

Diaflex (Mainspring)

Salient features of Diaflex

- 1) All SEIKO watches contain "unbreakable mainsprings".
- 2) Mainsprings of SEIKO hand-wound watch do not require lubrication; they are processed for self-greasing.

Unbreakable mainspring

This mainspring is made of a special alloy, chiefly of cobalt, nickel and chrome.

The spring is unbreakable, stainless, fatigueless and has a high degree of torque for its thickness.

Self-greasing mainspring for manual winding watch

The self-greasing mainspring has a stable and long-term output without lubrication because the surface of the spring is coated with a special membrane that acts as a lubricant.

The effect of the special membrane never changes even if it is cleaned or lubricated by mistake.

Note: The rubber of the barrel arbor, barrel drum and barrel cover must nevertheless be oiled.

Mainsprings of automatic-winding watches

1) Effect :

In most automatic-winding watches, the oscillating weight rotates continually and may wind the mainspring excessively. The mainsprings of SEIKO automatic winding watches, however, have a friction spring called the "slipping attachment" (1) to prevent breaking the mainspring by over-winding, and (2) to avoid knocking.

Nor is there a groove on the inner wall of the barrel. If the mainspring is wound more than required, the slipping attachment will begin to slip releasing the unnecessary tension.

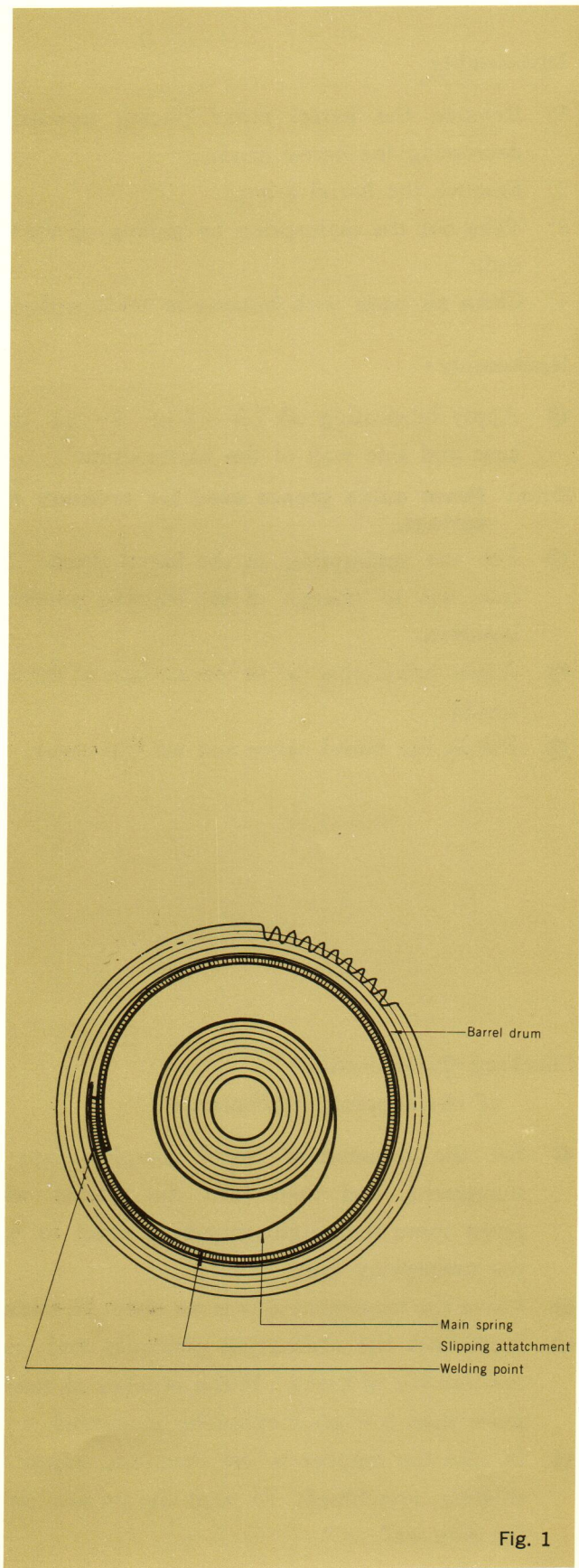


Fig. 1

Disassembly

- 1) Remove the barrel cover (facing upward) by depressing the barrel drum.
- 2) Remove the barrel arbor.
- 3) Take out the mainspring by pulling up the inner end.
- 4) Clean all parts with benzine or trichlorethylene.

Reassembly :

- ① Apply lubricating oil (S-3 or S-2) to the base and side wall of the barrel drum.

Note: Never apply grease used for ordinary mainsprings.

- ② Put the mainspring in the barrel drum. Take care not to change of the slipping attachment insertion.
- ③ Apply lubricating oil to the surface of the mainspring.
- ④ Put in the barrel arbor and set the cover.

Checking the operation

of the slipping attachment :

- ① Set the reassembled barrel complete into the movement, and then turn the ratchet wheel screw more than eight rounds in order to wind the mainspring fully.
- ② Leave the movement as it is for about 10 minutes.
- ③ Turn back the mainspring gradually and count the number of turns. If the number of turns is more than 5.5, good operation is assured.
- ④ In case the number is less than 5.5, adjust the slipping attachment so that it presses firmly the side wall.

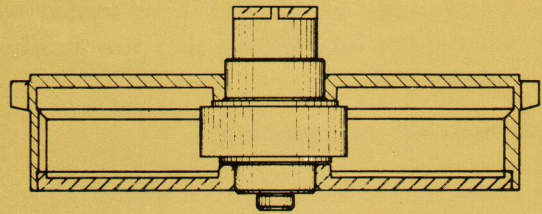


Fig. 2. Ordinary type

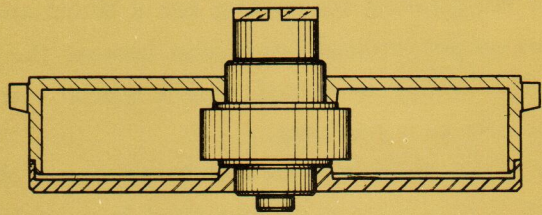


Fig. 3. Special type
(ex. For Seikomatic lady)



Fig. 4. Main spring with slipping attachment

Mainsprings for automatic winding watches

A new selfgreasing automatic winding mainspring is created by SEIKO in addition to the ordinary mainspring. This mainspring does not require cleaning, nor do the regular self-greasing mainsprings of SEIKO automatic winding watches. Generally speaking, the barrel complete which uses this self-greasing automatic winding mainspring should not be opened and cleaned. If the barrel has been disassembled by mistake or by necessity, it is very important that you use a special oil (**SEIKO Special Automatic Winding Mainspring Oil S-3**), and it also requires a different method of lubrication from that for the conventional slipping attachment of automatic winding mainsprings or for hand-winding mainsprings. Please pay particular attention to the following points while oiling.

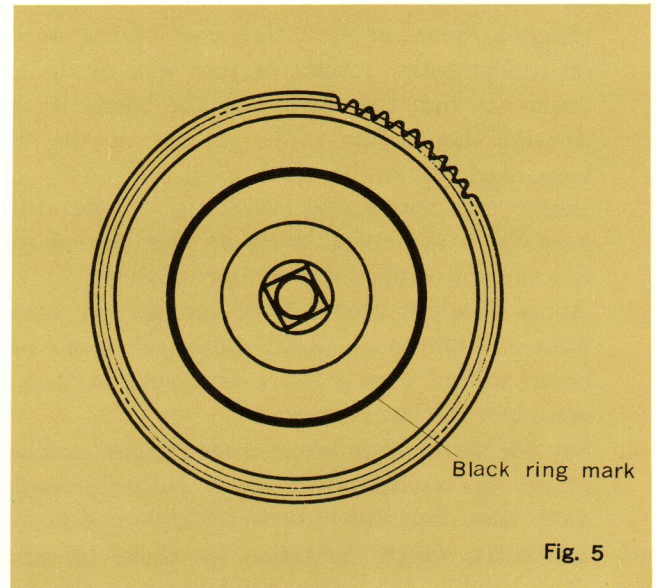


Table 1 Selection of Lubricants for Automatic Winding Mainsprings

SEIKO Special Automatic Winding Mainspring Oil S-3	SEIKO Automatic Winding Mainspring Oil (S-2)
<ul style="list-style-type: none"> • 25-series automatic winding watch, in which the barrel cover bears a black ring mark (2505, 2517, etc.) 	<ul style="list-style-type: none"> • 25-series automatic winding watch, in which the barrel cover bears no black ring mark (2501, 2505)
<ul style="list-style-type: none"> • 22-series automatic winding watch (such as 2205A) • 27-series automatic winding watch (such as 2706A) • 70-series automatic winding watch (such as 7005A) 	<ul style="list-style-type: none"> • 40-series automatic winding watch (such as 4006A) • 56-series automatic winding watch (such as 5606A) • 61-series automatic winding watch (such as 6106A)

In 25-series automatic winding watches, there are two groups, one bearing a black ring mark on the barrel cover (Fig. 5), the other bearing no ring mark on the barrel cover. Never fail to use SEIKO Special Automatic Winding Mainspring Oil S-3 for the former

group of 25-series watches and 22, 27, 70-series automatic winding watches.

In replacing the winding mainsprings in 25-series watches, follow the procedure given in Table 2 below.

Table 2

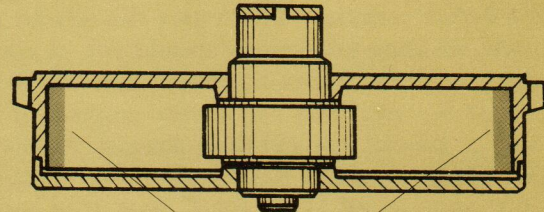
25-series automatic winding barrel drum	Barrel drum bearing a black ring mark	Barrel drum bearing no mark
Mainspring	Self-greasing mainspring	Ordinary automatic mainspring
Oil to be used	SEIKO Special Automatic Winding Mainspring Oil S-3	SEIKO Automatic Winding Mainspring Oil (S-2)

Remarks :

- 1) Do not apply oil to the mainspring itself in the self-greasing mainspring.
- 2) Never insert an ordinary automatic winding mainspring in a 25-series barrel drum bearing a black ring mark.

Oiling:

1. Using a brush, apply a thin coat of the specified oil to the entire surface of side wall of the barrel drum so that the surface of the barrel is visible through the oil film. The surface of the barrel base need not to be oiled. (Fig. 6)
2. Insert the mainspring carefully to its original position in the barrel drum so that the shape of the slipping attachment is not impaired.
3. Apply Moebius grease "Remontoires" or Moebius Synt-A-Lube to the upper and lower pivots of the barrel arbor; then position the arbor in the barrel, and place the barrel cover.
4. Set the barrel drum into the movement, and gently rotate the ratchet wheel screw with a screwdriver more than 8 complete turns (fully wound position).
5. Leave the watch in motion for about 10 minutes, then release the click by depressing the ratchet screw with a screwdriver, and count the number of returning revolutions of the ratchet wheel. If the number of turns is more than 5.5, this barrel is judged as acceptable. If the number is less than 5.5, the barrel is judged as a reject. Remove the barrel and mainspring, and adjust the slipping attachment so that it is brought into forcible contact with the inner wall of the barrel drum.



Lubrication

Fig. 6