

TECHNICAL GUIDE

AND
PARTS LIST

CAL. V249A

ANALOGUE QUARTZ

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I. SPECIFICATIONS

Item		Cal. No.	V249A
Time indication		Two hands (hand moves at 1 sec. intervals)	
Driving system		Step motor (load-compensative driving pulse system)	
Additional mechanism		Date Date quick resetting device Electronic reset switch	
Loss/gain		Monthly rate: Less than 20 seconds at normal temperature range	
Movement size	Size of main plate	φ18.4 mm (6H - 12H 18.4 mm, 3H - 9H 15.3 mm)	
	Casing diameter	17.8 mm	
	Height	2.7 mm	
Regulation system		—	
Quartz Tester Measuring gate		10-second gate	
Battery		SEIKO TR621SW, Maxell SR621SW, and SONY SR621SW (364) Voltage: 1.55V	
Battery life		Approx. 2 years	
Jewels		1 jewel	

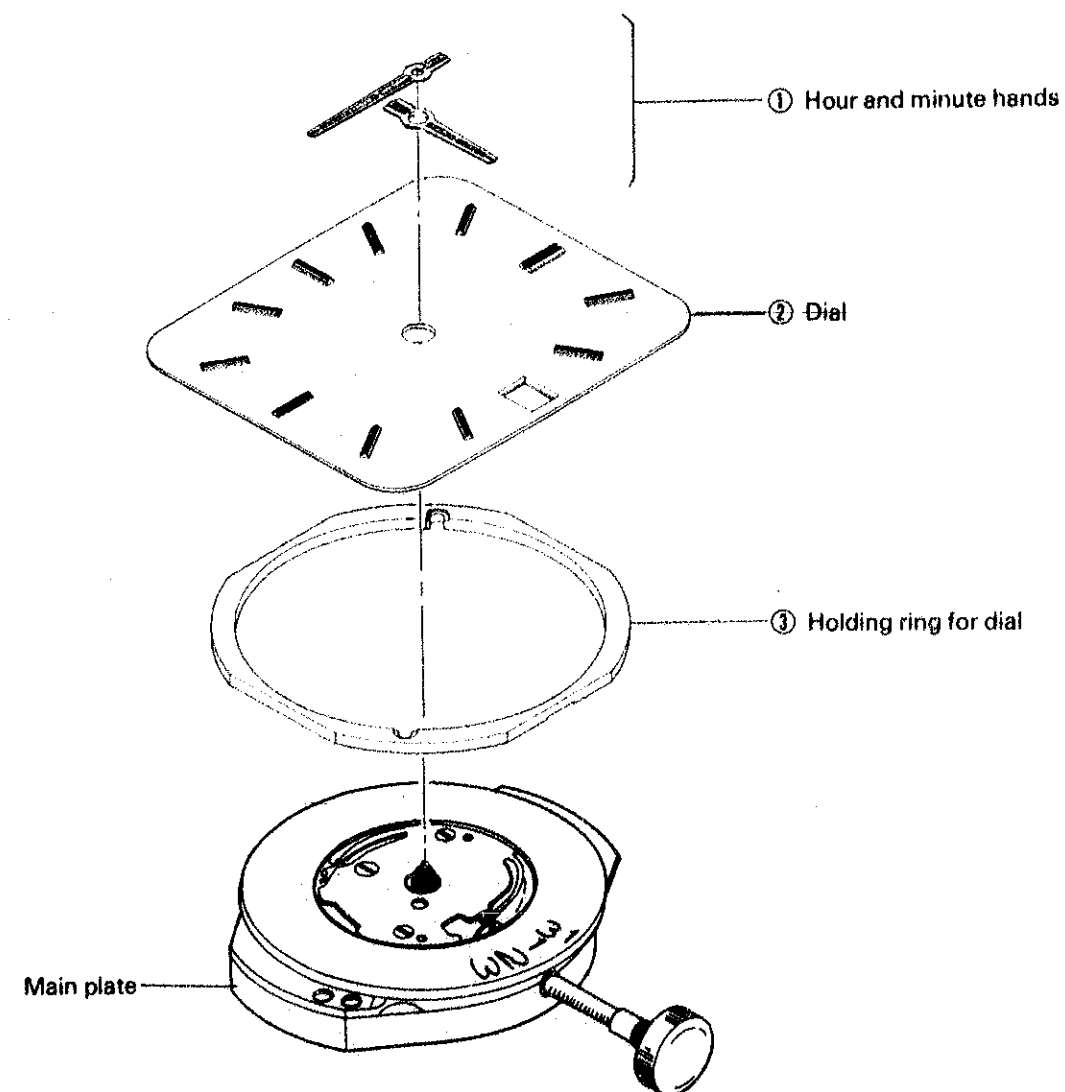
II. DISASSEMBLING, REASSEMBLING AND LUBRICATING

Disassembling procedures: Figs ① ~ ⑦
Reassembling procedures: Figs ⑦ ~ ①

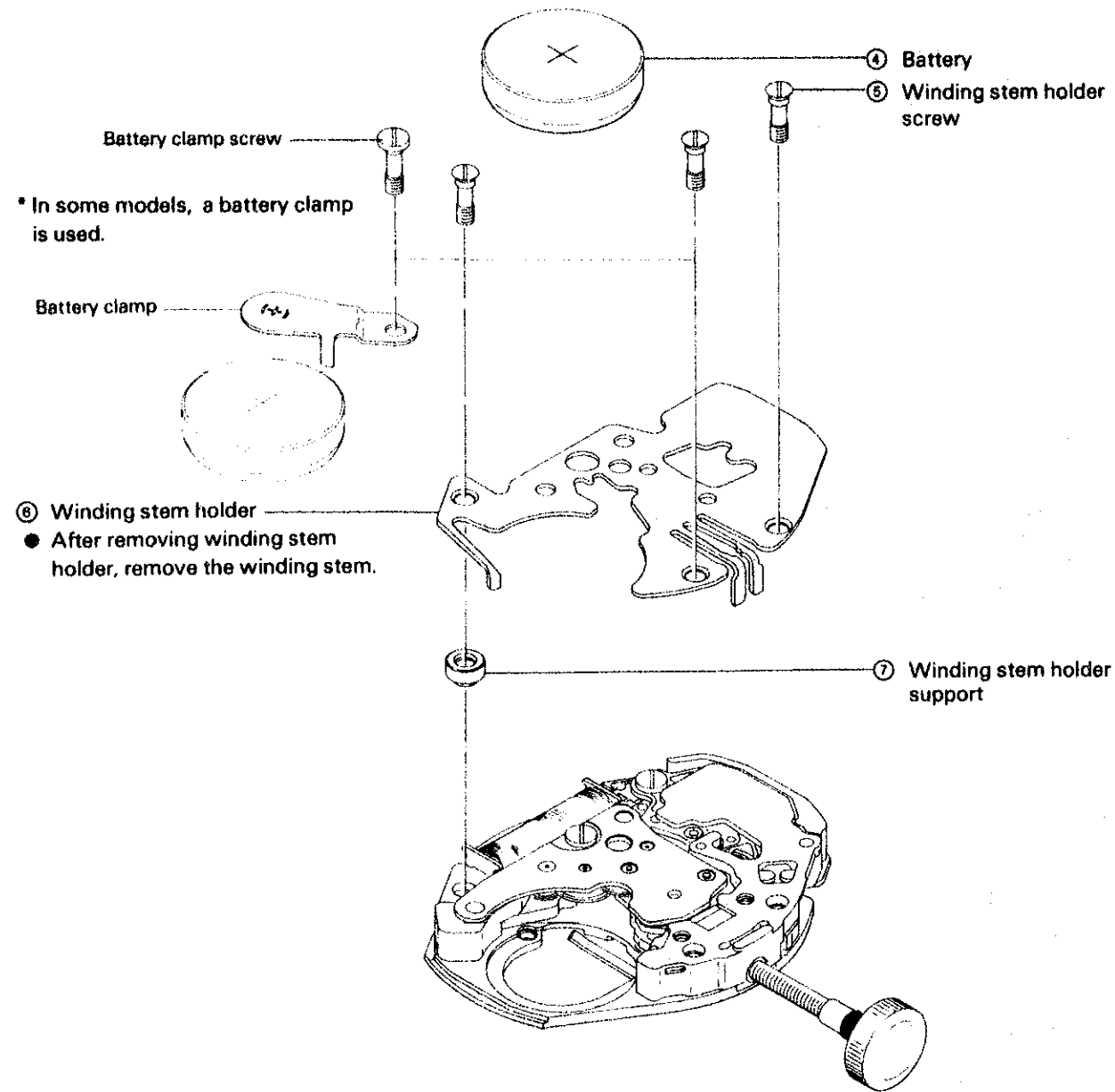
Lubricating

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

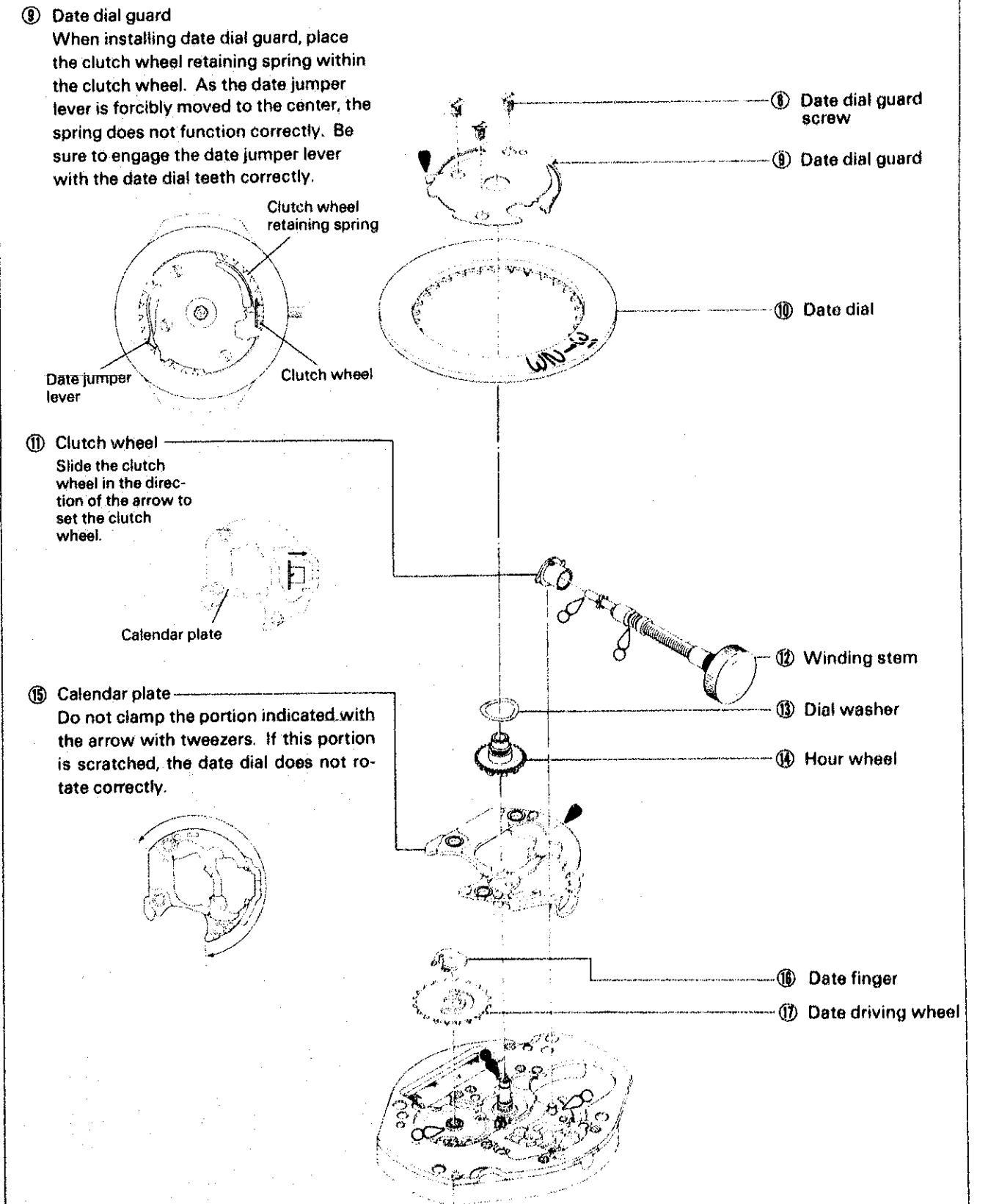
● Hands ~ Holding ring for dial



● Battery ~ Winding stem holder support

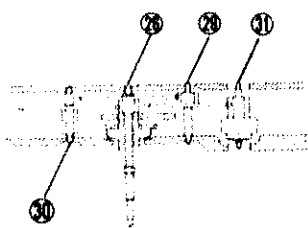


● Snap for day star with dial disk ~ Date driving wheel

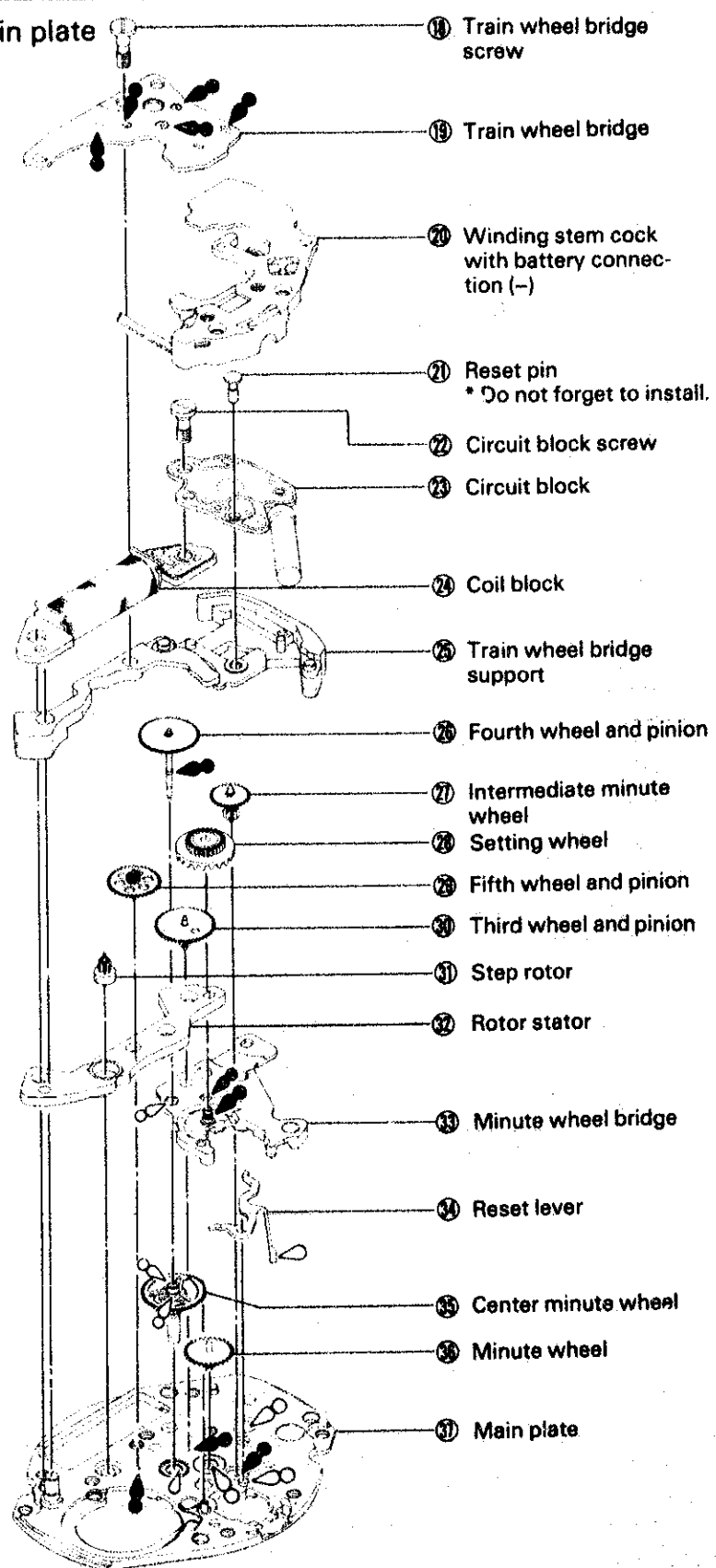
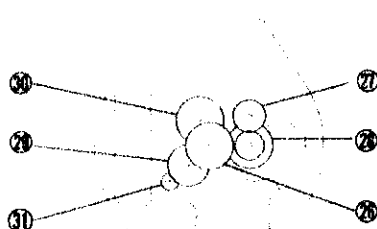


● Train wheel bridge screw ~ Main plate

Reassembly diagram of wheels (cross sectional view)

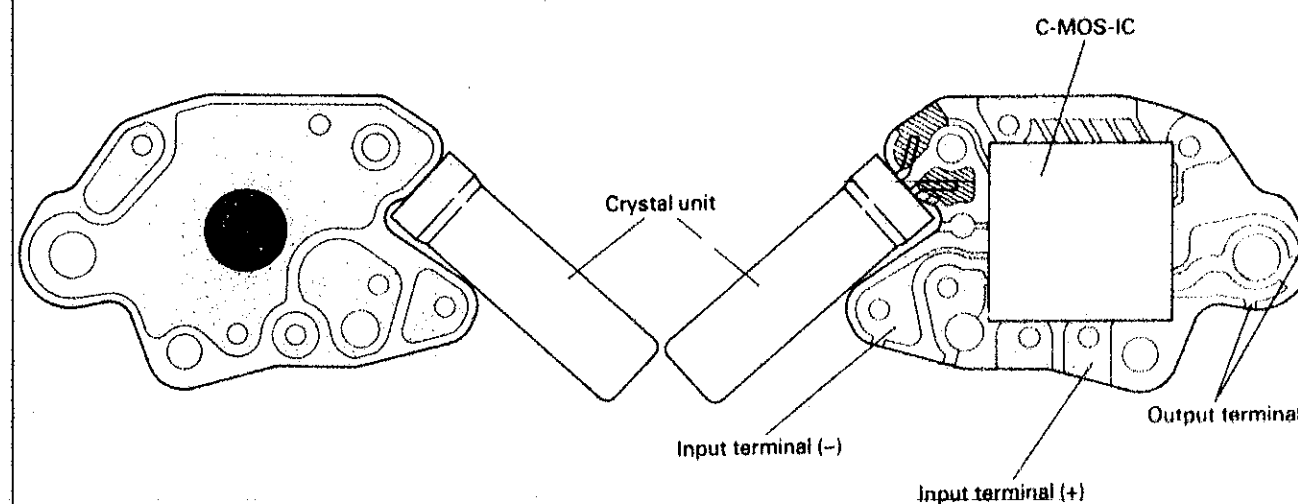


Reassembly diagram of 36 ~ 39



III. CHECKING AND ADJUSTMENT

1. Structure of circuit block

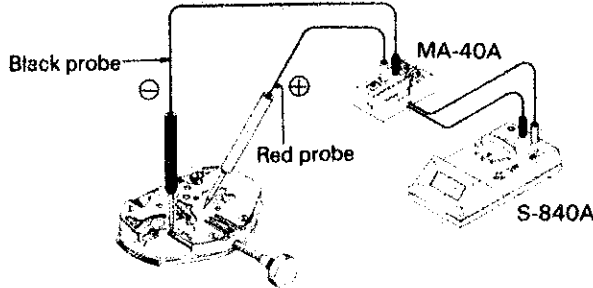
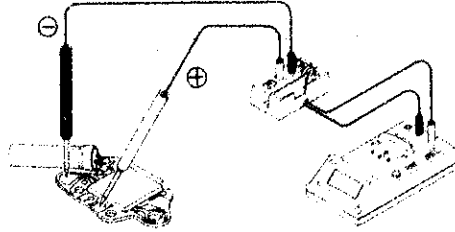


2. Procedure for checking and adjustment

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

CHECK OUTPUT SIGNAL	
1. Use the Quartz Tester 2. Turn the measuring time selection switch to the "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: 1.57V or more: Normal Less than 1.57V: Defective Replace the battery.
BATTERY CONDUCTIVITY	
Check the conductivity between battery and battery connection (-) to see if the battery voltage is correctly applied to the circuit.	
CIRCUIT-BLOCK CONDUCTIVITY	
Check the output terminal and pattern section contamination in the circuit block and check if the circuit is broken or shor.	

COIL BLOCK	
<p>Check the coil block for broken wire and short circuit. Use the SEIKO Digital Multi Tester S-840 A. Range to be used: Ω</p> <p>NOTE</p> <ul style="list-style-type: none"> ● Before measuring, short circuit the probes and check to see if the tester sounds and reads from AUTO 00.2Ω to AUTO 00.4Ω. The actual resistance can be obtained by subtracting the initial value (00.2 - 00.4) from the measured value. ● When measuring, take care not to break the coil block leads. 	<p>Result: 2.4 ~ 2.8 kΩ: Normal Less than 2.4 kΩ (Short circuit): Defective More than 2.8 kΩ (Broken wire): Defective Replace the circuit block.</p>
FRONT GEAR TRAIN MECHANISM	
<p>Check the front gear train mechanism for play of step rotor and wheels and pinions, mis-installation, dust, lint, foreign matter, lubrication, etc.</p>	
BACK GEAR TRAIN MECHANISM	
<p>Check the back gear train mechanism for lubrication leakage, play, dust, lint, etc.</p>	
ACCURACY	
<p>Check accuracy using Quartz Tester and electromagnetic microphone (DM-1).</p> <p>NOTE: Check accuracy with the crown at normal position.</p>	<p>Result: Monthly rate (at normal temperature range) Less than 20 seconds: Normal More than 20 seconds: Defective Replace the circuit block.</p>

CURRENT CONSUMPTION	
<p>1. Use the SEIKO Digital Multi Tester S-840A and Multi Adaptor MA-40.</p>  <p>NOTE: Press the reset switch to read 00.0 μA and measure the current consumption. Red probe → Winding stem holder Black probe → Battery connection (-) When measuring the current consumption under the incandescent lamp, cover the movement with black cloth. Otherwise the measured value sometimes becomes higher than the actual value.</p> <p>2. Check the current consumption of the circuit block.</p> 	<p>Result: 1.3 μA or less: Normal More than 1.3 μA: Defective Proceed to 2</p> <p>Result: 0.3 μA or less: Circuit block is normal Check the gear train mechanism. More than 0.3 μA: Circuit block is defective. Replace the circuit block.</p>

VI. PARTS LIST

CAL. V249 A			
PARTS NO.	PARTS NAME	PARTS NO.	PARTS NAME
125 234	Train wheel bridge	802 230	Date driving wheel
196 230	Calendar plate	808 231	Date dial guard
197 233	Winding stem cock with battery connection (-)	884 231	Holding ring for dial
231 233	Third wheel & pinion	4000 220	Circuit block
241 067	Fourth wheel & pinion	4002 240	Coil block
261 233	Minute wheel	4146 236	Step rotor
★ 270 253	Center minute wheel	4225 233	Battery clamp
★ 270 254	Center minute wheel	4239 233	Rotor stator
★ 271 093	Hour wheel	4408 235	Winding stem holder support
★ 271 094	Hour wheel	4455 233	Reset lever
281 233	Setting wheel	011 334	Upper hole jewel for step rotor
282 233	Clutch wheel	012 019	Circuit block screw
★ 354 232	Winding stem (φ80)	012 020	Train wheel bridge screw
★ 354 234	Winding stem (φ90)	012 023	Battery clamp screw
387 234	Minute wheel bridge	012 825	Winding stem holder screw
426 230	Train wheel bridge support	012 826	Date dial gurad screw
491 233	Dial washer	033 019	Reset pin
556 231	Date finger		
701 236	Fifth wheel	SEIKO TR621SW	} Battery
735 259	Winding stem holder	MAXELL SR621SW	
766 230	Intermediate minute wheel	U.C.C. 364	
★ 801 130	Date dial	SONY SR621SW (364)	
★ 801 131	Date dial		

Remarks:

★ Center minute wheel, Hour wheel

Type	Center minute wheel	Hour wheel
M	270 253	271 093
L	270 254	271 094

*abbreviation M Standard type
(Movement 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.

★ Date dial

Parts No.	Crown position	Calendar frame position	Specification
801 130	3 o'clock	3 o'clock	Black figures on silver background
801 131	3 o'clock	6 o'clock	Black figures on silver background