

TECHNICAL INFORMATION

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CITIZEN QUARTZ

Cal. No. 55❖❖❖



[Cal. No. 5510]

 **CITIZEN**

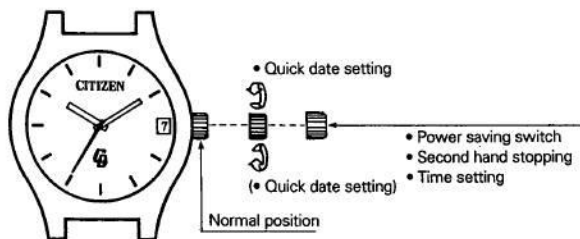
§1 OUTLINE

- Cal 5500*
Men's three-hands analog quartz watch with date and day indicating function and battery life of about 5 years.
- Cal 5501*
Same as Cal 5500*, except the interval of hands of this model is wider.
- Cal 5502*
Men's three-hands analog quartz watch for divers with date and day indicating function.
- Cal 5503*
Men's three-hands analog quartz watch for professional divers with date and day indicating function.
- Cal 5510*
Same as Cal 5500, except this model does not have day indicating function.
- Cal 5511*
Same as Cal 5510*, except the interval of hands of this model is wider.
- Cal 5530*
Same as Cal 5500, except this model does not have date and day indicating function.

§2 SPECIFICATION

Caliber No.		5500A-00	5501A-00	5502A-00	5503M-00	5510A-00	5511A-00	5530A-00
Type		Three-hands analog quartz watch						
Module size (mm)		Thickness: 3.3 (Only 5530A: 2.5)						
Accuracy (at normal temperature)		±20 sec/month		±15 sec/month		±20 sec/month		
Oscillation frequency		32,768Hz						
IC		C/MOS-LSI 1unit						
Operating temperature range		- 10°C ~ + 60 °C						
Converter		2-pole step motor						
Time adjustment		D.F.C. (No adjustment terminals for market use)						
Measuring gate		10 sec						
Additional functions	Date (With quick setting mechanism)	Installed	Installed	Installed	Installed	Installed	Installed	Not installed
	Day of week (With quick setting mechanism)	Installed	Installed	Installed	Installed	Not installed	Not installed	Not installed
	Second hand stopping mechanism	Installed	Installed	Installed	Installed	Installed	Installed	Installed
	Power saving switch	Installed	Installed	Installed	Installed	Installed	Installed	Installed
	Battery life forecasting mechanism	Not installed	Not installed	Installed	Installed	Not installed	Not installed	Not installed
Battery	Part No.	280-31						
	Battery cord	SR920SW						
	Size (mm)	ø 9.5 X 2.0t						
	Nominal voltage	1.55 V						
	Nominal capacity	40mAh						
	Life	Approx. 5 years						
Current consumption		0.9 μA max. (Module)						
Resistance of coil		2.2 kΩ ~ 2.8 kΩ						

53 HANDLING METHOD



☆ After the time and calendar are set, securely push the crown into its normal position.

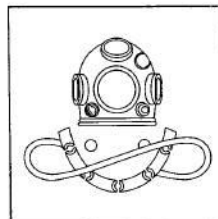
• Repair of watches for professional divers (Cal 5503)

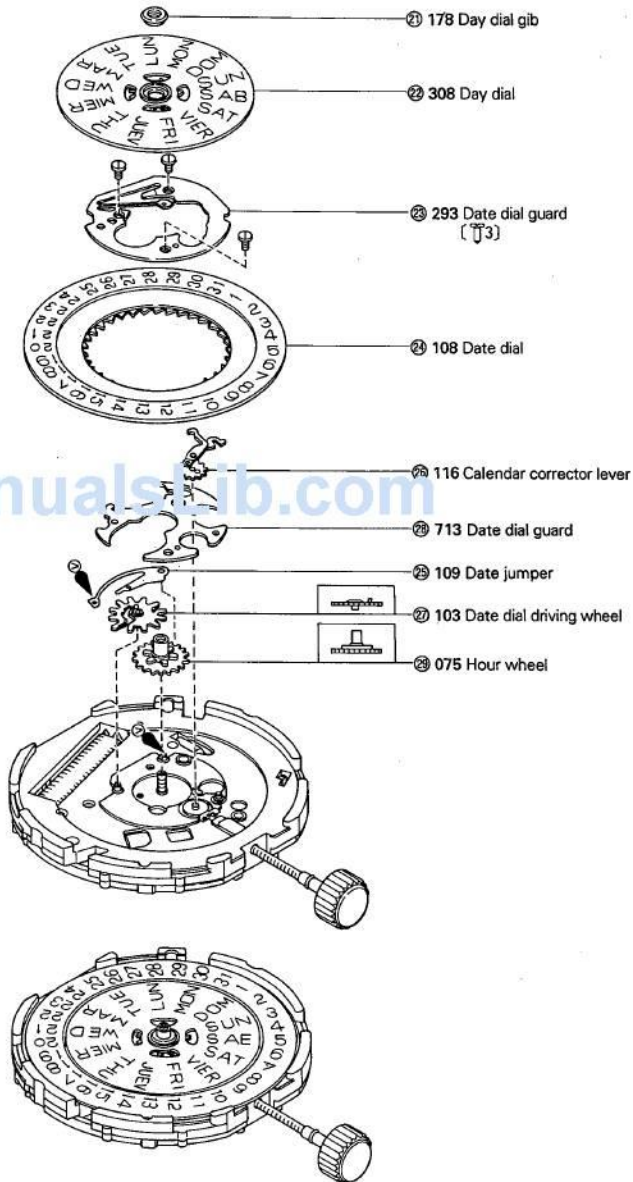
Note that Cal 5503 needs to be repaired by Citizen Service Center to keep its water resistance under high pressure since it is used by a professional diver.

Repair of water resistant watches used under high pressure

		200-m water resistance		300-m water resistance and higher
		CO ₂ *Depth meter	Others	Professional diver
Repair of module (Repair of module of module including time adjustment and overhaul)		Repair by Citizen service center	General repair	Repair by Citizen service center
Outside parts repair	Repair of parts which have effects on water resistance (Repair or replacement of glass, crown, push buttons, packing, hands, dial, etc.)	Repair by Citizen service center	General repair	Repair by Citizen service center
	Repair of parts which do not have effects on water resistance (Repair or replacement of band, registering, etc.)	General repair	General repair	Repair by Citizen service center
Replacement of power cell		Repair by Citizen service center	General repair	Repair by Citizen service center

* The case back of each watch for professional divers has the following design.





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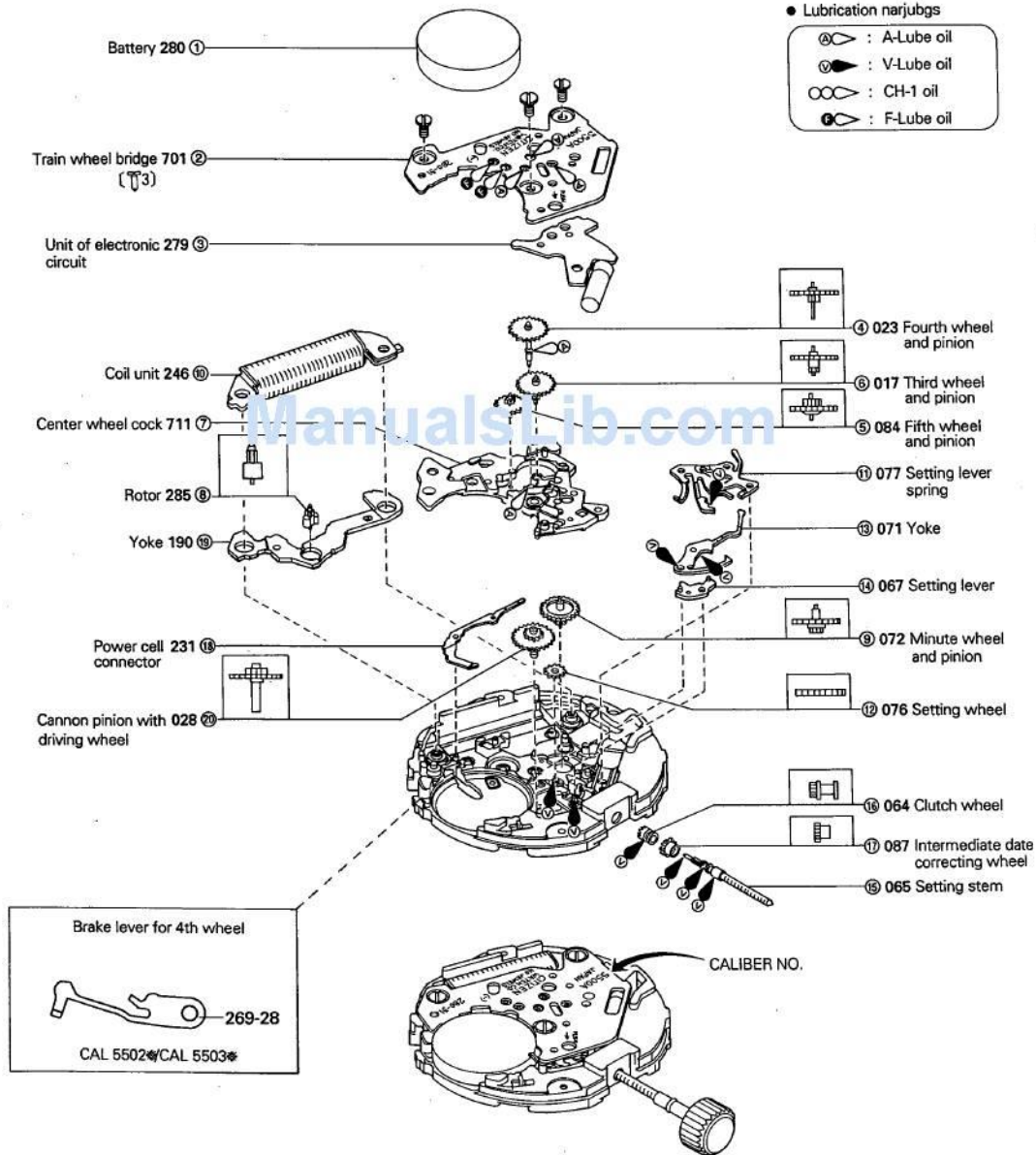
55 DISASSEMBLY AND ASSEMBLY OF MODULE

- Since the modules of CAL 5503* must be repaired by the service center, the disassembly and assembly method of them are not shown here.

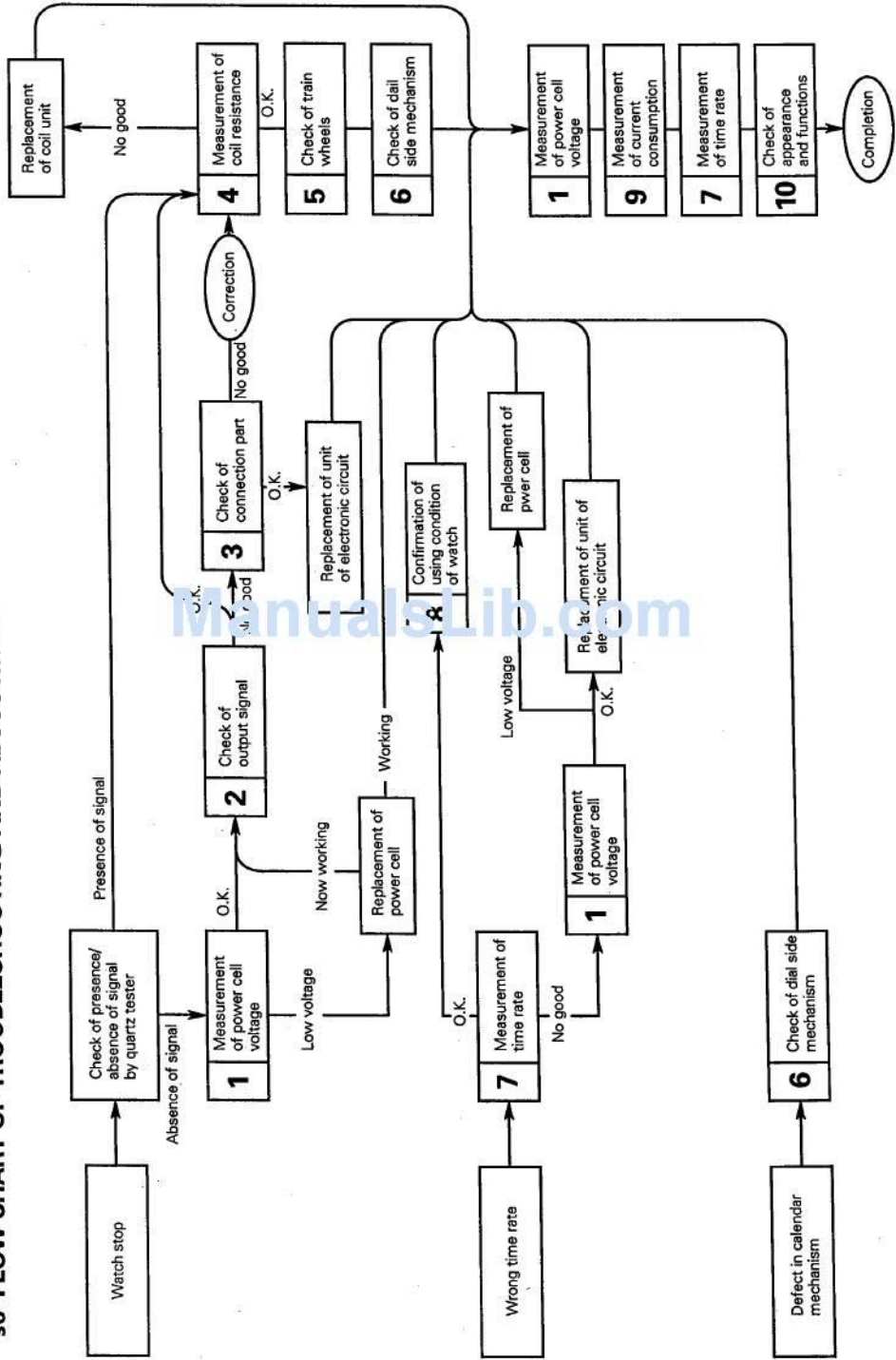
Disassemble procedure ① → ⑳
 Assemble procedure ㉓ → ①

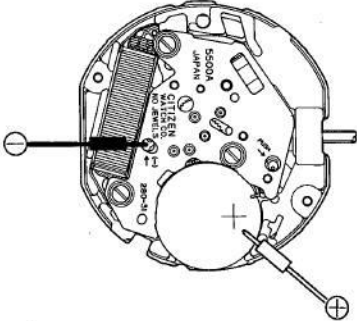
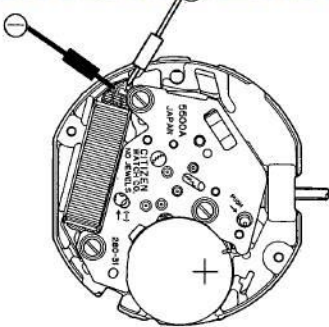
● Lubrication narjugs

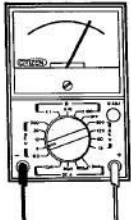
- ⊗ : A-Lube oil
- ⊙ : V-Lube oil
- : CH-1 oil
- ⊕ : F-Lube oil

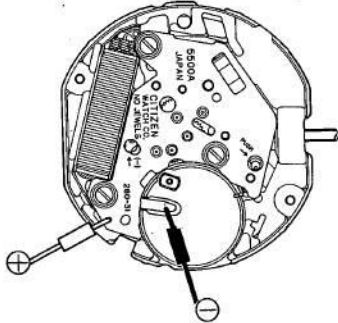


\$6 FLOW CHART OF TROUBLESHOOTING AND ADJUSTMENT



Check points	How to check	Results and treatment
<p>① Measurement of power cell voltage</p>	<p>[Refer to Technical Manual, Basic Course II-1-a for the setting procedure of the tester.]</p> <p style="text-align: right;"><Tester range: DC 3V></p> 	<p>Over 1.5 V → Normal</p> <p>Under 1.5 V → Replace the power cell</p>
<p>② Check output signals</p>	<p>[Refer to Technical Manual, Basic Course II-1-b for the setting procedure of the tester.]</p> <p style="text-align: right;"><Tester range: DC 0.3V></p>  <p>• Since the hands of this watch move every 1 second, the tester pointer should swing to the right and left every 1 second. (The tester lead pins have no polarity)</p>	<p>The tester pointer swings every 1 second → Normal</p> <p>The tester pointer does not swing → Check the connections parts.</p> <p>The connections are normal → Replace the unit of electronic circuit</p>
<p>③ Check connection part</p>	<p>[Refer to Technical Manual, Basic Course II-2-a.] Check for looseness of screws, dust, dirt, etc.</p> <p>a) If the fixing screw of the unit of electronic circuit is loosened, the drive signals may not be transferred.</p> <p>b) If dust or dirt stick to the pattern of the coil of electronic circuit unit, the current may not flow sufficiently.</p>	

Check points	How to check	Results and treatment
<p>④ Measurement of coil resistance</p>	<p>[Refer to Technical Manual, Basic Course II-1-c for the setting procedure of the tester.]</p> <ul style="list-style-type: none"> Remove the unit of electronic circuit when measuring the coil resistance. Remove the power cell, power cell strap and unit of electronic circuit in order, then measure the resistance of the coil unit. <p style="text-align: center;"><Tester range: R x 10Ω></p>  <p style="text-align: center;">(The tester lead pins have no polarity.)</p>	<p>2.2 kΩ ~ 2.8 kΩ → Normal</p> <p>Outside range of 2.2 kΩ ~ 2.8 kΩ → Replace coil unit</p>
<p>⑤ Check train wheels</p>	<p>[Refer to Technical Manual, Basic Course II-2-b.]</p> <ul style="list-style-type: none"> Check the appropriate clearance of each wheel and rotor for dust. <p>The watch is designed to use lubricant of a certain amount. As the lubricant is consumed, thus take care not to supply wrong oil or supply oil too much. Confirm excessive oil is not flowing out.</p>	
<p>⑥ Check dial-side mechanism</p>	<p>[Refer to Technical Manual, Basic Course II-2-c.]</p> <ul style="list-style-type: none"> Confirm that all parts are not deformed and oil is supplied correctly. If the dial washer is deformed or scratched, the watch may move slowly or stop. 	
<p>⑦ Measurement of time rate</p>	<p>[Refer to Technical Manual, Basic Course II-2-d.]</p> <ul style="list-style-type: none"> Since this watch has D.F.C. and does not have adjustment terminals, thus the time rate cannot be adjusted in the customer's place. <p>(Measurement is made in a 10 second-ragne.)</p>	<p>The watch loses or gains substantial time → Replace the unit of electronic circuit</p>
<p>⑧ Confirmation of using condition</p>	<p>[Refer to Technical Manual, Basic Course II-2-e.]</p>	

Check points	How to check	Results and treatment
<p>⑨ Measurement of current consumption</p>	<p>[Refer to Technical Manual, Basic Course II-1-f for the setting procedure of the tester.]</p> <p style="text-align: right;"><Tester range: DC 12μA> Set the battery to the adaptor.</p> <p>Set the battery to the adaptor.</p>  <p>a) This watch is equipped with the load compensation circuit. When the powercell is installed to adjust the drive output of the rotor, this function may work. If this function works, the current consumption may temporarily rise a little. In this case, make the measurement after pointer has returned to the normal level.</p> <p>b) When measuring the current consumption of the separate unit of electronic circuit, confirm the stamps of ⊕ and ⊖ on the circuit pattern, then measure the current similarly to the current consumption of the module.</p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-top: 20px;"> <p>Influence of light; Avoid measuring current consumption under an incandescent lamp or the direct rays of the sun, because it may cause the current value to increase.</p> </div>	<ul style="list-style-type: none"> • Current consumption of the module Under 0.9 μA → Normal Over 0.9 μA → Measure the unit of electronic circuit separately • Measurement of the separate unit of electronic circuit Under 0.3 μA → Normal Over 0.3 μA → Replace unit of electronic circuit <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-top: 20px;"> <p>When the current value of the module shows a high value, but that of the separate unit of electronic circuit is normal. There may be a problem somewhere outside the circuit. Therefore, inspect the watch for stains, lubrication conditions and deformed parts, and remove the cause of the high load.</p> </div>
<p>⑩ Check appearance conditions and functions</p>	<p>[Refer to Technical Manual, Basic Course II-2-f.]</p>	

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