TECHNICAL GUIDE
AND
PARTS LIST

CAL. Y56 SERIES

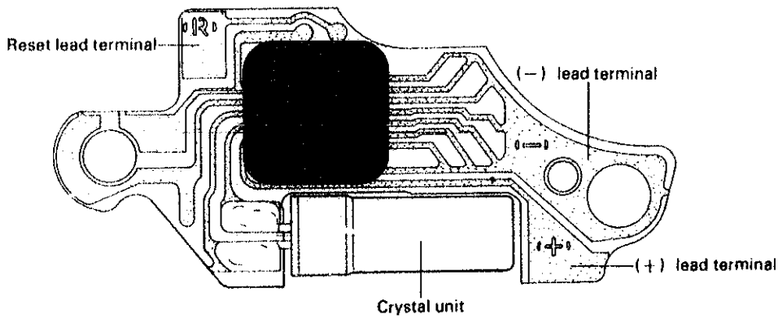
ANALOGUE QUARTZ

CONTENTS

I. SPECIFICATIONS

Item		Cal No.	Y561	Y562	Y563	Y572	Y573
Time indication	3-hand		○	○	○	○	○
	Date		—	○	—	○	—
	Day and Date		—	—	○	—	○
Additional mechanism	Second setting device (stops at every second)		○	○	○	○	○
	Electronic circuit reset switch		○	○	○	○	○
Loss/gain			Loss/gain at normal temperature range Monthly rate: less than 20 seconds				
Maximum diameter			$\phi 24.6 \times 21^{(3\text{-}9H)} \times 23^{(6\text{-}12H)}$ mm			$\phi 26.0$ mm	
Casing diameter			$\phi 24.0$ mm				
Height including battery			3.9 mm	4.2 mm			
Regulation system			None				
Quartz tester measuring gate			Use for 10-second gates				
Battery			U.C.C. 394, Maxell SR936SW Battery life: approx. 3 years Voltage: 1.55V				
Jewels			2 jewels				

II. CIRCUIT SCHEMATIC



III. LIST OF SCREWS USED

Type	Part No.	Part Name	Type	Part No.	Part Name
	022 283	Train wheel bridge screw Rotor stator screw		022 412	Date dial guard screw

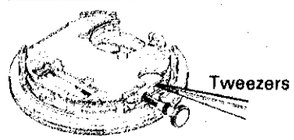
IV. DISASSEMBLING, REASSEMBLING AND LUBRICATION

- **Disassembling and reassembling**
  Disassembling procedures Figs.: ① → ㉟
  Reassembling procedures Figs.: ㉟ → ①
- **Lubrication**
  ●► Moebius A

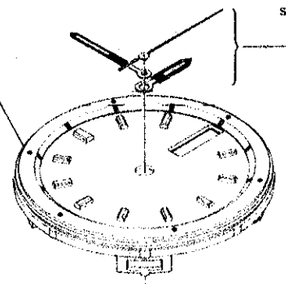
NOTE: Cal. 57 series has a different shape mainplate (round) and train wheel bridge.
Cal. 57 series also uses a dial with dial feet without dial ring. It is removed by lifting or prying up with a screwdriver blade. There are no dial screws to loosen.

② Dial

Notes on disassembly



- Insert tweezers at the 3 o'clock position and lift the dial to remove the module.
- As the dial is bonded to the dial ring, do not separate them.

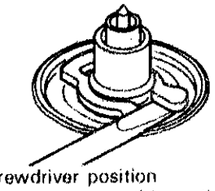


① Hour, minute and second hands

③ Snap for day star with dial disk

Notes on disassembly

Insert the tip of a screwdriver as illustrated below and pry it up to remove the snap for day star with dial disk. Be careful not to bend the day star with dial disk and day star wheel, and not to scratch the hour wheel.



④ Day dial

⑤ Date dial guard screw

⑥ Date dial guard

⑦ Date dial

⑧ Date driving wheel

⑨ Hour wheel

⑩ Day corrector

⑪ Setting stem

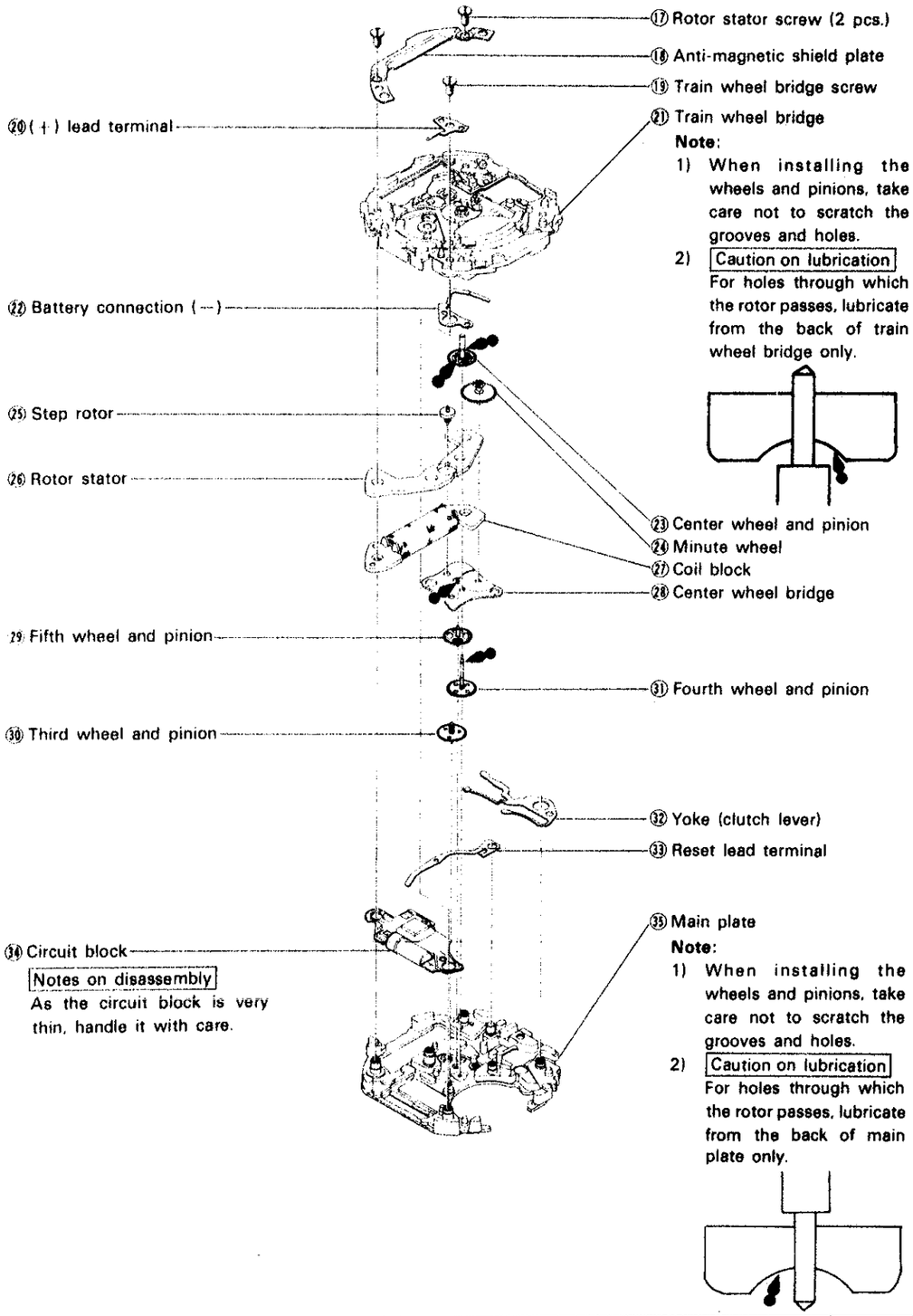
⑫ Train wheel bridge screw

⑬ Setting lever axle spring

⑭ Clutch wheel

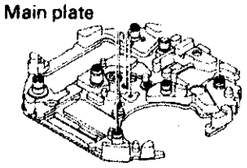
⑮ Setting lever

⑯ Setting lever axle



V. CLEANING

1. How to clean

Part name	Cleaning	Drying	Solution	Remarks
Main plate  Step rotor  Plastic parts Train wheel bridge	Rinse or scrub with a soft brush	Warm air drying	Benzine, Diaflon S-3 or alcohol	• Be careful not to deform or remove the parts fixed to the main plate. • Use a clean solution as the step rotor is magnetized and may attract foreign metal particles. Any foreign matter which cannot be removed by cleaning should be removed with rodico. • When cleaning with benzine, the cleaning time should be minimized.
Other parts (excluding parts that must not be cleaned.)	Clean with a cleaner, rinse or gently scrub with a soft brush.	Warm or hot air drying	Benzine, Diaflon S-3, alcohol or Trichloroethylene	

2. Parts that must not be cleaned


Circuit block


Coil block


Battery

- Be sure to clean only stains on the conductive portions (circuit block, etc.) with a cloth moistened with benzine, Diaflon S-3 or alcohol and dry them with warm air.

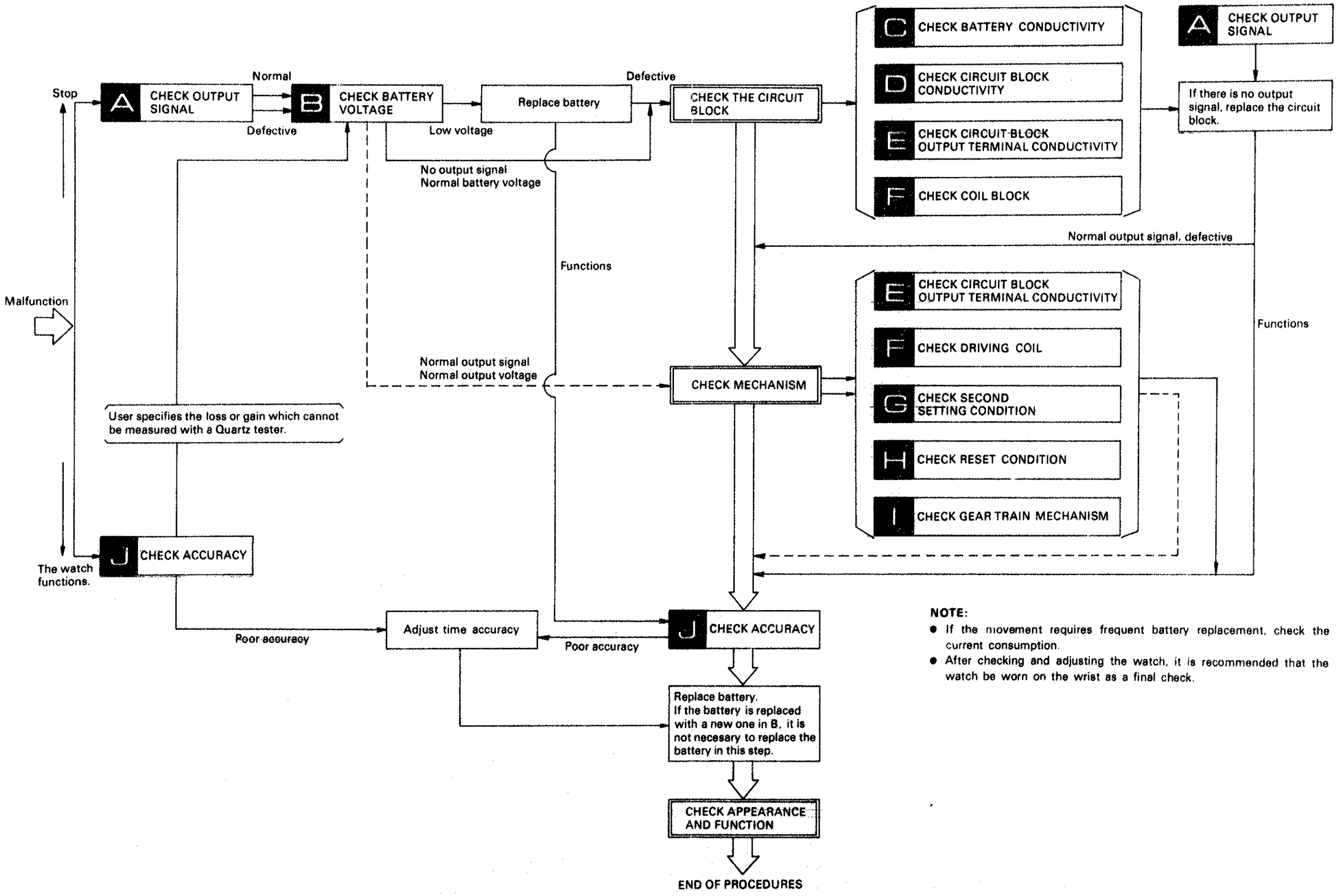
3. Cleaning condition

Be sure to clean the parts in a room that is well ventilated. Do not leave the container of the cleaning solution uncapped for hours in a poorly ventilated room. The vapor of the cleaning solution is slightly toxic. Prolonged breathing of the vapor may induce drowsiness, provoke nausea or make you feel dizzy.

VI. CHECKING AND ADJUSTMENT

Be sure to use the static electricity protector when handling the module.

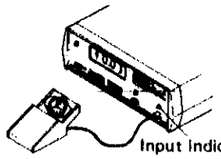
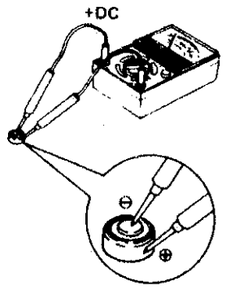
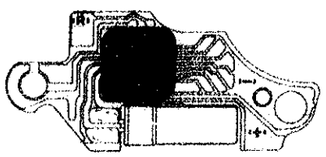
1. Guide table for checking and adjustment of analogue quartz watches.

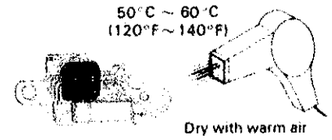
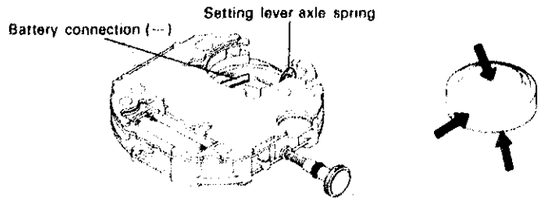
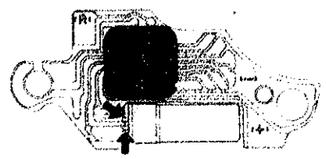


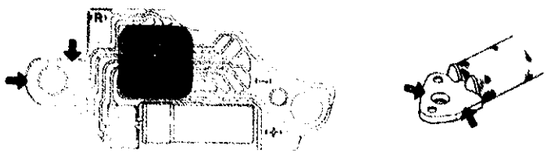
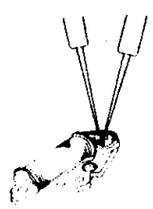
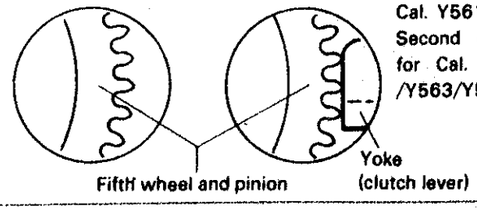
NOTE:

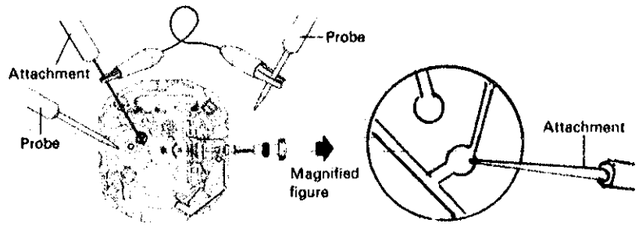
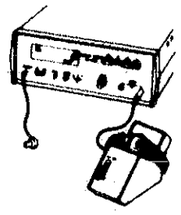
- If the movement requires frequent battery replacement, check the current consumption.
- After checking and adjusting the watch, it is recommended that the watch be worn on the wrist as a final check.

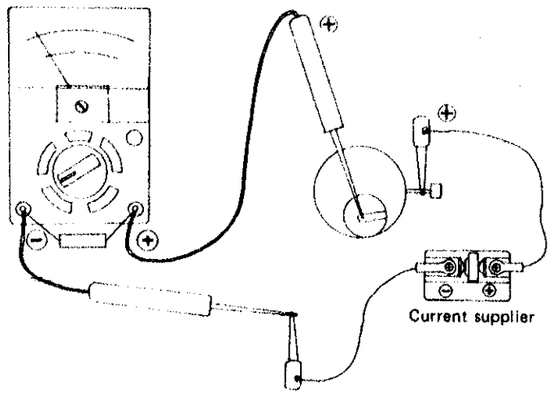
2. Procedures for checking and adjustment

	Procedure	Adjustment and repair
A CHECK OUTPUT SIGNAL	• Check for output signal of the watch by checking to see if the input indicator blinks. • This will determine whether the trouble is mechanical or electrical. (1) Set up the quartz tester. (2) Check for blinking input indicator.  Input indicator **Note:** Check the output signal with the crown in the normal position.	One-second blinking: Normal Proceed to **B** No one-second blinking: Defective Proceed to **B**
B CHECK BATTERY VOLTAGE	Check battery voltage. (1) Set up the volt-ohm-meter. Range to be used: DC3V (2) Measuring Red probe (+) ..... Battery surface (+) Black probe (−) .... Battery surface (−)  +DC **Note:** When handling the battery, use plastic or bamboo tweezers or fingercots. If battery electrolyte leakage occurs, clean the watch as described below.	More than 1.5V: Normal • Proceed to "CHECK MECHANISM" if the input indicator blinks correctly. • Proceed to "CHECK CIRCUIT BLOCK" if defects were found in A. Less than 1.5V: Defective • If the watch operates after battery replacement, proceed to **K**. • If the watch does not operate after battery replacement, proceed to "CHECK CIRCUIT BLOCK".
HOW TO REPAIR THE MOVEMENT WHEN BATTERY ELECTROLYTE LEAKAGE OCCURS	Procedure (1) Remove the movement from the case. (2) Disassemble the movement. (3) Wipe off battery electrolyte on the circuit block. 1. Wipe off battery electrolyte on the circuit block with a cloth moistened with distilled water. If distilled water is not available, use tap water. **Note:** Do not use a cloth which gives off lint such as gauze, flannel, etc.  • Be sure to clean the connecting portions such as battery connection (−). • If the circuit block is badly contaminated with battery electrolyte, replace the circuit block with a new one.	

	Procedure	Adjustment and Repair
HOW TO REPAIR THE MOVEMENT WHEN BATTERY ELECTROLYTE LEAKAGE OCCURS	2. Rinse with alcohol. 3. Dry with warm air by using a dryer. (If the cleaned portions remain wet with water, they will corrode with rust.)  50°C ~ 60°C (120°F ~ 140°F) Dry with warm air (4) Clean the other parts. (Battery connection (−), etc.) 1. Wipe off battery electrolyte on the other parts with a soft brush moistened with distilled water. (If distilled water is not available, use tap water.) Replace the parts that are badly contaminated with battery electrolyte. 2. Rinse with alcohol. 3. Dry with warm air by using a dryer. (5) Reassemble the movement. (Replace the battery with a new one.) (6) Check to see if the watch functions and the current consumption is normal.	
C CHECK BATTERY CONDUCTIVITY	Check to see if the battery current flow to the circuit block is normal. (1) Check for any contamination on the battery surface, setting lever axle spring and battery connection (−).  Battery connection (−) Setting lever axle spring (2) Check for any contamination on plus lead terminal and circuit block.	Uncontaminated: Normal Proceed to **C** 2. Contaminated: Defective Wipe off any foreign matter. Uncontaminated: Normal Proceed to **D**. Contaminated: Defective Wipe off any foreign matter.
D CHECK CIRCUIT BLOCK CONDUCTIVITY	Check for short circuit and defective conductivity of the conductive portions of the circuit block. Remove the circuit block and check the conductivity at the points indicated by the arrows with a microscope. 	No defective conductivity: Normal Proceed to **E**. Defective conductivity: Defective Replace the circuit block.

	Procedure	Adjustment and Repair
E CHECK CONDUCTIVITY OF CIRCUIT BLOCK OUTPUT TERMINAL	Check for any contamination on the circuit block output terminal and coil lead terminal. 	Uncontaminated: Normal Proceed to F. Contaminated: Defective Wipe off any foreign matter.
F CHECK COIL BLOCK	Check for broken coil wire and short circuit of the coil block. (1) Set up the volt-ohm-meter. Range to be used: OHMS × 100 Be sure to make a zero-ohm adjustment. (2) Checking ● Apply the red and black probes of the volt-ohm-meter to the two lead terminals of the coil block.  ● Either red or black probes will do. **Note:** ● Apply the probe of the volt-ohm-meter to the pattern of the coil lead terminal. If the probe of the volt-ohm-meter is applied to the end of the coil wire for the coil lead terminal, it may cut the coil wire. ● Be sure to check with the volt-ohm-meter set up close to the movement. If the volt-ohm-meter is set up far from the movement, you may cut the coil wire by poor handling of the probe.	Within the specified value (2～3kΩ): Normal To check the circuit block, proceed to A. To check the mechanism, proceed to H. Less than the specified value: Defective Broken coil wire More than the specified value: Defective Short circuit Replace the coil block.
G CHECK SECOND SETTING CONDITION	Check for normal second setting condition. Check for clearance between the yoke (clutch lever) and fifth wheel and pinion. (1) Check with the crown at the normal position. (2) Check with the crown at the first click position for Cal. Y561 and at the second click position for Cal. Y562/Y572/Y563/Y573. (Check the clearance through the main plate hole with a microscope.) Normal position  First click position for Cal. Y561. Second click position for Cal. Y562/Y572/Y563/Y573 Yoke (clutch lever) Fifth wheel and pinion	Normal clearance: Normal Proceed to b-d. Abnormal clearance: Defective Check and correct the yoke shape if deformed.

	Procedure	Adjustment and Repair
H CHECK RESET CONDITION	(1) Check to see if the second hand stops immediately after the crown is pulled out and if it starts promptly after one second when the crown is pushed in to the normal position. (2)-1. Check the conductivity between the reset terminal and main plate with a volt-ohm-meter with the crown pulled out.  (2)-2. Check for any contamination on the reset terminal and reset lead terminal with a microscope.	Stops completely and starts after one second: Normal Proceed to I. Does not stop or moves irregularly: Defective Proceed to H-2-1. Less than the specified value (10Ω): Normal If the reset condition is still defective, replace the circuit block. More than the specified value: Defective Proceed to H-2-2. Uncontaminated: Normal Replace the circuit block. Contaminated: Defective Wipe off any foreign matter.
I CHECK GEAR TRAIN MECHANISM	(1) Check for dust, lint or chips. (2) Check the lubrication. (3) Check the play of wheels and pinions. (4) Check for cracks and scratches. (5) Check train wheel bridge and calendar mechanism function.	Functions correctly: Normal Replace the circuit block. Contaminated or does not function correctly: Defective Clean or correct.
J CHECK ACCURACY	Check gain and loss of time by using the quartz tester. 	Neither gain nor loss: Normal Gains or losses: Defective Replace the circuit block.
CHECK CURRENT CONSUMPTION	● If frequent battery change is required, a current consumption test is recommended. ● Measure the current consumption with the volt-ohm-meter or the micro tester. **Volt-ohm-meter** 1. Range to be used: DC12μA (volt-ohm-meter S-831) DC0.03mA (volt-ohm-meter AF-105) 2. Set up the condenser kit of 200～500μF. 3. Place the battery on the movement with its plus side down. 4. Apply the probes of the volt-ohm-meter to the battery and the battery connection (−). ● Red probe (+) ..... Battery connection (−) ● Black probe (−) ..... Battery surface (−)	

	Procedure	Adjustment and Repair
CHECK CURRENT CONSUMPTION	5. Read the value.  **Note:** If the pointer of the Volt-ohm-meter swings over the maximum value when DC12μA is used, change the range to a greater one where the pointer does not run over the maximum value while applying the probes to the respective portions. Then, after two or three seconds, return the range to DC12μA again for measuring. The above procedures must be followed since a large amount of current may flow to some part of the circuit after the power is turned on and before the crystal oscillator starts oscillating. If the pointer of the volt-ohm-meter still swings over the maximum value after following the above procedures, there may be a short circuit. Check once again.	Less than the specified value (2.5μA): Normal More than the specified value (2.5μA): Defective

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

VII. PARTS LIST for Cal. Y561A,Y562A,Y563A

PART NAME	Cal. Y563A PART NO.	Cal. Y562A PART NO.	Cal. Y561A PART NO.
Center wheel bridge	122 576	122 576	122 576
Train wheel bridge	125 576	125 576	125 576
Center wheel and pinion (4.38 mm)	221 577	221 577	221 578
Third wheel and pinion	231 576	231 576	231 576
Fourth wheel and pinion (5.86 mm)	241 577	241 577	241 578
Minute wheel	261 576	261 576	261 576
Hour wheel (2.46 mm)	271 577	271 577	271 578
Clutch wheel	282 577	282 577	282 579
Setting stem	354 576	354 576	354 576
Setting lever	383 576	383 576	383 576
Yoke (Clutch lever)	384 576	384 576	384 578
Setting lever axle spring	389 576	389 576	389 576
Setting lever axle	390 576	390 576	390 576
Day star with dial disk	☆ 470 ···	—	*491 610
Fifth wheel and pinion	701 576	701 576	701 576
Day corrector	719 576	—	—
Date dial	☆ 801 ···	☆ 801 ···	—
Date driving wheel	802 576	802 576	—
Date dial guard	808 576	808 576	—
Snap for day star with dial disk	963 576	—	—
Circuit block with quartz oscillator	4001 626	4001 626	4001 626
Coil block	4002 576	4002 576	4002 576
Step rotor	4146 576	4146 576	4146 576
Rotor stator	4239 576	4239 576	4239 576
Reset lead terminal	4246 576	4246 576	4246 576
(+) lead terminal	4246 577	4246 577	4246 577
Anti-Magnetic shield plate	4259 576	4259 576	4259 576
Battery connection (—)	4270 576	4270 576	4270 576
Train wheel bridge screw	022 283	022 283	022 283
Rotor stator screw	022 283	022 283	022 283
Date dial guard screw	022 412	022 412	—
Upper hole jewel for step rotor	011 332	011 332	011 332
Lower hole jewel for step rotor	011 405	011 405	011 405
Tube for train wheel bridge A	☆ 027 076	☆ 027 076	☆ 027 076
Tube for train wheel bridge B	☆ 027 077	☆ 027 077	☆ 027 077
Pin for rotor stator screw	027 078	027 078	027 078
Tube for train wheel bridge C	☆ 027 080	☆ 027 080	☆ 027 080
Silver oxide battery	UCC394 Maxell SR936SW	UCC394 Maxell SR936SW	UCC394 Maxell SR936SW

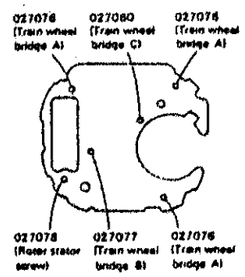
*Dial washer

Remarks:

Center wheel and pinion, Fourth wheel and pinion, and Hour wheel.

Center wheel and pinion	Fourth wheel and pinion	Hour wheel
		
☆ 221 577	☆ 241 577	☆ 271 577

Position of tube and pin



Date dial

☆ 801 571 (Black figures on white background)
☆ 801 572 (White figures on black background)

Used for both the crown and calendar frame at 3 o'clock position.

If any other type of date dial is required, specify 1) Cal no. 2) The crown position 3) The calendar frame position 4) Jewels and 5) Dial No.

Day star with dial disk

	Black figures on white background	White figures on black background
☆ English - Spanish	470 555	470 591
☆ English - French	470 556	470 592
☆ English - Japanese	470 557	470 593
☆ English - Roman figures	470 558	470 594
☆ English - German	470 559	470 595

Used for both the crown and calendar frame at 3 o'clock position. If any other type of day star with dial disk is required, specify the number printed on the disk.

☆ ○ Please see remarks.