

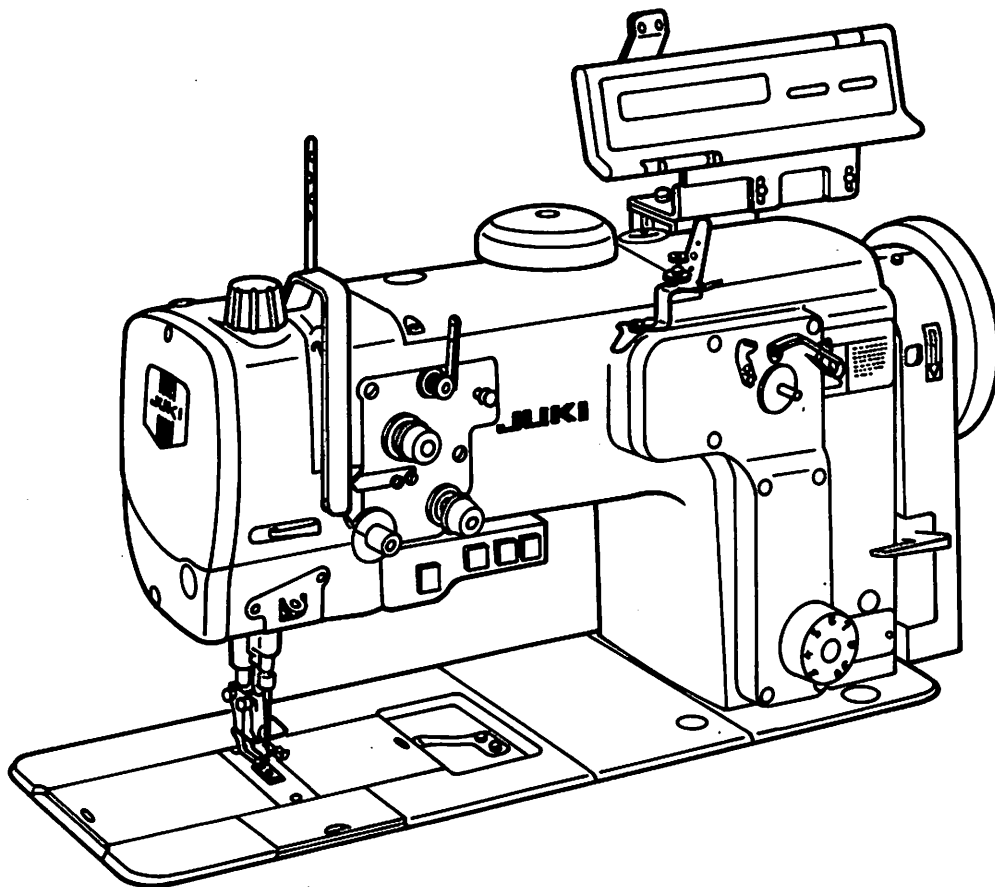
**1-NEEDLE, UNISON-FEED LOCKSTITCH MACHINE
WITH AN AUTOMATIC THREAD TRIMMER**

LU-2210N-7

**2-NEEDLE, UNISON-FEED LOCKSTITCH MACHINE
WITH AN AUTOMATIC THREAD TRIMMER**

LU-2260N-7

INSTRUCTION MANUAL



NOTE : Read safety instructions carefully and understand them before using your LU-2210N-7 and LU-2260N-7. Retain this Instruction Manual for future reference.

IMPORTANT SAFETY INSTRUCTIONS

Congratulations on your purchase of a JUKI machine.

To get the most out of the many functions of this machine and operate it in safety, it is necessary to use this machine correctly.

Please read this Instruction Manual carefully before use. We hope you will enjoy the use of your machine for a long time.

Please remember to keep this manual in a safe place.

1. Observe the basic safety measures, including, but not limited to the following ones, whenever you use the machine.
 2. Read all the instructions, including, but not limited to this Instruction Manual before you use the machine. In addition, keep this Instruction Manual so that you may read it at anytime when necessary.
 3. Use the machine after it has been ascertained that it conforms with safety rules/standards valid in your country.
 4. All safety devices must be in position when the machine is ready for work or in operation. The operation without the specified safety devices is not allowed.
 5. This machine shall be operated by appropriately-trained operators.
 6. For your personal protection, we recommend that you wear safety glasses.
 7. For the following, turn off the power switch or disconnect the power plug of the machine from the receptacle.
 - 7-1 For threading needle(s), looper, spreader etc. and replacing bobbin.
 - 7-2 For replacing part(s) of needle, presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, cloth guide etc.
 - 7-3 For repair work.
 - 7-4 When leaving the working place or when the working place is unattended.
 - 7-5 When using clutch motors without applying brake, it has to be waited until the motor stopped totally.
 8. If you should allow oil, grease, etc. used with the machine and devices to come in contact with your eyes or skin or swallow any of such liquid by mistake, immediately wash the contacted areas and consult a medical doctor.
9. Tampering with the live parts and devices, regardless of whether the machine is powered, is prohibited.
 10. Repair, remodeling and adjustment works must only be done by appropriately trained technicians or specially skilled personnel. Only spare parts designated by JUKI can be used for repairs.
 11. General maintenance and inspection works have to be done by appropriately trained personnel.
 12. Repair and maintenance works of electrical components shall be conducted by qualified electric technicians or under the audit and guidance of specially skilled personnel.

Whenever you find a failure of any of electrical components, immediately stop the machine.
 13. Before making repair and maintenance works on the machine equipped with pneumatic parts such as an air cylinder, the air compressor has to be detached from the machine and the compressed air supply has to be cut off. Existing residual air pressure after disconnecting the air compressor from the machine has to be expelled. Exceptions to this are only adjustments and performance checks done by appropriately trained technicians or specially skilled personnel.
 14. Periodically clean the machine throughout the period of use.
15. Grounding the machine is always necessary for the normal operation of the machine. The machine has to be operated in an environment that is free from strong noise sources such as high-frequency welder.
 16. An appropriate power plug has to be attached to the machine by electric technicians. Power plug has to be connected to a grounded receptacle.
17. The machine is only allowed to be used for the purpose intended. Other used are not allowed.
 18. Remodel or modify the machine in accordance with the safety rules/standards while taking all the effective safety measures. JUKI assumes no responsibility for damage caused by remodeling or modification of the machine.
19. Warning hints are marked with the two shown symbols.





Danger of injury to operator or service staff



Items requiring special attention

FOR SAFE OPERATION

	<ol style="list-style-type: none">1. Keep your hands away from the needle when you turn the power switch ON or while the machine is operating.2. Do not put your fingers into the thread take-up cover while the machine is operating.3. Turn OFF the power switch before tilting the machine head or removing the belt cover and the V belt.4. Never bring your fingers, hair or clothing close to, or place anything on the handwheel, V-belt or motor during operation.5. If your machine is provided with a belt cover, finger guard, do not operate your machine with any of them removed.6. When tilting the machine head, exercise care not to allow your fingers etc. to be caught under the machine head.
	<ol style="list-style-type: none">1. To achieve, security, be sure that the power supply earth wire has been connected before operating the sewing machine.2. Before inserting/removing the power plug, the power switch has to be turned OFF in advance.3. In time of thunder and lightning, stop your work and disconnect the power plug from the receptacle so as to ensure safety.4. When you move the unit from a cold place directly to a warm place, dew condensation may result. Turn ON the power to the unit after you have confirmed there is no fear of dew condensation.

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BEFORE OPERATION

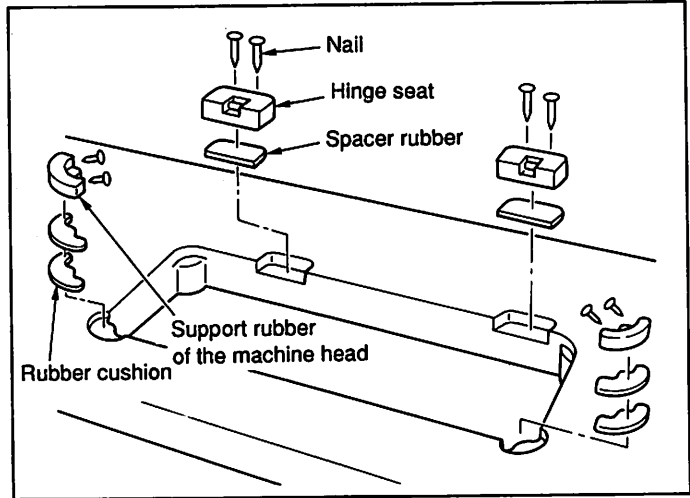


CAUTION
Check the following so as to prevent maloperation of and damage to the machine.

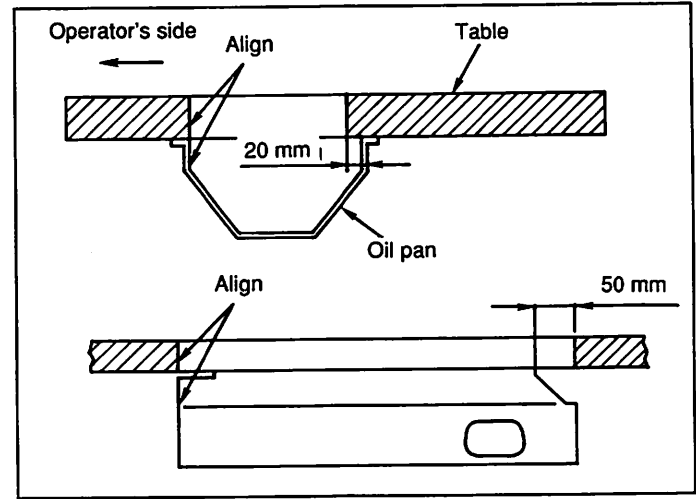
- Before you put the machine into operation for the first time after the set-up, clean it thoroughly. Remove all dust gathering during transportation and oil it well.
- Confirm that voltage has been correctly set. Confirm that the power plug has been properly connected to the power supply.
- Never use 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 head base has been filled with oil.
- For a test run, remove the bobbin case and the needle thread.
- For the first month, run the machine at a speed of 2,800 s.p.m. or less.
- Operate the handwheel after the machine has totally stopped.

SPECIFICATIONS

Model	LU-2210N-7		LU-2260N-7	
Applications	Car seats, furniture, etc.			
Sewing speed	Max. 3,500 s.p.m. See "30. SEWING SPEED TABLE" on page 15.			
Stitch length (max.)	Normal feed : 9 mm Reverse feed : 9 mm		Normal feed : 6 mm Reverse feed : 6 mm	
Needle	SCHMETZ 134 × 35R (Nm 110 to Nm 160)			
Lift of presser foot	Hand lifter lever : 9 mm Knee lifter : 16 mm			
Lubricating oil	JUKI New Defrix Oil No. 1			
Noise	Workplace-related noise at sewing speed n=2230 min ⁻¹ : Lpa 84dB(A) Noise measurement according to DIN 45635-48-A-1.			

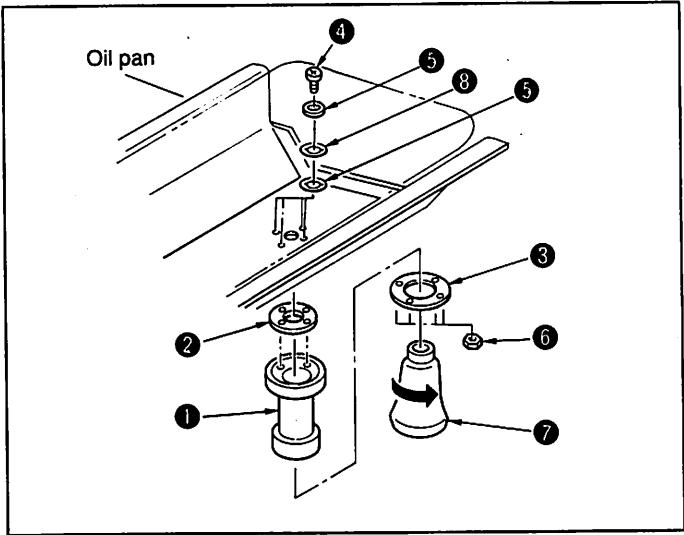


- (1)Attaching the hinge seats and support rubber of the machine head
Fix the hinge seats and the support rubbers supplied with the machine on the table using nails.




- (2)Attaching the oil pan
Fix the oil pan supplied with the machine by tightening eight wooden screws.

2. INSTALLING THE WASTE OIL CONTAINER

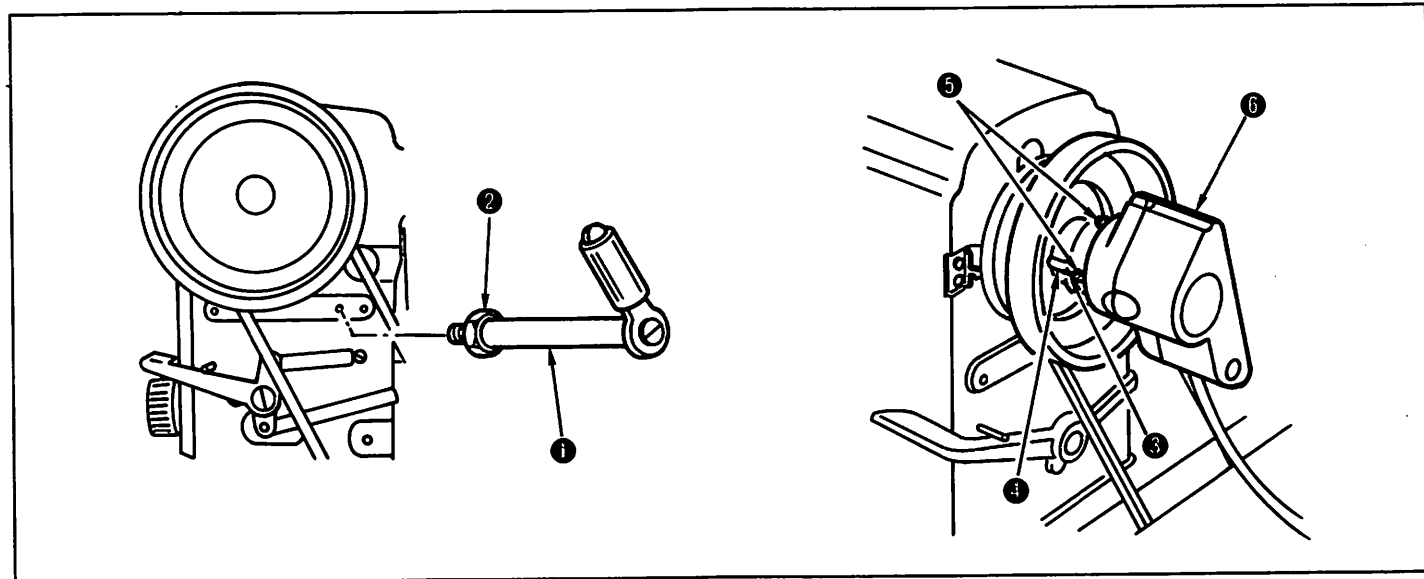


- 1) Attach drain plug ①, oil seal ② and washer ③ to the oil pan. Attach packing ⑤ and washer ⑥ to screw ④ and fix them with nut ⑥.
- 2) After they are fixed, screw in waste oil container ⑦ into drain plug ①.

3. INSTALLING THE SYNCHRONIZER




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

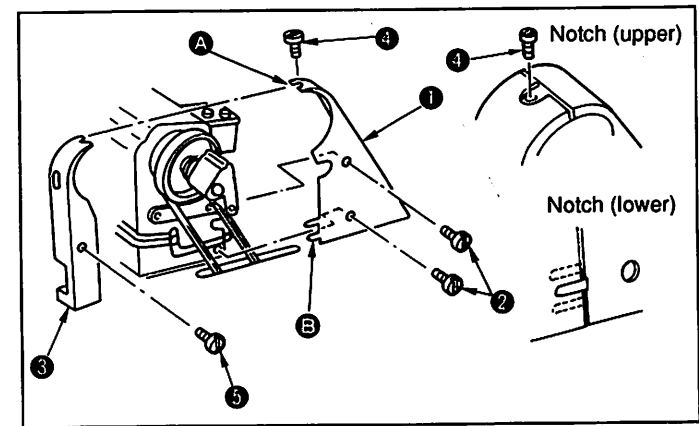


- 1) Attach synchronizer support rod ① to the arm using attaching nut ②.
- 2) Attach synchronizer ⑥ in place with screws ⑤ so that marker line ③ engraved on the synchronizer aligns with projecting portion ④ of the handwheel.

4. ATTACHING THE BELT COVER

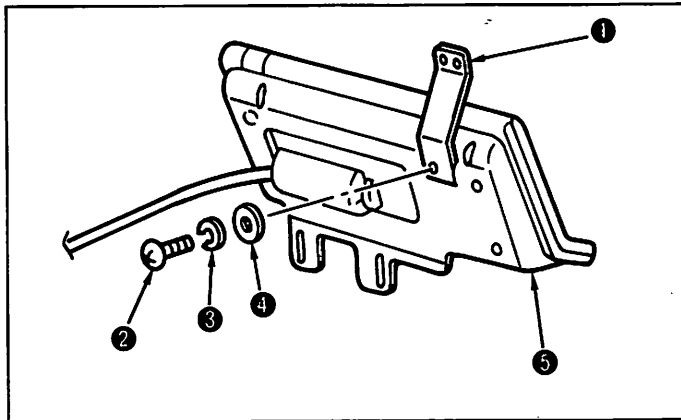


WARNING:
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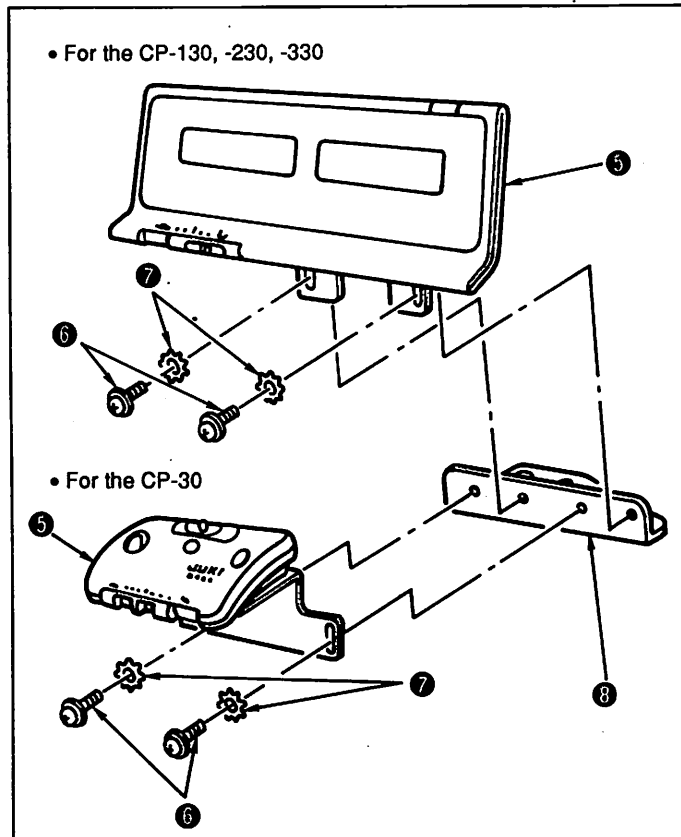


- 1) Fix belt cover (rear) ① on the arm with screws ②.
- 2) Fit belt cover (front) ③ to notch (upper) A and notch (lower) B of the belt cover (rear).
- 3) Fix belt cover (front) ③ with screws ④ and ⑤.

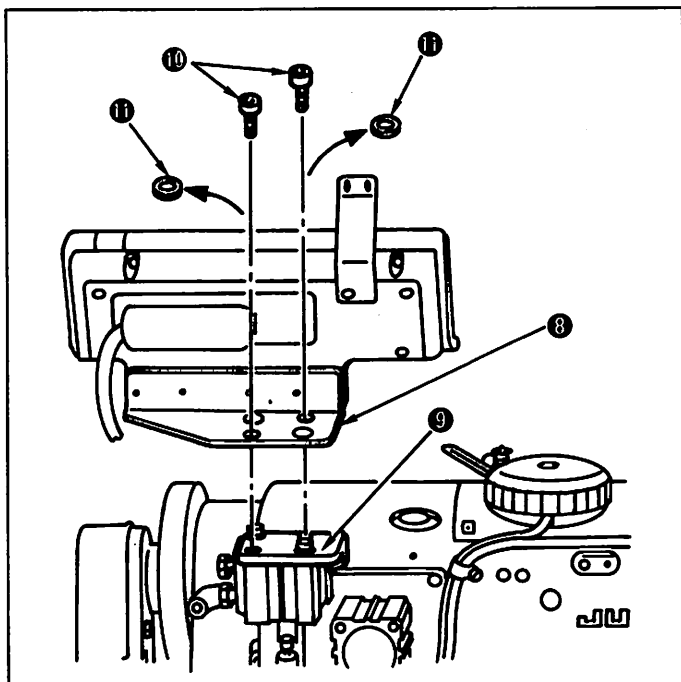
5. INSTALLING THE CONTROL PANEL



- 1) Attach panel thread guide ① to control panel ⑤ using screw ②, spring washer ③ and plain washer ④ supplied with the unit.

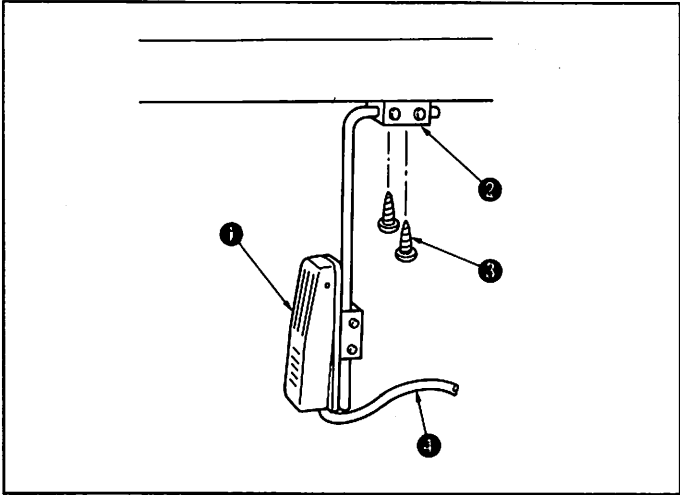


- 2) Attach control panel ⑤ to panel installation auxiliary bracket ⑧ using screws ⑥ with washers and toothed washers ⑦ supplied with the unit.



- 3) Remove screws ⑩ and plain washers ⑪ from reverse feed cylinder mounting base ⑨.
- 4) Attach panel installation auxiliary bracket ⑧ to reverse feed cylinder mounting base ⑨ with screws ⑩. (At this time, plain washers ⑪ are not attached.)

6. INSTALLING THE KNEE SWITCH (Only for the sewing machine equipped with DL16B control unit)

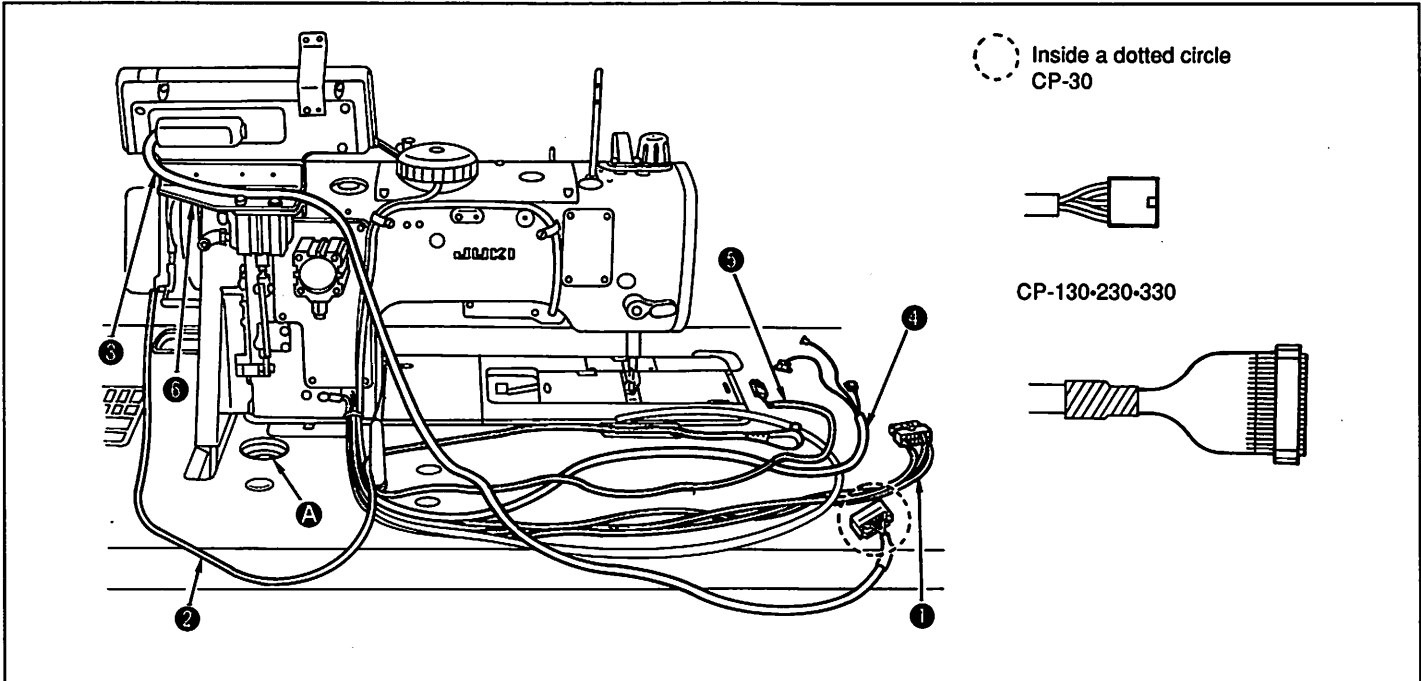


- 1) Attach supporting base ② of knee switch ① onto the underside of the table using wooden screws ③.
- 2) Fix cord ④ to an appropriate position on the table using a staple supplied with the machine so as to prevent the cord from hindering the operation.

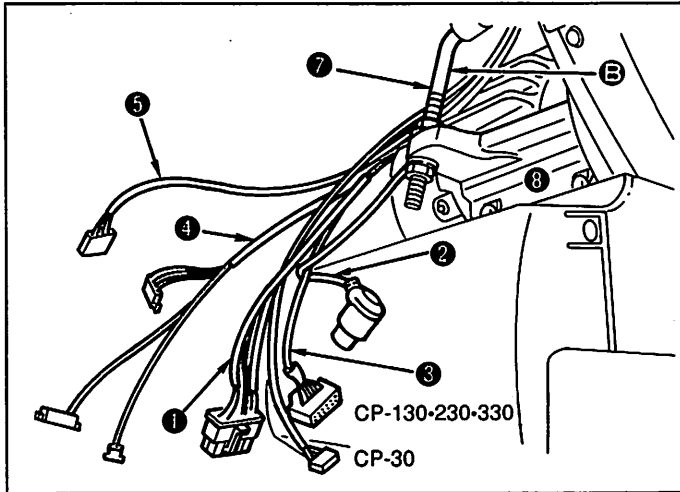
7. CONNECTING THE CORDS



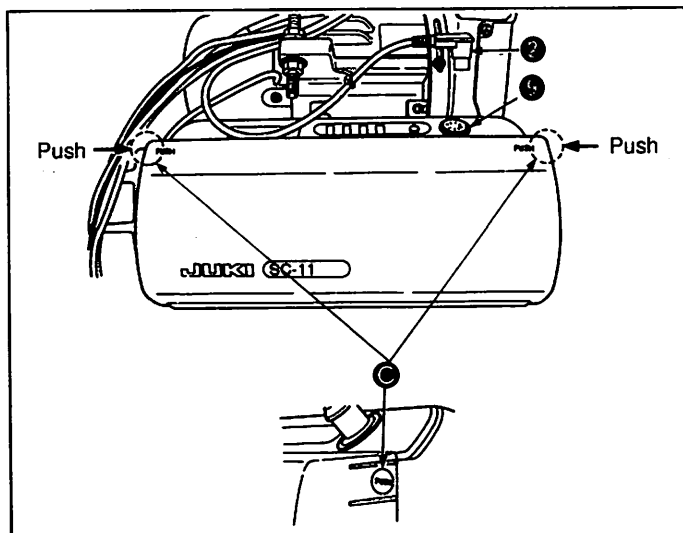
WARNING:
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Pass cords ① of the thread trimming solenoid, etc., synchronizer cord ②, control panel cord ③, operation switch cord ④ and cord ⑤ of the alternating vertical movement dial through hole A in the table to route them under the table.
(Pass cord ③ coming from the control panel CP-130, -230 or -330 over panel installation auxiliary bracket ⑥ first. Then, pass it through hole A in the table.)



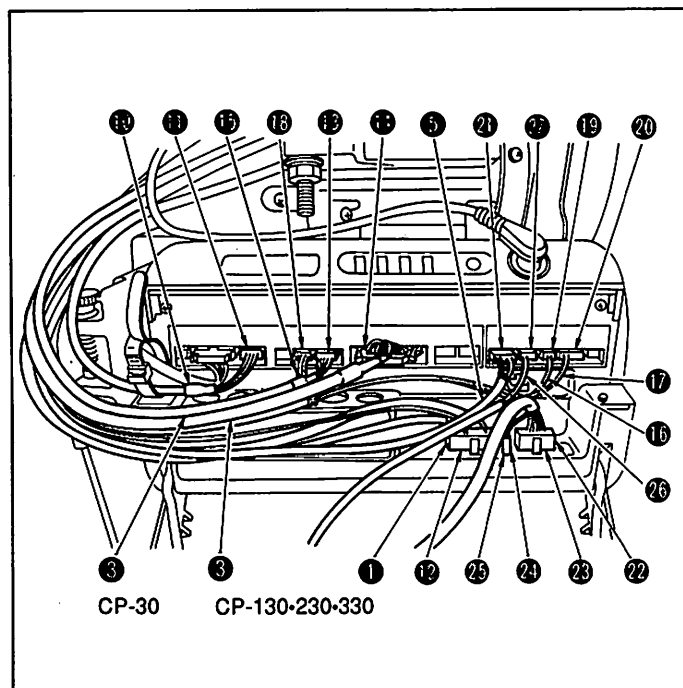
- 2) Pass cords ①, ②, ③, ④ and ⑤ through section B located between belt tension bolt ⑦ and motor ⑧, taking care not to allow the cords to come in contact with the belt.



- 3) Push two points ⑥ located at both sides of the front cover to open the front cover.

(Caution) To open the front cover, remove first the waste oil container from underside of the oil pan to avoid contact. After the cover is closed, return the waste oil container to the previous position.
(Refer to "2. INSTALLATION OF THE WASTE OIL CONTAINER" on page 2.)

- 4) Connect the plug of synchronizer cord ② to connector ⑨ of SC-11.



- 5) Connect 10P plug ⑩ coming from the motor to connector ⑪ located under the identification mark "10P".

- 6) Connect 14P plug ① coming from the machine head to connector ⑫ located under the identification mark "14P".

- 7) Connect plug ③ of the control panel to connector ⑬ (CP-30) located under the identification mark "CP-30" or connector ⑭ (CP-130, -230, -330) located under the identification mark "CP-130-230-330".

- 8) Connect 4P plug ⑮, 2P plug ⑯ and 6P plug ⑰ coming from the machine head to connector ⑱, ⑲ and ⑳ located under the identification mark "4P", "2P" and "6P".

- 9) Connect 6P plug ⑤ coming from the machine head to connector ㉑ located under the identification mark "6P".

- 10) Connect 10P plug ㉒ coming from the air unit to connector ㉓ located under the identification mark "10P".

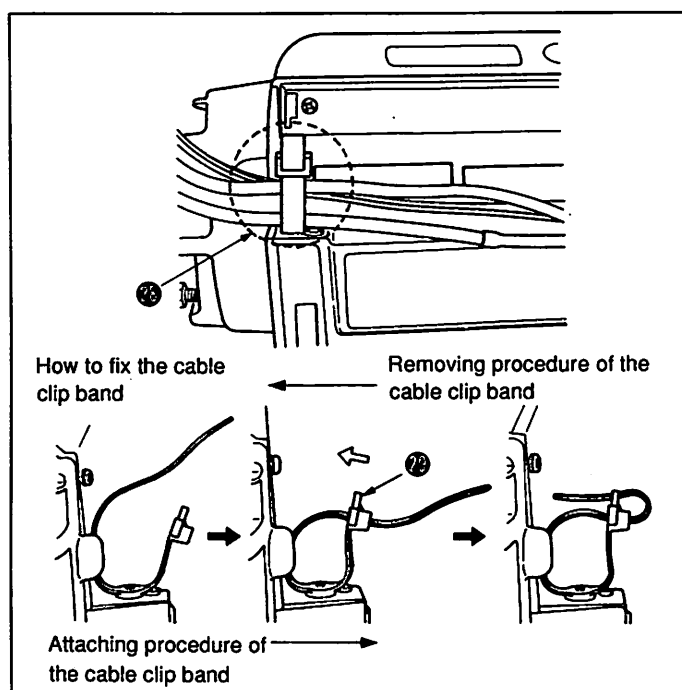
- 11) Connect 2P plug ㉔ coming from the air unit to connector ㉕ located under the identification mark "2P".

- 12) Connect 4P plug ㉖ coming from the knee switch to connector ㉗ located under the identification mark "4P".

- 13) After the completion of the connection of the connectors, fix the cords with cable clip band ㉘ located at the opening of the connector panel.

(Caution) 1. Bind the cable clip band in accordance with the attaching procedure shown in the illustration given on the left.

2. When removing the cable clip band, press in the band then draw it out while pressing hook ㉙ in the direction of the arrow "←" in accordance with the removing procedure shown in the illustration given on the left.



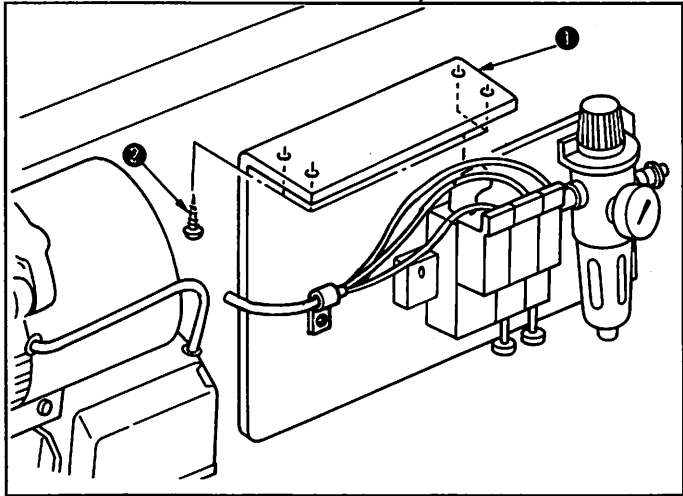
8. INSTALLING THE AIR DRIVE UNIT

Name of device	Name of model	Remarks
Automatic reverse feed device	-OB	
Auto-lifter	AK115	Operated by means of the foot pedal
Instantaneous conversion of the amount of the alternating vertical movement of the walking foot and presser foot	DL16A	Operated by means of the switch mounted on the machine head unit
	DL16B	Operated by means of the switch mounted on the machine head unit and the knee switch



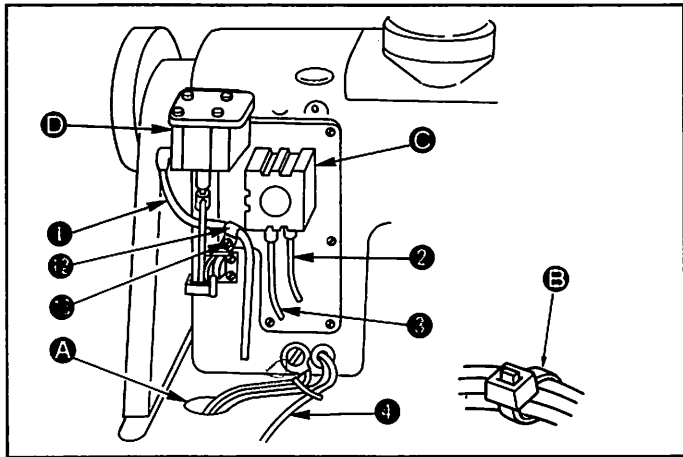
WARNING:
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(1)Installing the air control unit



After the set-up of the sewing machine, attach air control unit ① on the underside of the rear section of the table next to the motor with wooden screws ② supplied with the air control unit. (The figure illustrates the air control unit for the -OB/AK115/DL16A, B.)

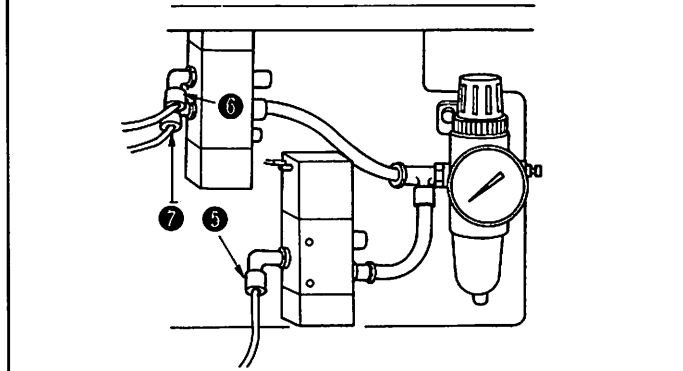
(2)Connecting the air hose



WARNING:
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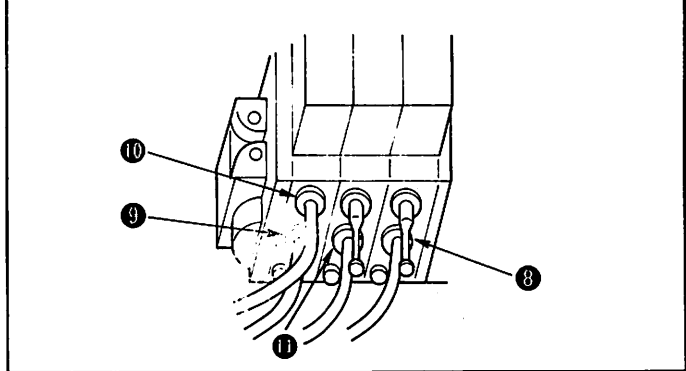
Connect the air hose coming from the air control unit to the sewing machine as illustrated in the figure above. Connect them as described below in accordance with the type of sewing machine used, while matching the number indicated on the hose with the number indicated on the label adhered on the joint. Be sure to pass the hole through hole A in the table. After the hose has been connected, arrange it with cable clip B supplied with the machine as an accessory.

• For the -OB/AK115



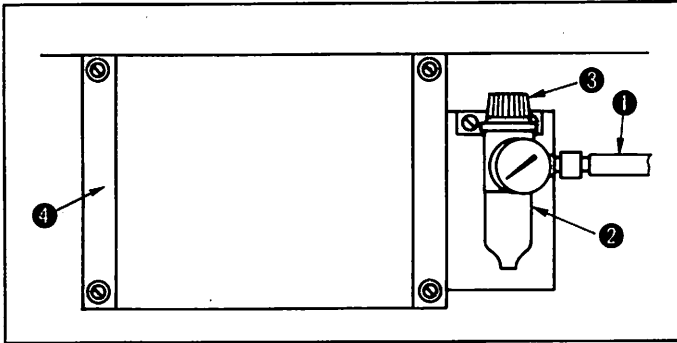
- ①... For the OB/AK115 type of sewing machine (This type of machine is not equipped with air hoses ④.)
- Connect hose ① of quick-coupling joint ⑤ of the solenoid valve in the control unit to cylinder ⑨. Connect hoses ② and ③ of quick-coupling joints ⑥ and ⑦ to auto-lifter cylinder ⑩.
- At this time, fix hose ① on the machine arm with cord clamp ⑫ and screw ⑬.

• For the -OB/AK115/DL16A, B



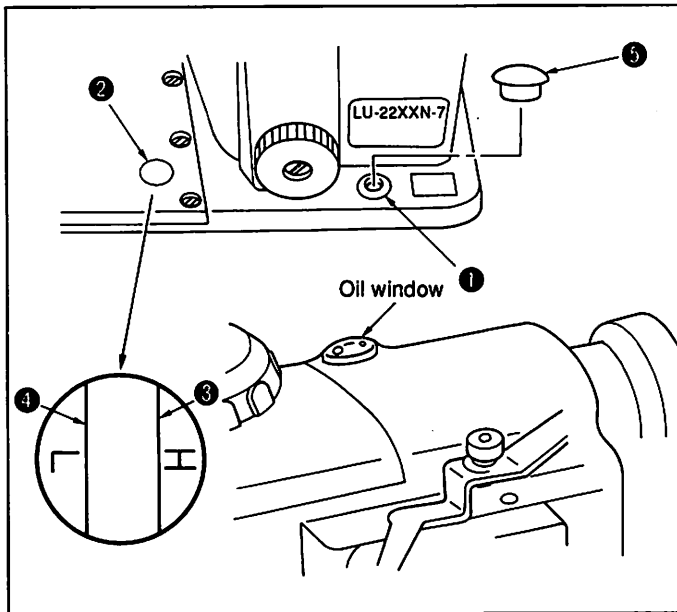
- ②... For OB/AK115/DL16A, B type of sewing machine
- Connect hose ① of quick-coupling joint ⑤ of the solenoid valve in the control unit to cylinder ⑨. Connect hoses ② and ③ of quick-coupling joints ⑥ and ⑦ to auto-lifter cylinder ⑩. Connect hose ④ coming from the cylinder for the conversion of the amount of the alternating vertical movement of the walking foot and presser foot to quick-coupling joint ⑪.
- At this time, fix hose ① on the machine arm with cord clamp ⑫ and screw ⑬.

(3) Adjusting the air pressure and attaching the cover



- ① Adjusting the air pressure
Connect air hose ① to regulator ②. Adjust the air pressure to 0.4 to 0.5 MPa (4 to 5 kgf/cm²) using air pressure regulating knob ③ of regulator ②. Pull knob ③ up and turn it to properly adjust the operating air pressure. After the adjustment, press the knob down into the home position.
- ② Attaching the cover
After the air pressure has been properly adjusted, attach cover ④ of the solenoid valve attaching plate in place.

9. LUBRICATION



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

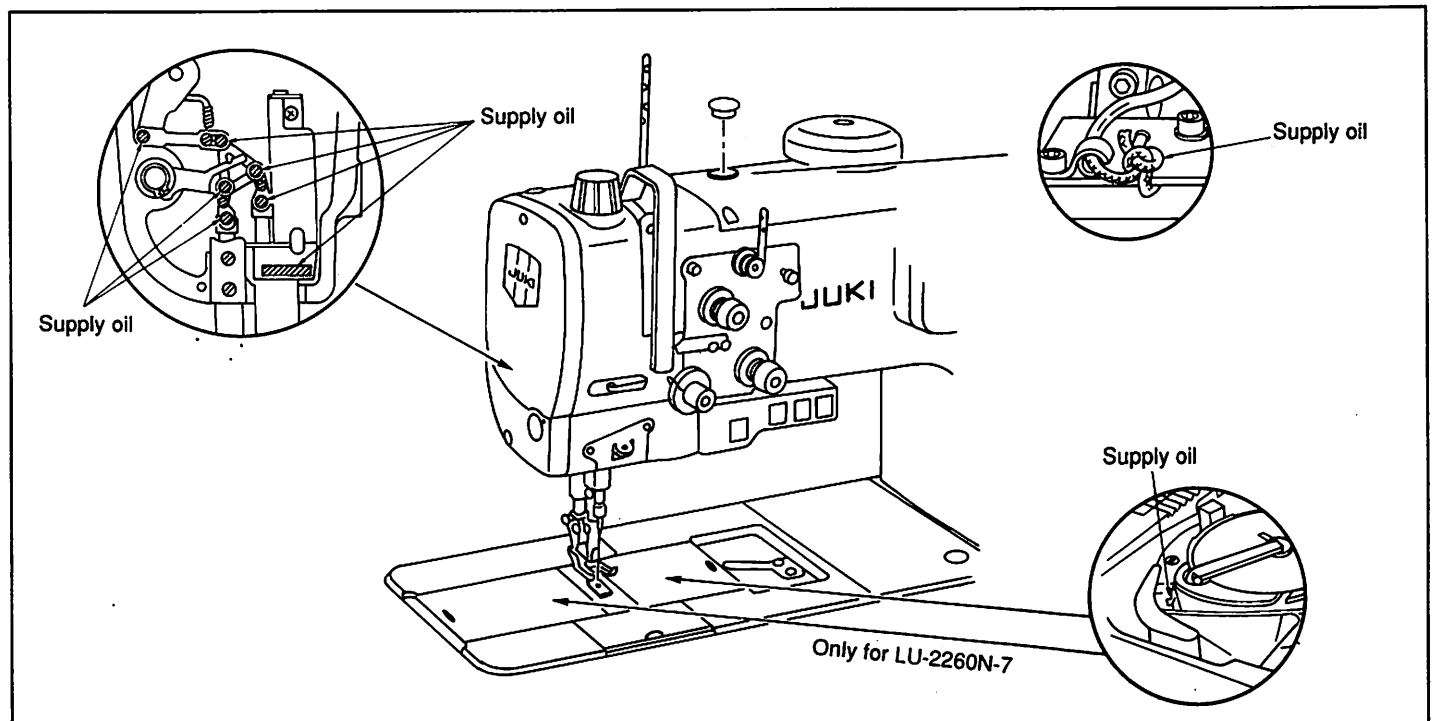
- 1) Pour the JUKI New Defrix Oil No. 1 into the oil tank in the bed from lubrication hole ① until H level ⑥ of oil gauge ② is reached.
 - 2) Add the same lubricating oil as soon as the oil level has come down to L level ④.
 - 3) After the lubrication, operate the sewing machine and check that the oil rises up to the oil sight window.
- (Caution) 1. Do not use any lubrication oil other than the specified type. Be sure to close cap ⑤ of the oil hole.
2. When you operate your machine for the first time after the set-up or after an extended period of disuse, apply two or three drops of oil to the sections indicated with arrows.

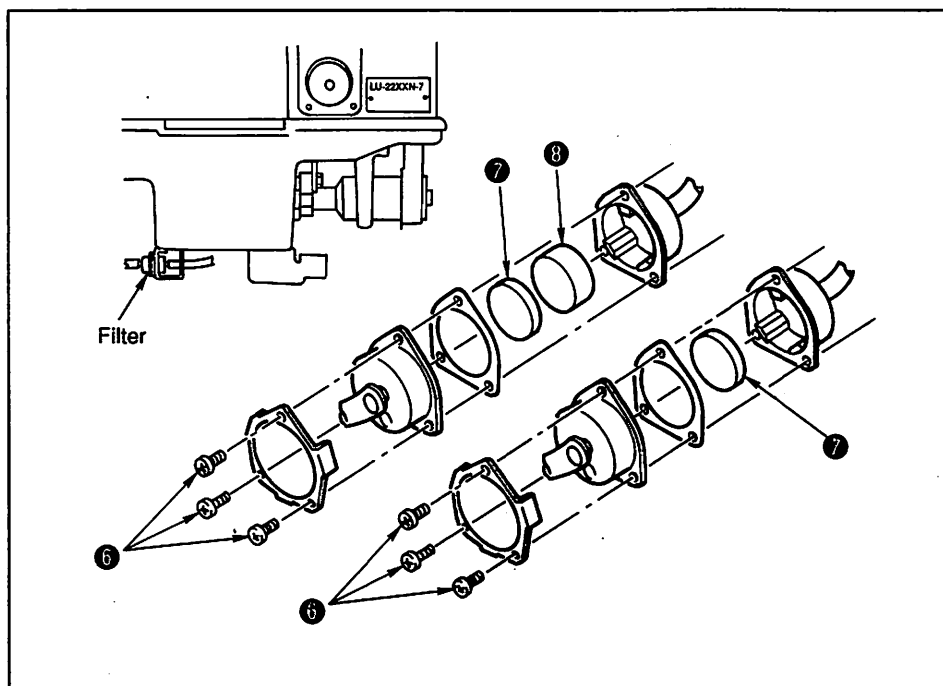


WARNING:

To use the machine that has been disused for an extended period of time, run in the machine for approximately 10 minutes at 1,800 s.p.m.

- ★ In the case where the machine is operated with the hook filled with normal amount of oil, the oil level descends from H level to the L level in approximately 100 hours for LU-2210N-7 or approximately 50 hours for LU-2260N-7.

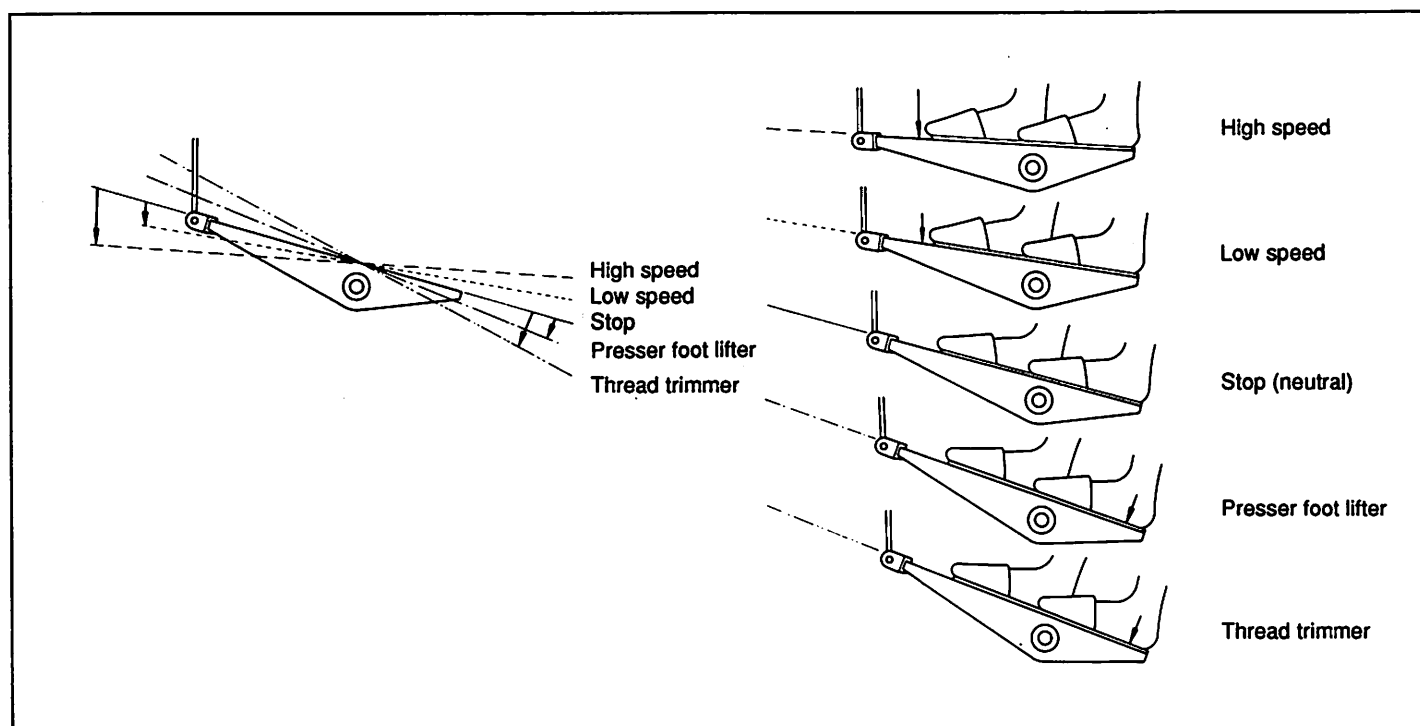




• Cleaning the filter

- 1) Approximately once a month, remove screws ⑥ from the filter case and clean magnet ⑦ and filter element ⑧ inside the filter.
- 2) If the filter is clogged with soil, circulation failure will result. This will give rise to oil leakage from the upper portion of the hook driving shaft saddle.

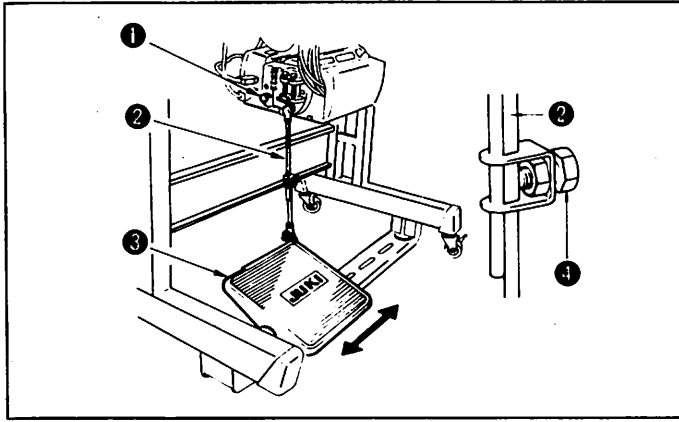
10. PEDAL OPERATION



The pedal is operated in 5 stages.

1. Lightly depress the front part of the pedal, and the sewing machine will run at low speed.
2. Further depress the front part of the pedal, and the machine will run at high speed.
3. Return the pedal to the state in which you lightly place your foot on the pedal, and the sewing machine stops. (The machine stops with its needle down or up.)
4. Lightly depress the back part of the pedal, and the presser foot will go up.
5. Further depress the back part of the pedal, and the presser foot will come down, the thread trimmer will actuate and the machine will stop with its needle up.
 - You can depress the back part of the pedal directly from the high-speed position or low-speed position to actuate the thread trimmer.
 - You can bring the pedal back to the neutral position immediately after you have confirmed the start of a thread trimming action. The machine will stop after the completion of the thread trimming action.
 - If you want to raise the needle after the machine has stopped with its needle down, make the thread trimmer actuate once or turn the handwheel by hand.

11. ADJUSTING THE PEDAL



WARNING:

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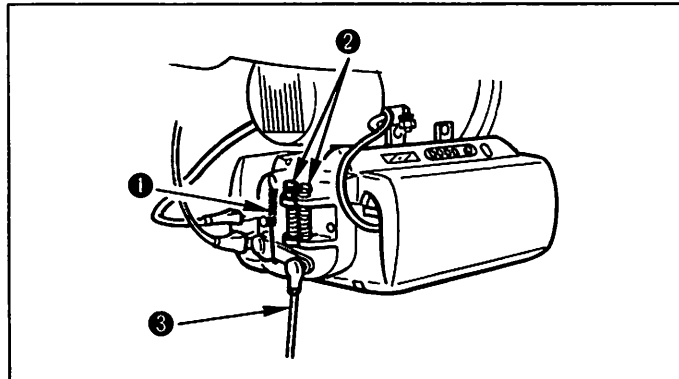
(1) Attach the pedal connecting rod

- 1) Move pedal adjusting plate ③ to the left or the right to make motor control lever ① and pedal connecting rod ② straight.

(2) Adjusting the slant of the pedal

- 1) Slant of the pedal is adjustable by changing the effective length of the pedal connecting rod.
- 2) Loosen adjusting screw ④, and adjust the inclination of the foot pedal by moving connecting rod ② up or down.

12. PEDAL PRESSURE AND STROKE



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

(1) Adjusting the forward pedaling (toe down) pressure

The forward pedaling pressure can be adjusted by hooking adjusting spring ① on the right or left side. When the spring is hooked on the left side, the pedal resistance reduces. When it is hooked on the right side the pedal resistance increases.

(2) Adjusting the backward pedaling (heel down) pressure

This can be achieved by adjusting screw ②. When the adjusting screw is tightened, the pedal resistance increases. When it is loosened, the pedal resistance reduces.

(3) Adjusting the forward pedaling stroke

When connecting rod ③ is inserted into the hole on the left side, the stroke is reduced.

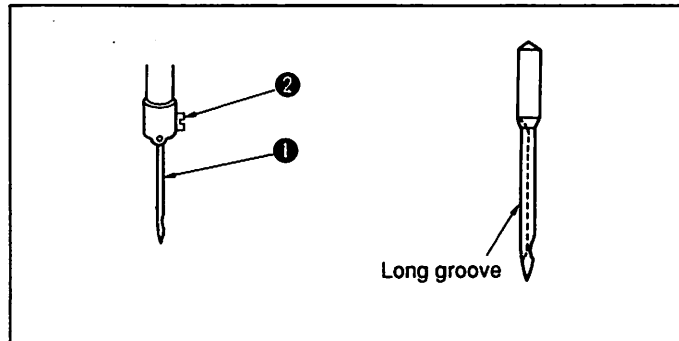
13. ATTACHING THE NEEDLE



WARNING:

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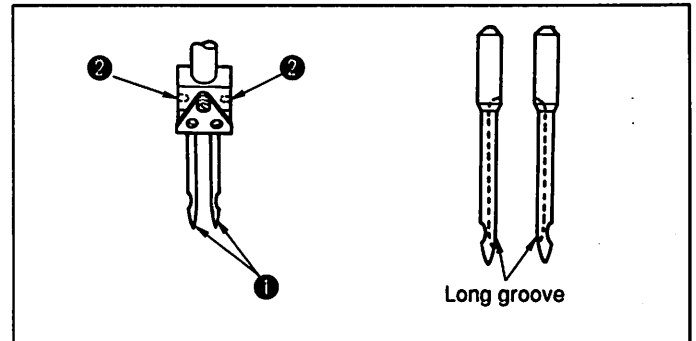
(1) For the LU-2210N-7



Use a SCHMETZ 134 × 35R needle.

- 1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
- 2) Loosen needle clamp screw ②, and hold needle ① so that the long groove in the needle is facing exactly to the left.
- 3) Push the needle ① deep into the needle clamp hole until it will go no further.
- 4) Tighten needle clamp screw ② firmly.

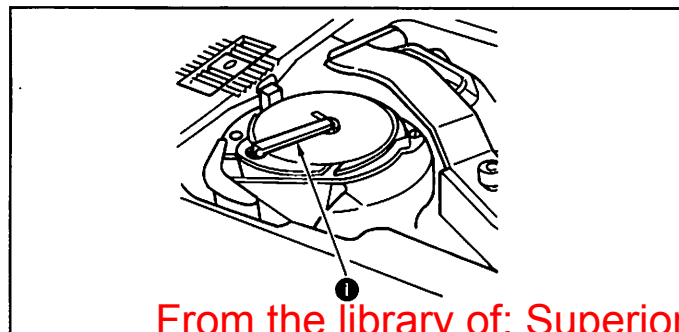
(2) For the LU-2260N-7



Use a SCHMETZ 134 × 35R needle.

- 1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
- 2) Loosen needle clamp screws ② and hold needle ① so that the long groove on the respective needles faces inward.
- 3) Push the needle ① deep into the needle clamp hole until it will go no further.
- 4) Tighten needle clamp screw ② firmly.

14. ATTACHING/REMOVING THE BOBBIN

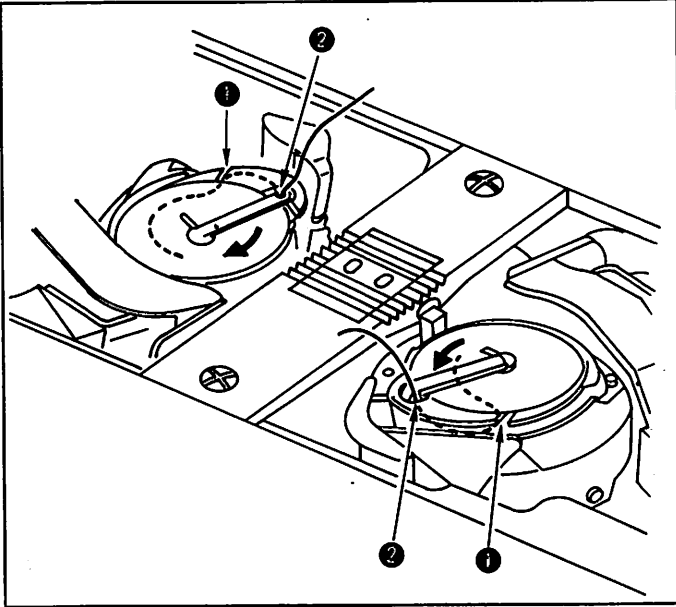


WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

- 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.

15. THREADING THE HOOK

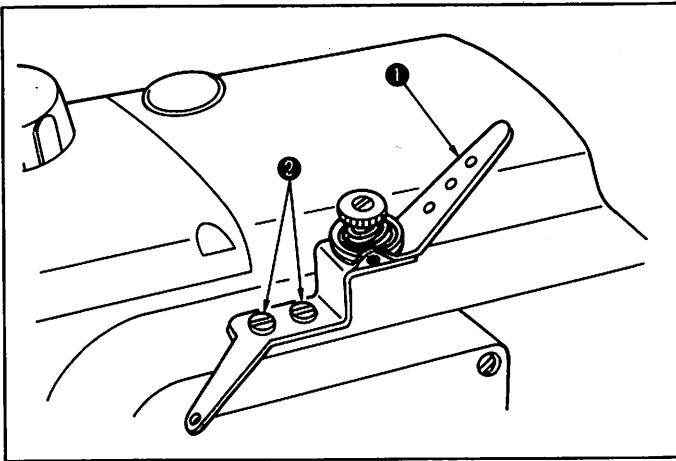


WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

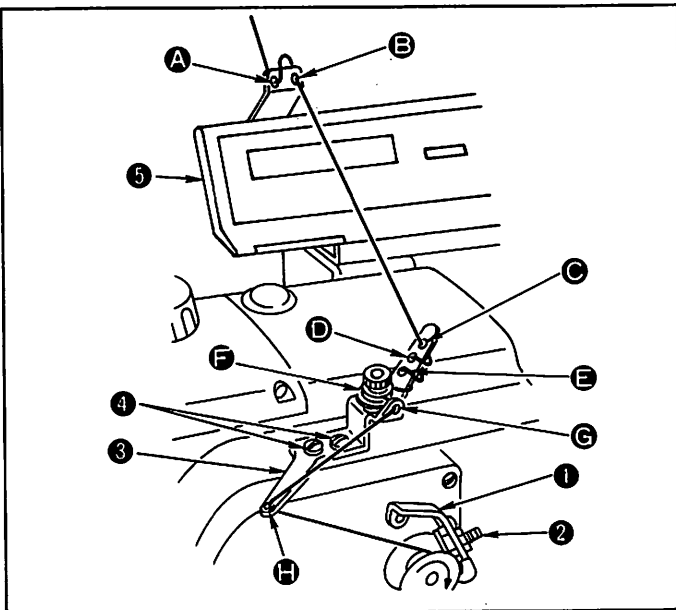
- 1) Pass the thread through thread path ① in the hook and thread hole ② in the lever, and draw the thread. Now, the thread will be brought to the thread hole ② via the tension spring.
- ☆ Make sure that the bobbin revolves in the direction of the arrow when you draw the thread.

16. INSTALLING THE BOBBIN WINDER THREAD GUIDE



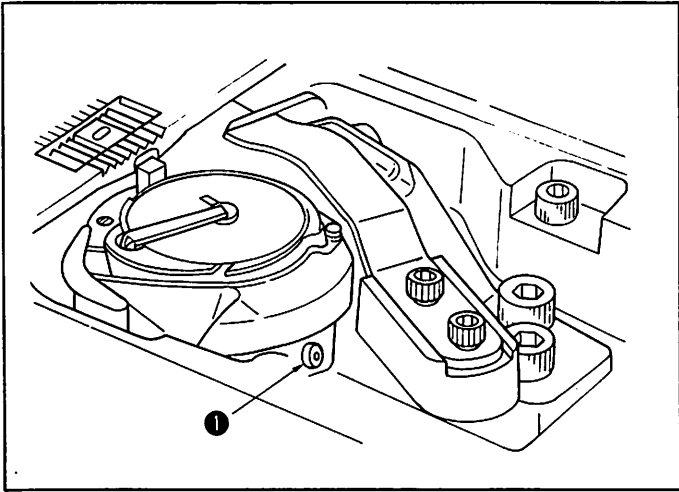
- 1) Attach bobbin winder thread guide ① to the bobbin winder on the machine arm using screws ②.
- 2) Adjust the position of the thread guide referring to "17. WINDING A BOBBIN."

17. WINDING A BOBBIN



- 1) Pass the thread in the order, A, B, C, D, E, F, G and H. Then wind it several turns round the bobbin. (It is not necessary to thread A and B in the case where CP-30 model of control panel ⑤ is used with the machine.)
- 2) Tilt bobbin presser ①.
- 3) Adjust bobbin thread amount adjustment screw ② to wind a bobbin about 80% of its capacity. Turn the screw counterclockwise to increase the amount of thread to be wound round the bobbin, or clockwise to decrease it.
- 4) If the bobbin is wound unevenly, correct it by moving thread guide ③ of the bobbin winder back or forth. Then tighten screws ④.
- 5) When the bobbin is filled up, the bobbin presser automatically releases the bobbin and the bobbin winder stops running.

18. ADJUSTING THE AMOUNT OF OIL IN THE HOOK



WARNING:

The oil amount is checked while the hook is rotating at a high speed. Extra special care must be taken on the adjustment of the oil amount.

- 1) Adjust the amount of oil in the hook by turning oil amount adjustment screw ① mounted on the hook.
- 2) Turning the adjustment screw clockwise will decrease the amount of oil in the hook or counterclockwise will increase it.

A piece of paper



- 3) Place a piece of paper near the periphery of the hook, and run the machine for approximately five seconds. The proper amount of oil in the hook is obtained when the oil spots lightly make stripes on the paper as shown in the figure left.

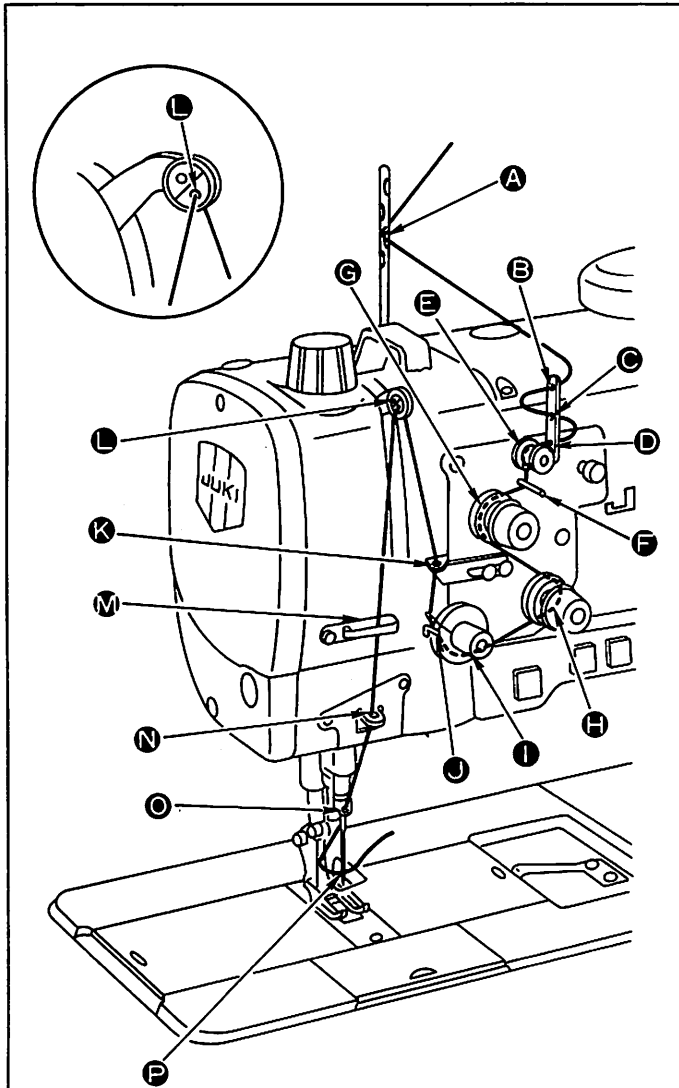
19. THREADING THE MACHINE HEAD



WARNING:

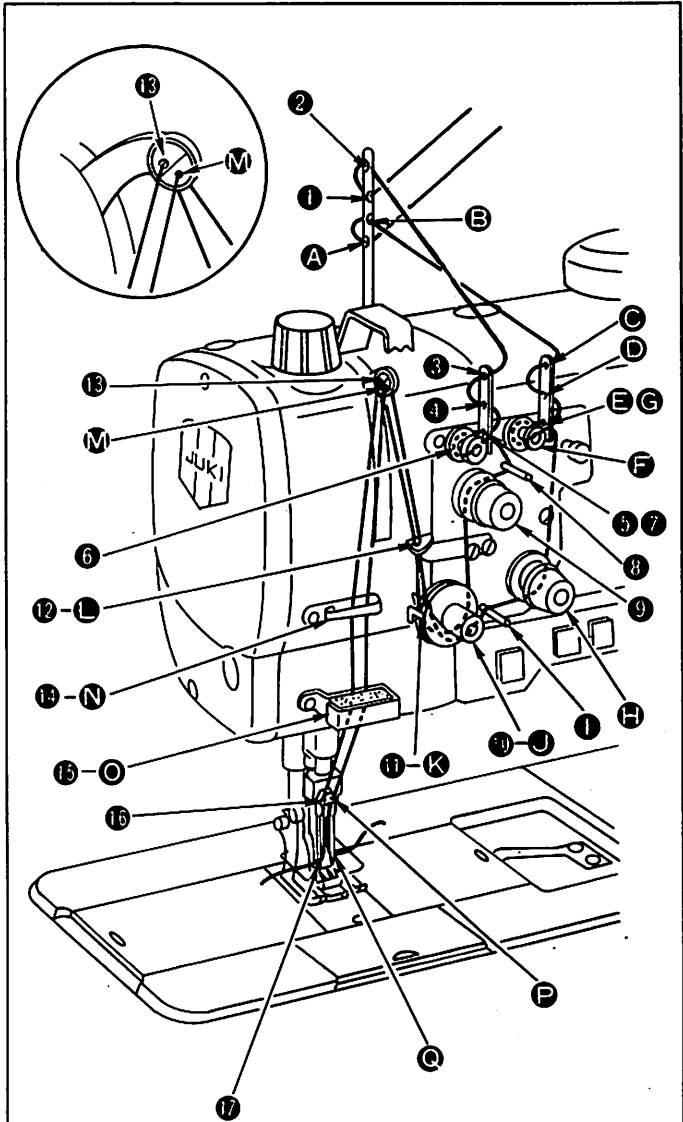
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

(1) For the LU-2210N-7



Thread the machine head following the order of ① through to ⑰ as shown in the illustration given above.

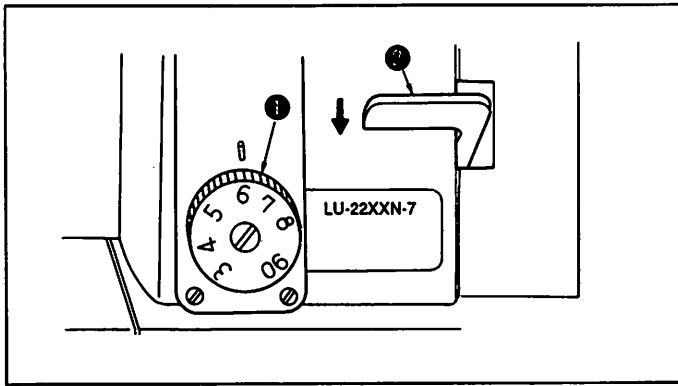
(2) For the LU-2260N-7



Thread the machine head following the order ① through ⑱ as shown in the illustration given above.

For the needle thread locating on the left toward the operator, thread the machine head following the order of ① through to ⑰. For the needle thread locating on the right toward the operator, thread the machine head following the order of ① through to ⑱.

20. ADJUSTING THE STITCH LENGTH

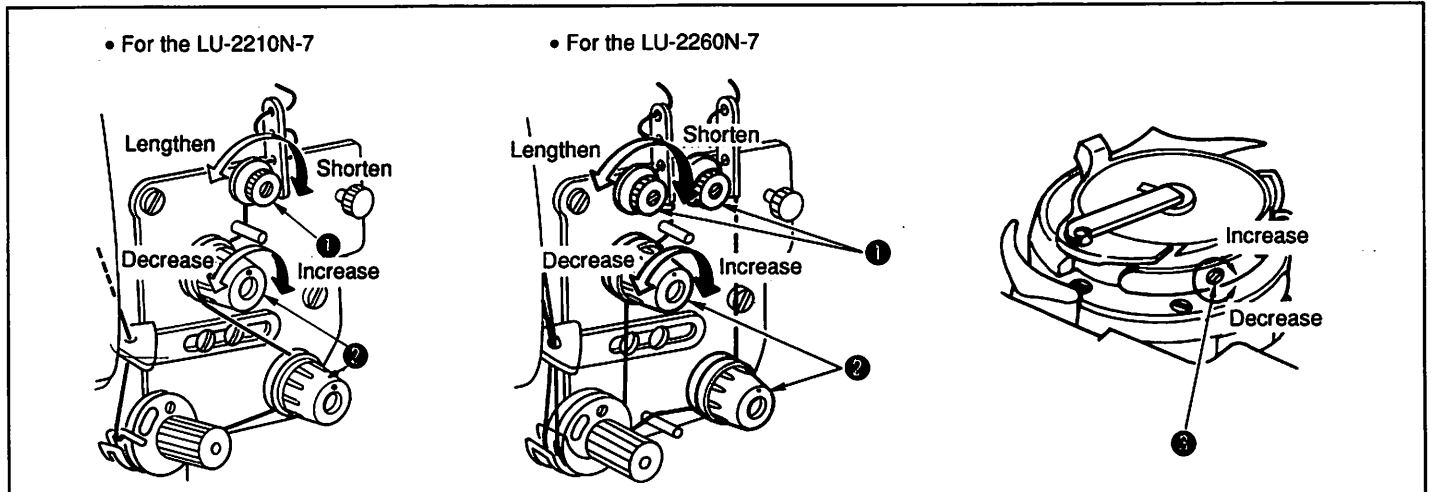


Turn stitch dial ❶ counterclockwise (clockwise) so that the number corresponding to the desired stitch length is brought to the top of the dial until the marking spot is reached.

(1) Reverse feed stitching

- 1) Press down reverse feed control lever ❷.
- 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.

21. THREAD TENSION



(1) Adjusting the length of thread remaining after thread trimming

Turn thread tension nut No. 1 ❶ clockwise to shorten the length of thread remaining after thread trimming. Turn the nut counterclockwise to lengthen it.

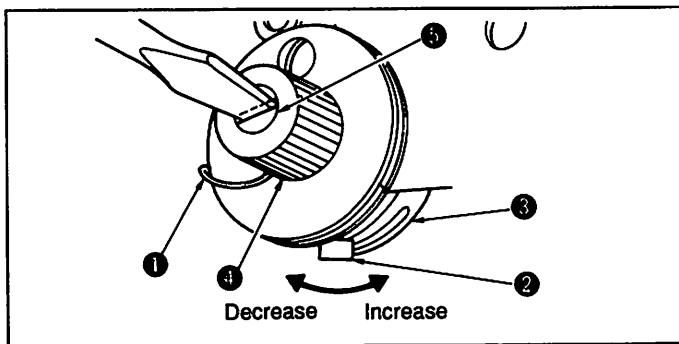
(2) Adjusting the needle thread tension

Turn thread tension nut No. 2 ❷ clockwise to increase the needle thread tension, or counterclockwise to decrease it.

(3) Adjusting the bobbin thread tension

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

22. THREAD TAKE-UP SPRING



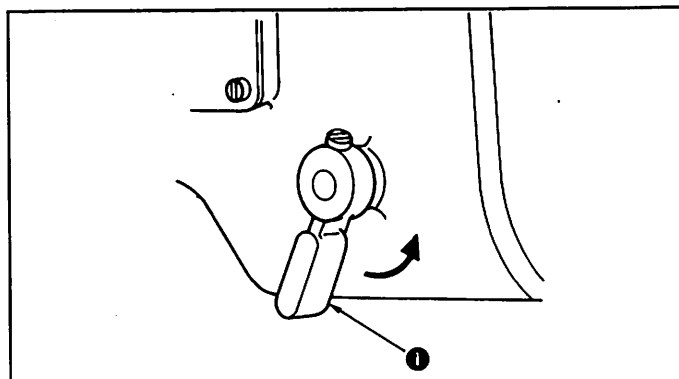
(1) When you want to change the stroke of the spring:

- 1) Loosen screw ❷ in the stopper, and move stopper ❸ to the right or left to change stroke of thread take-up spring ❶.
- 2) Move the stopper to the right to increase the stroke of the thread take-up spring, or the left to decrease it.

(2) When you want to change the tension of the spring:

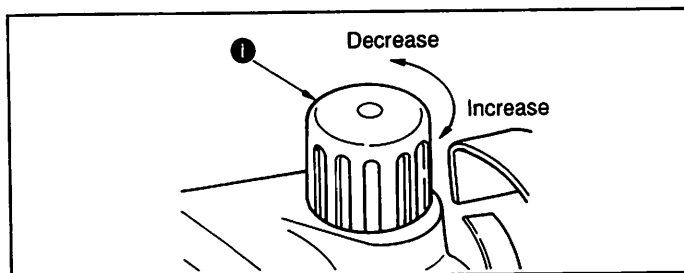
- 1) Loosen nut ❹, and move spring stud ❺ counterclockwise to increase the tension of the spring, or clockwise to decrease it.

23. HAND LIFTER



- 1) When you want to keep the presser foot in the lifted position, turn hand lifter ❶ in the direction of the arrow. This makes the presser foot rise 9 mm and stay at that position.
- 2) To make the presser foot come down to its home position, lower the hand lifter.

24. ADJUSTING THE PRESSURE OF THE PRESSER FOOT



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

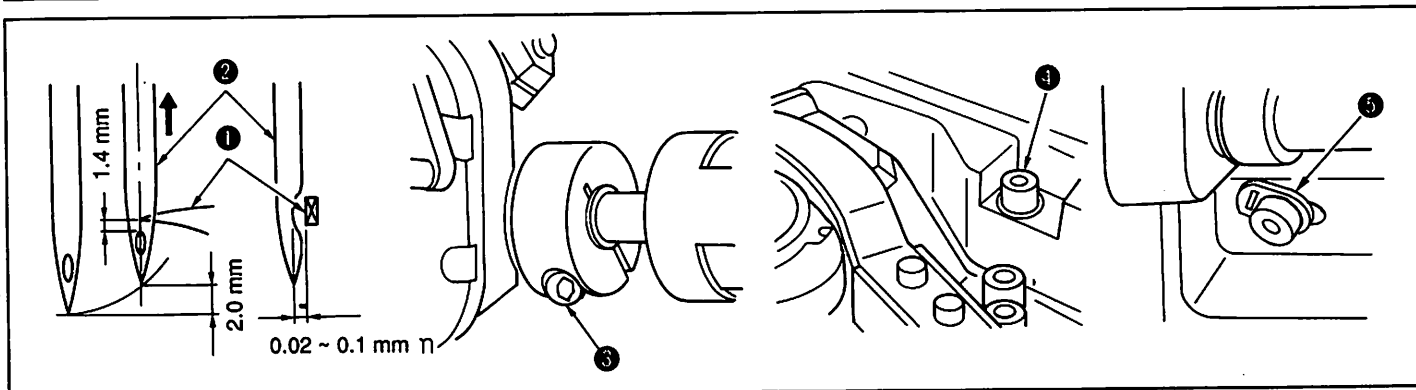
- 1) Turn presser spring regulating dial ① clockwise to increase the pressure of the presser foot, or counterclockwise to decrease it.
(Be sure to operate the sewing machine with the pressure of the presser foot minimized as long as the presser foot securely holds the material.)

25. NEEDLE-TO-HOOK RELATION



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



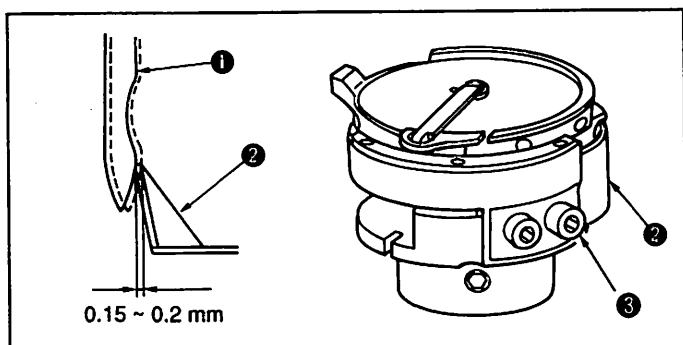
- 1) Set the stitch dial to 0 [zero].
 - 2) Loosen hook driving shaft set collar clamping screw ③, and turn the handwheel counterclockwise to make the needle bar ascend by 2.0 mm from the lowest position of its stroke.
 - 3) In the state described in 2), align blade point ① of the hook with the center of needle ②, and tighten hook driving shaft set collar clamping screw ③. At this time, a clearance of 1.4 mm is provided between the blade point of the hook and the top end of the needle eyelet. (As reference, the handwheel pointer meets the marker line of the scale L on the handwheel.)
 - 4) Loosen screw ④ in the top face of the bed and screw ⑤ in the hook driving shaft saddle, and adjust so that a clearance of 0.02 to 0.1 mm is provided between the blade point of hook and the needle by moving the hook driving shaft saddle to the right or left. Once the specified clearance is obtained, securely tighten screws ④ and ⑤.
 - 5) Set the feed adjusting dial to maximum value, and check that the blade point of the hook does not come in contact with the needle.
- (Caution) 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.

26. ADJUSTING THE HOOK NEEDLE GUARD



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



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 0.15 to 0.2 mm away from its straight position. If not, adjust the hook needle guard by bending it.

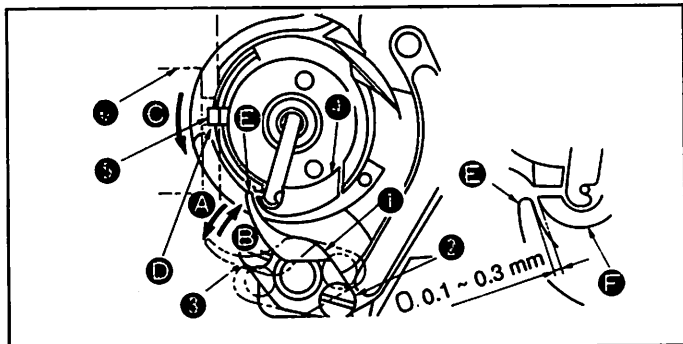
- 1) If you want to move the hook needle guard inwards, turn adjusting screw ③ clockwise.
- 2) If you want to move the hook needle guard outwards, turn adjusting screw ④ counterclockwise.

27. ADJUSTING THE BOBBIN CASE OPENING LEVER



WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



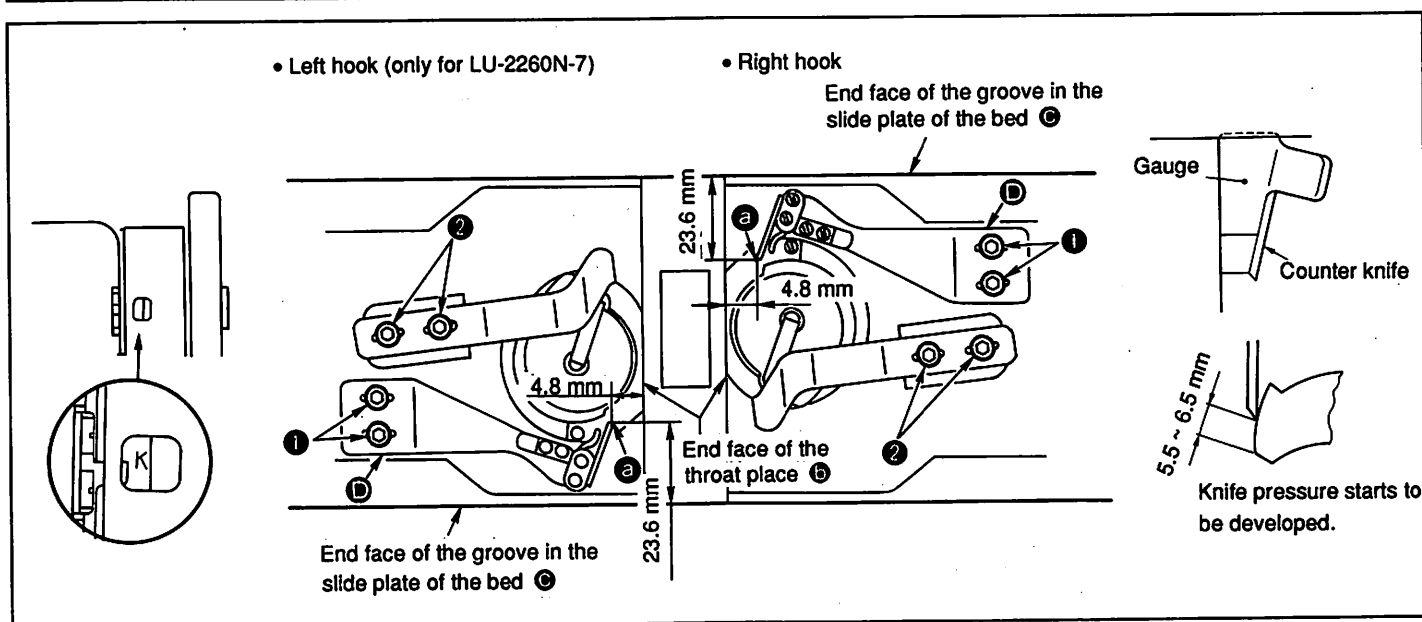
- 1) Turn the handwheel to move bobbin case opening lever ① in the direction of the arrow A, and loosen screw ②.
- 2) Turn the handwheel to move bobbin case opening lever ① in the direction of arrow B, and loosen screw ③.
- 3) Turn bobbin case ④ in the direction of arrow C to until bobbin case stopper ⑤ rests in groove ⑥ on throat plate ⑥. In this state, adjust so that a clearance of 0.1 to 0.3 mm is provided between top end ⑤ of bobbin case opening lever and protrusion ⑥ on the bobbin case when they approach most. Then, tighten screws ② and ③.

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



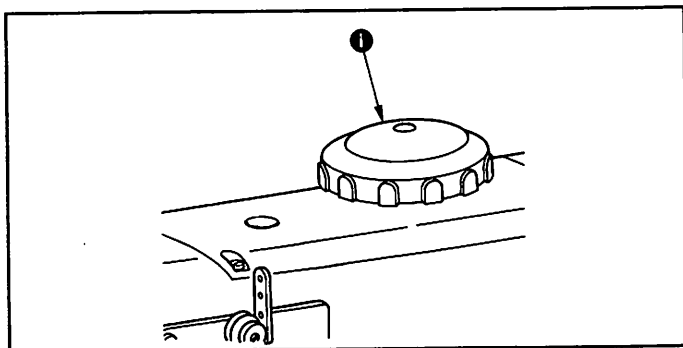
WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Align the handwheel pointer to the marker line of scale K on the handwheel.
- 2) Under the aforementioned state, move the moving knife by hand to its forward travel end (where the thread trimming solenoid is fully drawn.)
- **Adjusting the counter knife**
- 3) Loosen screw ① in the counter knife base, and adjust the position of the counter knife so that top end ② of counter knife is 4.8 mm away from end face ③ of throat plate and 23.6 mm away from end face ④ of the slide plate of the bed. Then tighten screws ①. (Use the gauge supplied with the machine as reference.)
- **Adjusting the knife pressure**
- 4) Loosen screws ② of the moving knife. Turn the handwheel to move the moving knife and adjust the knife pressure. In the standard state, the knife pressure is developed from the position where the top end of the moving knife is spaced 5.5 to 6.5 mm from the top end of the counter knife.

29. ADJUSTING THE LIFTING AMOUNT OF THE PRESSER FOOT AND THE WALKING FOOT



The lifting amount of the presser foot and the walking foot is adjusted using dial ①. Turn the dial clockwise to increase the lifting amount or counterclockwise to decrease it.

30. SEWING SPEED TABLE

The maximum sewing speed has been specified in accordance with sewing conditions as shown in the table below. Set the maximum sewing speed appropriately in accordance with the sewing conditions given taking care not to exceed the corresponding specified value.

(1) Max. sewing speed in accordance with the amount of the alternating vertical movement of the walking foot and the presser foot

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 6 mm or less	Stitch length: More than 6 mm and 9 mm or less (only for LU-2210N-7)
Less than 2.5 mm	3500 s.p.m.	2000 s.p.m.
Less than 2.5 ~ 4.0 mm	3000 s.p.m.	2000 s.p.m.
Less than 4.0 ~ 4.75 mm	2500 s.p.m.	2000 s.p.m.
4.75 mm ~	2000 s.p.m.	2000 s.p.m.

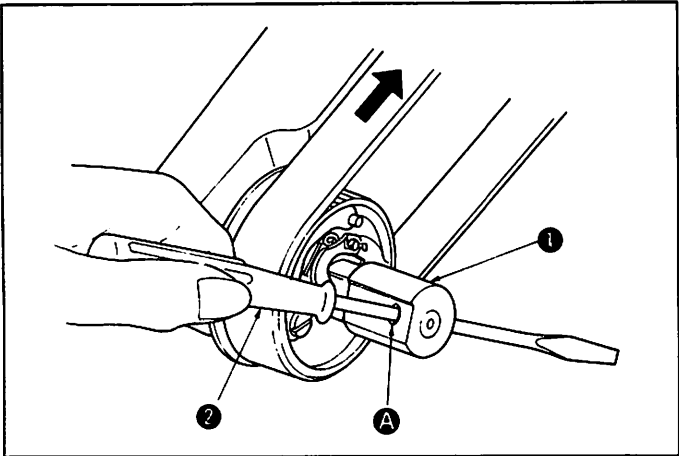
(2) Max. sewing speed in accordance with the needle gauge (only for LU-2260N-7)

Needle gauge	Speed
4 ~ 10 mm	3500 s.p.m.
12 ~ 20 mm	3300 s.p.m.
22 ~ 30 mm	3000 s.p.m.
32 ~ 36 mm	2500 s.p.m.

31. RESETTING THE SAFETY CLUTCH



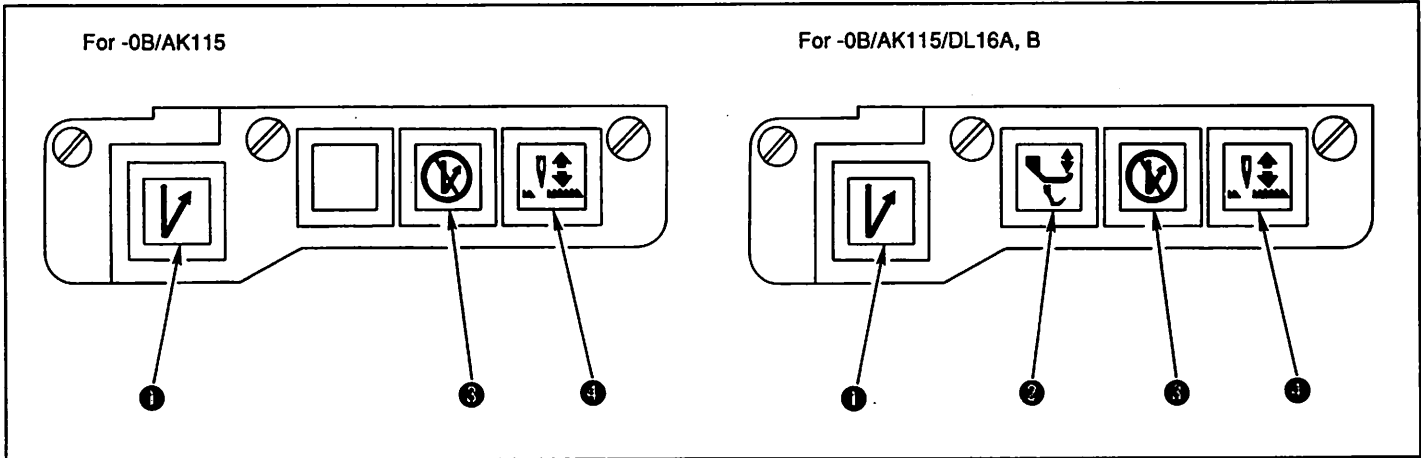
WARNING:
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



The safety clutch functions when an excessive load is applied to the hook or the other components during sewing. While the safety clutch is functioning, the hook will never rotate even if turning the handwheel.

- 1) Reset the safety clutch with the sewing machine tilted.
- 2) Fit screwdriver (medium) ② supplied with the machine as an accessory in hole ① in safety clutch bushing ①.
- 3) Holding screwdriver ② by hand to prevent safety clutch bushing ① from rotating, turn the handwheel in the reverse direction of rotation.
- 4) The resetting procedure completes when the handwheel clicks.

32. OPERATION SWITCHES



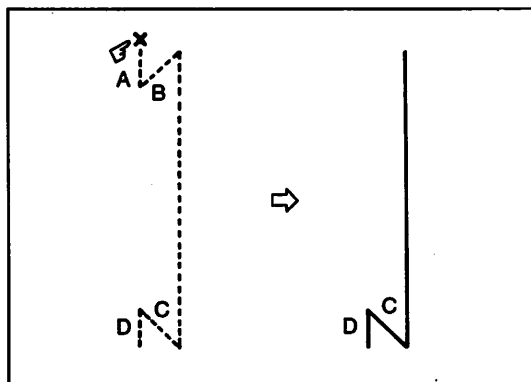
- ① One-touch type reverse feed switch
 - While the machine is in operation, the machine performs reverse feed stitching as long as this switch is held pressed, and resumes normal feed stitching when the switch is released.
 - If this switch is pressed while the machine is at rest, the feed will be set to the reverse feed state. (The sewing machine does not run.) If it is released, the feed will return to the normal feed state.
- ② 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. (The lamp locating inside the button will light up.) Use this switch when a multilayered portion of the sewing product is not smoothly fed.

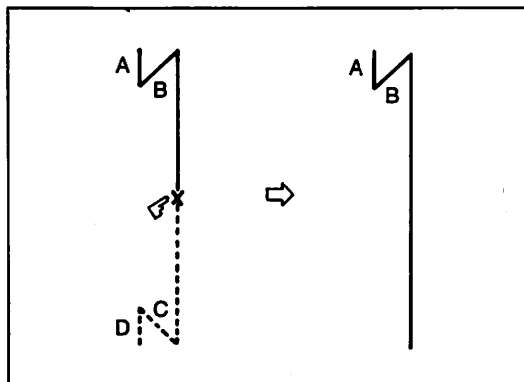
③ Automatic reverse feed stitching cancellation/addition switch


- 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:

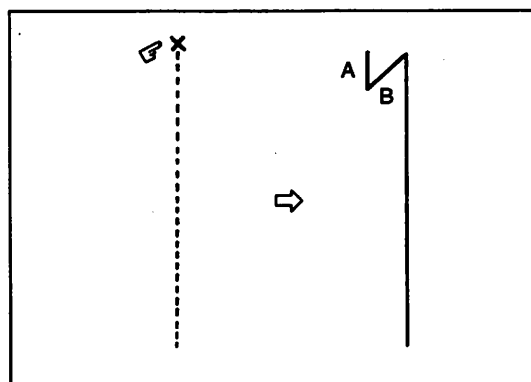



If the  switch is pressed before starting sewing, the automatic reverse feed stitching for start (between A and B) will not be carried out.

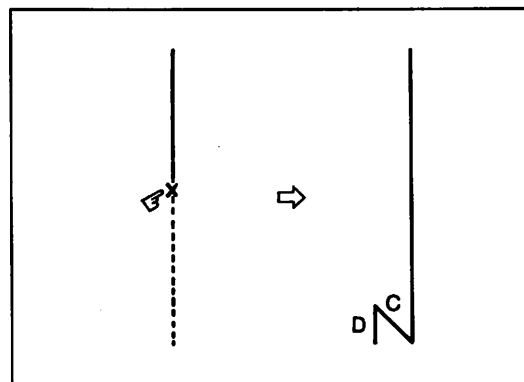



If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between C and D) will not be carried out.

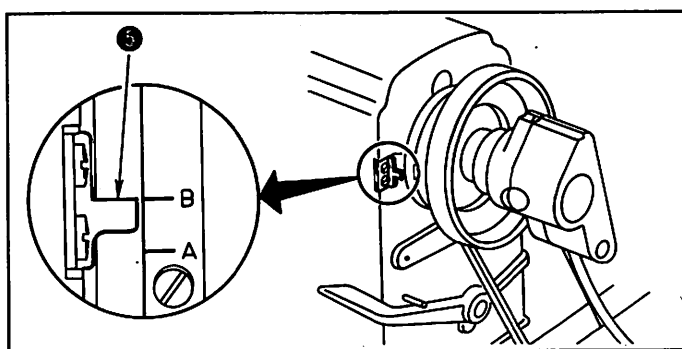
(Example 2) In the case where neither automatic reverse feed stitching for start nor that for end have been specified:



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



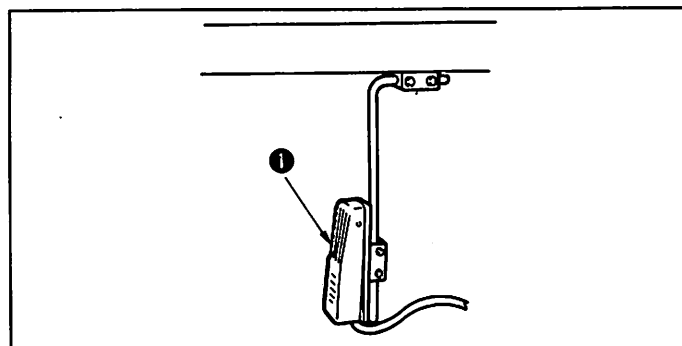
If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between C and D) will be carried out.




④ Needle lifting switch

If this switch is pressed, the machine will travel from the needle-down stop position to the reverse-rotation needle-up stop position (pointer ⑤ on the handwheel indicates marker line "B" on the scale of the handwheel).

33. KNEE SWITCH (only for the machine provided with a DL16B control unit)



- 1) If knee switch ① 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.)
- 2) The knee switch can also be used as a presser lifting switch by so setting the function of the PSC box. (In this case, the switch loses the function same as that of the alternating vertical movement amount change-over switch.) Refer to the Instruction Manual for SC-11 for details.

34. 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 "27. ADJUSTING THE BOBBIN CASE OPENING LEVER."</p> <p>○ Refer to "25. NEEDLE-TO-HOOK RELATION."</p> <p>○ Adjust the amount of oil in the hook properly. See "18. ADJUSTING THE AMOUNT OF OIL IN THE HOOK."</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 "25. NEEDLE-TO-HOOK RELATION."</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 "25. NEEDLE-TO-HOOK RELATION."</p> <p>○ Tighten the presser spring regulator.</p> <p>○ Refer to "25. NEEDLE-TO-HOOK RELATION."</p> <p>○ Refer to "26. ADJUSTING THE HOOK NEEDLE GUARD."</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 bobbin case.</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 case 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 "27. ADJUSTING THE BOBBIN CASE OPENING LEVER."</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.	<p>① Thread tension given by the tension controller No. 1 is too high.</p>	<p>○ Decrease the thread tension given by the tension controller No. 1.</p>
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 "28. POSITION OF THE COUNTER KNIFE AND ADJUSTMENT OF THE KNIFE PRESSURE."</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 "Adjusting the initial position of the knife" in the Engineer's Manual.</p> <p>○ Increase the bobbin thread tension.</p>
8. Thread breaks at the start of sewing after thread trimming.	<p>① The needle thread is caught in the hook.</p>	<p>○ Shorten the length of thread remaining on the needle after thread trimming. Refer to "21. THREAD TENSION."</p>