

ENGLISH

K-1E
INSTRUCTION MANUAL
(Mechanical)

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Safety Matters for Attention

1. Signs & Definitions of Safety Marks

This User’s Manual and the Safety Marks printed on the products are to enable you to use this product correctly so as to be away from personal injury. The signs and definitions of Marks are shown in below:

| | |
|--|--|
|  Danger Danger | The incorrect operation due to negligence will cause the serious personal injury or even death. |
|  Caution Caution | The incorrect operation due to negligence will cause the personal injury and the damage of mechanism. |
|  | This kind of marks is “Matters for Attention”, and the figure inside the triangle is the content for attention. (Exp. The left figure is “Watch Your Hand!”) |
|  | This kind of mark is “Forbidden”. |
|  | This kind of mark means “Must”. The figure in the circle is the contents that have to be done. (Exp. The left figure is “Ground!”) |

2. Safety Matters for Attention

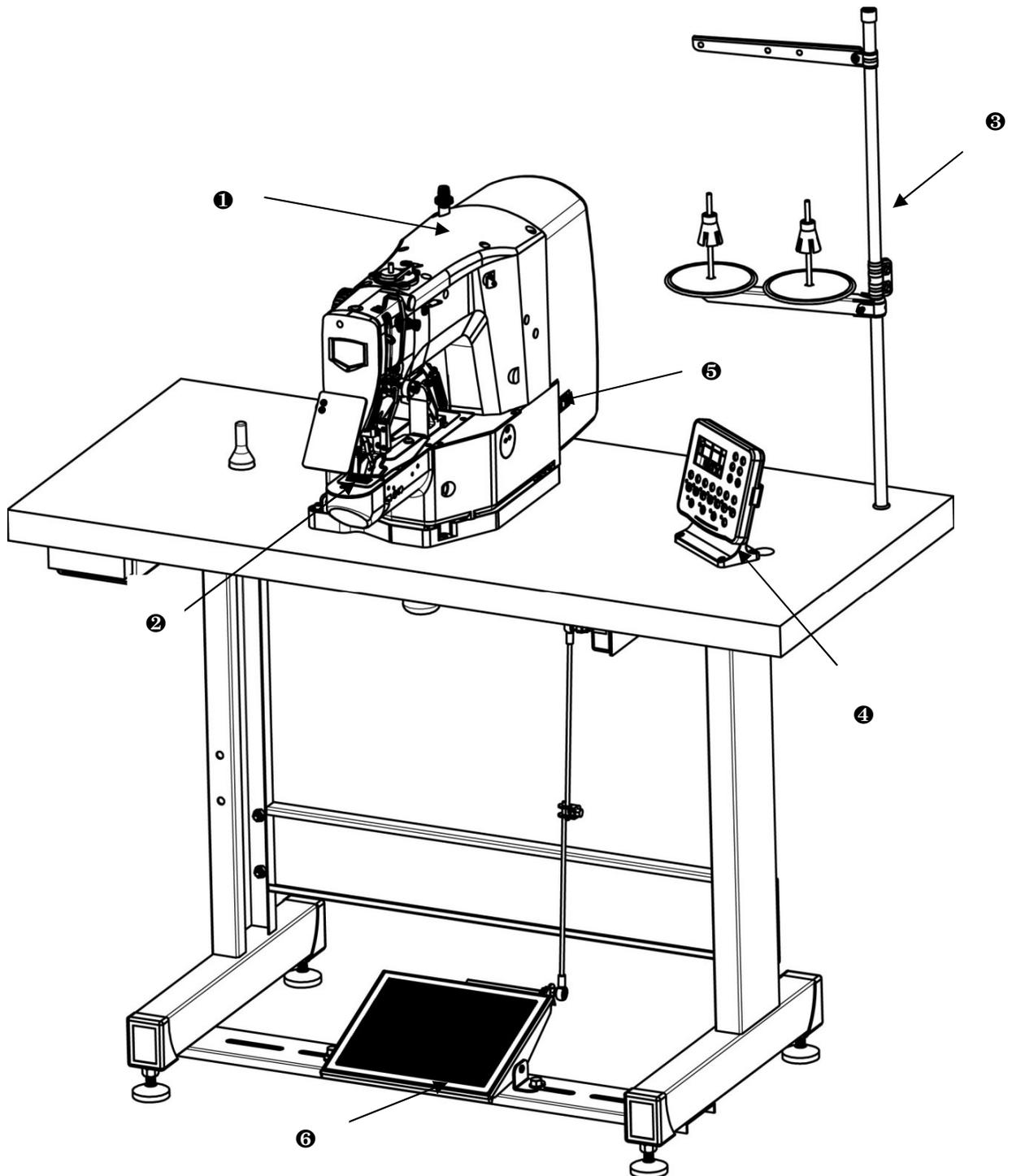
| | |
|---|---|
|  Danger Danger | |
|  | For opening the control box, please turn off the power and take away the plug from socket firstly, and then wait for at least 5 minutes before opening the control box. Touching the part with high voltage will cause the person injury. |
|  Caution Caution | |
| Usage Environment | |
|  | Try not to use this sewing machine near the sources of strong disturbance like high-frequency welding machine. The source of strong disturbance will affect the normal operation of the sewing machine. |
|  | The voltage fluctuation shall be within 10% of the rated voltage. The large fluctuation of voltage will affect the normal operations of sewing machine, Therefore a voltage regulator is needed in that situation. |
|  | Working temperature: 0°C ~ 45°C. The operation of the sewing machine will be affected by environment with temperature beyond the above range. |
|  | Relative Humidity: 35% ~ 85% (No dew inside the machine), or the operation of sewing machine will be affected. |

| | |
|---|---|
|  | The supply of compressed gas shall be over the consumption required by the sewing machine. The insufficient supply of compressed gas will lead to the abnormal action of sewing machine. |
|  | In case of thunder, lightning or storm, please turn off the power and pull plug out the socket. Because these will have influence on the operation of sewing machine. |
| Installation | |
|  | Please ask the trained technicians to install the sewing machine. |
|  | Don't connect machine to power supply until the installation is finished. Otherwise the action of sewing machine may cause personal injury once the start switch is pressed at that situation by mistake. |
|  | When you tilt or erect the head of sewing machine, please use both of your hand in that operation. And never press the sewing machine with strength. If the sewing machine loses its balance, it will fall into floor thus causes the personal injury or mechanical damage. |
|  | Grounding is a must. If the grounding cable is not fixed, it may cause the electric-shock and mis-operation of machine |
|  | The entire cables shall be fixed with a distance at 25mm away from the moving component at least. By the way, don't excessively bend or tightly fixed the cable with nails or clamps, or it may cause the fire or electric shock. |
|  | Please add security cover on the machine head. |

| | |
|---|--|
| Sewing | |
|  | This sewing machine can only be used by the trained staff. |
|  | This sewing machine has no other usages but the sewing. |
|  | When operating the sewing machine, please remember to put on the glasses. Otherwise, the broken needle will cause the personal injury in case the needle is broken. |
|  | At following circumstances, please cut off the power at once so as to avoid the personal injury caused by the mis-operation of start switch: 1. Threading on needles; 2. Replacement of needles; 3. The sewing machine is left unused or beyond supervision |
|  | At working, don't touch or lean anything on the moving components, because both of the above behaviors will cause the personal injury or the damage of the sewing machine. |
|  | During working, if the mis-operation happens or the abnormal noise or smell is found at the sewing machine, user shall cut off the power at once, |

| | |
|---|--|
| | and then contact the trained technicians or the supplier of that machine for solution. |
|  | For any trouble, please contact the trained technicians or the supplier of that machine. |
| Maintenance & Inspection | |
|  | Only can the trained technicians perform the repair, maintenance and inspection of this sewing machine. |
|  | For the repair, maintenance and inspection of the electrical component, please contact the professionals at the manufacturer of control system in time. |
|  | At following circumstances, please cut off the power and pull off the plug at once so as to avoid the personal injury caused by the mis-operation of start switch:. 1.Repair, adjustment and inspection; 2.Replacement of the component like curve needle, knife and so on |
|  | Before the inspection, adjustment or repair of any gas-driven devices, user shall cut off the gas supply till the pressure indicator falls to 0. |
|  | When adjusting the devices needing the power supply and gas supply, users can' t be too careful to follow the entire Safety Matters for Attention. |
|  | If the sewing machine damages due to the unauthorized modification, our company will not be responsible for it. |

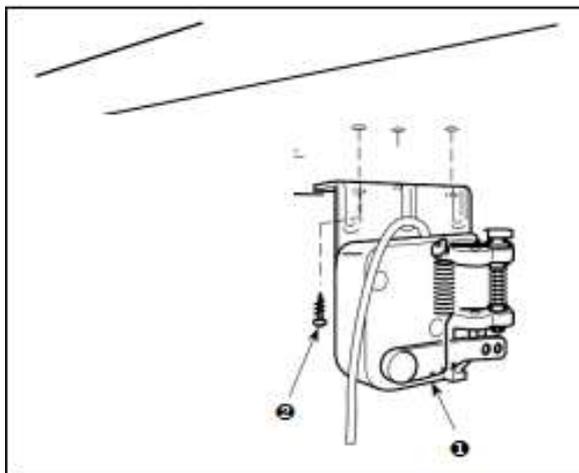
I. INSCAPE



- ❶ Machine head
- ❷ Work clamp fee
- ❸ Thread stand
- ❹ Operation panel
- ❺ Power switch
- ❻ Pedal

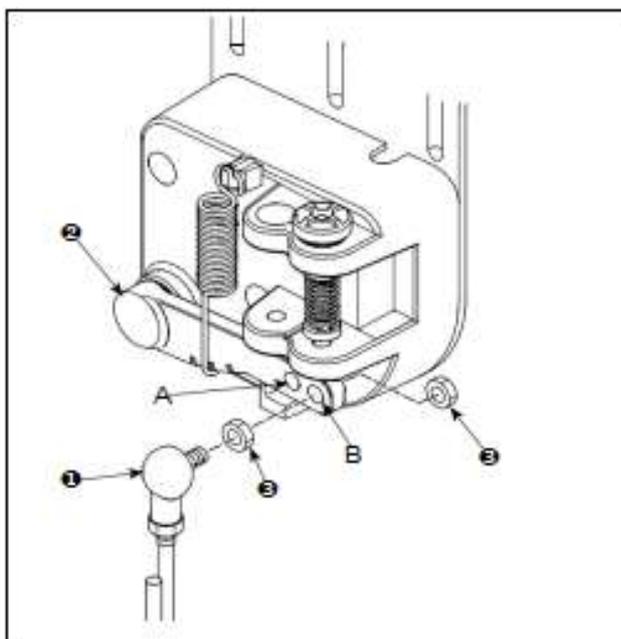
II. INSTALLATION

1. Installing the pedal sensor



Install the pedal sensor **1** to the table with mounting screws **2** supplied with the unit.

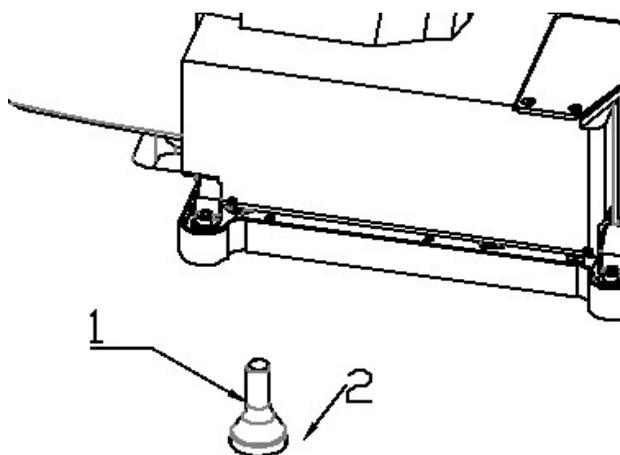
2. Attaching the connecting rod



1) Fix connecting rod **1** to installing hole B of pedal lever **2** with nut **3** .

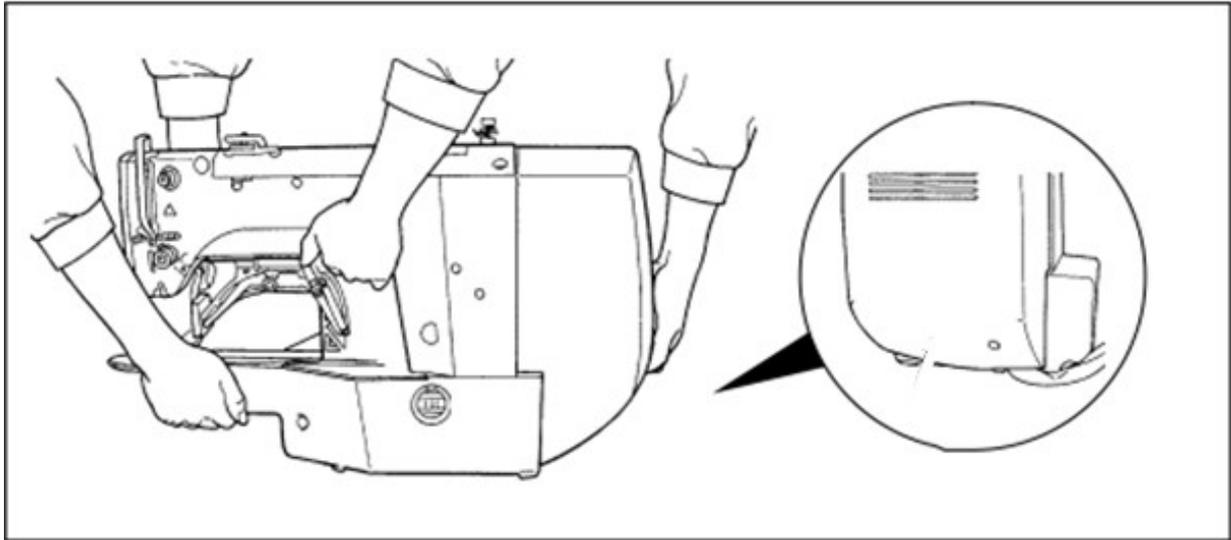
2) The pedal depressing stroke is decreased by fitting connecting rod **1** in mounting hole A.

3. Installing the head support rod



Drive head support rod **1** in hole **2** in the machine table.

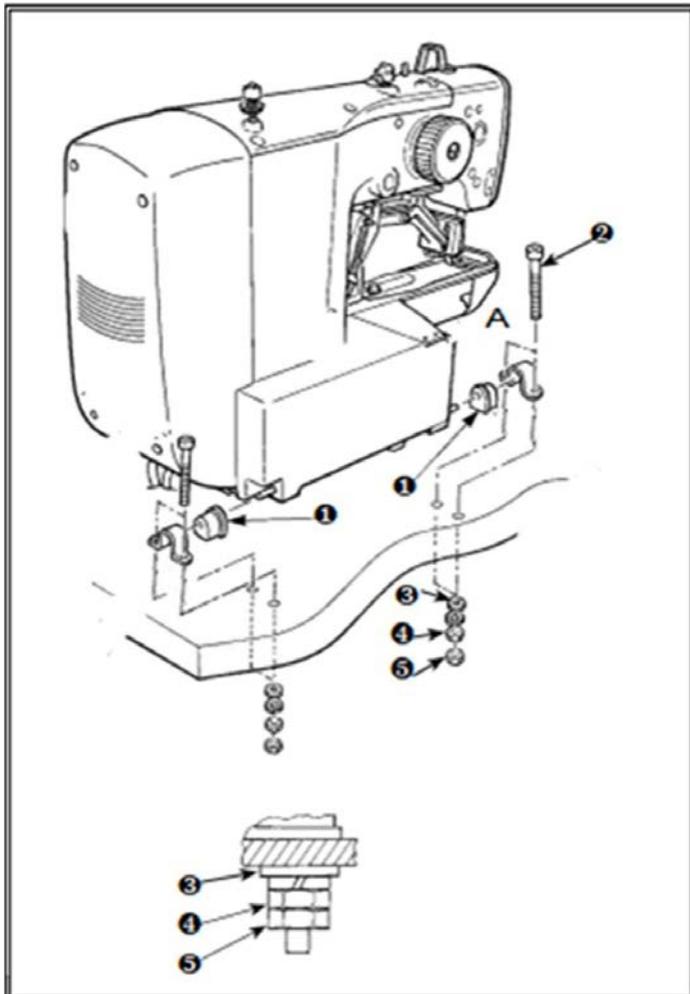
4. How to carry the sewing machine



Please carry the sewing machine as shown in the figure.

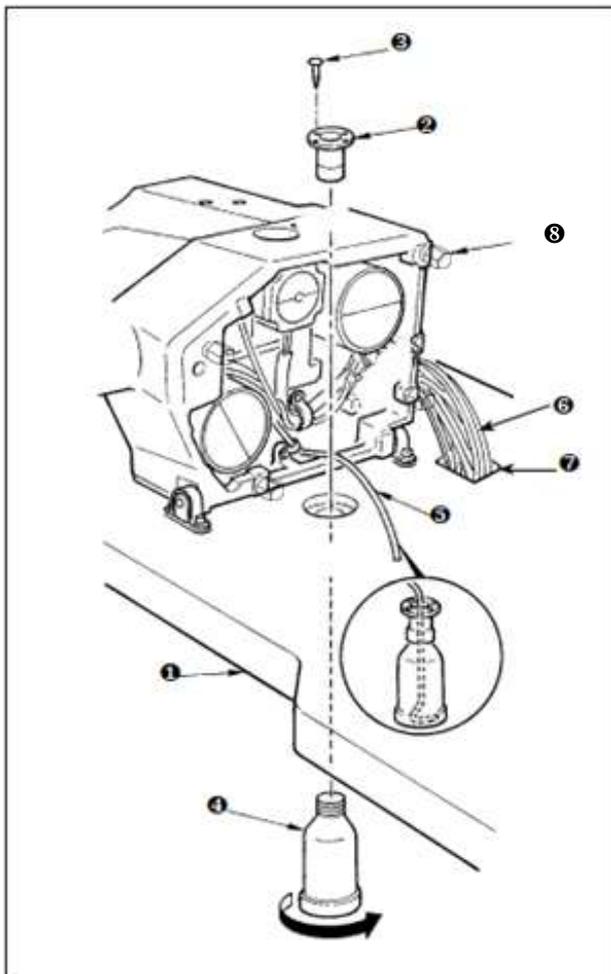
1. Carefully prevent slippage of your hand that holds the cover.
2. The sewing machine weighs over 42 kg. Be sure to carry the sewing machine with two or more people without exceptions.

5. Installation of the sewing machine head



- 1) Fit hinge rubber cushion **1** over the hinge shaft.
- 2) Install the main body of the sewing machine on the table with four bolts **2**, four plain washers **3**, four hexagonal nuts **4** and four hexagonal nuts **5**

6. Installing the drain receiver and the head support rubber



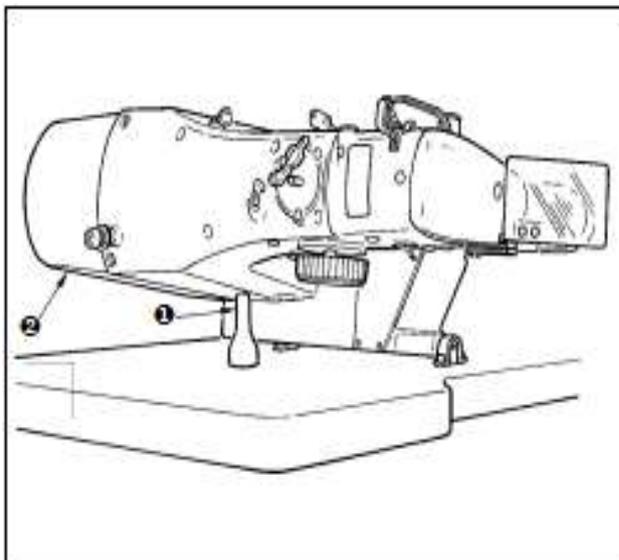
- 1) Fix drain receiver **2** in the installing hole of table **1** with two setscrews **3**.
- 2) Screw poly-oiler **4** in waste oil reservoir **2**.
- 3) Insert sewing-machine waste oil pipe **5** into poly-oiler **4**.
- 4) Insert head support rubber **6** into table **1**.
- 5) Pass bundle **7** of cords through slotted hole **8** in the table

CAUTION !

1. Insert drain pipe **5** until it will go no further so that it does not come off poly-oiler **4** when tilting the machine head.
2. Remove the tape fixing drain pipe **5**
3. When the machine moves out of the oil pan, please put the screws **3** back.

7. Tilting the sewing machine head

Tilt/raise the sewing machine head with both hands taking care not to allow your fingers to be caught in the head. Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

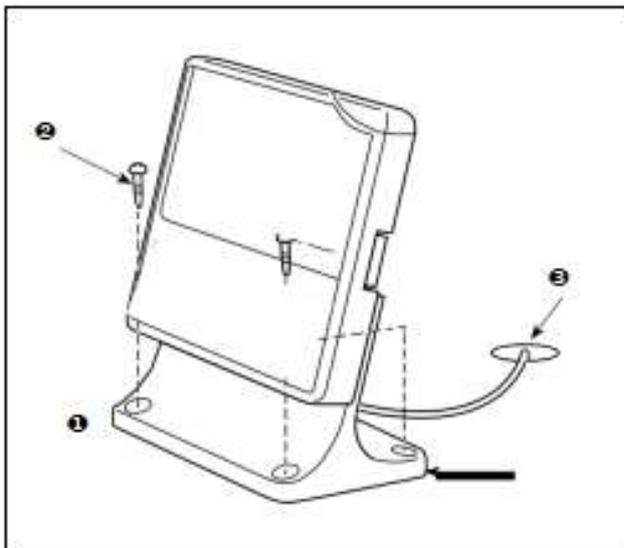


When tilting the sewing machine head, tilt the head gently until it comes in contact with head support rod **1**

CAUTION !

1. Before tilting the sewing machine head, make sure that head support rod **1** is attached to the machine table.
2. When raising the sewing machine head, do not raise it while holding motor cover **2**. It will be the cause of breakage of motor cover **2**.
3. Be sure to tilt the sewing machine head on a flat place to prevent it from falling.

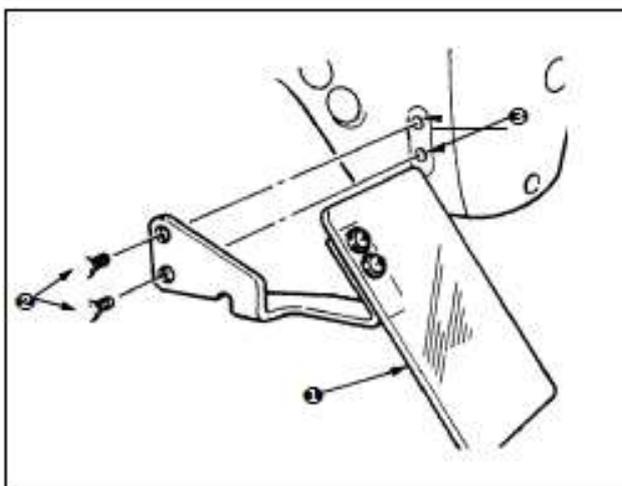
8. Installing the operation panel



Fix operation panel mounting plate **1** on the table with four wood screws **2** . Then, pass the cable through hole **3** in the table.

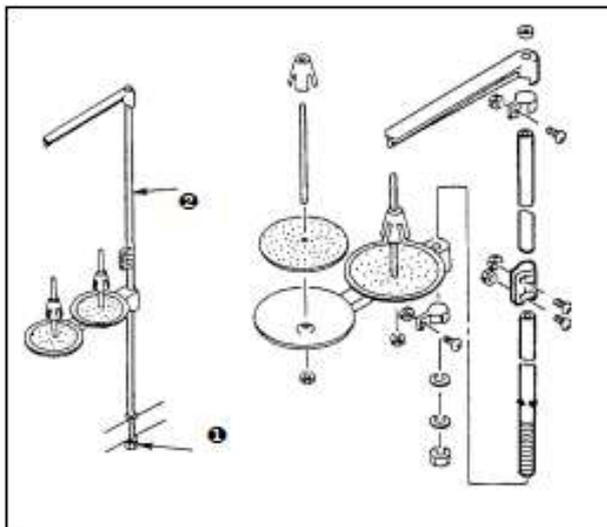
9. Installing the eye protection cover

Be sure to attach this cover to protect the eyes from the disperse of needle breakage



Be sure to use eye protection cover **1** after installing it on installing section **3** with screws **2**

10. Installing the thread stand



1) Assemble the thread stand unit, and insert it in the hole in the machine table.

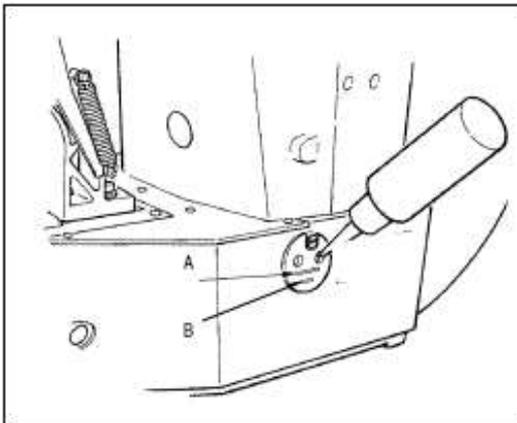
2) Tighten locknut **1** to fix the thread stand.

For ceiling wiring, pass the power cord through spool rest rod **2**

III. OPERATION OF THE SEWING MACHINE

1. Lubrication

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the

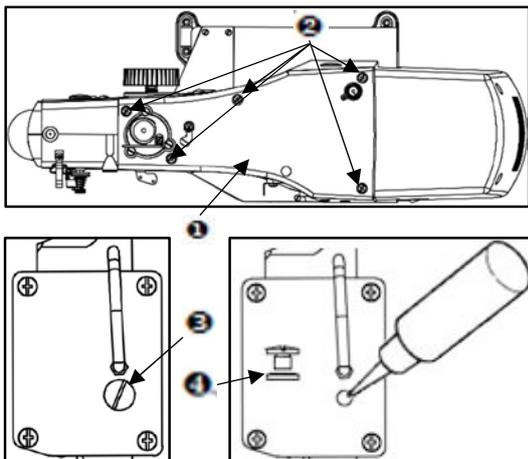


Check that the place between lower line B and up-per line A is filled with oil. Fill there with oil using the oiler supplied with the machine as accessories when oil is short.

* The oil tank which is filled with oil is only for lubricating to the hook portion. It is possible to reduce the oil amount when the number of rotation used is low and the oil amount in the hook portion is excessive.

Caution!

1. Do not lubricate to the places other than the oil tank and the hook of caution 2 below. Trouble of components will be caused.
2. When using the sewing machine for the first time or after an extended period of disuse, use the machine after lubricating a small amount of oil to the hook portion.



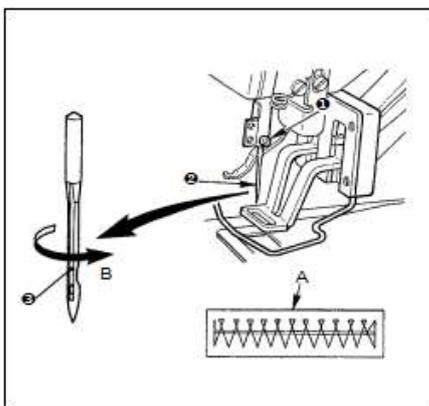
CAUTION:

Please add L-CKC100 gear oil before using the new machine.

Remove 5 screws ② on top cover ① as shown in the figure, and open top cover ① . Then remove the screw ③, note that there is an oil seal ④ under the screw ③, then add gear oil into the hole, please use up the 150ml gear oil in the oil pot. Then, install oil seal ④ on screw ③ and tighten it. Reinstall the top cover ① and tighten the screws ②.

2. Attaching the needle

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the



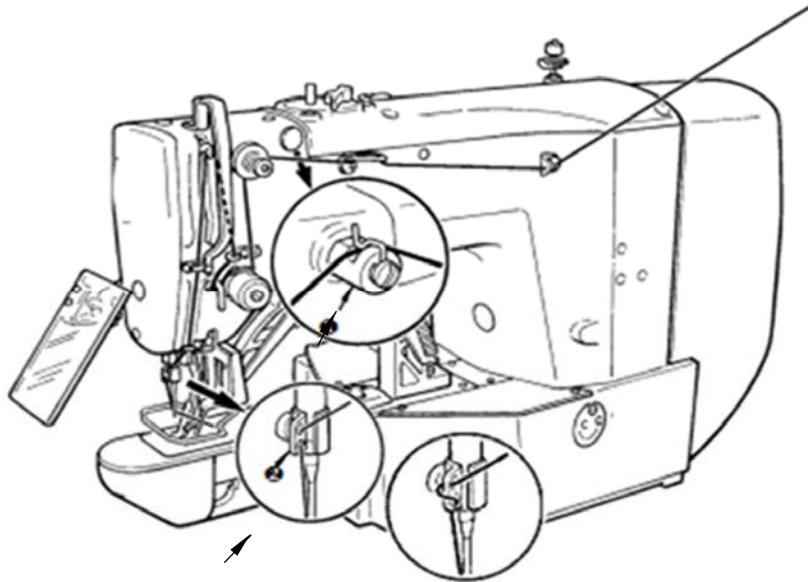
Loosen setscrew ① and hold needle ② with the long groove ③ facing toward you. Then fully insert it into the hole in the needle bar, and tighten setscrew ① .

Caution!

If the stitches are made as shown in A, attach the needle facing to the direction B to a small extent.

3. Threading the machine head

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the



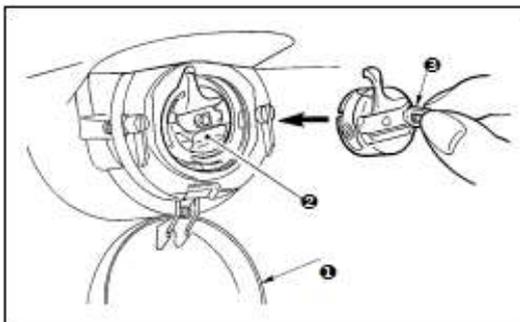
Pull out the thread by approximately 40mm from the needle after threading through the needle.

Caution!

1. When the silicon oil is used, thread through thread guide for silicon ❶ (Optional).
2. For thick thread, pass the thread through one hole only of needle bar thread guide ❷

4. Installing and removing the bobbin case

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the



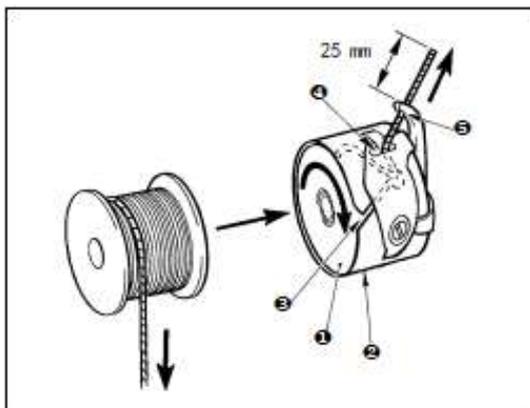
- 1) Open hook cover ❶ .
- 2) Raise latch ❸ of bobbin case ❷ , and remove the bobbin case.
- 3) When installing the bobbin case, fully insert it into the shuttle shaft, and close the latch!

Caution!

If it is not fully inserted, bobbin case ❷ may slip off during sewing.

5. Installing the bobbin

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the

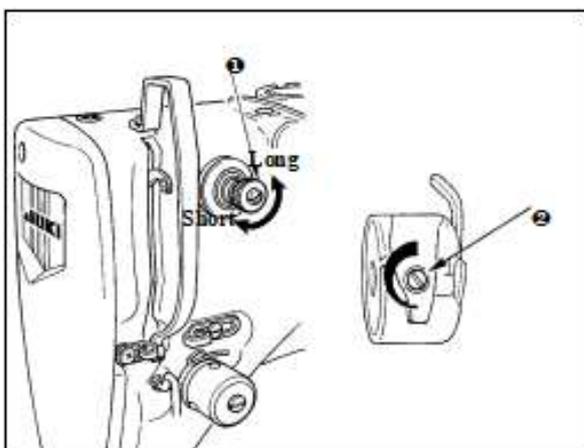


- 1) Set the bobbin **1** into bobbin case **2** in the direction shown in the figure.
- 2) Pass the thread through thread slit **3** of bobbin case **2**, and pull the thread as it is. By so doing, the thread will pass under the tension spring and be pulled out from thread hole **4**.
- 3) Pass the thread through thread hole **5** of the horn section, and pull out the thread by 25mm from the thread hole.

Caution!

If the bobbin is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

6. Adjusting the thread tension

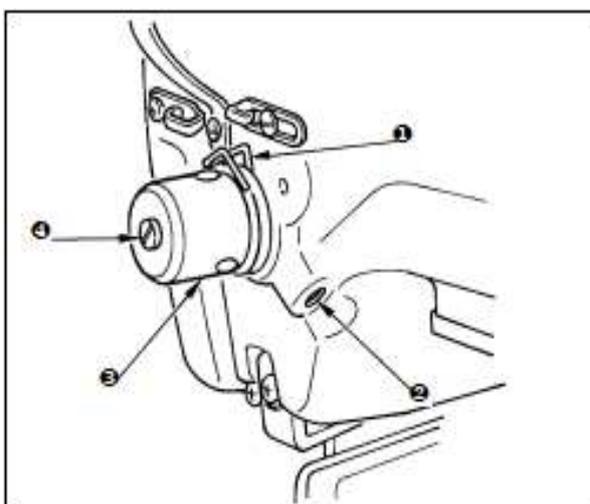


If thread tension controller No. 1 **1** is turned clock-wise, the length of remaining thread on the needle after thread trimming will be shorter. If it is turned counterclockwise, the length will be longer.

Shorten the length to an extent that the thread is not slipped off.

Adjust needle thread tension from the operation panel and bobbin thread tension with **2**

7. Adjusting the thread take-up spring



The standard stroke of thread take-up spring **1** is 8 to 10 mm, and the pressure at the start is 0.1 to 0.3N.

- 1) Adjusting the stroke
Loosen setscrew **2**, and turn thread tension asm. **3**. Turning it clockwise will increase the moving amount and the thread drawing amount will increase.

2) Adjusting the pressure

To change the pressure of the thread take-up spring, insert a thin screwdriver into the slot of thread tension post ④ while screw ② is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring. Turning it counterclockwise will decrease the pressure.

8. Example of the thread tension

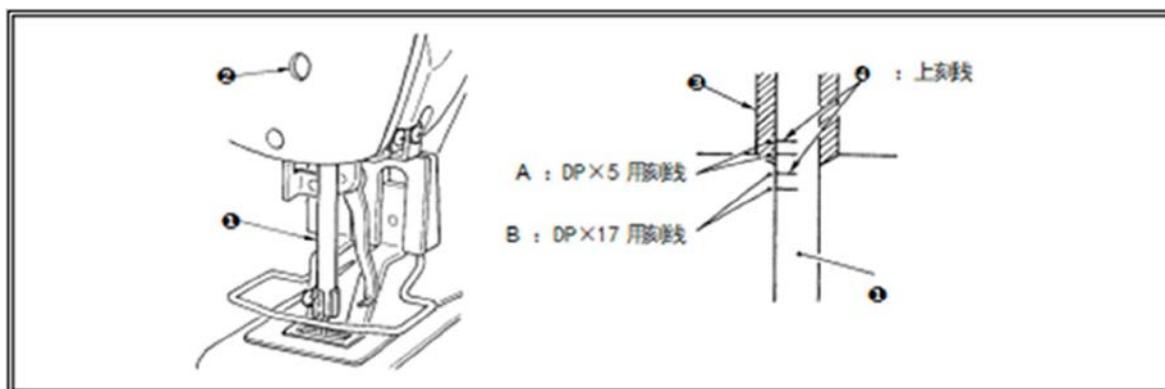
When using the sewing machine for the first time, adjust the thread tension referring to the table below

| Thread | Material | Needle thread tension setting | Thread take-up spring moving amount [Thread drawing amount] | Strength |
|---|-----------|-------------------------------|---|----------|
| Polyester filament thread #50 | Wool | 30 to 35 | 10mm [13mm] | 0.1N |
| Polyester spun thread #50 | Wool | 50 to 55 | 10mm [13mm] | 0.2N |
| Polyester spun thread #60 (Thread clamp OFF) | T/C broad | 30 to 35 | 8 to 10mm [11 to 13mm] | 0.1N |
| Cotton thread #50 | Denim | 35 to 45 | 10mm [13mm] | 0.1N |
| Cotton thread #20 | Denim | 35 to 45 | 8 to 10mm [11 to 13mm] | 0.1N |

IV. MAINTENANCE

1. Adjusting the height of the needle bar

WARNING : Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the



Bring needle bar ① to the lowest position of its stroke. Loosen needle bar connection screw ② and adjust so that upper marker line ④ engraved on the needle bar aligns with the bottom end of needle bar bushing, lower ③ .

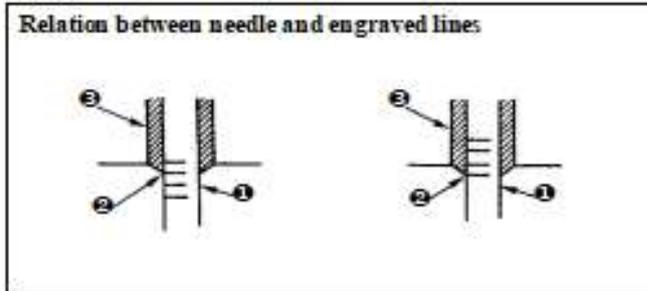
Caution!

After the adjustment, make sure that there is no uneven torque.

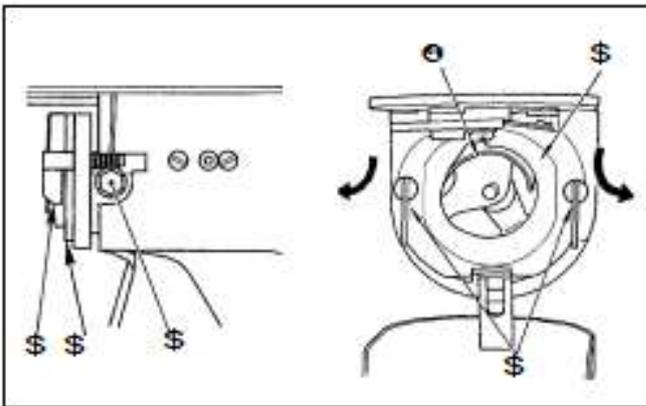
*When stitch skipping occurs in accordance with the sewing conditions, adjust the height of the needle bar so as to lower it by 0.5 to 1 mm from the needle bar engraved line ④

2. Adjusting the needle-to-shuttle relation

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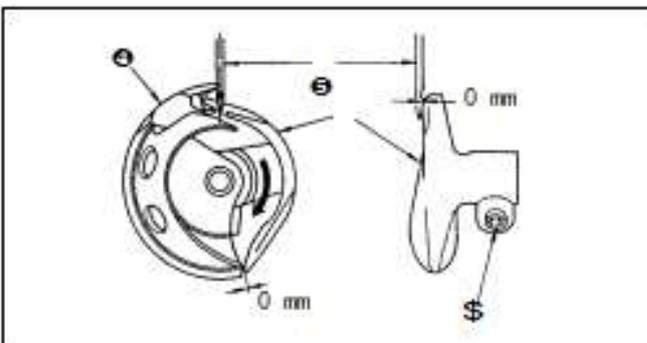


1) Turn the handwheel by hand. When needle bar **1** has gone up, adjust so that lower marker line **2** engraved on the needle bar aligns with the bottom end of the needle bar bushing **3**, lower

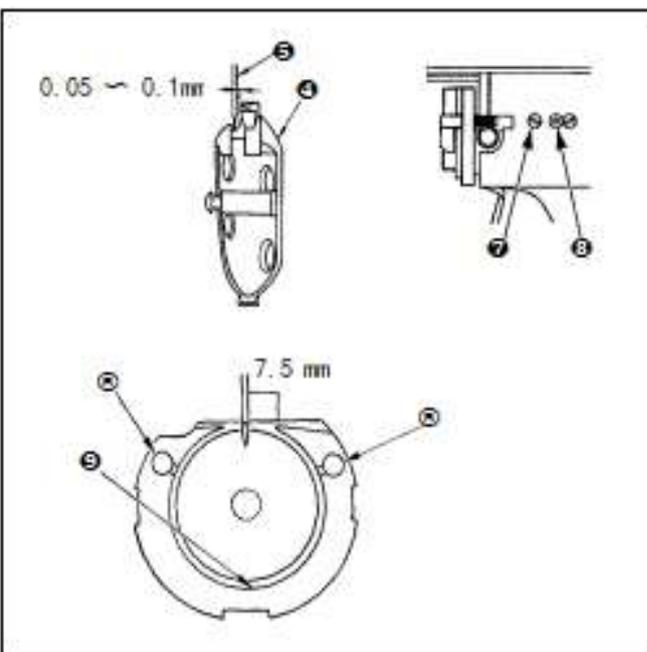


Loosen setscrew \$ in the driver. Open inner hook pressers \$ to the right and left, and re-move inner hook presser \$
Caution!

At this time, be careful not to let inner hook **4** come off and fall.



3) Adjust so that the blade point of inner hook **4** aligns with the center of needle **5**, and that a clearance of 0 mm is provided between the front end of the driver and the needle as the front end face of driver **6** receives the needle to prevent the needle from being bent. Then tighten setscrew \$ of the driver.



4) Loosen setscrew **7** of the shuttle, and adjust the longitudinal position of the shuttle. To do this adjustment, turn shuttle race adjusting shaft **8** clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between needle **5** and the blade point of inner hook **4**.

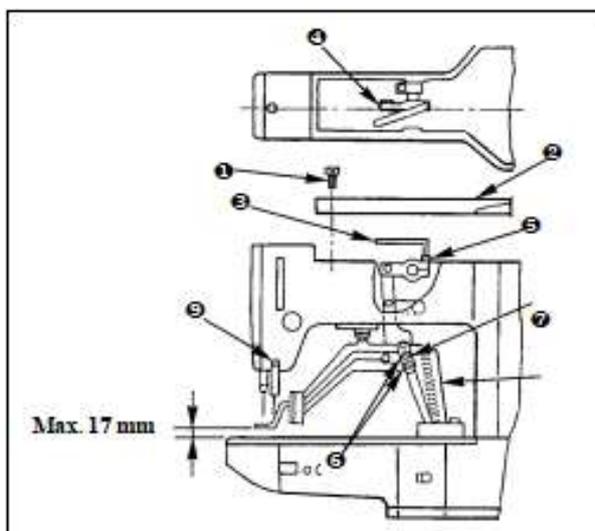
5) After adjusting the longitudinal position of the shuttle, further adjust to provide a 7.5 mm clearance between the needle and the shuttle by adjusting the rotating direction. Then tighten set-screw **7** of the shuttle.

Caution!

If the sewing machine is left unused for a long time, or after clearing the area surrounding the hook section, apply a little quantity of oil to race section ⑨ and felt ⑩ before using the sewing machine.

3. Adjusting the lift of the work clamp foot

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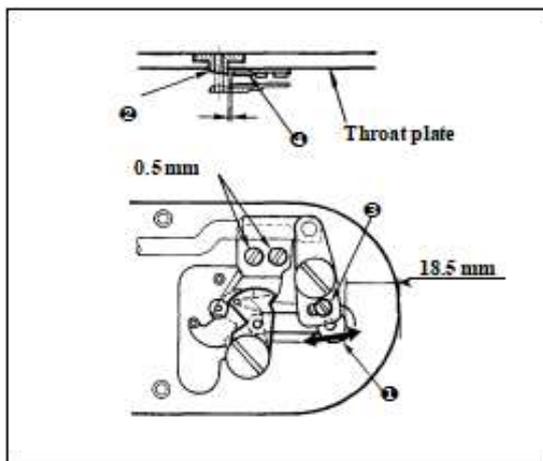
- 1) With the machine in stop mode, remove six set-screws ① of the top cover, and take off top cover ② .
- 2) Apply L-shaped wrench ③ to socket bolt ⑤ of clamp ④ , and loosen the socket bolt.
- 3) Push down L-shaped wrench ③ to increase the lift of the work clamp foot, or pull it up to decrease the lift.
- 4) After the adjustment, securely tighten socket bolt ⑤ .
- 5) If the right and left work clamp feet are not levelled, loosen fixing screw ⑥ and adjust the position of the work clamp foot lever support plate ⑦ to level them

Caution!

At this time, be careful not to cause work clamp foot lever support plate ⑦ to interfere with feed bracket ⑧ .

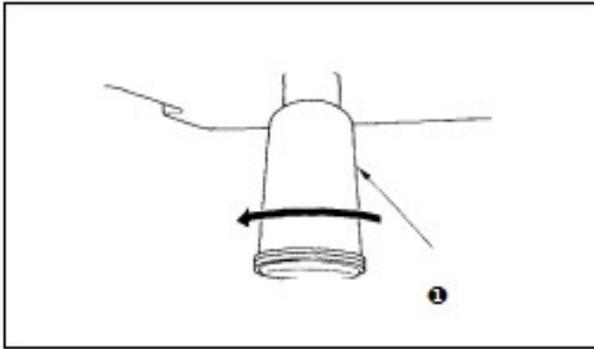
If the work clamp foot lever support plate interferes with the wiper, readjust the height of the wiper using setscrew ⑨ in the wiper installing base

4. The moving knife and counter knife



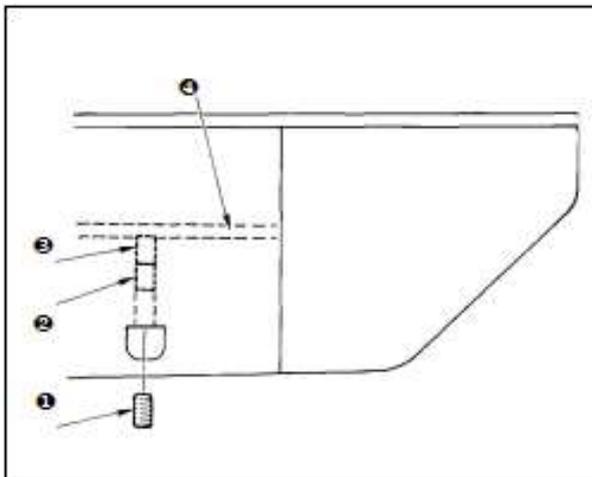
- 1) Loosen adjusting screw ③ so that a clearance of 18.5 mm is provided between the front end of the throat plate and the top end of thread trimmer lever, small ① . To adjust, move the moving knife in the direction of arrow.
- 2) Loosen setscrew ⑤ so that a clearance of 0.5 mm is provided between needle hole guide ② and counter knife ④ . To adjust, move the counter knife.

5. Draining waste oil



When polyethylene oiler **1** becomes filled with oil, remove polyethylene oiler **1** and drain the oil.

6. Amount of oil supplied to the hook



- 1) Loosen setscrew **1** and remove setscrew **1**.
- 2) When screwing in adjustment screw **2**, the amount of oil of oil pipe, left **4** can be reduced.
- 3) After the adjustment, screw in setscrew **1** and fix it.

Caution!

1. The state of standard delivery is the position where **3** is lightly screwed in and returned by 4 turns.
2. When reducing the amount of oil, do not screw in the screw at once. Observe the state for approximately half a day at the position where **3** is screwed in and returned by 2 turns. If reducing is excessive, worn-out of the hook will result.