

2-needle, post-bed, unison-feed, lockstitch machine
PLC-1660

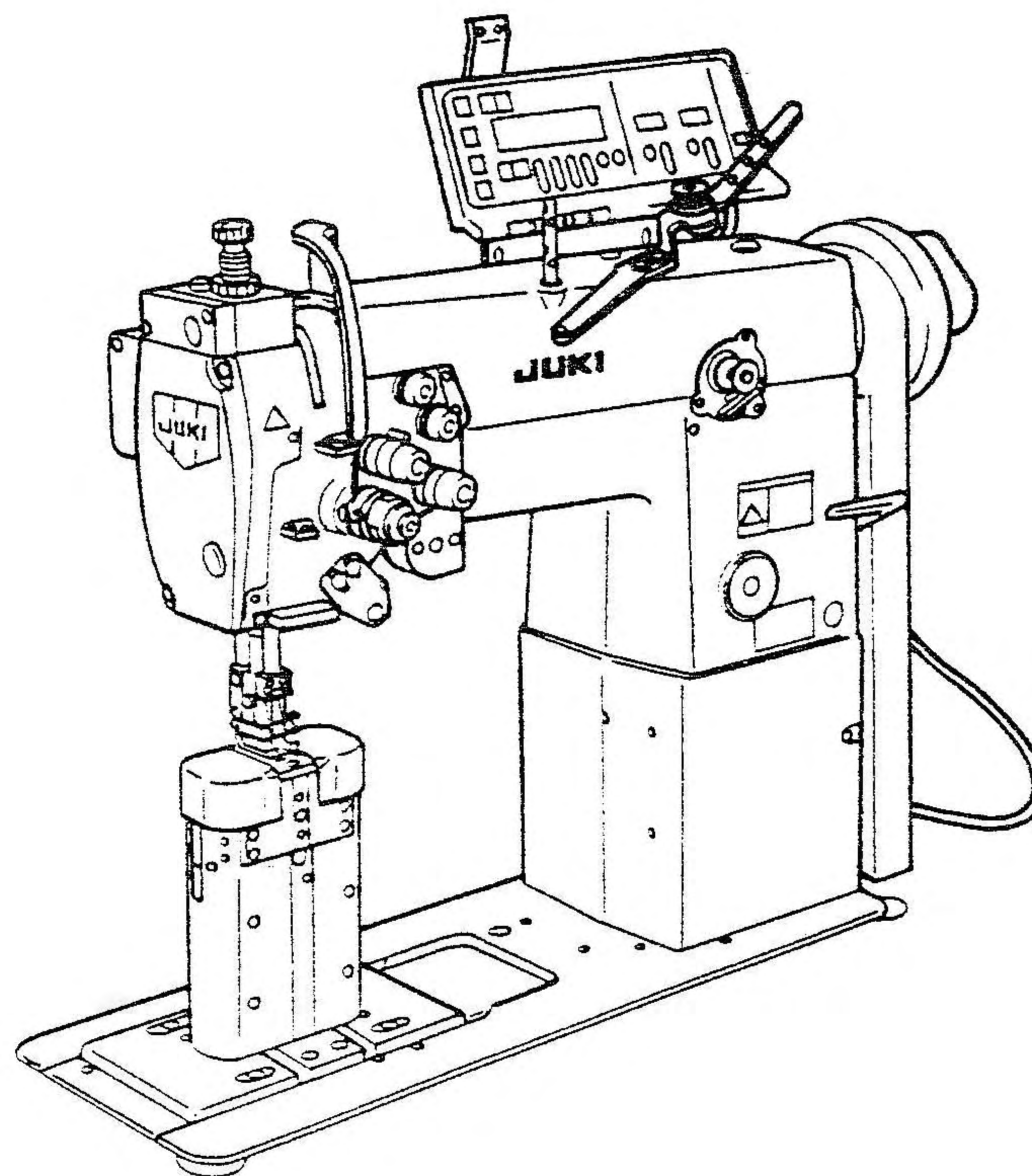
2-needle, post-bed, unison-feed, lockstitch machine
(for longer stitch length)

PLC-1660L

2-needle, post-bed, unison-feed, lockstitch machine
with an automatic thread trimmer

PLC-1660-7

INSTRUCTION MANUAL



Note : Read this Instruction Manual carefully before using your PLC-1660,
-1660L or -1660-7 to secure safety.

Retain this Instruction Manual for future reference.

IMPORTANT SAFETY INSTRUCTIONS

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



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.



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 :

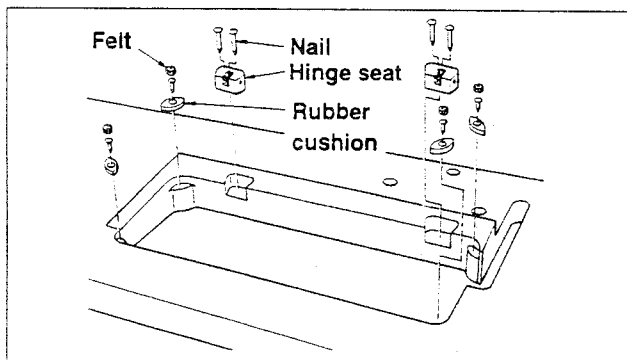
Check the following so as to prevent maloperation of and damage to the machine.

- 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.
- For a test run, remove the bobbin case and the needle thread.
- For the first month, run the machine at a speed of 1,500 s.p.m. or less.
- Operate the handwheel after the machine has totally stopped.

SPECIFICATIONS

Model	PLC-1660	PLC-1660-7	PLC-1660L
Applications	Car seats, furniture, etc.		
Sewing speed	Max. 2,000 s.p.m.		Max. 2,000 s.p.m. (Stitch length: max. 6 mm) Max. 1,200 s.p.m. (Stitch length: min. 6 mm - max. 10 mm)
Stitch length (max.)	Normal feed: 6 mm Reverse feed: 6 mm		Normal feed: 10 mm Reverse feed: 10 mm
Needle	SCHMETZ 134 x 35R (Nm110 to Nm160)		SCHMETZ 134 x 35R (Nm140 to Nm200)
Lift of presser foot	Hand lifter lever: 10 mm Knee lifter: 15 mm		
Lubricating oil	JUKI New Defrix Oil No.1		

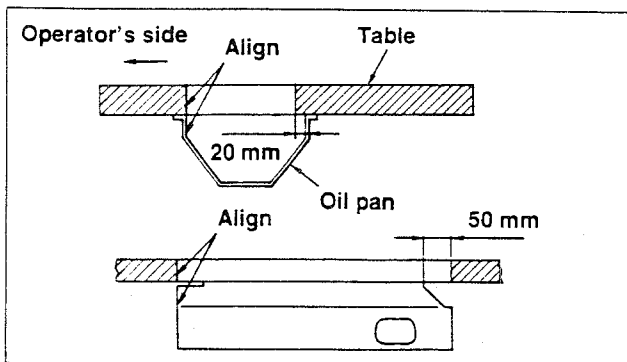
1. INSTALLATION



(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.

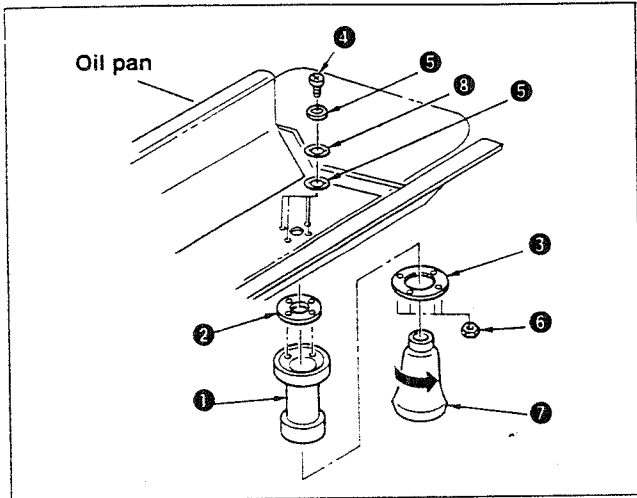
Adhere a piece of felt with adhesive glue on the rubber cushion.



(2) Attaching the oil pan

Fix the oil pan supplied with the machine by tightening eight wooden screws.

2. INSTALLING THE WASTE OIL CONTAINER



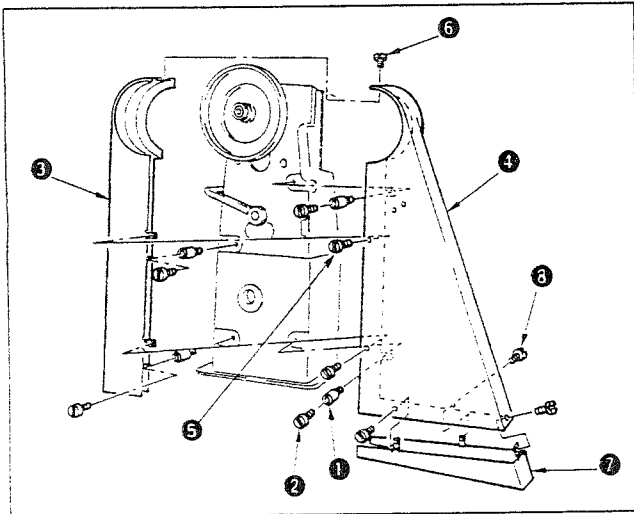
- 1) Attach drain plug ①, oil seal ② and washer ③ to the oil pan. Attach packing ⑤ and washer ⑧ to screw ④ and fix them with nut ⑥.
- 2) After they are fixed, screw in waste oil container ⑦ into drain plug ①.

3. ATTACHING THE BELT COVER



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



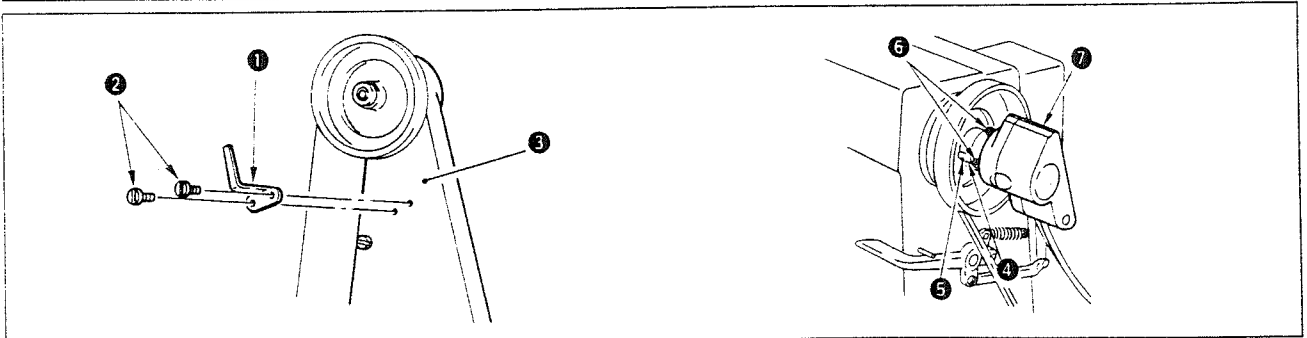
- 1) Attach belt cover supports ① to the four tapped holes in the machine arm.
 - 2) Tighten four attaching screws ② in belt cover supports ① until half of the threads of each screw fits inside the belt cover support.
 - 3) Put belt covers ③ and ④ over the belt from the front and the rear of the belt so that attaching screws ② fit in the notches in the covers. Then, tighten the attaching screws.
 - 4) Tighten screws ⑤ and ⑥ to secure belt covers ③ and ④.
- If a slant table is used, attach belt cover, lower ⑦ in position with screw ③.

4. ATTACHING THE SYNCHRONIZER



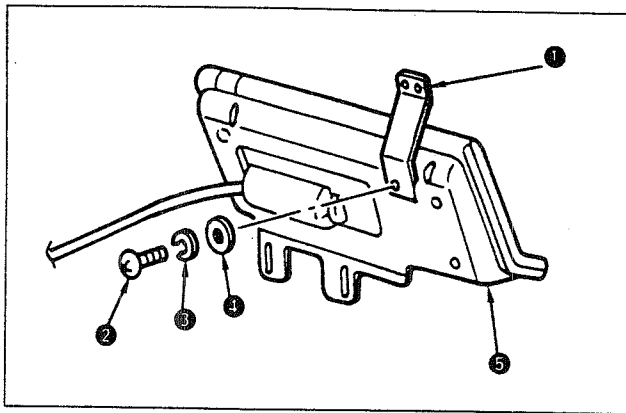
WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.

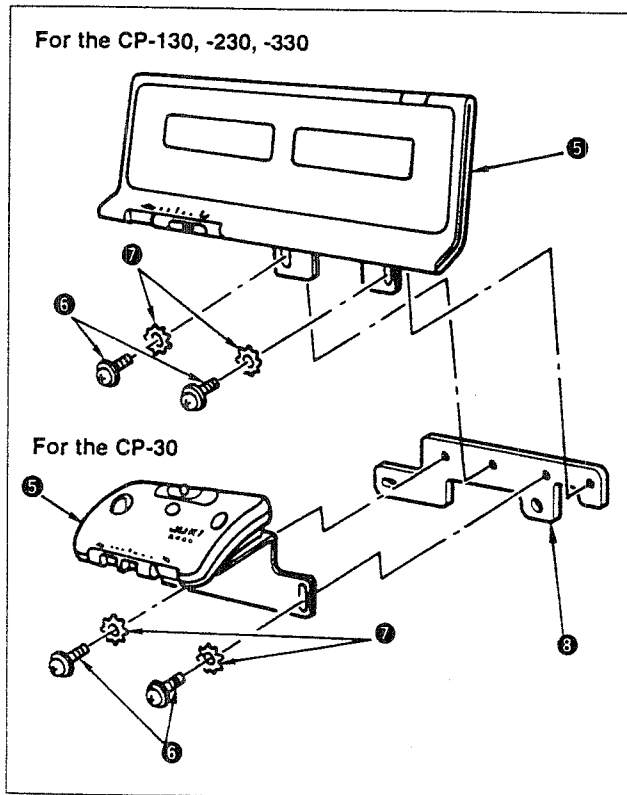


- 1) Attach synchronizer support ① to belt cover ③ with attaching screws ②.
- 2) Attach the synchronizer in position with screws ⑥ while aligning marker line ④ engraved on the synchronizer with marker dot ⑤ engraved on the handwheel.

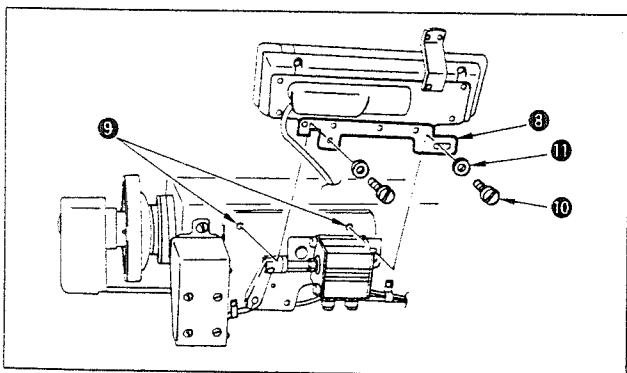
5. INSTALLING THE CONTROL PANEL



- 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 bracket ⑧ using screws ⑥ with washers and toothed washers ⑦ supplied with the unit.



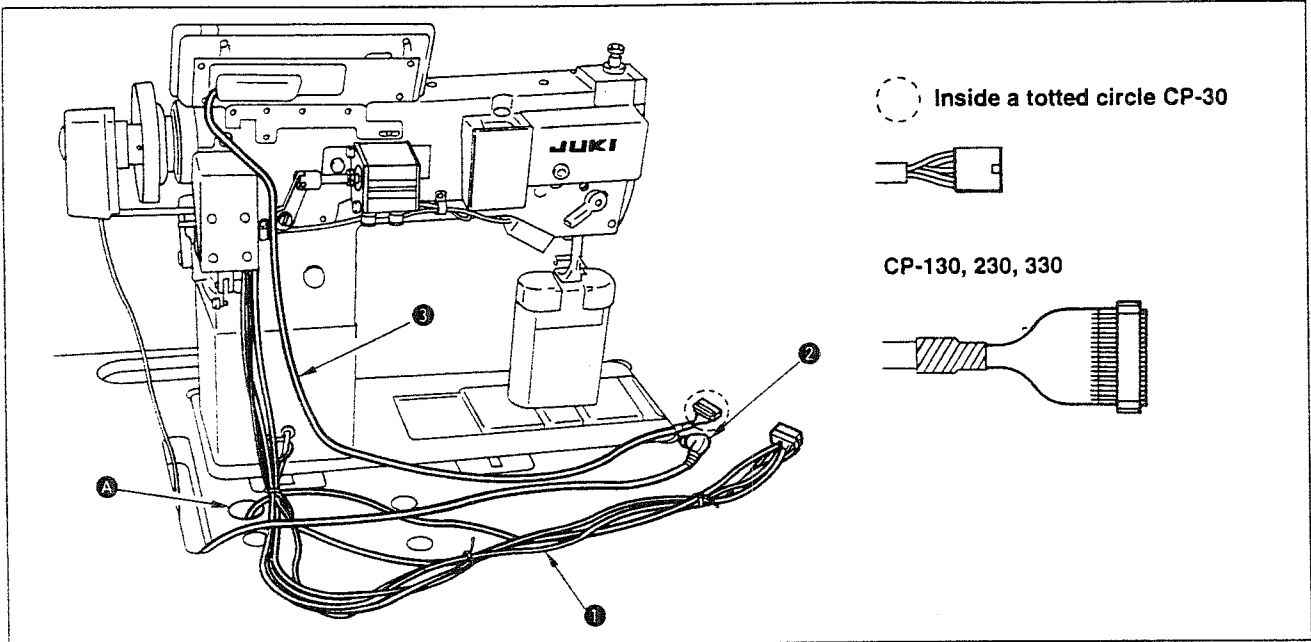
- 3) Remove two screws ⑨ from the side plate.
- 4) Attach panel bracket ⑧ to the machine using screw ⑩ and washer ⑪ supplied with the unit.

6. CONNECTING THE CORDS

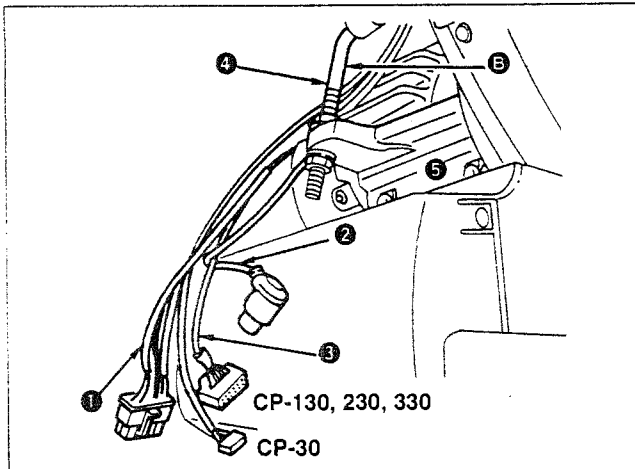


WARNING :

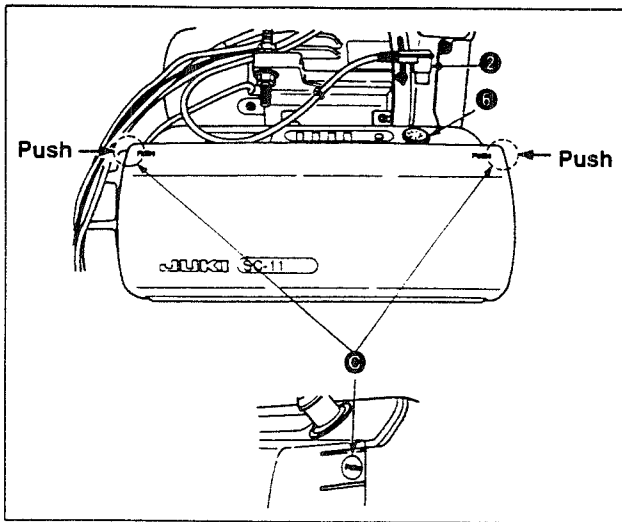
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



- 1) Pass cords ① including the thread trimming solenoid cord, synchronizer cord ②, control panel cord ③ and other cords through hole ④ in the table to route them under the table.



- 2) Pass cords ① to ③ through space ⑥ located between belt tension adjusting bolt ④ of the motor and motor ⑤ taking care not to allow them to come in contact with the belt.



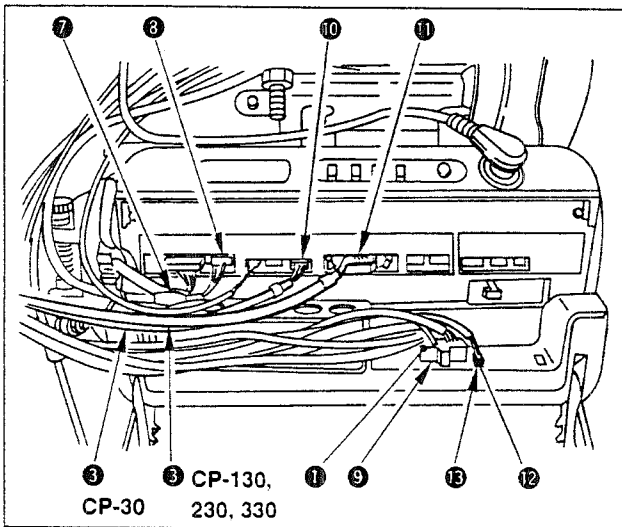
- 3) Push two points **C** located at both sides of the front cover to open the front cover.


(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. INSTALLING OF THE WASTE OIL CONTAINER" on page 2.)


- 4) Connect the plug of synchronizer cord **2** to connector **6** of SC-11.



- 5) Connect 10P plug **7** coming from the motor to connector **8** located under the identification mark .

- 6) Connect 14P plug **11** coming from the machine head to connector **9** located under the identification mark .


- 7) Connect plug **3** of the control panel to connector **10** (CP-30) located under the identification mark  or connector **11** (CP-130, -230, -330) located under the identification mark .

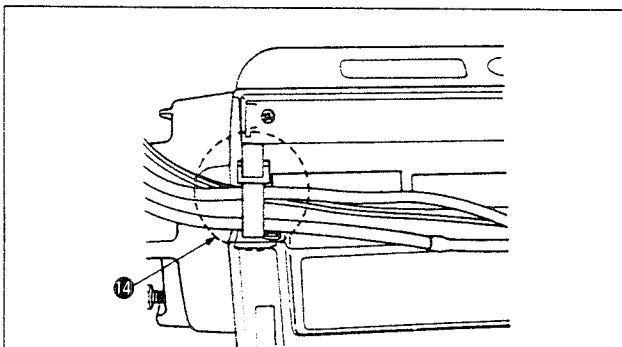
- 8) Connect 2P plug **12** coming from the air unit to connector **15** located under the identification mark .

- 9) After the completion of the connection of the connectors, fix the cords with cable clip band **14** located at the opening of the connector panel.

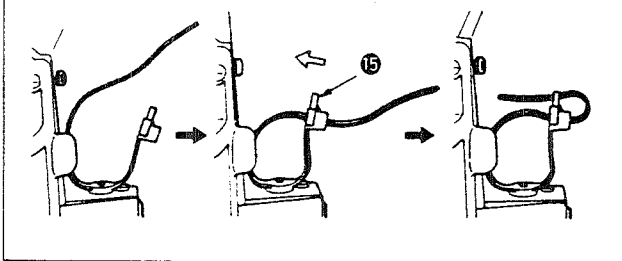
(Caution)

1. Secure the cable clip band as illustrated in the sketch given on the left.

2. To undo, press hook **15** of the cable clip band in the direction of the arrow .



How to fix the cable clip band

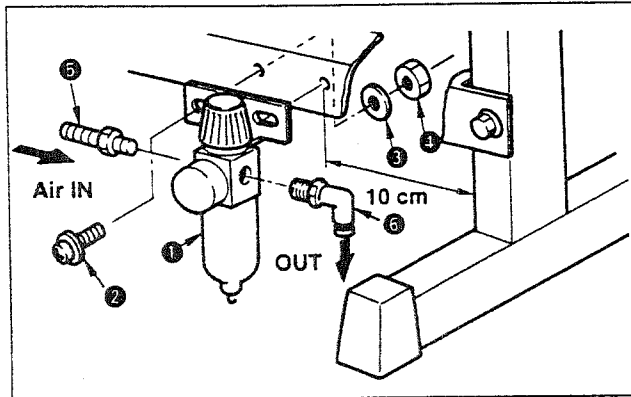


7. ATTACHING THE PNEUMATIC DRIVE UNIT

Name of device	Model	Operating method
Auto-lifter	AK116A	By knee switch
	AK116B	By pedal

(1) Attaching the AK116A

(Caution) The auto-lifter is not coupled to the sewing machine operation. Actuating the auto-lifter causes the presser foot to go up even if the sewing machine is rotating. To avoid this, carefully determine the position of the switch of the knee-lifter and also carefully operate it.)



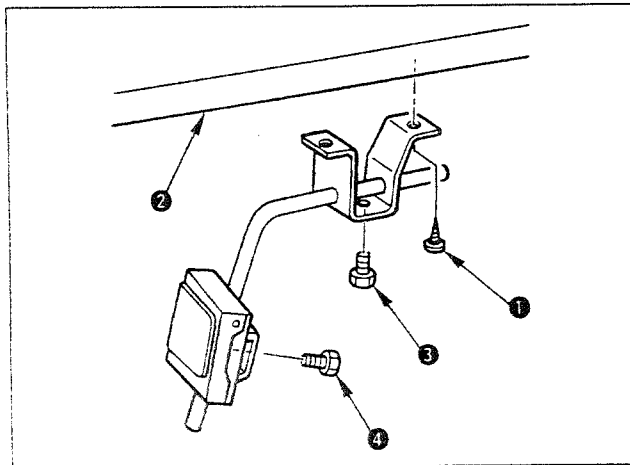
(1) Attaching the filter regulator

- 1) Attach filter regulator ① to the rear of the table stand.
- 2) Drill a $\varnothing 4.5$ mm hole in the table stand and attach the filter regulator in position and fix it with semi screw ②, washer ③ and nut ④ supplied with the unit.

(Caution)

Attach the filter regulator at a position that is approximately 10 cm away from the support bar of the table stand.

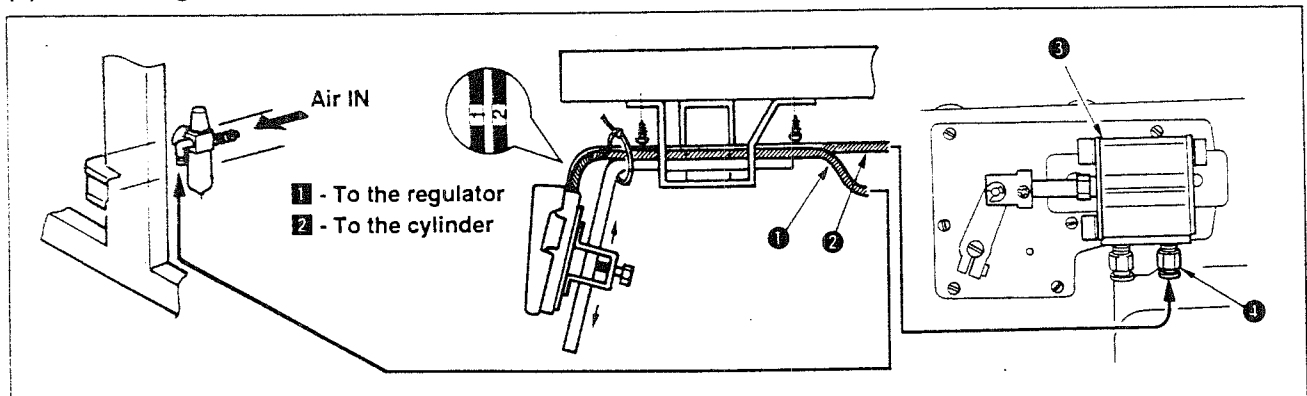
- 3) Attach hose joint ⑤ and coupling ⑥ supplied with the unit to the filter regulator ①.



(2) Attaching the knee-switch

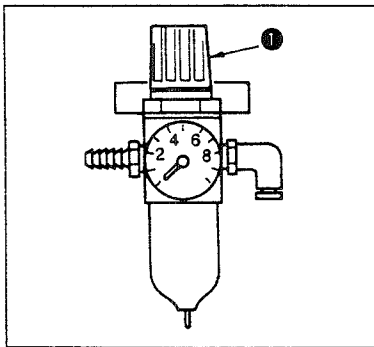
Attach the knee-switch to table ② with wood screw ① supplied with the unit. Move the switch to a easy-to-operate position with screws ③ and ④.

(3) Connecting the air hose



Check the marker label attached on the air tube of the switch. Then, connect hose ① (air tube attached with the marker label ①) to the filter regulator and hose ② (air tube attached with the marker label ②) to quick coupling joint ④ of cylinder ③.

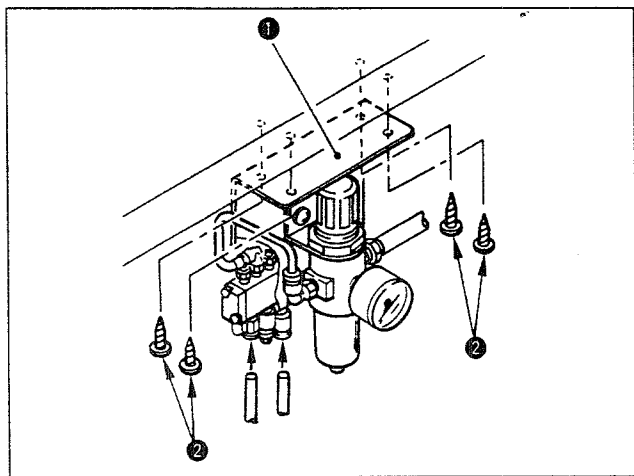
(4) Adjusting the air pressure



The operating air pressure is 4.5 to 5 kgf/cm² (0.45 to 0.5 MPa). Adjust the air pressure to the above-stated value using adjusting knob 1 of the filter regulator.

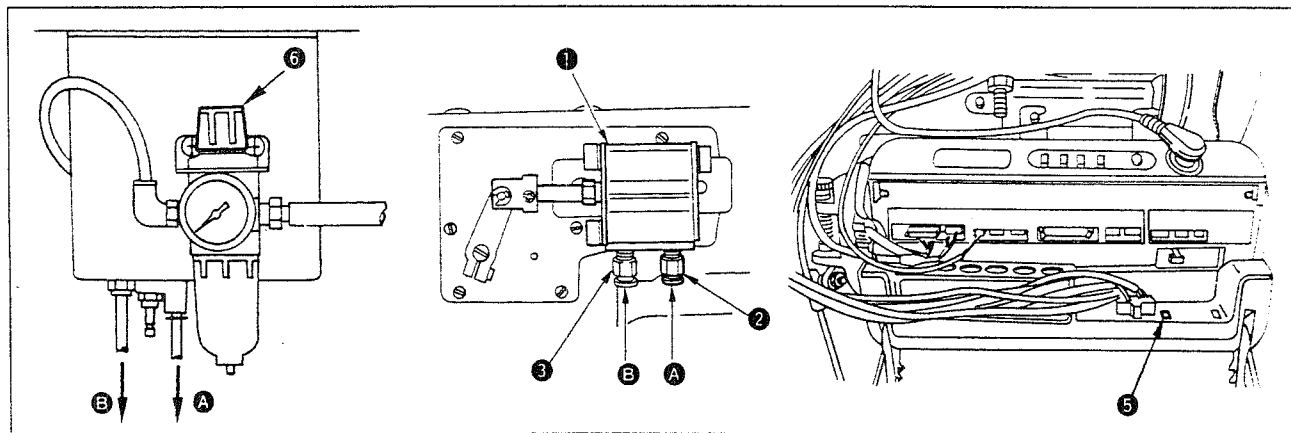
(2) Attaching the AK-116B


(1) Attaching the air control unit



Attach air control unit 1 to the underside of the table (next to the motor) with wood screws 2 supplied with the unit.

(2) Connecting the air hose and adjusting the air pressure



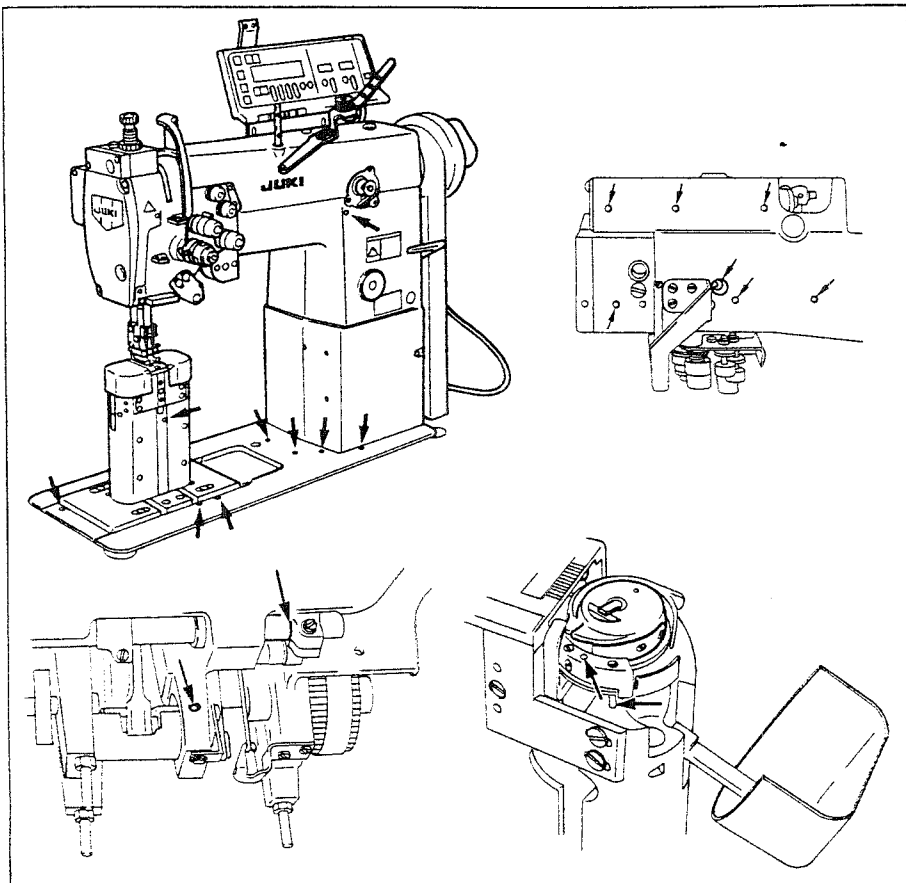
- 1) Connect air hose A to quick coupling joint 2 and air hose B to quick coupling joint 3 of cylinder 1.
- 2) Connect the 2P plug of the air control unit to connector 5 marked with the connector identification mark "  " on the SC-11.
- 3) Adjust the operating air pressure to 4.5 to 5 kgf/cm² (0.45 to 0.5 MPa) using adjusting knob 6 of the filter regulator.

8. LUBRICATION



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.

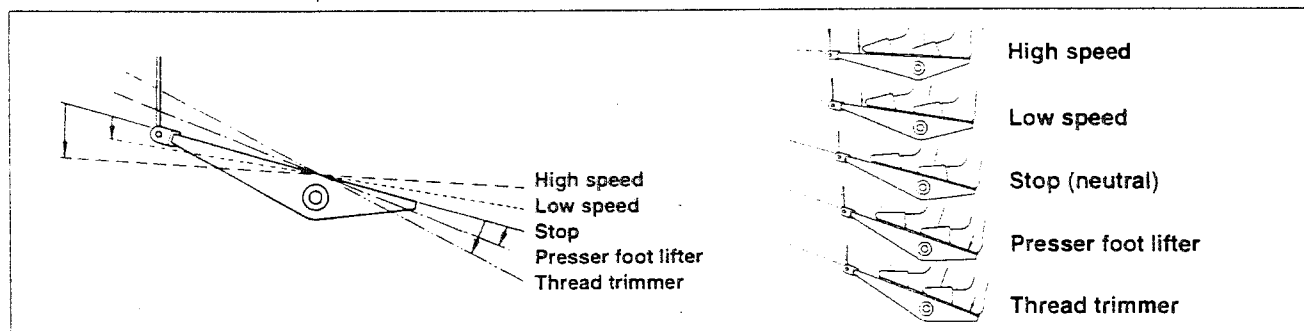


Apply a few drops of oil to the locations marked with an arrow in prior to the operation of the machine.

(Caution)

Inside of the face plate is lubricated using an oil wick. Remove the face plate and apply oil to the sliding sections inside the face plate once a week.

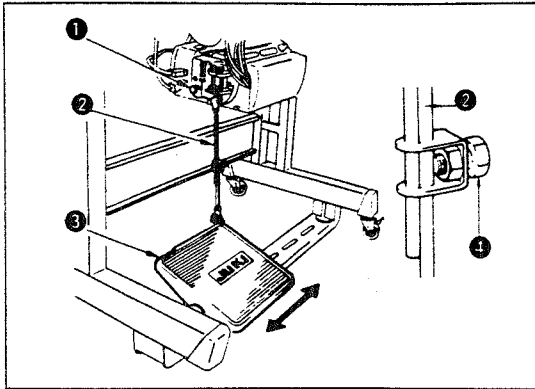
9. PEDAL OPERATION



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 the 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.

10. ADJUSTING THE PEDAL



WARNING :

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

(1) Attach the pedal connecting rod

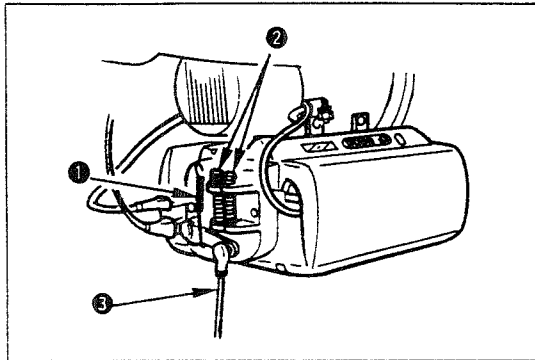
1) Move pedal adjusting plate ③ to the left or the right to make motor control lever ① and pedal connecting rod ② straight.

(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.

11. 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

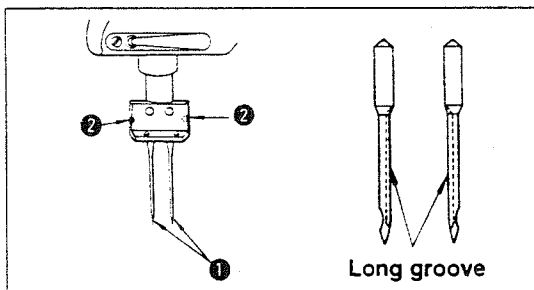
When connecting rod ③ is inserted into the hole on the left side, the stroke is reduced.

12. ATTACHING THE NEEDLE



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



Use a SCHMETZ 134 x 35R needle.

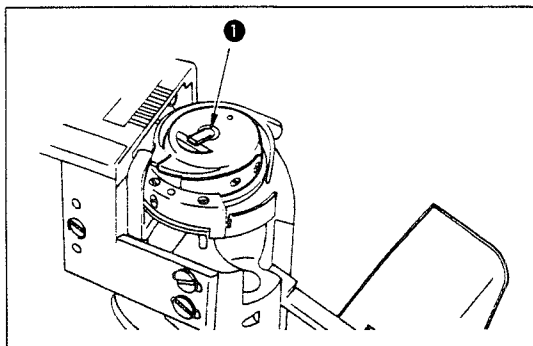
1) Turn the handwheel to bring the needle bar to the highest position of its stroke.

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.

13. ATTACHING/REMOVING THE BOBBIN



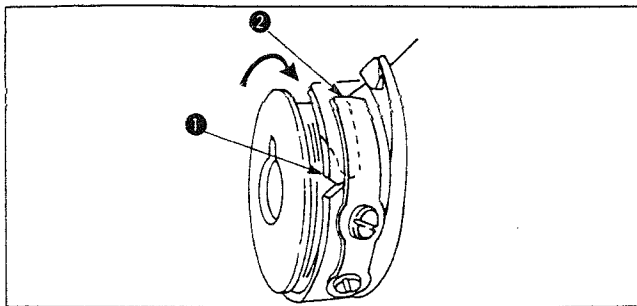
WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.

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.

14. THREADING THE BOBBIN CASE

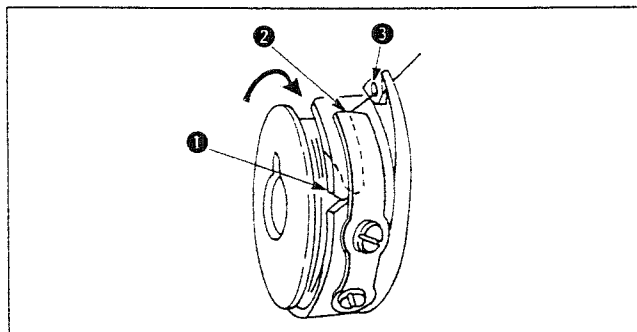


(1) For the PLC-1660 and -1660-7

- 1) Holding the bobbin so that the thread winds clockwise, fit it in the bobbin case.
- 2) Pass the thread in threading slit ① in the bobbin case and draw it to route it under tension spring ②.

(Caution)

The bobbin has to turn in the direction of the arrow when the bobbin thread is drawn by hand.



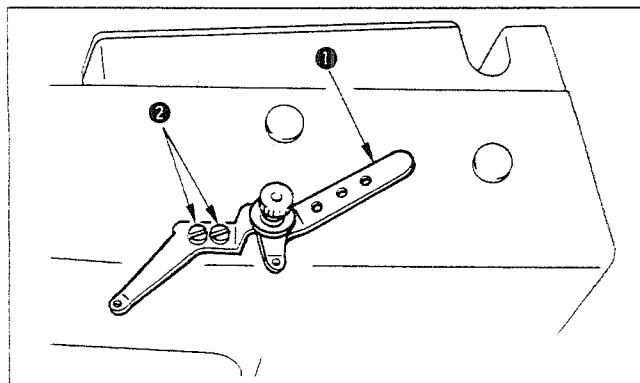
(2) For the PLC-1660L

- 1) Holding the bobbin so that the thread winds clockwise, fit it in the bobbin case.
- 2) Pass the thread in threading slit ① in the bobbin case, draw it to route it under tension spring ② and pass it through threading hole ③.

(Caution)

The bobbin has to turn in the direction of the arrow when the bobbin thread is drawn by hand.

15. INSTALLING THE BOBBIN WINDER THREAD GUIDE



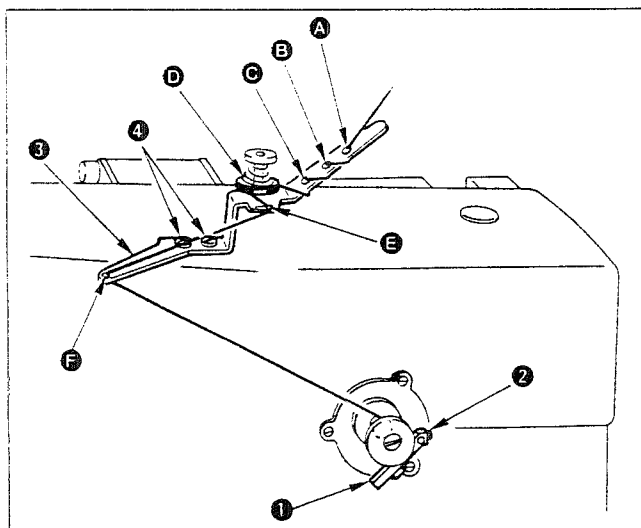
- 1) Attach bobbin winder thread guide ① to the bobbin winder on the machine arm using screws ②.
- 2) Adjust the position of the thread guide referring to "16. WINDING A BOBBIN."

16. WINDING A BOBBIN



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



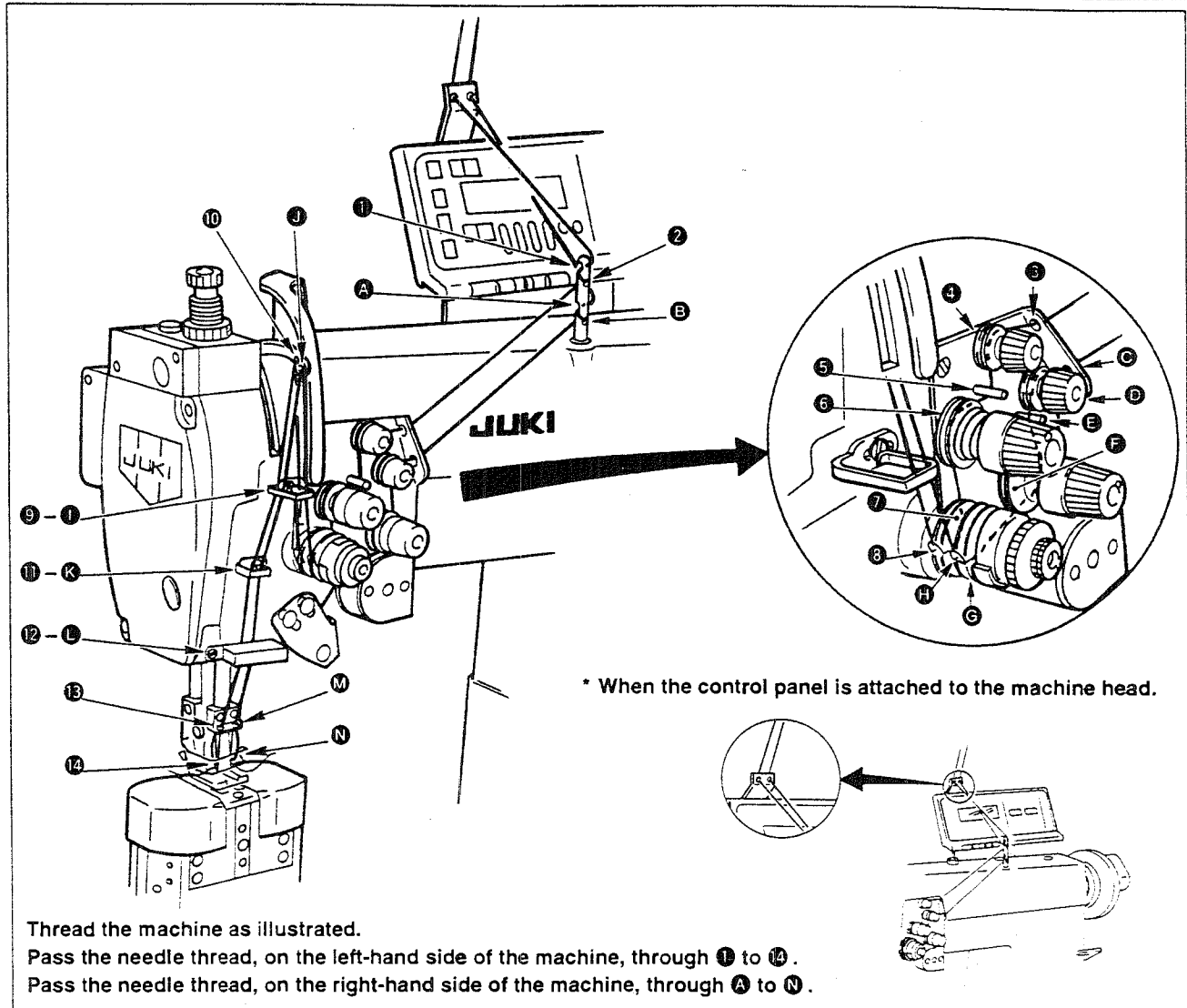
- 1) Route the thread in the order ① through ⑥, and wind it round the bobbin several times.
- 2) Tilt bobbin winding lever ① to the direction of the arrow.
- 3) Loosen screw ② and adjust the position of the bobbin winding lever so that the bobbin is wound with thread about 80%.
- 4) If the thread is not uniformly wound on the bobbin, move thread winder guide ③ back or forth to adjust so that the thread is properly wound. Then, fix thread winder guide using screw ④.
- 5) Once the bobbin is properly wound with thread, the bobbin winding lever ① automatically comes off and stops.

17. THREADING THE MACHINE HEAD



WARNING :

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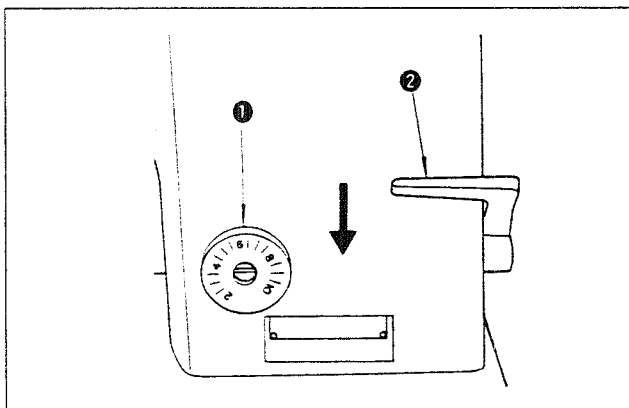


18. ADJUSTING THE STITCH LENGTH



WARNING :

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Turn stitch dial ① 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.

★ Reverse feed stitching

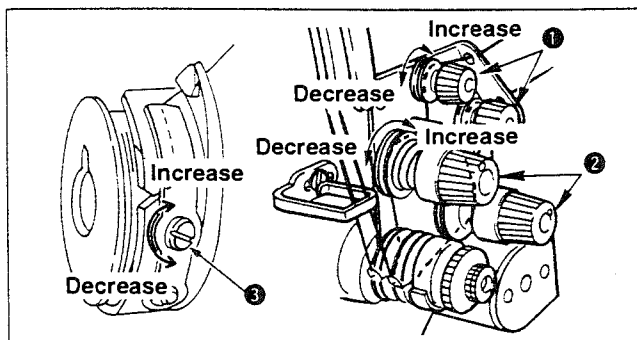
- 1) Press down reverse feed control lever ②.
- 2) Reverse feed stitches are made as long as you keep pressing the lever down.
- 3) Release the lever, and the machine will run in the normal feed direction.

19. THREAD TENSION



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



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

- 1) Turn thread tension nut No.1 ① clockwise to shorten the length of thread remaining after thread trimming. Turn the nut counterclockwise to lengthen it.
- 2) Turn thread tension nut No.2 ② clockwise to increase the needle thread tension, or counterclockwise to decrease it.

(2) Adjusting the bobbin thread tension

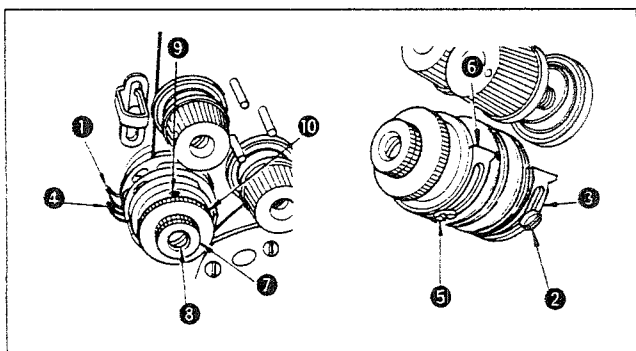
Turn tension adjustment screw ③ clockwise to increase the bobbin thread tension, or counterclockwise to decrease it.

20. THREAD TAKE-UP SPRING



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



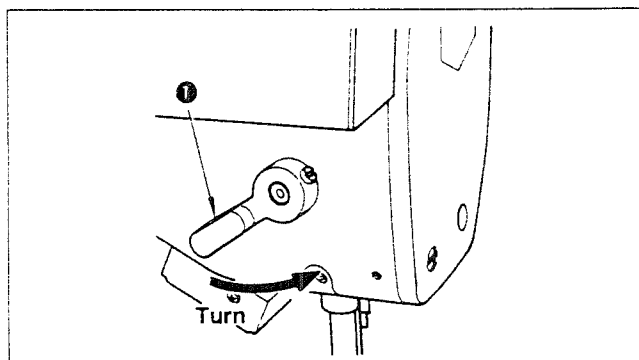
• To change the stroke of the thread take-up spring

- 1) For thread take-up spring ① on the left-hand side, loosen stopper screw ② and move stopper ③ to the right or left.
- 2) For thread take-up spring ④ on the right-hand side, loosen stopper screw ⑤ and move stopper ⑥ to the right or left.
- 3) Move the stopper to the right to increase the stroke or to the left to decrease it.

• To change the tension of the thread take-up spring

- 1) For the thread take-up spring on the left-hand side, loosen nut ⑦ and turn spring shaft ⑧ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.
- 2) For the thread take-up spring on the right-hand side, loosen screw ⑨ and turn thread take-up spring peg ⑩ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.

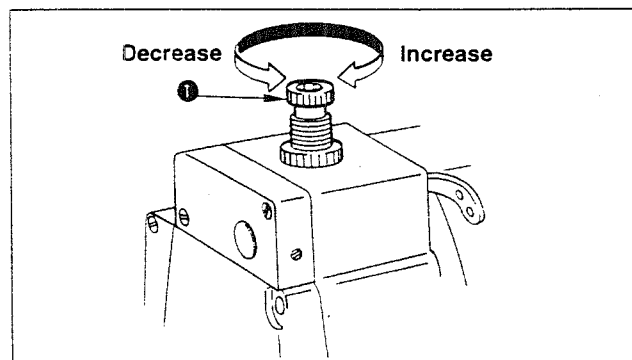
21. HAND LIFTER



When you want to keep the presser foot in the lifted position, turn hand lifter ① in the direction of the arrow. This makes the presser foot rise 10 mm and stay at that position.

To make the presser foot come down to its home position, lower the hand lifter.

22. ADJUSTING THE PRESSURE OF THE PRESSER FOOT



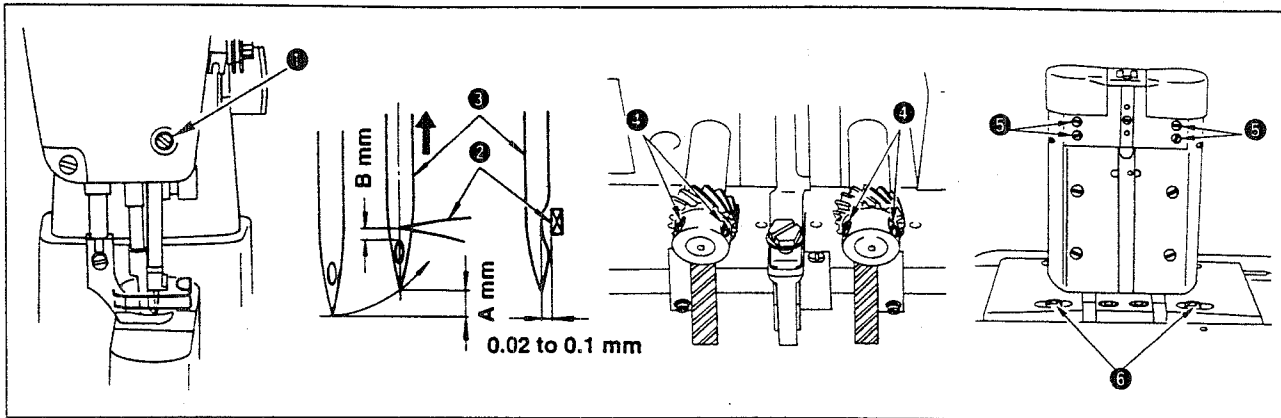
Turn presser spring regulating dial ① clockwise to increase the pressure of the presser foot, or counterclockwise to decrease it.

23. NEEDLE-TO-HOOK RELATION



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



Model	Distance A (mm)	Distance B (mm)
PLC-1660	2.0	1.5
PLC-1660L	2.4	1.8
PLC-1660-7	2.0	1.5

(1) Preparation for adjustment of the needle-to-hook relation

- 1) Turn the stitch dial clockwise until it will go no further.
- 2) Turn the handwheel to lower the needle bar to the lowest point. Then, loosen needle bar connecting stud clamping screw ①.

(2) Height of the needle bar

The standard height of the needle bar is obtained by adjusting, when the needle bar ascends dimension A from the lowest point of its stroke, so that dimension B is provided between the top end of the needle eyelet and blade point ② of the hook.

(3) Positioning the hook

- 1) Loosen three screws ④ in the crossed helical gear (small) and turn the handwheel to lift the needle bar by dimension A from the lowest point of its stroke.
- 2) In the aforementioned state, loosen eight screws ⑤ in the throat plate support and four screws ⑥ in the right and left hook driving shaft saddles and move the hook driving shaft saddle to the right or left to adjust so that a clearance 0.02 to 0.1 mm is provided between blade point ② of the hook and needle ③. Then, tighten screws ⑤ and ⑥.
- 3) Then, in the aforementioned 1) state, align blade tip ② of the hook to the center of needle ③ and tighten screws ④ in the crossed helical gear (small).

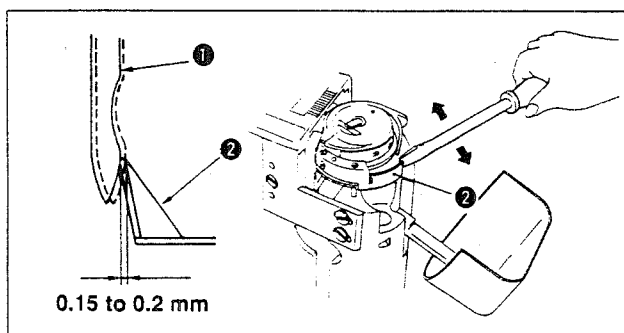
(Caution) After the screws in the crossed helical gear (small) are tightened, check the hook driving shaft saddle for an excessive thrust play.

24. ADJUSTING THE HOOK NEEDLE GUARD



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



When you have changed the hook, check the position of the needle guard.

When the needle guard is in the standard position, hook needle guard ② comes in contact with the side face of needle ① to such an extent that the needle leans by 0.15 to 0.2 mm. If the aforementioned state is not provided, bend the needle guard to properly position it.

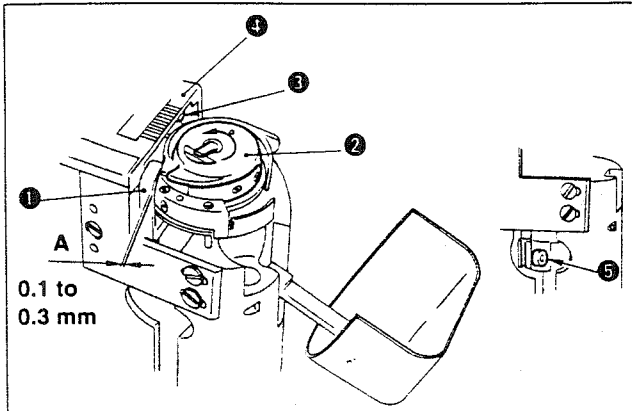
- 1) To bend the hook needle guard toward inside, push the needle guard from outside with a screwdriver.
- 2) To bend the hook needle guard toward outside, push the needle guard from inside with a screwdriver.

25. ADJUSTING THE BOBBIN CASE OPENING LEVER



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



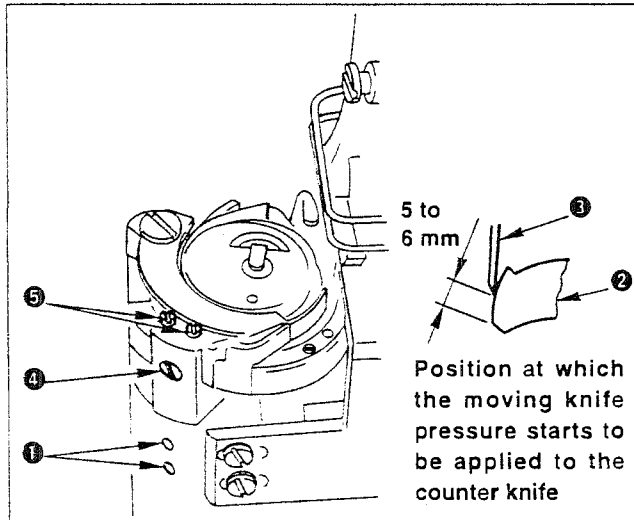
- 1) Turn the handwheel in the normal direction to cause bobbin case opening lever ① to travel to the back end.
- 2) Turn bobbin case ② in the direction of the arrow to cause stopper ③ to be pressed against the slit on throat plate ④.
- 3) Loosen screw ⑤ in the bobbin case opening lever and adjust so that a clearance of 0.1 to 0.3 mm is provided between the bobbin case opening lever and projecting portion ④ of the bobbin case.

26. POSITION OF THE COUNTER KNIFE



WARNING :

To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



(1) Position of the counter knife

- 1) Loosen screws ① in the counter knife mounting base.
- 2) Manually turn moving knife ② until it comes in contact with counter knife ③. Adjust the position at which the moving knife ② comes in the first contact with the counter knife to 5 to 6 mm and tighten screws ①.

(2) Adjusting the blade-to-blade relation between the moving knife and the counter knife

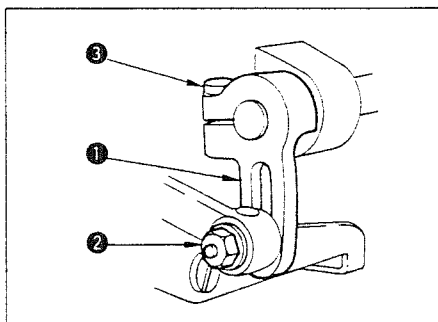
- 1) Slightly loosen screw ④ in the counter knife to allow the blade surface of the counter knife to come in parallel contact with the blade surface of the moving knife.
- 2) Turn the counter knife adjusting screw ⑤ to adjust the blade surface of the counter knife.
- 3) After the adjustment, tighten screw ④.

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



WARNING :

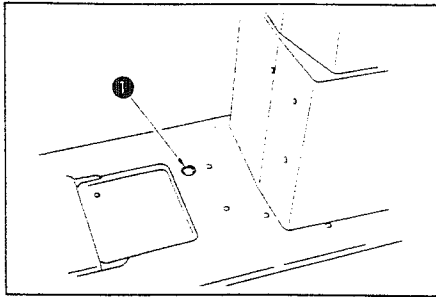
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



The amount of the alternating vertical movement of the presser foot and the walking foot have been normally adjusted to be equal. Move the nut upward within the slot in walking foot adjusting lever ① to increase the alternating vertical movement of the presser foot and the walking foot, or downward to decrease it. Then, tighten the nut.

To set the amount of alternating vertical movement of the presser foot and that of the walking foot to different values, loosen screw ② in the walking foot adjusting lever when the sole of the presser foot is flush with that of the walking foot, and turn the handwheel toward you and tighten screw ③. This increases the amount of the vertical movement of the presser foot larger than that of the walking foot. Turn the handwheel in the opposite direction, the amount of the vertical movement of the walking foot will be larger than that of the presser foot.

28. RESETTING THE SAFETY DEVICE



If an extra load is applied to the hook or other components of the machine during sewing, the safety device will actuate. Once the safety device actuates, the hook will not rotate even if you turn the handwheel. In this case, eliminate the cause that has made the safety device to actuate and reset following the procedure described below.

- 1) Pressing push-button ❶ mounted on the top surface of the bed, strongly turn the handwheel in the reverse direction of rotation.
- 2) The safety unit is reset with a click.

29. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Troubles	Causes	Corrective measures
<p>1. Thread breakage (Thread frays or worn out.)</p> <p>(Needle thread trails 2 to 3 cm from the wrong side of the fabric.)</p>	<ol style="list-style-type: none"> ❶ Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs. ❷ Needle thread tension is too high. ❸ Bobbin case opening lever provides an excessive clearance at the bobbin case. ❹ Needle comes in contact with the blade point of hook. ❺ Amount of oil in the hook is too small. ❻ Needle thread tension is too low. ❼ Thread take-up spring works excessively or the stroke of the spring is too small. ❽ Timing between the needle and the hook is excessively advanced or retarded. 	<ul style="list-style-type: none"> ○ 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. ○ Decrease the needle thread tension. ○ Decrease the clearance provided between the bobbin case opening lever and the bobbin. Refer to "25. ADJUSTING THE BOBBIN CASE OPENING LEVER." ○ Refer to "23. NEEDLE-TO-HOOK RELATION." ○ Apply oil to the surface of the face of the hook. (See "8. Lubrication.") ○ Increase the needle thread tension. ○ Decrease the tension of the spring and increase the stroke of the spring. ○ Refer to "23. NEEDLE-TO-HOOK RELATION."
2. Stitch skipping	<ol style="list-style-type: none"> ❶ Timing between the needle and the hook is excessively advanced or retarded. ❷ Pressure of the presser foot is too low. ❸ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct. ❹ Hook needle guard is not functional. ❺ Improper type of needle is used. 	<ul style="list-style-type: none"> ○ Refer to "23. NEEDLE-TO-HOOK RELATION." ○ Tighten the presser spring regulator. ○ Refer to "23. NEEDLE-TO-HOOK RELATION." ○ Refer to "24. ADJUSTING THE HOOK NEEDLE GUARD." ○ Replace the needle with one which is thicker than the current needle by one count.
3. Loose stitches	<ol style="list-style-type: none"> ❶ Bobbin thread does not pass through the tension spring of the bobbin case. ❷ Thread path has been poorly finished. ❸ Bobbin fails to move smoothly. ❹ Bobbin case opening lever provides too much clearance at the bobbin. ❺ Bobbin thread tension is too low. ❻ Bobbin has been wound too tightly. 	<ul style="list-style-type: none"> ○ Thread the bobbin case correctly. ○ Remove rough parts with a fine emery paper or buff it up. ○ Replace the bobbin or hook with a new one. ○ Refer to "25. ADJUSTING THE BOBBIN CASE OPENING LEVER." ○ Increase the bobbin thread tension. ○ Decrease the tension applied to the bobbin winder.
4. Thread slips off the needle eyelet simultaneously with thread trimming.	<ol style="list-style-type: none"> ❶ Thread tension given by the tension controller No.1 is too high. 	<ul style="list-style-type: none"> ○ Decrease the thread tension given by the tension controller No.1.
5. Thread slips off the needle eyelet at the start of sewing.	<ol style="list-style-type: none"> ❶ Thread tension given by the tension controller No.1 is too high. ❷ Clamp spring has improper shape. ❸ Bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Decrease the thread tension given by the tension controller No. 1. ○ Replace the clamp spring with a new one or correct the current one. ○ Increase the bobbin thread tension.
6. Thread is not cut sharply.	<ol style="list-style-type: none"> ❶ The blades of moving knife and counter knife have been improperly adjusted. ❷ The knives have blunt blades. ❸ Bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Refer to "26. POSITION OF THE COUNTER KNIFE." ○ Replace the moving knife and counter knife with new ones, or correct the current ones. ○ Increase the bobbin thread tension.

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