CHAPTER 3
REASSEMBLING~CASING

I. REASSEMBLING, LUBRICATING, AND CIRCUIT RESETTING

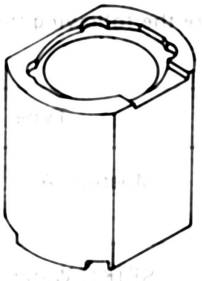
① USING A MOVEMENT HOLDER

The movement holder is required for the following reasons:

(1) Preventing thin movements from being deformed

(2) Keeping watch parts from bumping

(3) Holding a movement to tighten screws or to adjust screw tightening



Be sure to use a movement holder as specified for each caliber. When using the universal movement holder, be careful not to clamp the watch main plate excessively. Special care should be taken with plastic main plates, since they are easily deformed.

② PREVENTING DUST AND LINT ACCUMULATION

Dust and lint in the air or on a workbench may have crept into the watch during reassembling processes. It is necessary to check each part for dust or lint at the time of reassembly, and it is also equally important to check, after reassembly, that there has been no entry of dust or lint into the watch during the work.

If dust gets mixed into oil after lubricating, wash the relevant part(s) to remove dust. Dust in oil may cause the oil to flow out or clog, which will in turn lead to stoppage or time loss of analogue quartz watches.

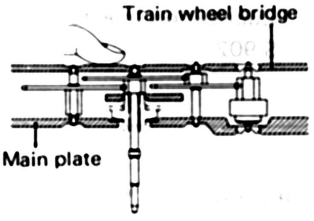
③ PREVENTION OF SLUDGE

There are two main sludge sources. One is from the scraping of the case back when it is opened or closed. The other is from the metal shreds which may be produced by a screwdriver in a screw groove.
Analogue quartz watches incorporate a step rotor which itself is a strong magnet and easily attracts sludge.
Special care should be taken to prevent the entry of sludge into the watch.

④ POINTS IN REASSEMBLY

(1) Reassembling of the gear train mechanism

The best way to reassemble the gear train mechanism is to set the wheels' axles into the train wheel bridge's holes in the reverse order of power transmission from the step rotor while lightly pressing down the train wheel bridge with finger at the center.

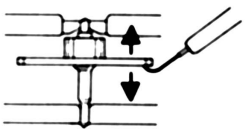


Ex.: Third wheel & pinion → Fourth wheel and pinion
Step rotor ← Fifth wheel and pinion

At this time, be careful not to force the wheels' axles into the train wheel bridge's holes, since this may damage the hole jewels.

(2) Shake check of the wheels

After reassembling the gear train mechanism, be sure to check for shake of the wheels.
Move the wheels up with a fine probe and release them to see if they return down to the original position.



⑤ LUBRICATING

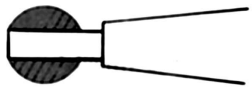
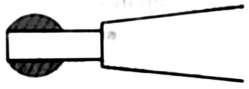
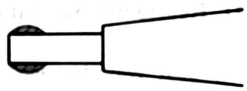
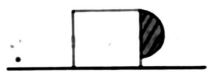
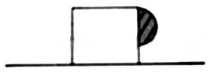
(1) Types of oil

There are the following three main types of oil available for watches.

Type	Use
Moebius A	For parts or places which are susceptible to frictions, such as wheels' axles
SEIKO Watch Oil S-6	For parts or places to which strong pressure is applied, such as setting mechanism
Silicone oil 500,000 c.s.	To maintain lubricity and airtightness of gaskets

The degree of pressure on a watch part differs greatly from caliber to caliber, depending on its design (even if that part performs the same function in each caliber). Consequently, different calibers require different grades of oil. Choose the oil types as specified in the "PARTS CATALOGUE/TECHNICAL GUIDE" by caliber.

(2) Oil quantity

Quantity / Mark / Tool or area	Liberal	Normal	Small
Lubrication Injector S-902			
Pivot portions *			
Axle portions			

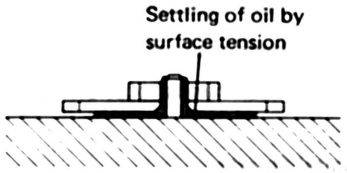
* Some hole jewels are set upside down, but they require the same amount of lubricating oil.

⑥ POINTS IN LUBRICATION

The three primary factors of lubrication are the type of oil, lubricating position, and oil quantity. Of them, lubricating quantity is considered the most important in repairing procedures for the following reasons. First, it is, in practice, difficult to see by visual inspection how much oil has been actually applied. Second, too much or too little oil may cause analogue quartz watches to stop or lose time.

Pay special attention when oiling the following spots.

(1) Minute wheel



Oil, if applied in an excessive quantity, will flow out into the clearance between the minute wheel and the main plate, and will stick there by its surface tension. This may prevent the minute wheel from rotating smoothly and eventually cause the watch to stop or lose time at a low temperature.
Apply oil in the exactly specified or slightly smaller quantity.

(2) Step rotor

The step rotor is more sensitive to oil effect than any other wheel. Too much or too little oil may cause stoppage or time loss. Use a microscope for careful lubrication.

⑦ RESETTING THE CIRCUIT

Digital quartz watches may show an abnormal display after a battery is installed.
Even if an abnormal display is not recognized, there are some calibers that need to have the circuit reset. Be sure to check if they require circuit resetting after battery change.
There are also some analogue quartz watches that need to have the circuit reset.

Ex.: 8A20, 8A21, V600, V601, V602

For information on which calibers apply and how to reset the circuit, refer to the "Watch Service Bulletin No. 10" or "PARTS CATALOGUE/TECHNICAL GUIDE" by caliber.

After the reassembling, lubricating, and circuit resetting procedure is finished, proceed to page 82 ("CHECKING AND ADJUSTMENT").

II. CHECKING AND ADJUSTMENT

① FUNCTION CHECK

Check that all functions work normally before installing the movement/module to the case.

- **Analogue Quartz**

  (1) Check hands movement
  (2) Check calendar date and day shift and adjustment
  (3) Check train wheel setting condition
  (4) Check hands rotation by crown

- **Digital Quartz**

  (1) Check display condition
  (2) Visual check of liquid crystal panel
  (3) Check illuminating light condition
  (4) Check display changeover and adjustment

If any irregularities are found, go back to the checking and repair procedures relevant to them and adjust or repair them again.

② CURRENT CONSUMPTION MEASUREMENT

Check that current consumption is less than the specified value.

If the current consumption exceeds the specified value:

Analogue Quartz . . . . . Go back to page 31 3-a for repair.

Digital Quartz . . . . . Go back to page 41 8-a for repair.

③ ACCURACY MEASUREMENT

If the circuit block was replaced with a new one, this may have caused a change in accuracy. Recheck and adjust accuracy. For information on how to discriminate normal accuracy (timing rate) from abnormal and how to adjust accuracy, refer to page 112 ("DESIRABLE EXTENT OF ACCURACY ADJUSTMENT").

After the checking and adjustment procedure is finished, proceed to page 83 ("CASING").