switch lever.
③ To gain time, turn the regulating switch lever to engage its tip with the hole marked with "+", and, to lose time, turn the regulating switch lever to engage its tip with the hole marked with "−".
④ Set and tighten the regulating switch lever screw.

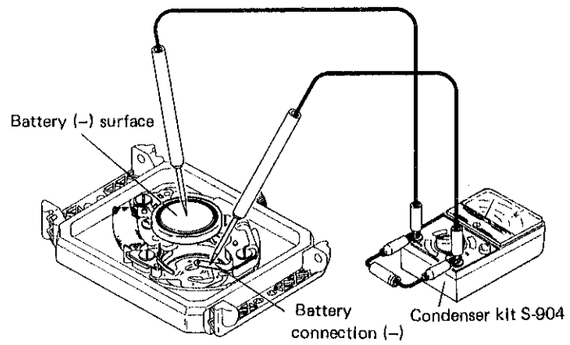
- The range to be regulated by the regulating switch lever is approximately ±0.5 sec./day.



CHECK CURRENT CONSUMPTION

Use the volt-ohm-meter. Range to be used: DC 12μA

- Be sure to protect the C-MOS-IC from light with black paper, etc. while measuring.
  Do not check current consumption under an incandescent lamp, since a strong light causes the circuit to consume excess current.



Result:

Cal. 7320A
Normal : Less than 0.6μA
Defective : More than 0.6μA
Replace the circuit block with a new one.

Cal. 7321A
Normal : Less than 0.9μA
Defective : More than 0.9μA
Replace the circuit block with a new one.

*** Cal. 7321A**
Since the load-compensated driving pulse system is used in the circuit for Cal. 7321A, keep the probes applied to the battery for several seconds until the driving pulses become stable, and then check current consumption.

All procedures of Disassembling, Reassembling, Lubricating, Checking and Adjustment are completed.