

ENGLISH

**LU-2810, 2810-7, 2860, 2860-7
INSTRUCTION MANUAL**

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BEFORE OPERATION



CAUTION :

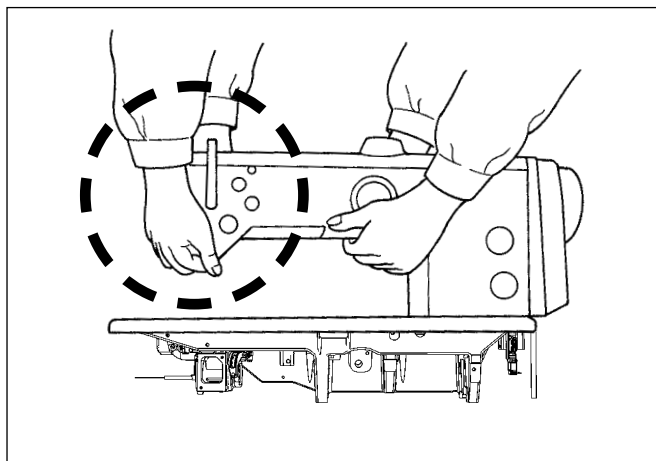
Check the following so as to prevent maloperation of and damage to the machine.

- Before you put the machine into operation for the first time after the set-up, clean it thoroughly. Remove all dust gathering during transportation and oil it well.
- Confirm that voltage has been correctly set.
Confirm that the power plug has been properly connected to the power supply.
- Never use the machine in the state where the voltage type is different from the designated one.
- The direction of normal rotation of the machine is counterclockwise as observed from the pulley side.
Take care not to allow the machine to rotate in the reverse direction.
- Never operate the machine unless the machine head and the oil tank have been filled with oil.
- For a test run, remove the bobbin and the needle thread.
- For the first month, decrease the sewing speed and run the sewing machine at a speed of 80% or less of the maximum sewing speed. As to the maximum sewing speed, see **"25. SEWING SPEED TABLE" p.24**.
- Operate the handwheel after the machine has totally stopped.

1. SPECIFICATIONS

Model	LU-2810 (1-needle)	LU-2810-7 (1-needle with thread trimmer)	LU-2860 (2-needle)	LU-2860-7 (2-needle with thread trimmer)
Sewing speed	Max. 3,000 sti/min		Max. 2,700 sti/min	
	See "25. SEWING SPEED TABLE" p.24.			
Stitch length (max.)	Normal feed : 9 mm Reverse feed : 9 mm			
Needle	GROZ-BECKERT 135 x 17 (Nm 125 to Nm 180) (Standard : Nm 160)			
Thread	#30 to #5 (US : #46 to #138, Europe : 20/3 to 60/3)			
Hook	Vertical-axis 2.0-fold capacity hook			
Lift of presser foot	Hand lifter lever : 10 mm By knee lifter, Auto-lifter: 20 mm			
Lubricating oil	JUKI New Defrix Oil No.1 or JUKI MACHINE OIL #7			
Noise	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 3,000 sti/min. - Sound power level (L _{WA}); A-weighted value of 88.5 dB; (Includes K _{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 3,000 sti/min.	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 3,000 sti/min. - Sound power level (L _{WA}); A-weighted value of 88.5 dB; (Includes K _{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 3,000 sti/min.	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,700 sti/min. - Sound power level (L _{WA}); A-weighted value of 88.5 dB; (Includes K _{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 2,700 sti/min.	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,700 sti/min. - Sound power level (L _{WA}); A-weighted value of 88.5 dB; (Includes K _{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 2,700 sti/min.

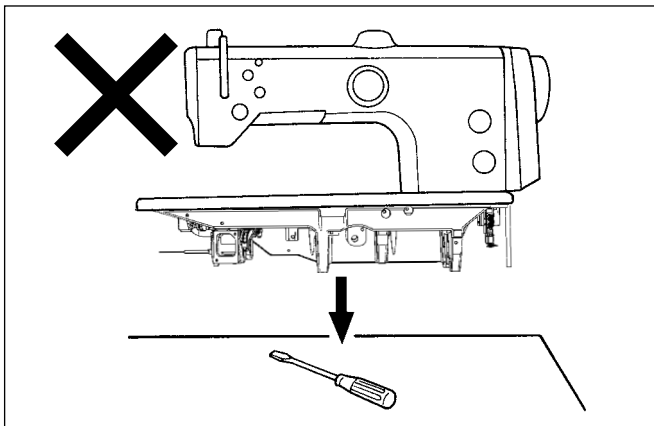
2. INSTALLATION



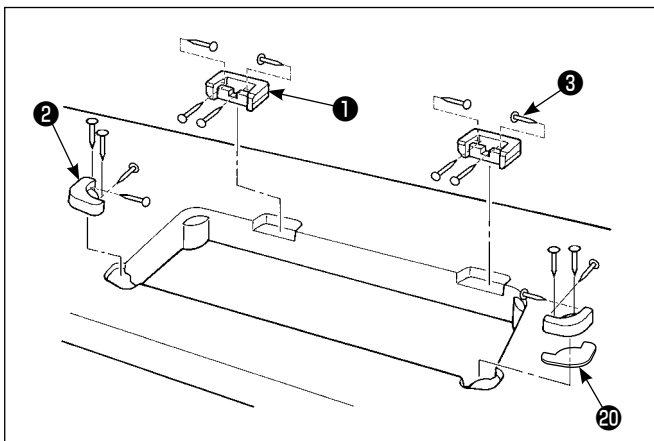
- 1) Carry the sewing machine with two persons.



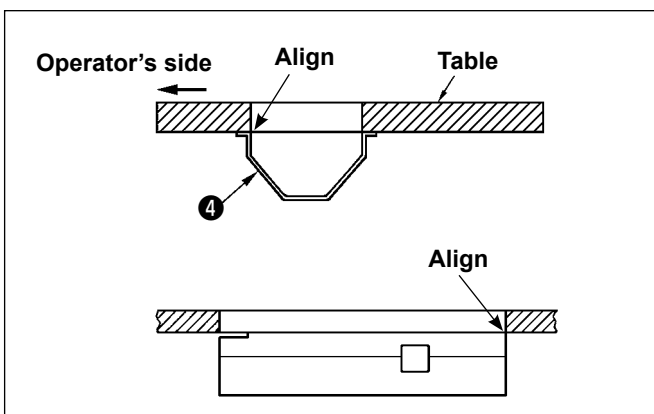
Do not hold the handwheel.



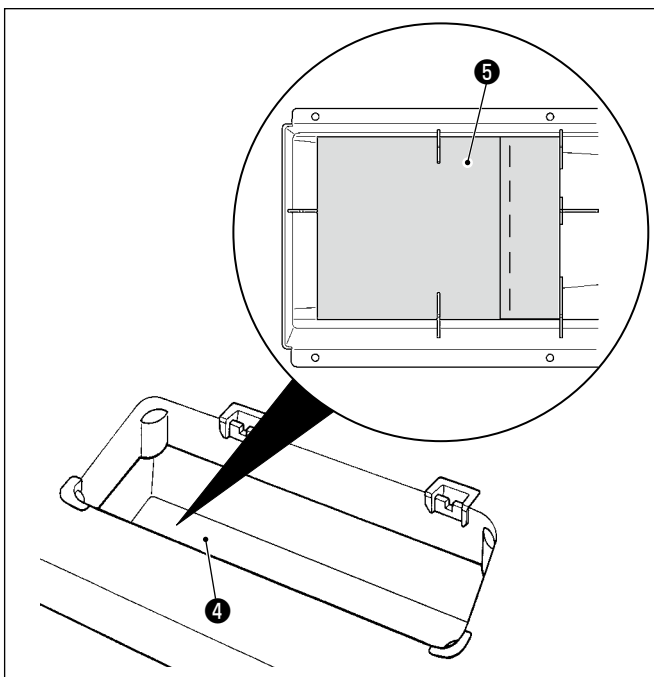
- 2) Do not put protruding articles such as the screwdriver and the like at the location where the sewing machine is placed.



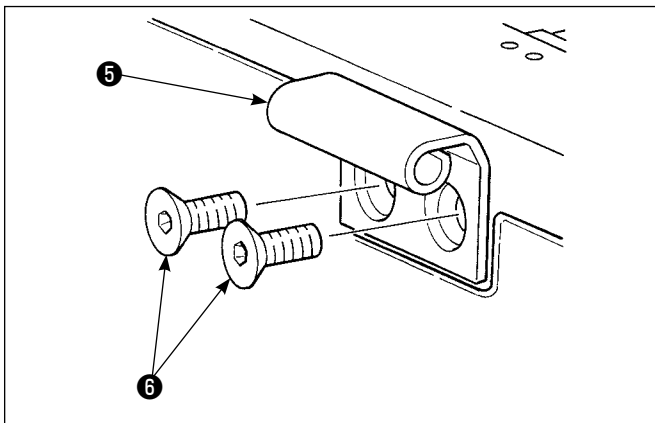
- 3) Attaching the hinge seats and the support rubbers of the machine head
Fix hinge seat **1** , machine head support rubber **2** , and spacer **20** (one on the right side) supplied with the machine on the table with nails **3** , as illustrated in the figure.
For the LU-2860, add one more spacer to each of the right and left sides of the table if the left bed slide cannot be opened because of interference with the table.



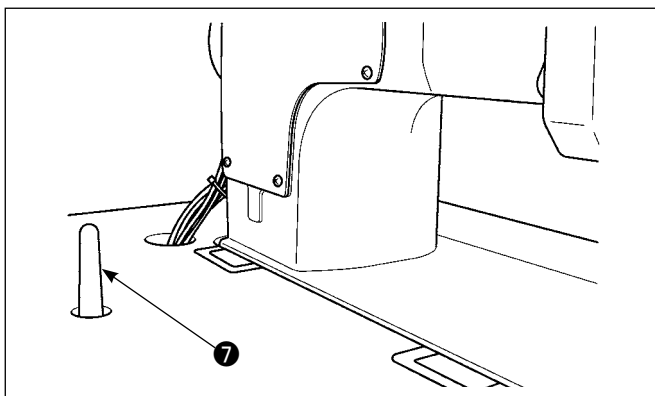
- 4) Attaching the oil pan
Fix the oil pan **4** supplied with the machine on the table by tightening eight wood screws.



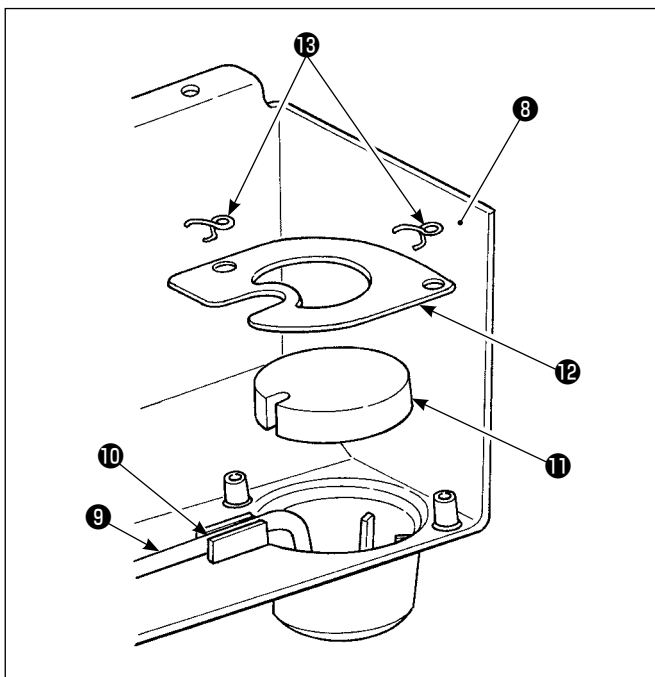
- 5) Attach a filter **5** to the oil pan **4** as shown in the figure.



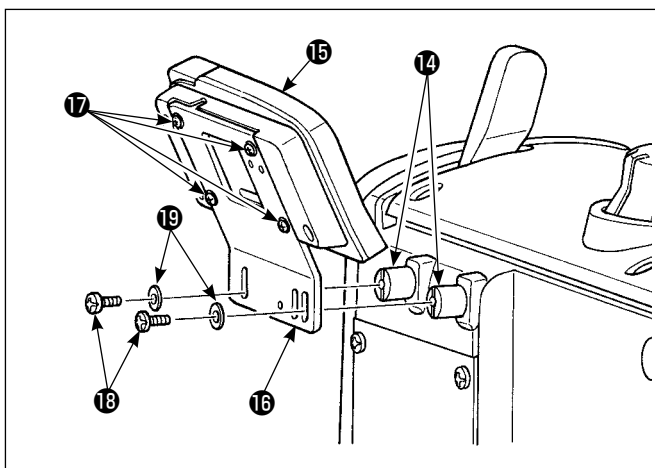
- 6) Install hinge **5** on the bed with screw **6** .
Engage the hinge with the rubber hinge of the table. Then, place the machine head on the machine head support rubber.



- 7) Securely attach head support rod **7** to the table until it goes no further.



- 8) Put reflux pipe **9** in the oil reservoir of oil pan **8** .
Secure the pipe in groove **10** .
9) Fix filter **11** and filter clamp **12** with fitting **13** .



- 10) Mount spacers **14** supplied with the machine head on the frame.
11) Install bracket **16** on CP panel **15** with screws **17** supplied with the panel.
12) Install bracket **16** on spacer **14** with screws **18** supplied with the machine head and washers **19** supplied with the panel.

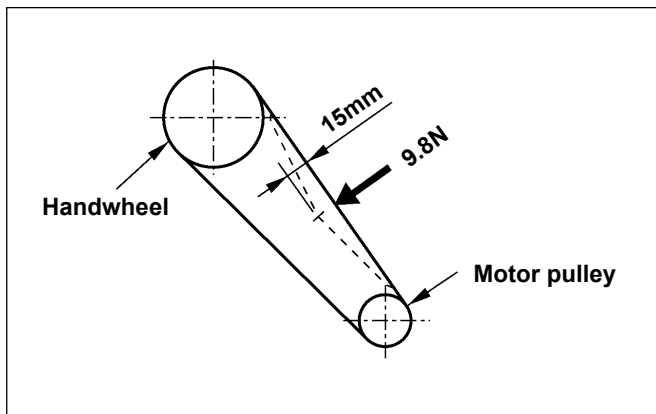
Caution
Do not use the screws supplied the panel instead of screws **18** supplied with the machine head.

3. ADJUSTING THE BELT TENSION (LU-2810, LU-2860)



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



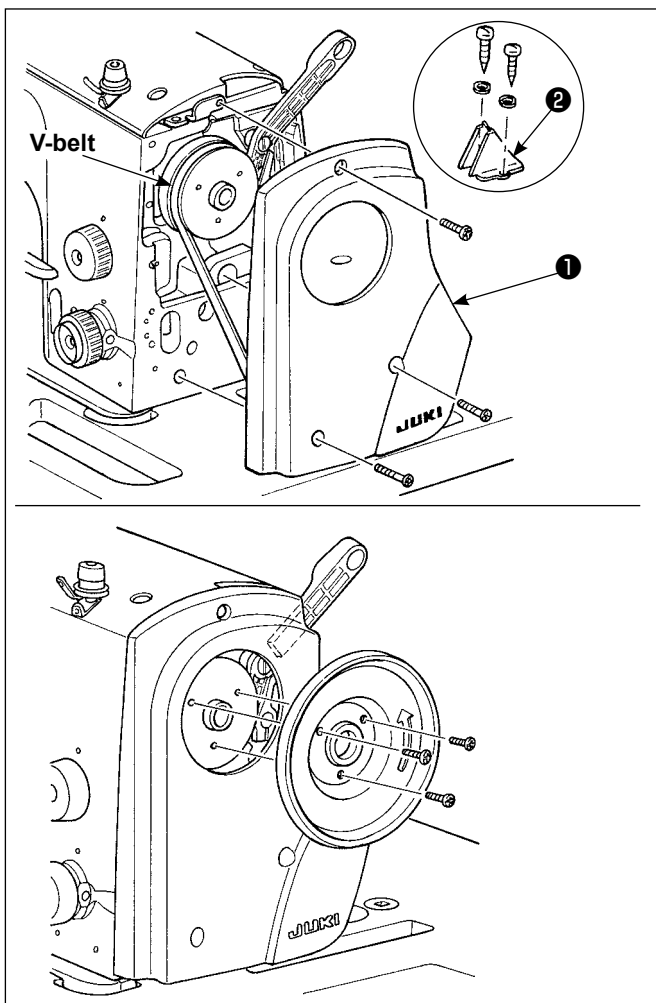
Adjust the belt tension with the height of the motor so that the belt sags 15 mm when the center of V belt is applied with a 9.8 N load.

4. ATTACHING THE BELT COVER (LU-2810, LU-2860)



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(Installation procedure)

- 1) Put the V-belt on the sewing machine pulley.
- 2) Install belt cover ① on the machine arm.
- 3) Install belt cover B ② on the table.
- 4) Mount the handle section of the pulley with a screw.

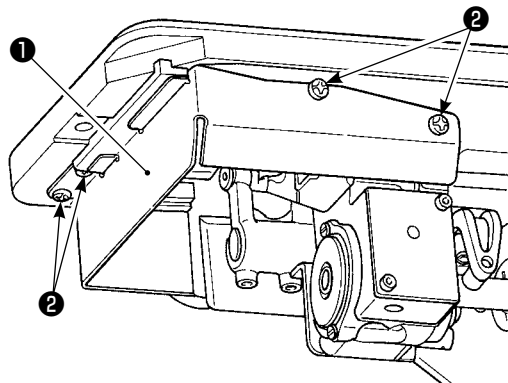
5. INSTALLING THE OIL SHIELD



WARNING :

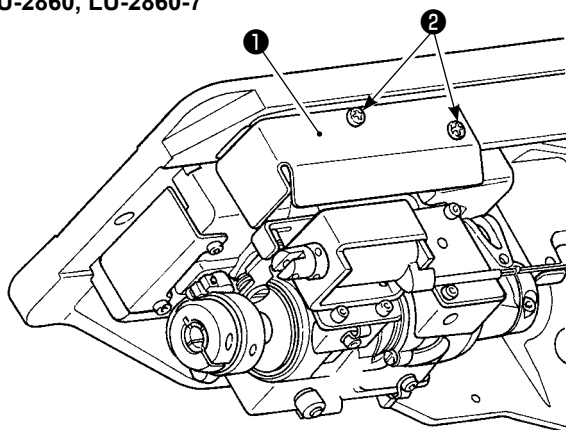
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

LU-2810, LU-2810-7



Install oil shield **1** , supplied with the unit, on the frame with screws **2** .

LU-2860, LU-2860-7

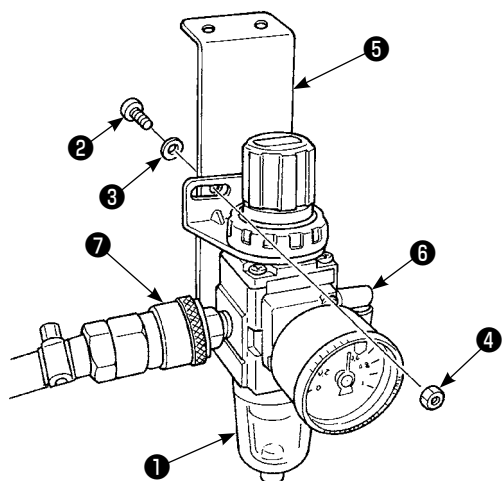


6. PNEUMATIC COMPONENTS (LU-2810-7, LU-2860-7)



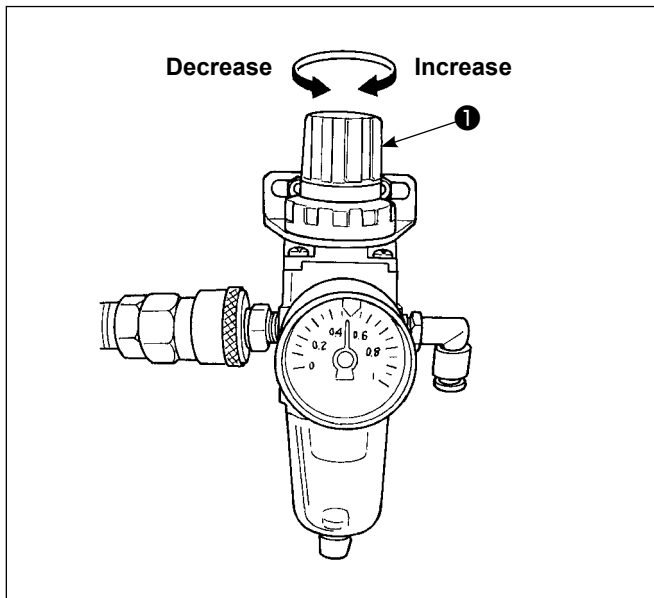
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



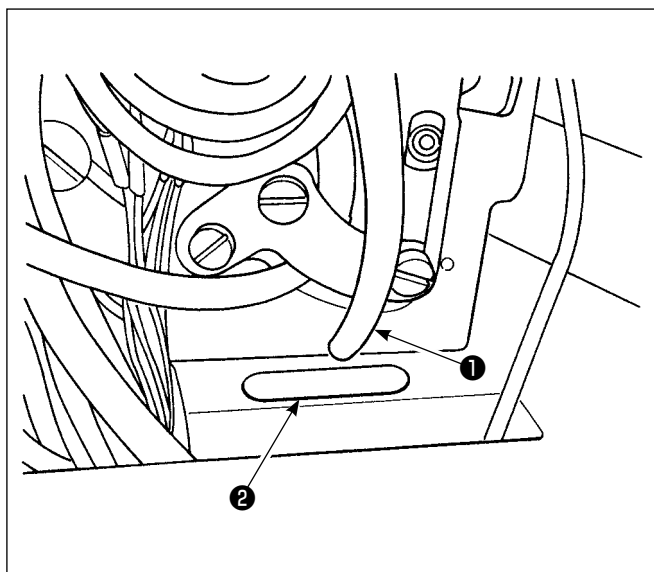
(1) Installing the regulator

- 1) Install regulator (asm.) **1** on mounting plate **5** with screw **2** , spring washer **3** and nut **4** which are supplied with the unit.
- 2) Install couplings **6** and **7** on regulator **1** .
- 3) Install mounting plate **5** on the underside of the table.
- 4) Connect $\varnothing 6$ air tube coming from the sewing machine to coupling **6** .



(2) Adjusting the air pressure

The operating air pressure is 0.5 to 0.55 MPa. Adjust the air pressure using air pressure regulating knob ❶ of the filter regulator.



(3) Exhaust tube

Pass ø8 exhaust tube ❶ coming from the sewing machine through hole ❷ in the table. In the case of high humidity, water may flow out from the exhaust tube.

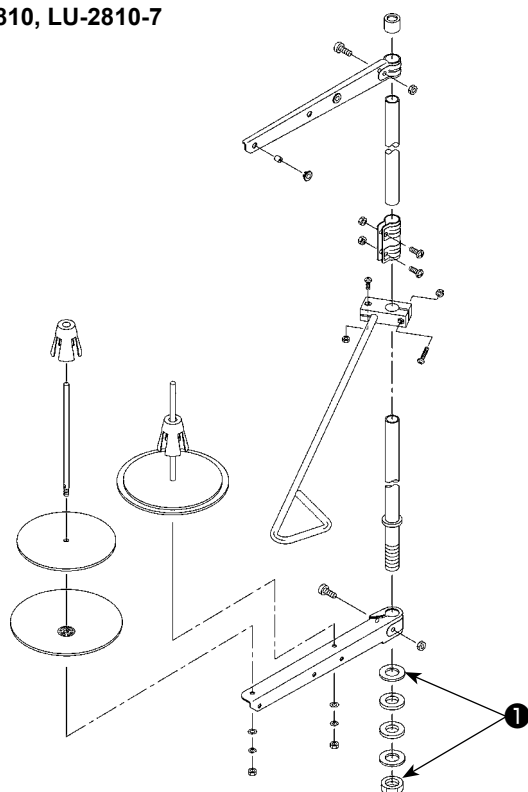
7. INSTALLING THE THREAD STAND



WARNING :

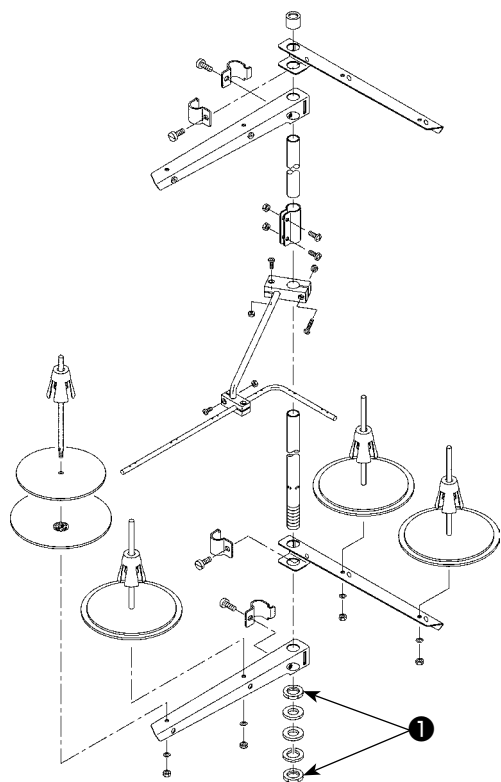
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

LU-2810, LU-2810-7



Assemble the thread stand, set it up on the machine table using the installation hole in the table and tighten nut ❶ gently.

LU-2860, LU-2860-7

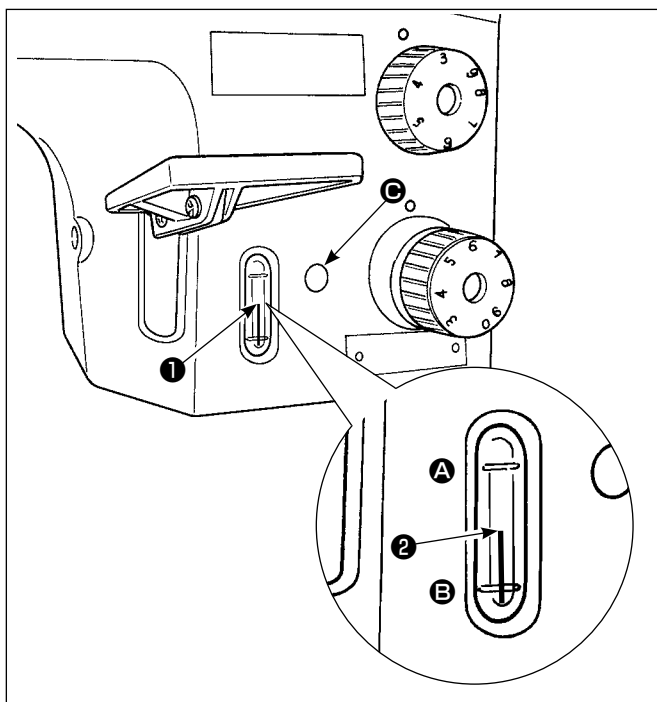


8. LUBRICATION

WARNING :



1. Do not connect the power plug until the lubrication has been completed so as to prevent accidents due to abrupt start of the sewing machine.
2. To prevent the occurrence of an inflammation or rash, immediately wash the related portions if oil adheres to your eyes or other parts of your body.
3. If oil is mistakenly swallowed, diarrhea or vomiting may occur. Put oil in a place where children cannot reach.



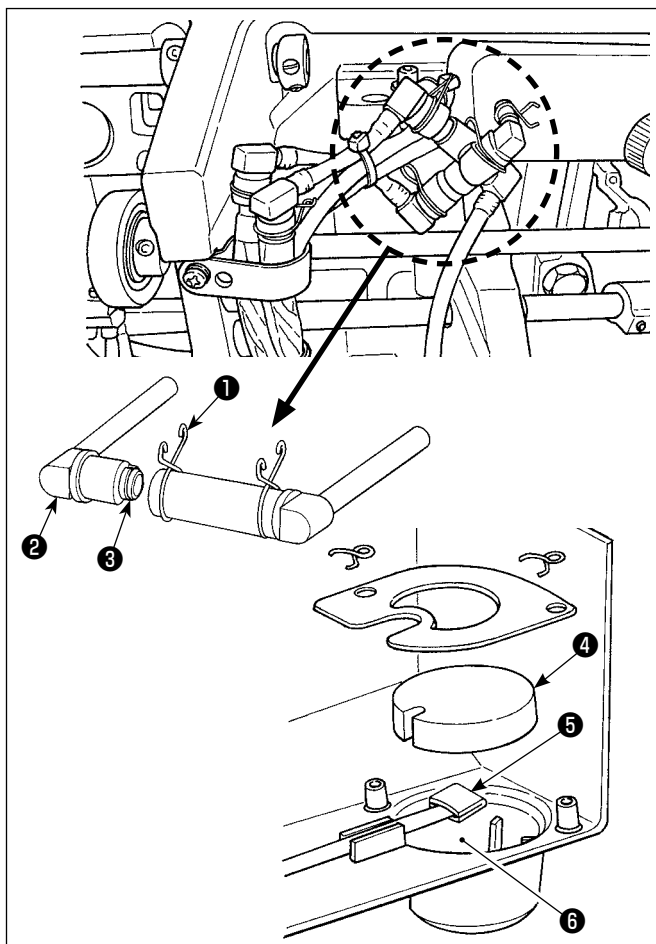
■ Lubrication procedure

Fill the oil tank with oil before operating the sewing machine.

- 1) Fill the oil tank with JUKI NEW DEFRIX OIL No.1 (Part No. : MDFRX1600C0) or JUKI MACHINE OIL #7 (Part No. : MML007600CA) using the oiler supplied with the machine from section ③.
- 2) Fill the oil tank with the oil until the top end of oil amount indicating rod ② comes between the upper engraved marker line ④ and the lower engraved marker line ⑤ of oil amount indicating window ① .
If the oil is filled excessively, it will leak from the air vent hole in the oil tank or proper lubrication will be not performed. In addition, when the oil is vigorously filled, it may overflow from the oil hole. So, be careful.
- 3) When you operate the sewing machine, refill oil if the top end of oil amount indicating rod ② comes down to the lower engraved marker line ⑤ of oil amount indicating window ① .



1. When using a new sewing machine for the first time or using the sewing machine which has not been used for a long time, run in the sewing machine at a sewing speed of 1,000 sti/min or less and check the oil quantity in the hook before use. If the quantity of oil in the hook is insufficient, adjust the quantity of oil by turning the oil quantity adjusting screw counterclockwise to ensure that the oil quantity in the hook is adequate. After that, adjust the quantity of oil to the adequate one. (Refer to "■ Adjusting the oil quantity in the hook" p.10.)
2. For the oil for hook lubrication, purchase JUKI NEW DEFRIX OIL No. 1 (Part No. : MDFRX1600C0) or JUKI MACHINE OIL #7 (Part No. : MML007600CA).
3. Be sure to lubricate clean oil.



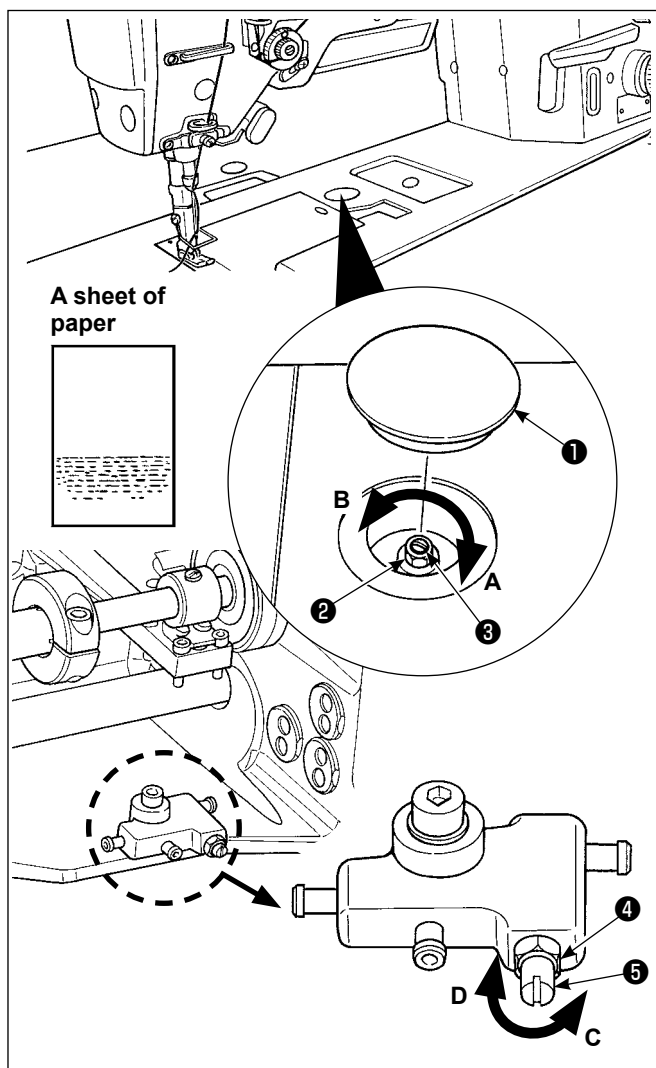
■ Cleaning the oil filter

- 1) Loosen fastening plate ① on the back-flow side. Remove oil filter joint (asm.) ② on the back-flow side.
- 2) Clean up filters ③, ④ and ⑤ and oil reservoir ⑥ of the oil pan.



Be sure to clean up the oil reservoir of the oil pan and the filter case approximately once a month.

If the filter is clogged with soil, lubrication fails resulting in trouble.



■ Adjusting the oil quantity in the hook

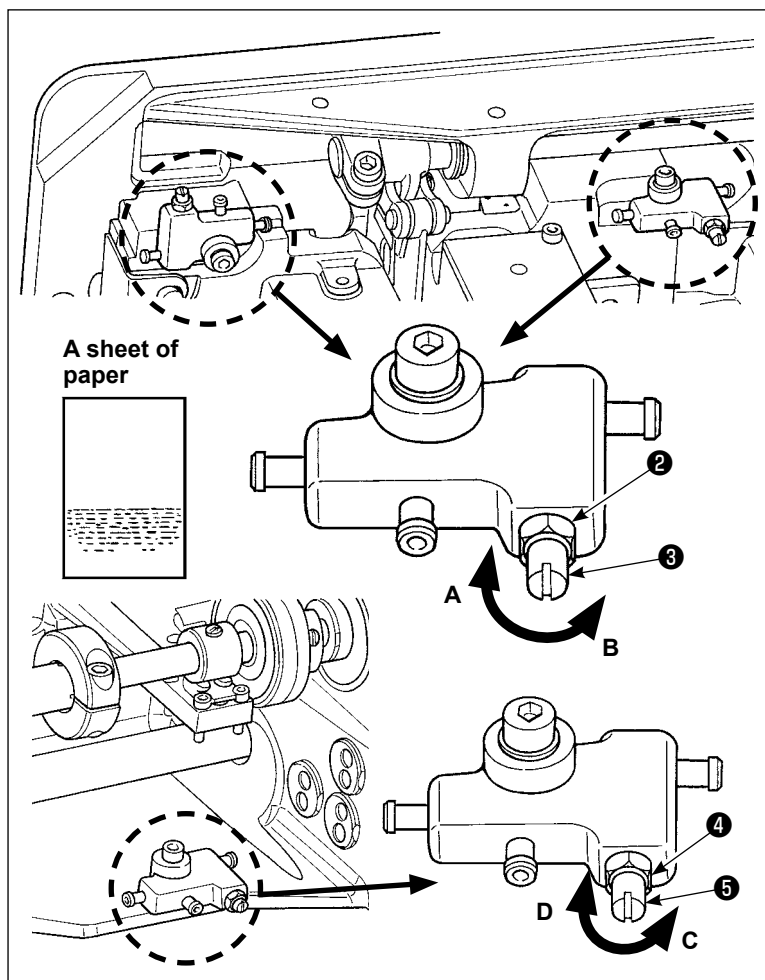
LU-2810, LU-2810-7

- 1) Remove rubber cap ①.
- 2) Loosen nut ② and turn oil amount adjustment screw ③ to adjust the amount of oil in the hook. Turning the screw clockwise A will decrease the amount of oil in the hook or counterclockwise B will increase it.
- 3) The appropriate amount of oil, when a sheet of paper is placed near the periphery of the hook, is to such an extent that splashes of oil from the hook appear in approximately five seconds as shown in the figure on the left.



In the case the oil quantity in the hook cannot be adjusted to the proper quantity, it should be adjusted by loosening nut ④ and turning oil quantity adjusting screw ⑤. The oil quantity in the hook is increased by turning the oil quantity adjusting screw counterclockwise C, or is decreased by turning it clockwise D.

Also check to be sure that the oil is fed to the hook at the sewing speed of 1,000 sti/min.



LU-2860, LU-2860-7

- 1) Loosen nut **2** and turn oil amount adjustment screw **3** to adjust the amount of oil in the hook.
Turning the screw clockwise **A** will decrease the amount of oil in the hook or counterclockwise **B** will increase it.
- 2) The appropriate amount of oil, when a sheet of paper is placed near the periphery of the hook, is to such an extent that splashes of oil from the hook appear in approximately five seconds as shown in the figure on the left.

In the case the oil quantity in the hook cannot be adjusted to the proper quantity, it should be adjusted by loosening nut **4** and turning oil quantity adjusting screw **5**. The oil quantity in the hook is increased by turning the oil quantity adjusting screw counterclockwise **C**, or is decreased by turning it clockwise **D**. Also check to be sure that the oil is fed to the hook at the sewing speed of 1,000 sti/min.



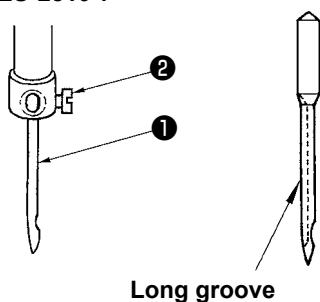
9. ATTACHING THE NEEDLE



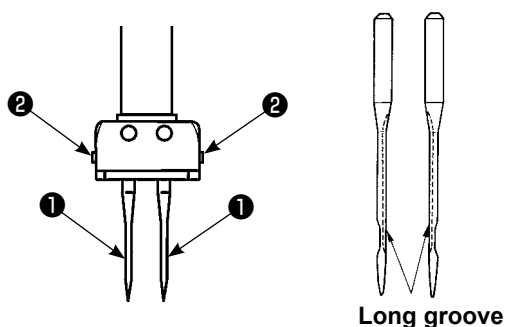
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

LU-2810, LU-2810-7



LU-2860, LU-2860-7



Switch "off" the motor.

Use 135x17 needles.

- 1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
- 2) Loosen needle clamp screw **2**. Hold the needle so that the long groove on needle **1** faces directly to the right for the LU-2810 and -2810-7, and so that the long groove on each the two needles faces inward for the LU-2860 and -2860-7.
- 3) Push needle **1** deep into the needle clamp hole until it will go no further.
- 4) Tighten needle clamp screw **2** firmly.

When replacing the needle, check the clearance provided between the needle and the blade point of hook. (Refer to **"20. NEEDLE-TO-HOOK RELATION"** p.20 and **"21. ADJUSTING THE HOOK NEEDLE GUARD"** p.21.)



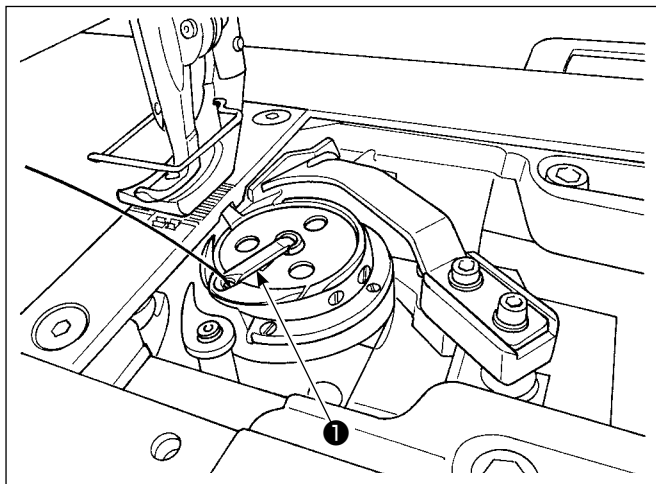
If there is no clearance, the needle and the hook will be damaged.

10. ATTACHING AND REMOVING THE BOBBIN



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Lift latch **1** of hook, and take out the bobbin.
- 2) Put the bobbin into the shaft in the hook correctly and release the latch.



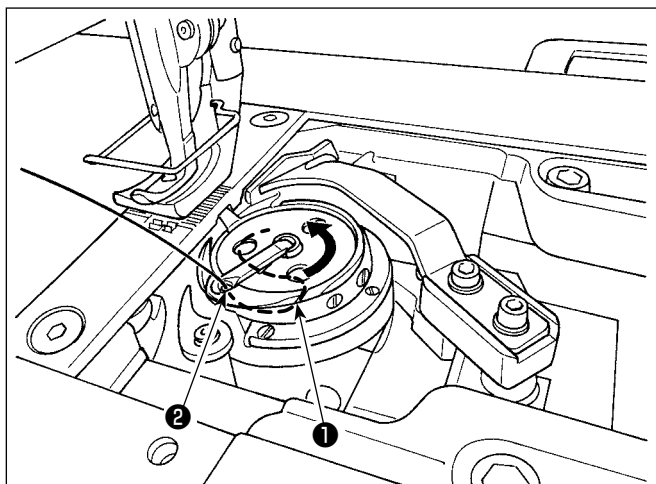
1. Do not make the machine run idle with the bobbin (bobbin thread). The bobbin thread is caught in the hook. As a result, the hook may be damaged.
2. Be careful so as not to get hurt with the top end of the counter knife.

11. THREADING THE HOOK



WARNING :

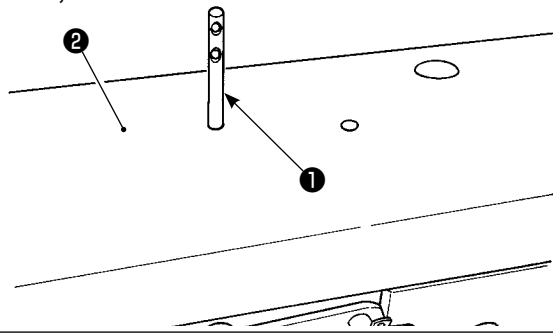
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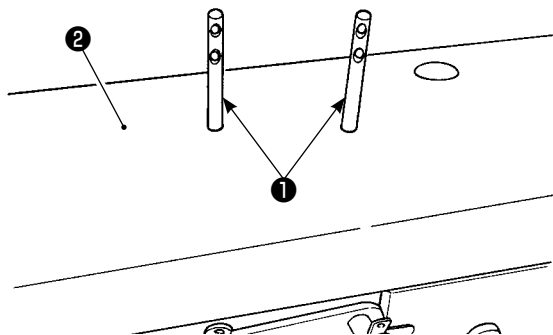
- 1) Pass the thread through thread path **1** in the hook and thread hole **2** in the lever, and draw the thread.
Now, the thread will be brought to thread hole **2** via the tension spring.
- 2) Make sure that the bobbin revolves in the direction of the arrow when you draw the thread.

12. INSTALLING THE THREAD GUIDE PIN

LU-2810, LU-2810-7



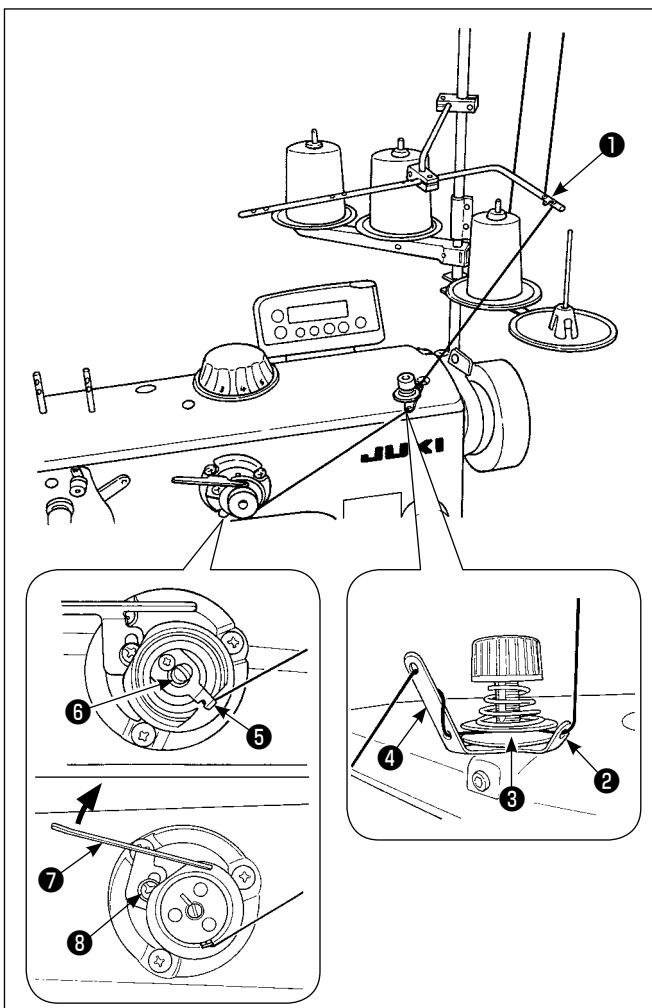
LU-2860, LU-2860-7



Insert needle thread guide pin **1** into the corresponding hole in top cover **2**.

- LU-2810, LU-2810-7: One needle thread guide pin
- LU-2860, LU-2860-7: Two needle thread guide pins

13. WINDING A BOBBIN



- 1) Pass the thread through sections **1** to **4** in the numerical order.
- 2) Insert the thread from the rear side of looper thread clamp **5** and trim the thread. (The thread end is retained under the looper thread clamp.)
- 3) Load a bobbin on bobbin winder shaft **6**.
- 4) Lift bobbin winder lever **7** in the direction of the arrow.
- 5) When you start the sewing machine, the bobbin rotates to automatically wind the thread on itself.
- 6) When the bobbin is filled up, the bobbin winder lever automatically releases the bobbin and the bobbin winder stops running.



1. The bobbin thread winding amount is adjusted by loosening setscrew **8**. The bobbin thread winding amount is increased by moving bobbin winder lever **7** upward.
2. If the thread comes off the thread tension controller, wind the thread on the intermediate thread guide by one turn.



1. This is the one-touch type bobbin winder. When the bobbin is fully wound with thread, bobbin thread clamp **5** automatically returns to the initial position.
2. To stop bobbin winding before the bobbin is fully wound with thread, turn the hand-wheel with threading lever **7** held lightly depressed to return bobbin thread clamp **5** to the initial position.

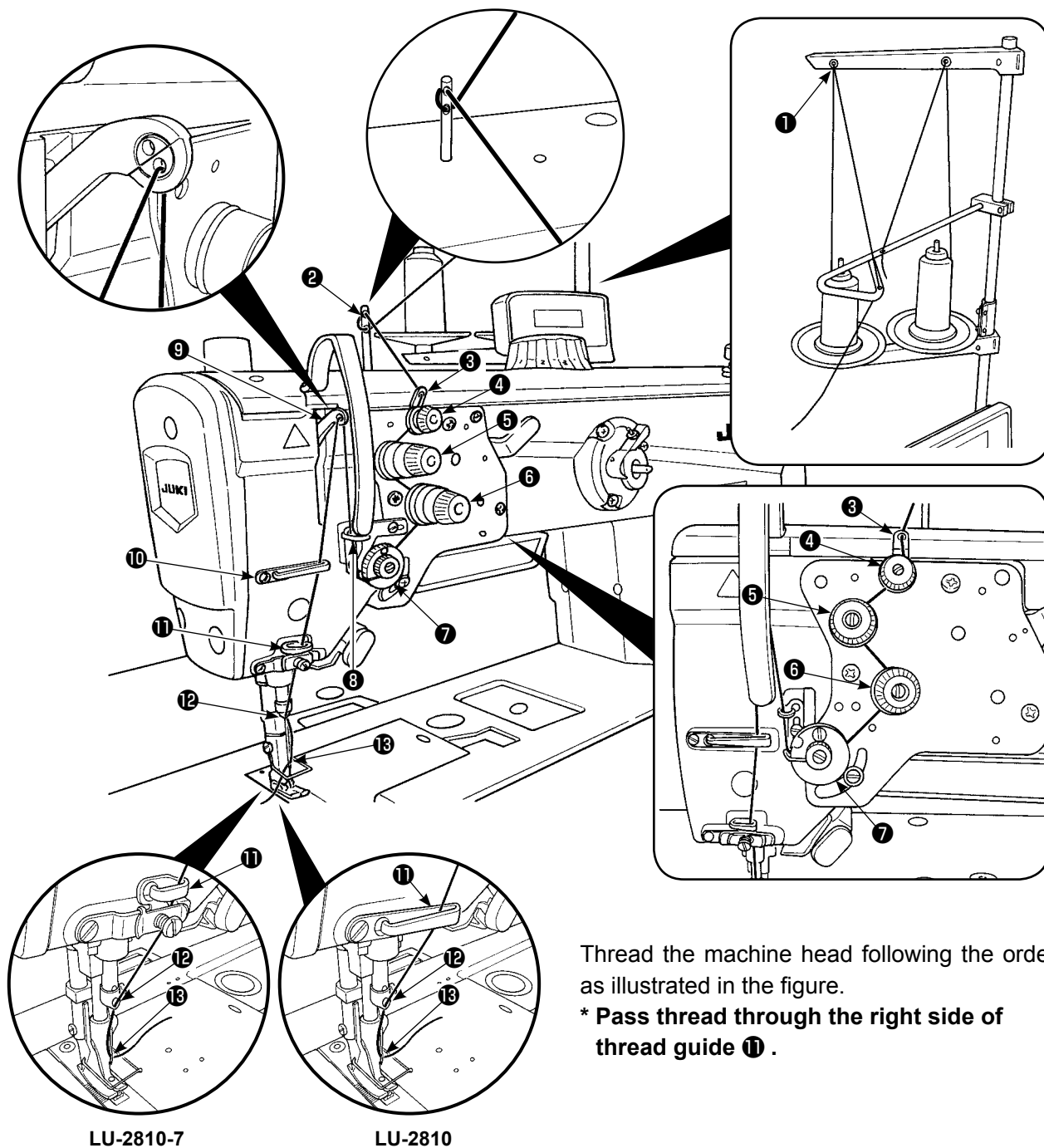
14. THREADING THE MACHINE HEAD

[LU-2810, 2810-7]



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

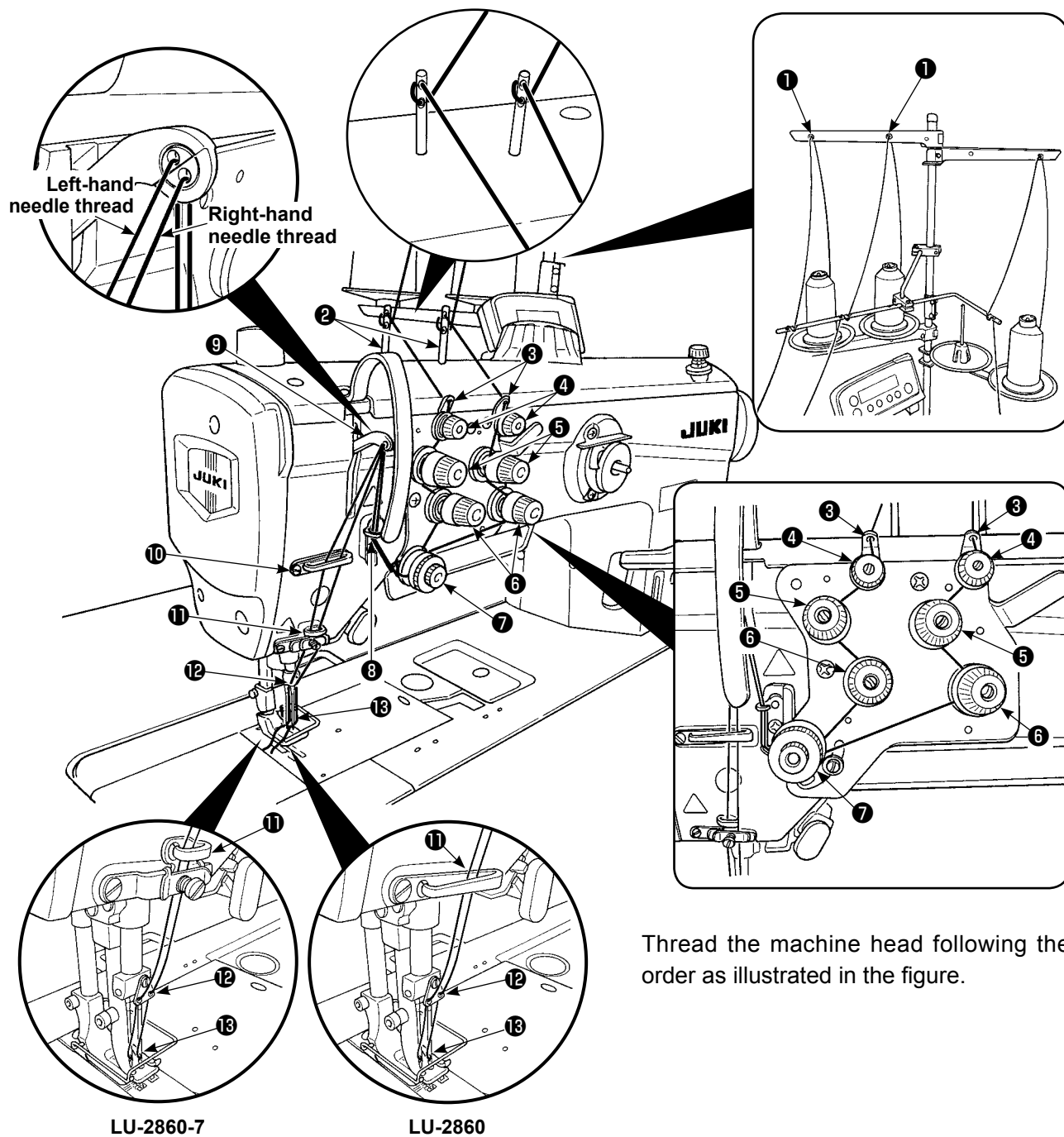


[LU-2860, 2860-7]

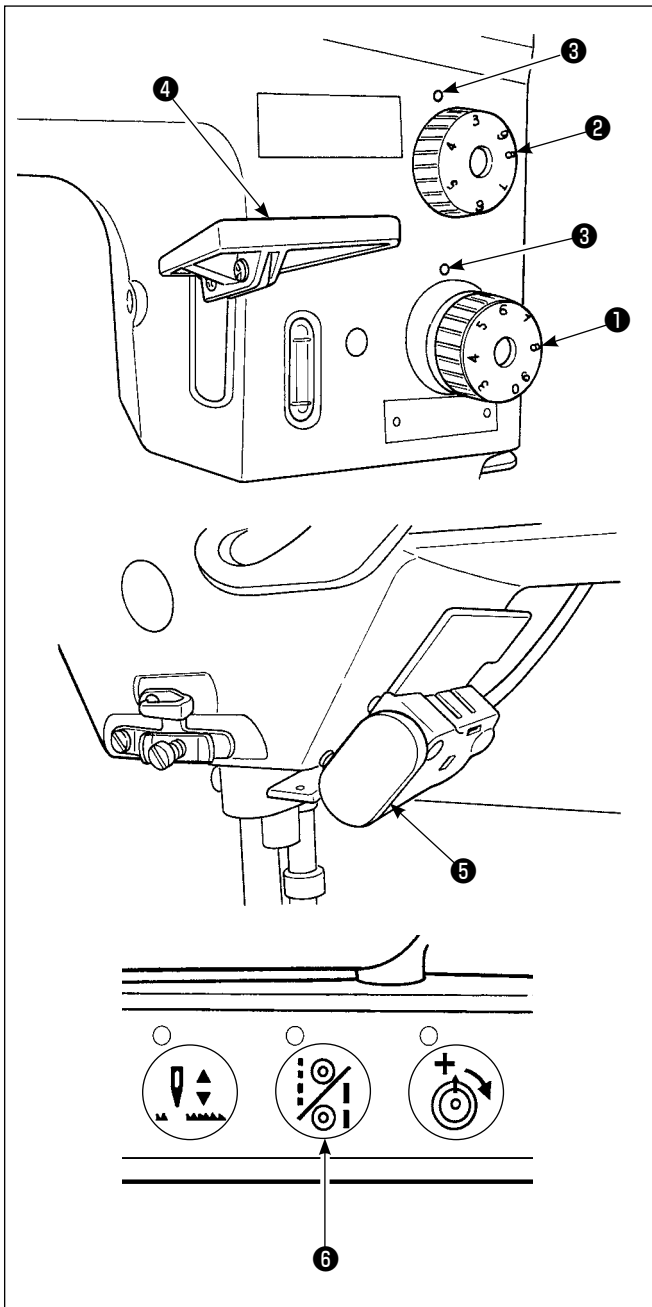


WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



15. ADJUSTING THE STITCH LENGTH



Turn standard feed adjusting dial ❶ and 2P feed adjusting dial ❷ to align the desired number with marker dot ❸ on the machine dial.

(1) Reverse feed stitching

- 1) Press down reverse feed control lever ❹.
- 2) Reverse feed stitches are made as long as you keep pressing the lever down.
- 3) Release the lever, and the machine will run in the normal feed direction.

(2) Manual one-touch reverse feed stitching

- 1) Press touch-back switch ❺.
- 2) Reverse feed stitches are made as long as you keep pressing the lever down.
- 3) Release the switch, and the machine will run in the normal feed direction.

(3) Changing over the stitching pitch (LU-2810-7 and -2860-7)

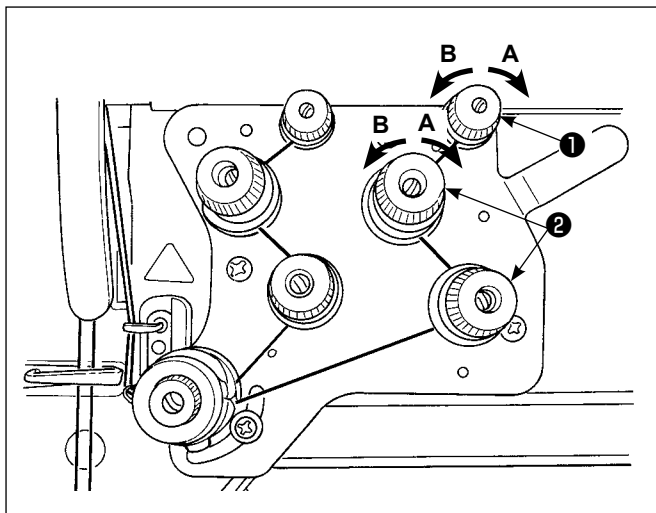
- 1) Press stitching pitch changeover switch ❻ to change over the stitch length to the one corresponding to the scale mark on the 2P feed adjusting dial. (The LED on the switch lights up.)

1. Set 2P feed adjusting dial ❷ at a value smaller than the value set by standard feed adjusting dial ❶.
2. Adjust the 2P feed adjusting dial when the stitching pitch changeover switch is placed in OFF.
3. Scale mark on the 2P feed adjusting dial smaller than 3 (at which the dial is stopped by the dial stopper) is used for the 0 (zero) alignment of the 2P dial. Scale marks smaller than 3 cannot be used.



Refer to "30. OPERATION SWITCHES (LU-2810-7, LU-2860-7)" p.29 for the details of the 2P device.

16. THREAD TENSION



(1) Adjusting the needle thread tension

- 1) Turn thread tension nut No. 1 ❶ clockwise **A** to shorten the length of thread remaining on the top of needle after thread trimming. Turn the nut counterclockwise **B** to lengthen it.
- 2) Turn thread tension nut No. 2 ❷ clockwise **A** to increase the needle thread tension, or counterclockwise **B** to decrease it.



Apply the same tension to both of the thread tension nut No. 2.

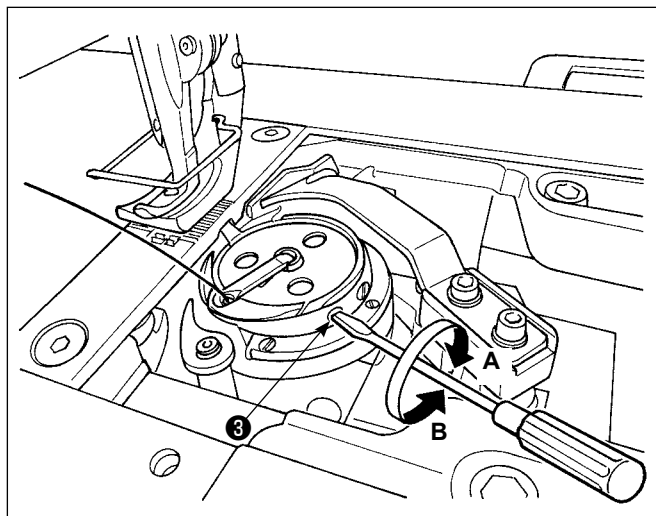


In the case, the length of thread remaining at the needle tip cannot be increased, replace the spring of tension controller No. 1 with 22945505 which is separately available.



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(2) Adjusting the bobbin thread tension

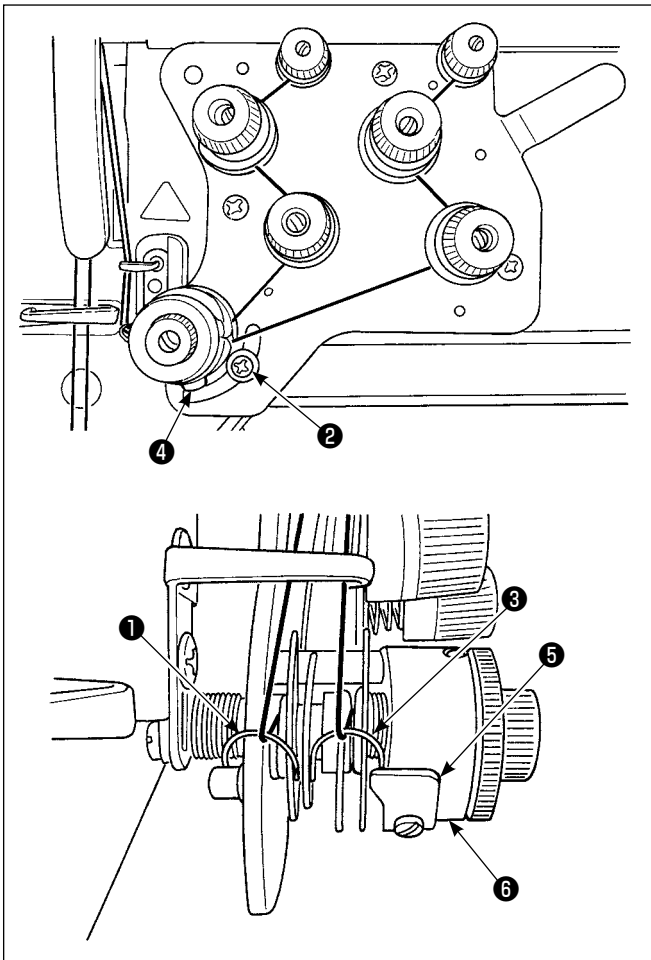
Turn tension adjustment screw ❸ clockwise **A** to increase the bobbin thread tension, or counterclockwise **B** to decrease it.

17. THREAD TAKE-UP SPRING



WARNING :

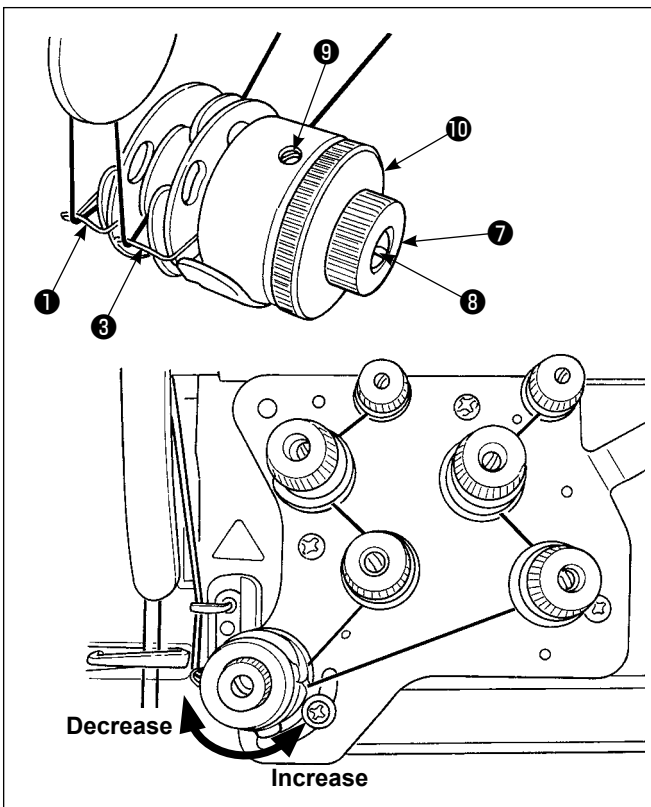
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(1) When you want to change the stroke of the thread take-up spring

- 1) Loosen screw ② . Adjust thread take-up spring ① by moving it in the slot.
- 2) Loosen screw ④ . Adjust thread take-up spring ③ by moving thread take-up spring adjusting plate ⑤ along thread take-up spring base ⑥ .

* The LU-2810 and -2810-7 do not have thread take-up spring ③ .

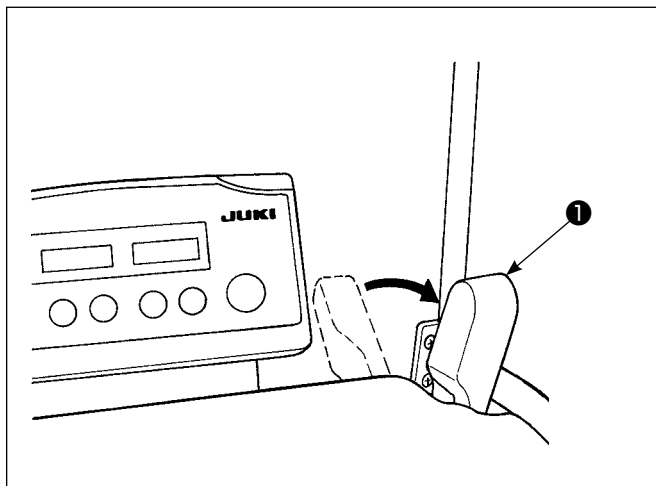


(2) When you want to change the tension of the thread take-up spring

- 1) To adjust the tension of thread take-up spring ① , loosen nut ⑦ first. Turn spring shaft ③ counter-clockwise to increase the tension or clockwise to decrease it.
After the adjustment, fix the stud by tightening nut ⑦ .
- 2) To change the tension of thread take-up spring ③ , loosen screw ⑨ first. Turn nut ⑩ counter-clockwise to increase the tension or clockwise to decrease it.
After the adjustment, fix nut by tightening screw ⑨ .

* The LU-2810 and -2810-7 do not have thread take-up spring ③ .

18. HAND LIFTER



To lift the presser foot manually, pull hand lifter ❶ in the direction of the arrow.

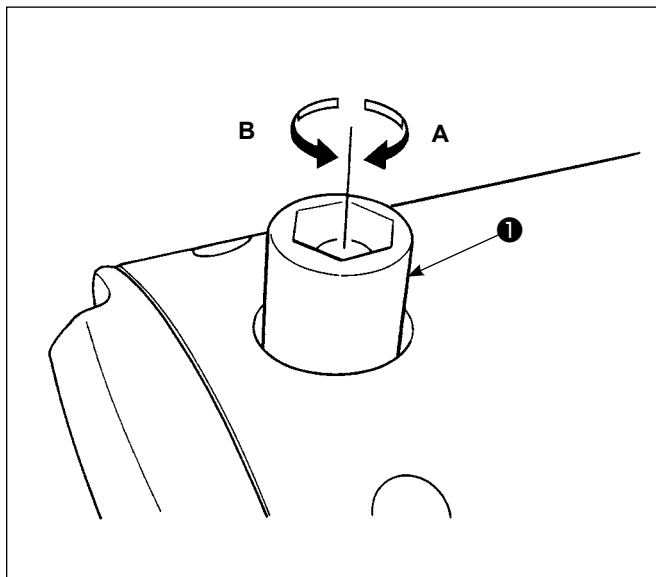
This makes the presser foot rise 10 mm and stay at that position.

19. ADJUSTING THE PRESSURE OF THE PRESSER FOOT



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



Turn presser spring regulating dial ❶ clockwise **A** to increase the pressure of the presser foot, or counter-clockwise **B** to decrease it.



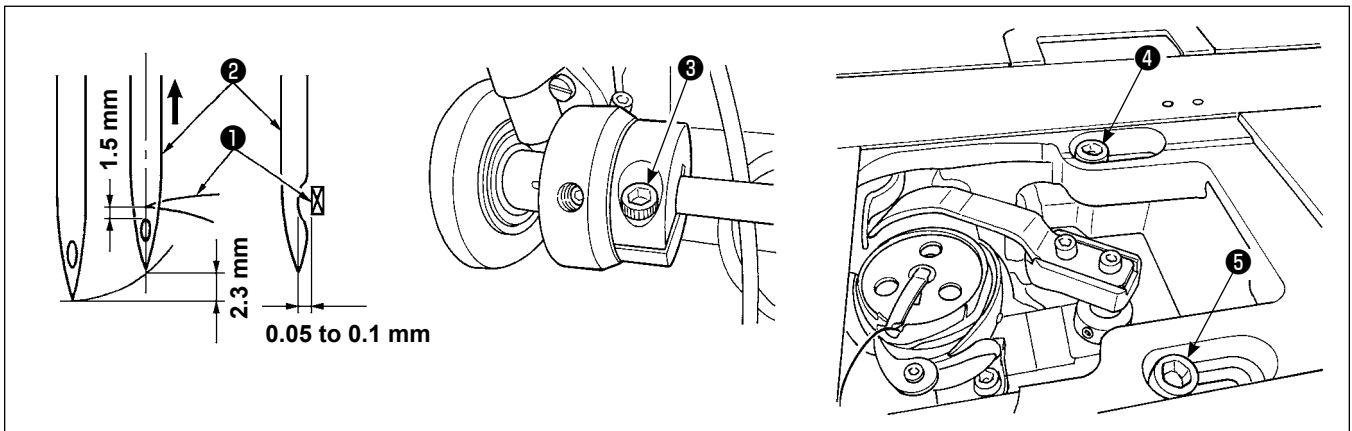
Be sure to operate the sewing machine with the pressure of the presser foot minimized as long as the presser foot securely holds the material.

20. NEEDLE-TO-HOOK RELATION



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Adjust the standard feed adjusting dial to "0". (**Caution 1**)
- 2) Loosen hook driving shaft set collar clamping screw ③, and turn the handwheel counterclockwise to make the needle bar ascend by 2.3 mm from the lowest position of its stroke.
- 3) In the state described in 2), align blade point ① of the hook with the center of needle ②, and tighten hook driving shaft set collar clamping screw ③. At this time, a clearance of 1.5 mm is provided between the blade point of the hook and the top end of the needle eyelet.
- 4) Loosen setscrews ④ and ⑤ of the hook driving shaft saddle on the top face of the bed. Adjust the clearance between the blade point of the hook and the needle to 0.05 to 0.1 mm by moving the hook driving shaft saddle to the right or left to change its position. Then, tighten setscrews ④ and ⑤.
- 5) Align the largest scale mark of the standard feed adjusting dial with the marker dot on the machine arm. Check to be sure that the blade point of the hook does not come in contact with the needle.



1. If stitch skipping and thread breakage occur when using elastic thread such as vinylon, adjust the hook timing with the pitch used for sewing.
2. The operation panel could come in contact with the thread stand when tilting the machine head. To protect the relevant parts from contact, shift the thread stand to a position at which the thread stand does not interfere with the control panel.



[Only for the LU-2810-7 and LU-2860-7]

To check the needle bar position as described in the aforementioned 2) [i.e., "...the needle bar ascend by 2.3 mm from the lowest position of its stroke"], you may use the display of the main shaft rotation angle under the "machine head adjustment mode" of the SC-922.

Increase the numerical value displayed when the needle bar is in its lowest position of its stroke under the "machine head adjustment mode" by 25 degrees of an angle, the needle bar goes up by 2.3 mm. (When the needle bar ascends by 2.3 mm from its lowest position of its stroke, the main shaft rotation angle is 25 degrees of an angle.)

* In the case of adjusting the needle-to-hook relation under the "machine head adjustment mode", do not press (+) switch.

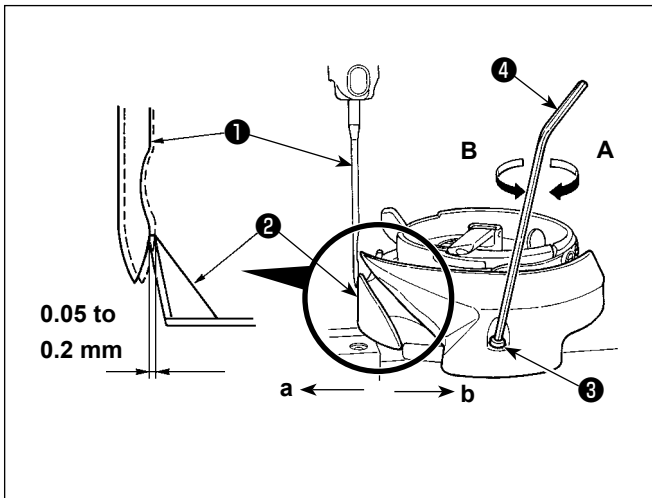
Refer to "II-10. Adjustment of the machine head" in the Instruction Manual for the SC-922 for the machine head adjustment mode.

21. ADJUSTING THE HOOK NEEDLE GUARD



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



When a hook has been replaced, be sure to check the position of the hook needle guard.

As the standard position of the hook needle guard, hook needle guard **2** must push the side face of needle **1** to lean the needle by 0.05 to 0.2 mm away from its straight position.

If the state of the hook is not as shown above, fit hexagon wrench **4** into **3** of needle guard adjusting screw and adjust as follows:

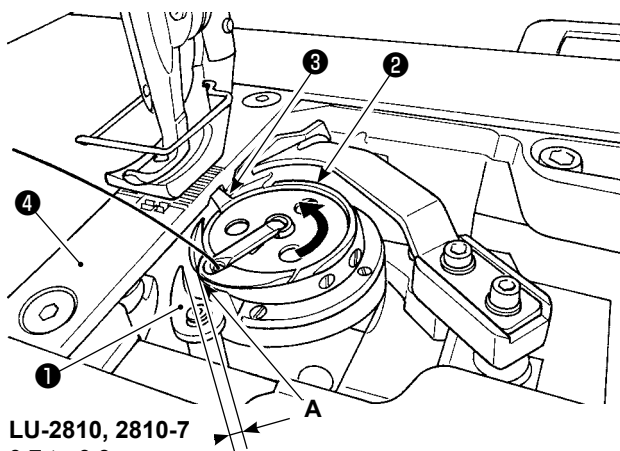
- 1) To bend the hook needle guard in direction **a**, turn the needle guard adjusting screw in direction **A**.
- 2) To bend the hook needle guard in direction **b**, turn the needle guard adjusting screw in direction **B**.

22. ADJUSTING THE BOBBIN CASE OPENING LEVER



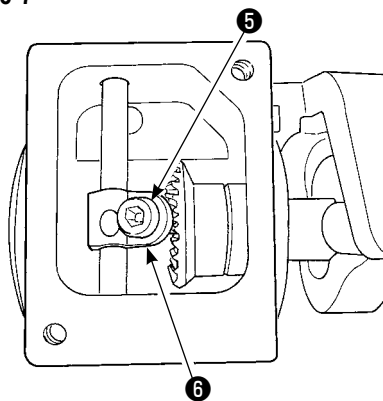
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

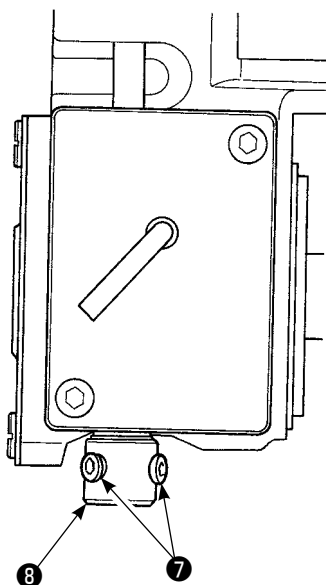


LU-2810, 2810-7
0.7 to 0.9 mm
LU-2860, 2860-7
0.9 to 1.1 mm

LU-2810, 2810-7



LU-2860, 2860-7



LU-2810, LU-2810-7

- 1) Turn the handwheel in the normal direction of rotation to bring bobbin case opening lever ① to the closest position to inner hook ② .
- 2) Turn inner hook ② in the direction of the arrow until stopper ③ is pressed against the slits in throat plate ④ .
- 3) Loosen bobbin case opening lever crank set-screw ⑤ . Adjust the clearance between the bobbin case opening lever and protruding portion A of the bobbin case to 0.7 to 0.9 mm. Tighten setscrew ⑤ while pressing down bobbin case opening lever crank ⑥ .

LU-2860, LU-2860-7

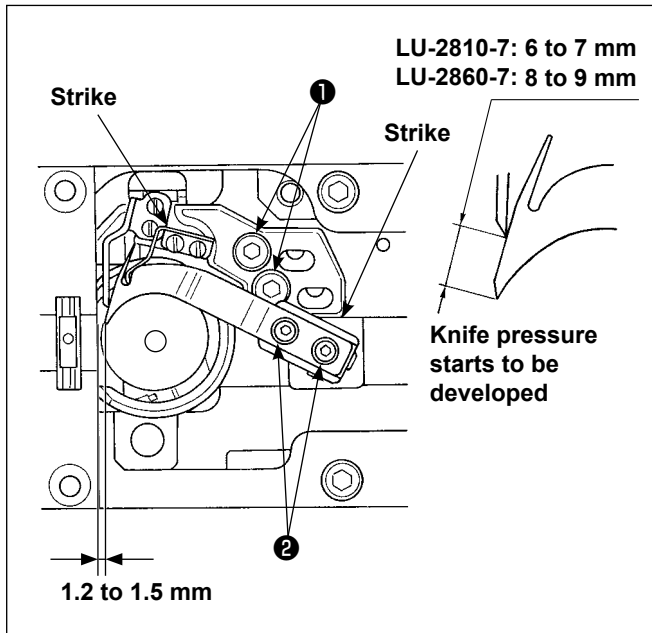
- 1) Turn the handwheel in the normal direction of rotation to bring bobbin case opening lever ① to the closest position to inner hook ② .
- 2) Turn inner hook ② in the direction of the arrow until stopper ③ is pressed against the slits in throat plate ④ .
- 3) Loosen setscrews ⑦ of the bobbin case opening lever sleeve. Adjust the clearance provided between the bobbin case opening lever and projection A of the bobbin case to 0.9 to 1.1 mm. Tighten setscrews ⑦ while pressing bobbin case opening lever ① downward and pressing the bobbin case holding lever sleeve ⑧ upward.

23. POSITION OF THE COUNTER KNIFE AND ADJUSTMENT OF THE KNIFE PRESSURE



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Move the moving knife by hand to its forward travel end.

• Adjusting the counter knife

- 2) Loosen counter knife base setscrews **1**. Adjust the position of the counter knife so that top end of the counter knife so that it is spaced 1.2 to 1.5 mm from the end face of the throat plate in terms of the lateral direction, and so that it is pressed against the stepped section (surface on the moving knife shaft side) of hook driving shaft saddle in terms of the longitudinal direction. Then, tighten setscrews **1**.

• Adjusting the knife pressure

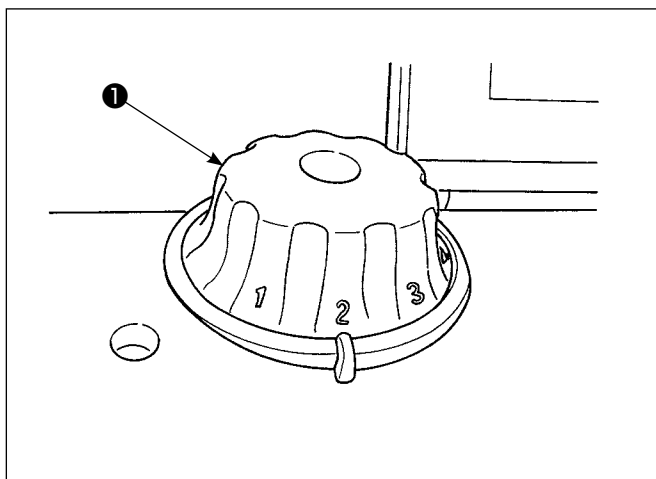
- 3) Loosen setscrews **2** in the moving knife. Turn the handwheel to move the moving knife and adjust the knife pressure. As the standard adjustment, the knife pressure is applied from the time when the distance from the tip of the moving knife to the tip of the counter knife becomes 6 to 7 mm for the LU-2810-7, and 8 to 9 mm for the LU-2860-7.



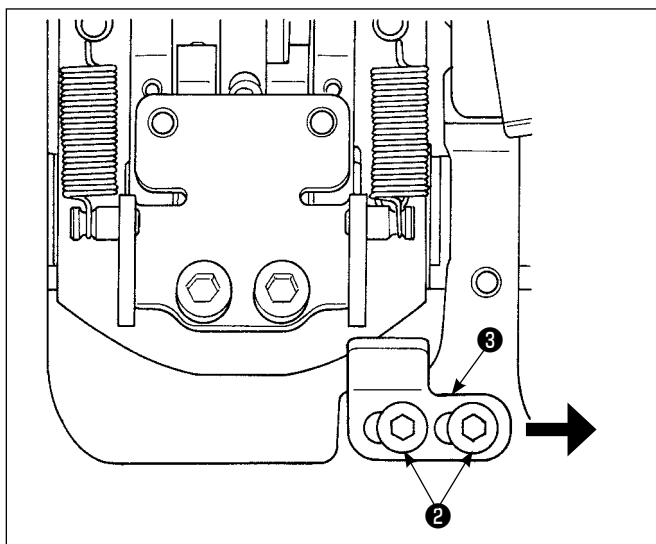
Adjust the knife pressure in the state that the clamp spring does not come in contact with the moving knife (the clamp pressure is not developed).

Be sure to carefully prevent from getting injured by the moving knife, counter knife, blade point of the hook, etc.

24. ADJUSTING THE AMOUNT OF THE ALTERNATING VERTICAL MOVEMENT OF THE WALKING FOOT AND THE PRESSER FOOT



Adjust the amount of the alternating vertical movement of the walking foot and the presser foot using dial ❶. Turn the dial clockwise to increase the amount of the alternating vertical movement of the walking foot and the presser foot, or counterclockwise to decrease it.



For the standard gauge type machine, the amount of the alternating vertical movement of the walking foot and the presser foot has been factory-adjusted to 6.5 mm at the time of shipment.

To cancel the restriction to the amount of the alternating vertical movement of the walking foot and the presser foot, remove the top cover, loosen setscrews ❷ and shift stopper ❸ to the right.



To release the stopper by means of the standard gauge, the presser foot may interfere with the walking foot. The presser foot may also interfere with the needle bar when a heavy-weight material is used. Make sure that the presser foot interferes with neither the walking foot nor the presser bar before operating the sewing machine.

25. SEWING SPEED TABLE

Operate the sewing machine at a speed equal to or lower than the maximum sewing speed selected from those shown in the table below according to the sewing conditions.

For the LU-2810-7 and -2860-7, the sewing speed is automatically set according to the amount of the alternating vertical movement of the walking foot and the presser foot.

In the case the stitch length exceeds 7 mm, change the maximum sewing speed referring to "6. Function setting of SC-922" in the Instruction Manual for the SC-922.

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 7 mm or less	Stitch length : More than 7 mm and 9 mm or less
Less than 3 mm	3,000 sti/min *	2,000 sti/min
3.25 mm to less than 4 mm	2,400 sti/min	2,000 sti/min
4.25 mm to less than 5 mm	2,000 sti/min	2,000 sti/min
5.25 mm to less than 9 mm	1,800 sti/min	1,800 sti/min

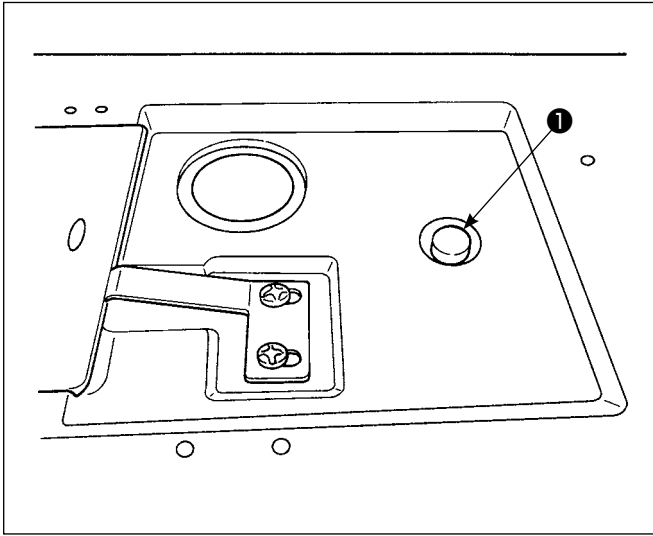
* For the LU-2860 and -2860-7, the maximum sewing speed is 2,700 sti/min.

26. RESETTING THE SAFETY CLUTCH



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



The safety clutch functions when an excessive load is applied to the hook or the other components during sewing. At this time, the hook will never rotate even if turning the handwheel. When the safety clutch has functioned, remove the cause and reset the safety clutch as given in the following procedure.

- 1) Pressing push button ❶ located on the top surface of the machine bed, strongly turn the handwheel in the reverse direction of rotation.
- 2) The resetting procedure completes when the handwheel clicks.



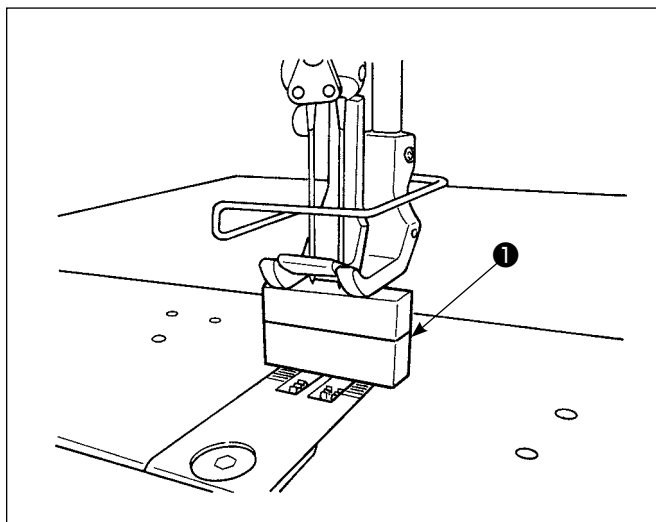
Turn the handwheel by hand, and confirm that push button ❶ has returned.

27. ADJUSTING THE AUTOMATIC PRESSER FOOT LIFTER

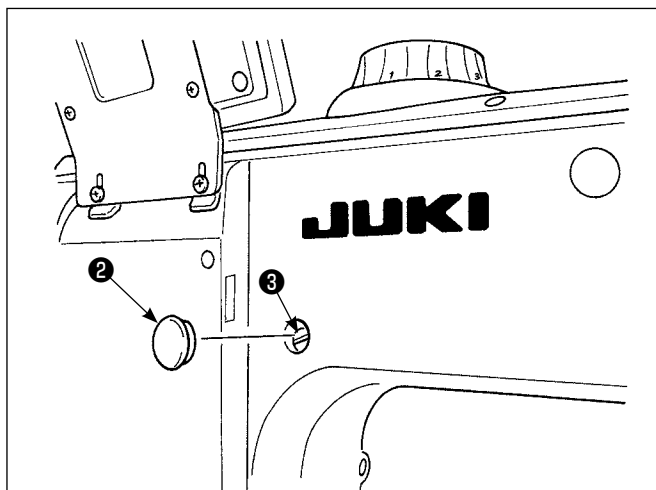


WARNING :

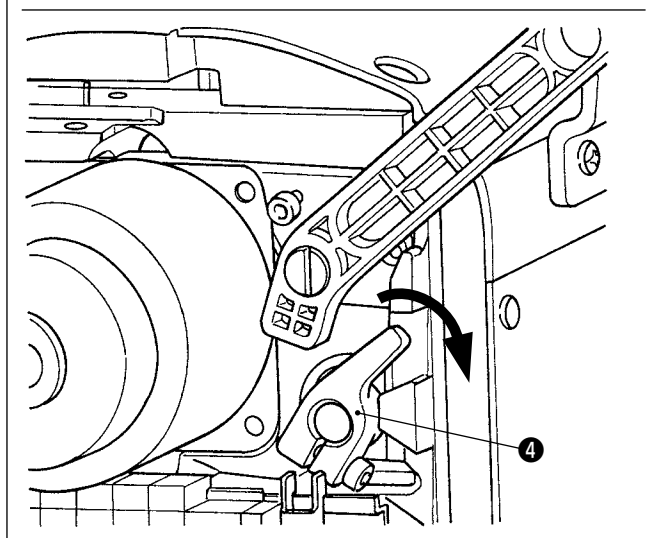
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Turn the power ON. Carry out thread trimming once. Turn ON the automatic presser lifter.
- 2) Place a 20 mm spacer ① under the presser foot.



- 3) Remove rubber cap ② from the rear face of the machine arm. Loosen setscrew ③ .
- 4) Turn presser bar lifting arm ④ in the direction of the arrow until it will go no further. Then, tighten setscrew ③ .

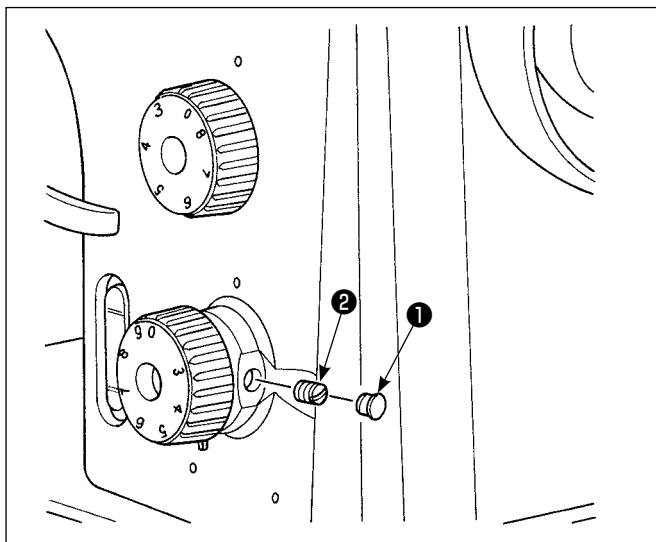


For the standard gauge type machine, the top end of the walking foot interferes with the needle bar frame when the auto-lifter is used in the case the amount of the alternating vertical movement of the walking foot and the presser foot is set at 2 mm or smaller and in the case it is set at 7 mm or more and the reverse-rotation needle-up is carried out.



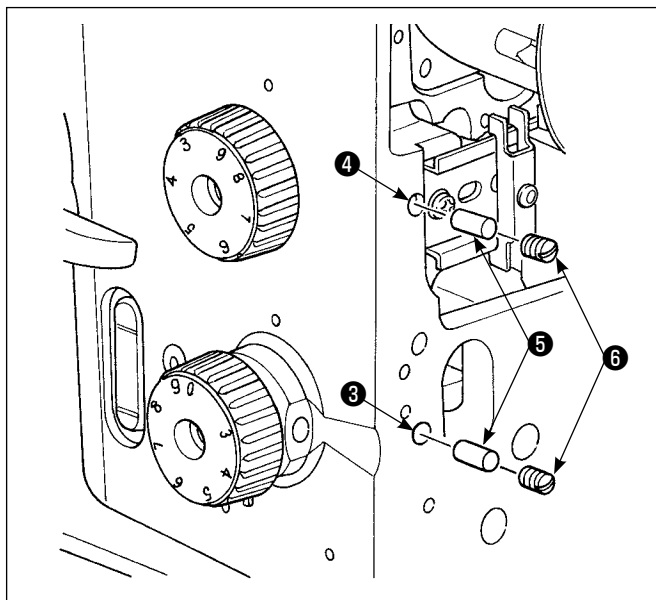
To use the machine with the amount of the alternating vertical movement of the walking foot and the presser foot set at 2 mm or less, set the lifting amount of the presser foot by means of the auto-lifter at 17 mm or less.

28. FIXING THE FEED ADJUSTING DIAL



If the feed adjusting dial moves out of the set position when the automatic reverse feed device is operated:

- 1) Remove rubber cap ❶ . Tighten screws ❷ .



To prohibit the adjustment of the feed adjusting dial:

- 1) Remove the motor cover or the belt cover.
- 2) Insert stopper pin ❺ and screw ❻ in tapped hole ❸ (or holes ❸ and ❹ for the LU-2810-7 and -2860-7) and tighten it.



Stopper pin ❺ and screw ❻ are separately available.

Part number of stopper pin : TA0440401MO

Part number of screw : SM8060612TP

29. NORMAL-/REVERSE-FEED STITCH NEEDLE ENTRY POINTS ALIGNMENT AT THE TIME OF AUTOMATIC REVERSE FEED STITCHING (LU-2810-7, LU-2860-7)

When the sewing speed or stitch pitch is changed, the normal- and reverse-feed stitch needle entry points may not be aligned at the time of automatic reverse feed stitching.

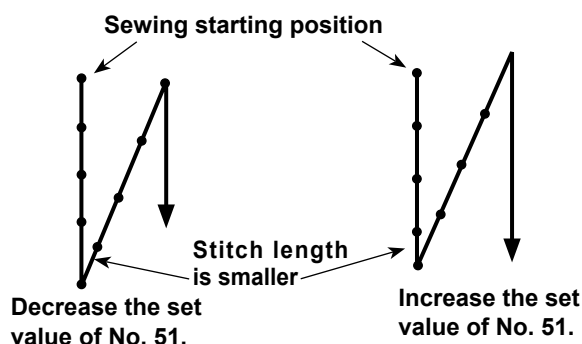
In such a case, correct the alignment of needle entry points by changing the ON/OFF timing of the automatic reverse feed cylinder. If it is difficult to correct the timing of the automatic reverse feed cylinder because of the large stitch pitch, it is recommended to decrease the reverse feed stitching speed.

Refer to "III-8. Detailed explanation of selection of functions ⑩ Compensation of timing of the solenoid for reverse feed stitching" in the Instruction Manual for the SC-922 for detail.

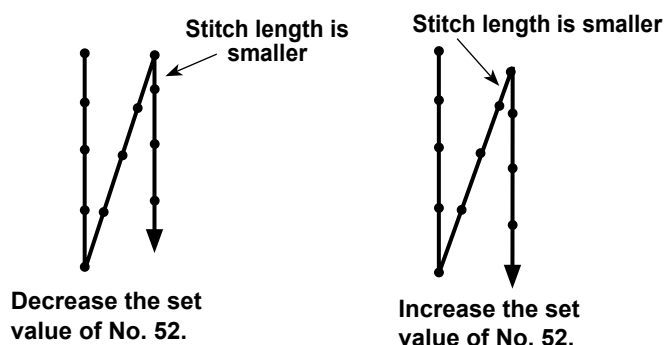
Normal- and reverse-feed stitches may need to be adjusted according to the stitch pitch to be used. Refer to the Engineer's Manual for how to adjust the stitches.

- 1) How to align needle entry points of the reverse feed stitching with those of the normal feed stitching
Carry out "correction of the timing of the reverse feed stitching" according to the difference between the needle entry points of the reverse feed stitching and those of the normal feed stitching.
Refer to "III-6. Setting the SC-922 functions" in the Instruction Manual for the SC-922 for how to carry out the "correction of the timing of the reverse feed stitching".

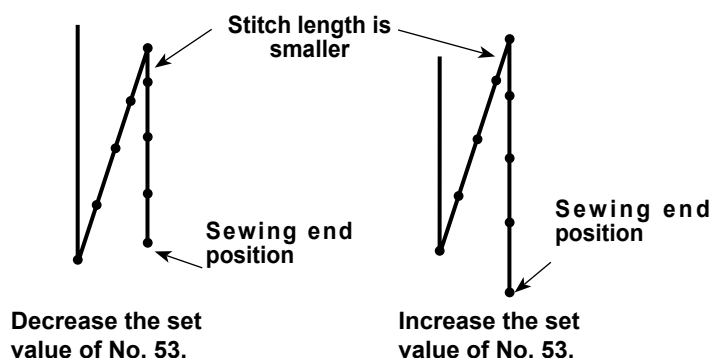
- ① ON-timing of the reverse feed stitching at the beginning of sewing (Function setting No. 51)



- ② Correction of the OFF-timing of the reverse feed stitching at the beginning of sewing (Function setting No. 52)



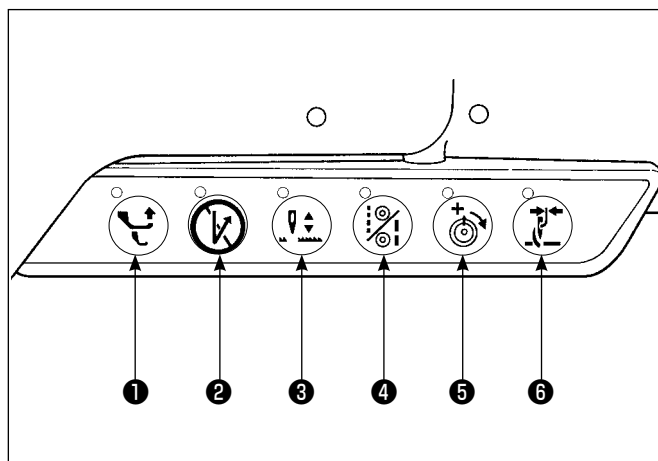
- ③ Correction of the OFF-timing of the reverse feed stitching at the end of sewing (Function setting No. 53)



- 2) Reverse feed stitching speed on the basis of stitch pitch
This speed can be changed using Function setting No. 8.

	Default value	Recommended value	Recommended value
Stitch pitch (mm)	3 to 6	7 to 8	9
Reverse feed stitching speed (sti/min)	600	500	400

30. OPERATION SWITCHES (LU-2810-7, LU-2860-7)



① Alternating vertical movement amount change-over switch

If this switch is pressed the amount of the alternating vertical movement of the walking foot and the presser foot will be maximized. (Lamp above the switch lights up)

Use this switch when a multilayered portion of the sewing product is not smoothly fed.

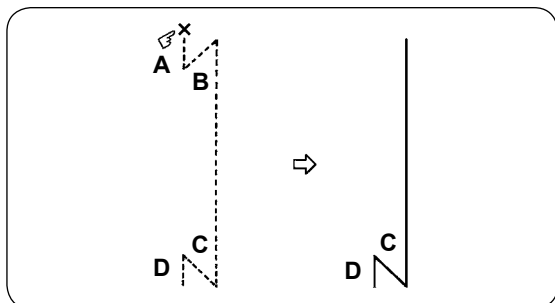
To change over the amount of the alternating vertical movement of the walking foot and the presser foot by means of the knee switch, join the knee switch and the mounting plate, supplied with the unit, together and fix them on the table with wood screw.


For the wiring, refer to **"31. KNEE SWITCH"** p.31.

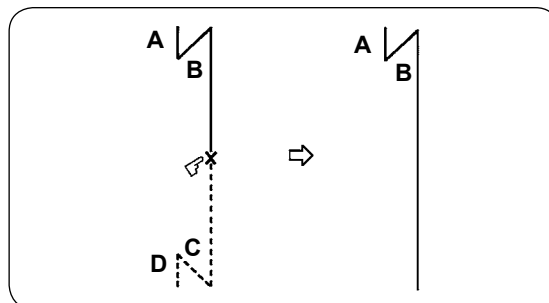
② Automatic reverse feed stitching cancellation/addition switch


- If this switch is pressed when the following automatic reverse feed stitching has been specified, the reverse stitching will not take place (for once immediately after it is pressed). (Example 1)
- If this switch is pressed when no automatic reverse feed stitching has been specified, the reverse feed stitching will take place (once immediately after it is pressed). (Example 2)

(Example 1) In the case where both automatic reverse feed stitching for start and that for end have been specified :

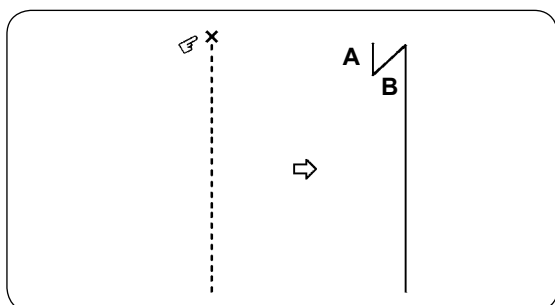



If the  switch is pressed before starting sewing, the automatic reverse feed stitching for start (between **A** and **B**) will not be carried out.

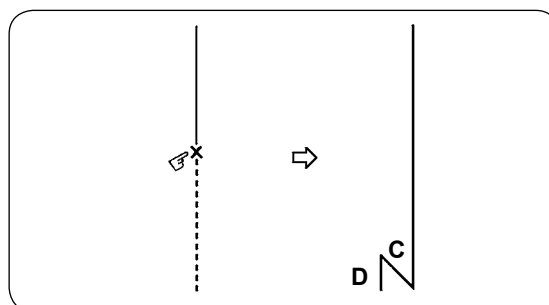



If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between **C** and **D**) will not be carried out.

(Example 2) In the case where neither automatic reverse feed stitching for start nor that for end have been specified :



If the  switch is pressed before starting sewing, the automatic reverse feed stitching for start (between **A** and **B**) will be carried out.



If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between **C** and **D**) will be carried out.

③ Needle lifting switch

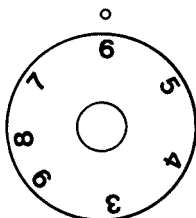
If this switch is pressed, the machine will travel from the needle-down stop position to the needle-up stop position.



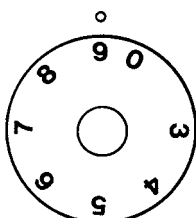
When raising the machine head which has been tilted, do not hold the operation switch to raise it.

Example

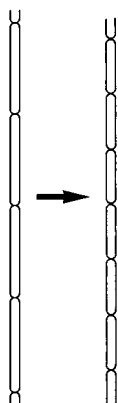
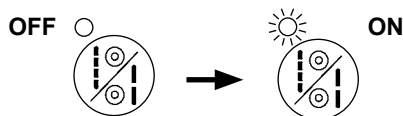
· 2P feed adjusting dial scale : 6



· Standard feed adjusting dial scale : 9



· If this switch is pressed, stitch length is changed over from 9 to 6.



· If this switch is pressed again, stitch length returns from 6 to 9.

④ 2P switch

If this switch is pressed, the stitch length is changed over to that of the scale on the 2P feed adjusting dial. (Lamp in the button is lit up.)



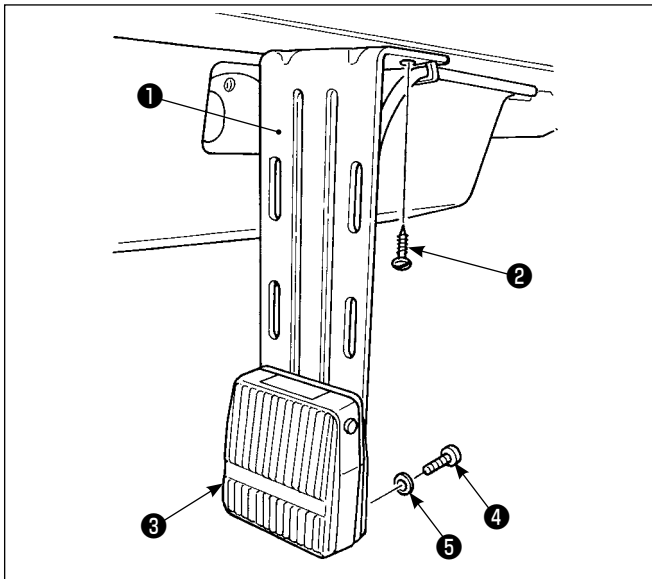
Be sure to make the number of 2P feed adjusting dial less than that of the standard feed adjusting dial.

⑤ Needle thread tension changeover switch

When the switch is pressed, the double tension function is selected to increase the needle thread tension. (The lamp above the switch is lit up.)

⑥ This is not used for the LU-2810-7 and -2860-7.


31. KNEE SWITCH



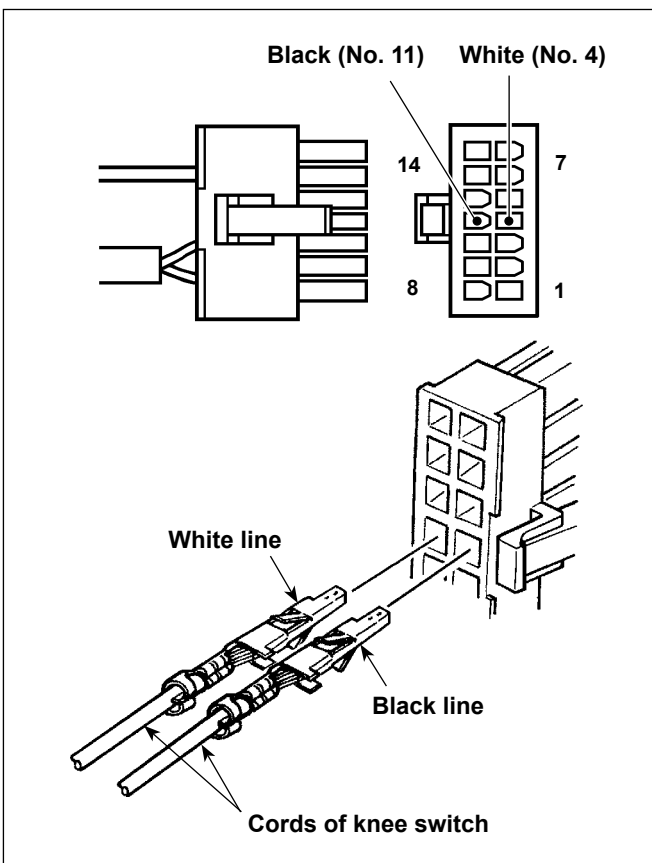
(1) Installation of the knee switch

- 1) Install knee switch mounting plate ① on the underside of the table with wood screw ② supplied with the unit.
- 2) Install knee switch ③ on the knee switch mounting plate with tapping screw ④ and washer ⑤ supplied with the unit.
- 3) Connect the knee switch to #4 and #11 pins of the machine connector 14P which is connected to CN36 of the machine controller.

(2) Functions of the knee switch

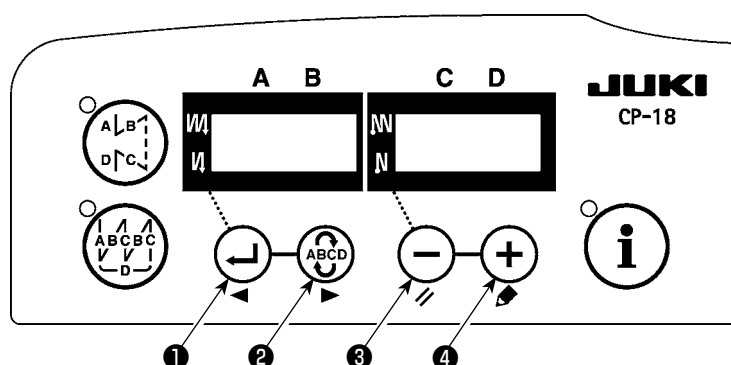
If knee switch ③ is pressed, the amount of the alternating vertical movement of the walking foot and the presser foot will be maximized. (Same with the performance carried out by pressing the alternating vertical movement amount change-over switch “” on the machine head.)

The knee switch can be used as the presser lifting switch by setting of the motor. (When the switch is used as the presser lifting switch, the function as the alternating vertical movement amount changeover switch is lost.)



(3) Function setting of the knee switch

• CP-18



- 1) Enter the function setting mode referring to "6. Setting of functions of SC-922, 1)" in the Instruction Manual for the SC-922.

1 2 o P T

- 2) Press switch ① or switch ② to call out function setting No.12 (option input/output function selection).

o P T i n

- 3) Press switch ③ or switch ④ and select the item for "in".

i 3 1 v E r T

The lamps will be on alternately.

L 2 4

- 4) Press switch ② and select display No.i31.

- 5) Press switch ③ or switch ④ to select the knee switch function. Refer to list 1 for the details of the functions.

i 3 1 L 2 4

- 6) Press switch ② and fix the function.

o P T i n

- 7) Press switch ② and end the option input.

E n d

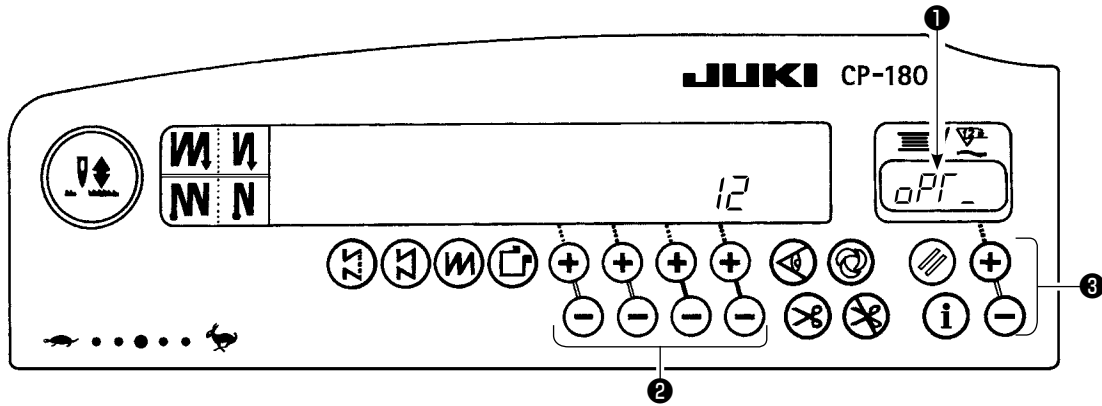
- 8) Select "End" item using switch ③ or switch ④ .

1 2 o P T

- 9) Press switch ① or switch ② and return to the function setting mode.

List 1

Function code	Abbreviation	Functional item	Remarks
5	FL	Presser lifter switch function	Presser output will be ON while the switch is being pressed.
31	ALFL	Presser lifter alternate switch function	Presser output will be ON or OFF each time the switch is pressed.
24	vErT	Alternate vertical movement amount conversion alternate switch function	Alternate vertical movement amount output will be ON or OFF each time the switch is pressed.
25	vSW	Alternate vertical movement amount conversion switch function	Alternate vertical movement amount output will be ON while the switch is being pressed.



1) Enter the function setting mode referring to "18. FUNCTION SETTING SWITCH, 1)" in the Instruction Manual for the CP-180.

2) Select function number 12 according to the function setting method.

3) Select the item of "in" by switch ③ .

4) Select the displayed number "131" by means of switch ② .

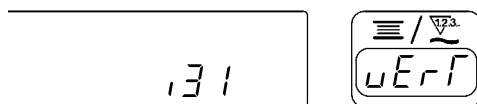
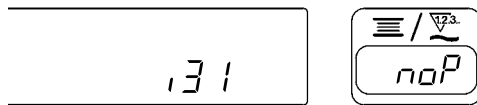
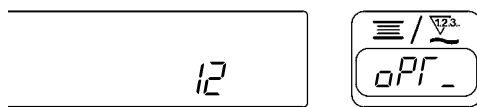
5) Select the knee switch function by switch ③ . Refer to list 1 for the details of the functions.

6) Fix the knee switch function by switch ② .

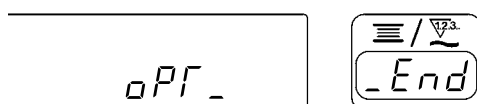
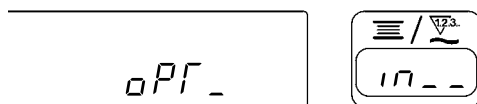
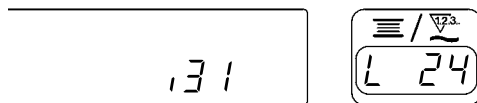
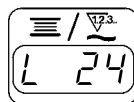
7) The above function is fixed by switch ② .

8) The option input is ended by switch ② .

9) Select the item of "End" by switch ③ , and return to the function setting mode.



The lamps will be on alternately. ↑



32. MOTOR PULLEY AND V-BELT (LU-2810, LU-2860)

The M-type belt should be used.

The relation between the motor pulley and belt length and the sewing speed is as shown below.

Sewing speed	Effective diameter of handwheel	Number of poles	Frequency	Number of revolutions of motor	Effective diameter of motor pulley	V-belt size
2,500 sti/min	Φ 76 mm	2	50 Hz	2,840 rpm	Φ 65 mm	42 inch
			60 Hz	3,400 rpm	Φ 55 mm	41 inch

The 3-phase, 400 W, 2P clutch motor (1/2 HP) should be used.

33. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Troubles	Causes	Corrective measures
<p>1. Thread breakage (Thread frays or is worn out.)</p> <p>(Needle thread trails 2 to 3 cm from the wrong side of the fabric.)</p>	<p>① Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs.</p> <p>② Needle thread tension is too high.</p> <p>③ Bobbin case opening lever provides an excessive clearance at the bobbin case.</p> <p>④ Needle comes in contact with the blade point of hook.</p> <p>⑤ Amount of oil in the hook is too small.</p> <p>⑥ Needle thread tension is too low.</p> <p>⑦ Thread take-up spring works excessively or the stroke of the spring is too small.</p> <p>⑧ Timing between the needle and the hook is excessively advanced or retarded.</p>	<p>○ Remove the sharp edges or burrs on the blade point of hook using a fine emery paper. Buff up the bobbin case resting groove on the throat plate.</p> <p>○ Decrease the needle thread tension.</p> <p>○ Decrease the clearance provided between the bobbin case opening lever and the bobbin. Refer to "22. ADJUSTING THE BOBBIN CASE OPENING LEVER" p.22.</p> <p>○ Refer to "20. NEEDLE-TO-HOOK RELATION" p.20.</p> <p>○ Adjust the amount of oil in the hook properly. Refer to "8. LUBRICATION" p.9.</p> <p>○ Increase the needle thread tension.</p> <p>○ Decrease the tension of the spring and increase the stroke of the spring.</p> <p>○ Refer to "20. NEEDLE-TO-HOOK RELATION" p.20.</p>
2. Stitch skipping	<p>① Timing between the needle and the hook is excessively advanced or retarded.</p> <p>② Pressure of the presser foot is too low.</p> <p>③ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct.</p> <p>④ Hook needle guard is not functional.</p> <p>⑤ Improper type of needle is used.</p>	<p>○ Refer to "20. NEEDLE-TO-HOOK RELATION" p.20.</p> <p>○ Tighten the presser spring regulator.</p> <p>○ Refer to "20. NEEDLE-TO-HOOK RELATION" p.20.</p> <p>○ Refer to "21. ADJUSTING THE HOOK NEEDLE GUARD" p.21.</p> <p>○ Replace the needle with one which is thicker than the current needle by one count.</p>
3. Loose stitches	<p>① Bobbin thread does not pass through the tension spring of the inner hook.</p> <p>② Thread path has been poorly finished.</p> <p>③ Bobbin fails to move smoothly.</p> <p>④ Bobbin case opening lever provides too much clearance at the bobbin.</p> <p>⑤ Bobbin thread tension is too low.</p> <p>⑥ Bobbin has been wound too tightly.</p>	<p>○ Thread the bobbin thread correctly.</p> <p>○ Remove rough parts with a fine emery paper or buff it up.</p> <p>○ Replace the bobbin or hook with a new one.</p> <p>○ Refer to "22. ADJUSTING THE BOBBIN CASE OPENING LEVER" p.22.</p> <p>○ Increase the bobbin thread tension.</p> <p>○ Decrease the tension applied to the bobbin winder.</p>
4. Thread slips off the needle eyelet simultaneously with thread trimming.	① Thread tension given by the tension controller No. 1 is too high.	○ Decrease the thread tension given by the tension controller No. 1.
5. Thread slips off the needle eyelet at the start of sewing.	<p>① Thread tension given by the tension controller No. 1 is too high.</p> <p>② Clamp spring has improper shape.</p> <p>③ Bobbin thread tension is too low.</p>	<p>○ Decrease the thread tension given by the tension controller No. 1.</p> <p>○ Replace the clamp spring with a new one or correct the current one.</p> <p>○ Increase the bobbin thread tension.</p>
6. Thread is not cut sharply.	<p>① The blades of moving knife and counter knife have been improperly adjusted.</p> <p>② The knives have blunt blades.</p> <p>③ Bobbin thread tension is too low.</p>	<p>○ Refer to "23. POSITION OF THE COUNTER KNIFE AND ADJUSTMENT OF THE KNIFE PRESSURE" p.23.</p> <p>○ Replace the moving knife and counter knife with new ones, or correct the current ones.</p> <p>○ Increase the bobbin thread tension.</p>
7. Thread remains uncut after thread trimming. (Bobbin thread trimming failure when stitch length is comparatively short.)	<p>① Initial position of the moving knife has been improperly adjusted.</p> <p>② Bobbin thread tension is too low.</p>	<p>○ Refer to the Engineer's Manual.</p> <p>○ Increase the bobbin thread tension.</p>
8. Thread breaks at the start of sewing after thread trimming.	① The needle thread is caught in the hook.	○ Shorten the length of thread remaining on the needle after thread trimming. Refer to "16. THREAD TENSION" p.17.
9. When a heavy-weight material is sewn, the material warps.	① The feed amount of the top feed is inadequate.	○ Decrease the feed dog height and reduce the feed amount of the bottom feed. (Refer to the Engineer's Manual for the adjustment procedure.)