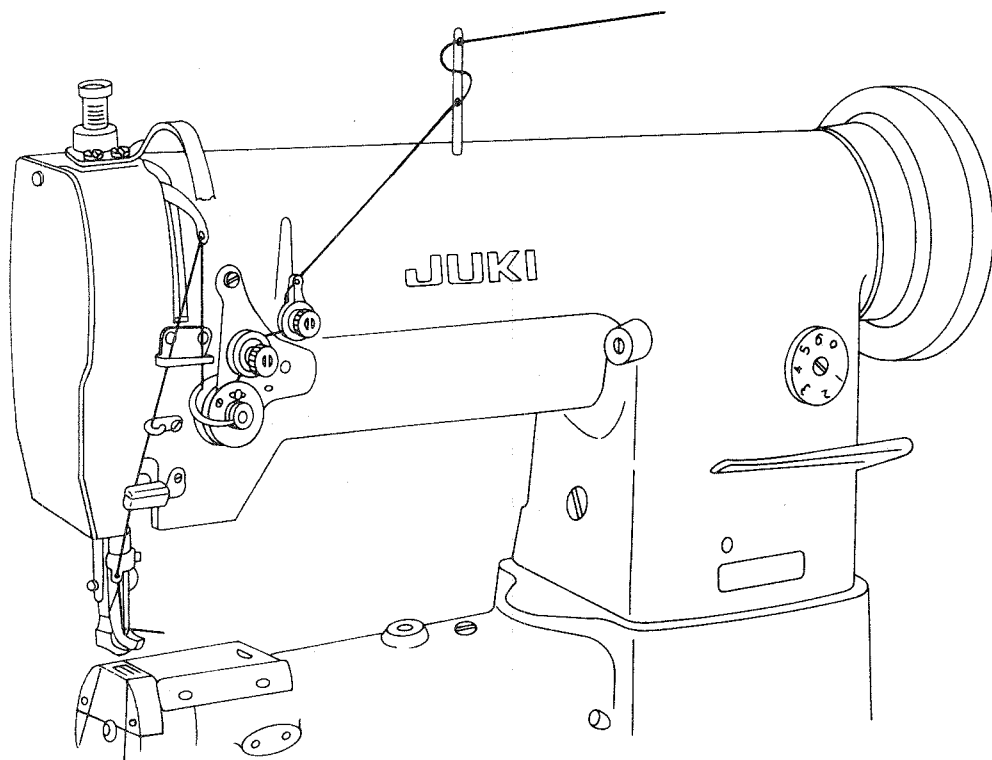


JUKI®

CYLINDER-BED, 1-NEEDLE, UNISON-FEED LOCKSTITCH
MACHINE (WITH A VERTICAL-AXIS HOOK)

LS-341N

INSTRUCTION MANUAL



NOTE : Read safety instructions carefully and understand them
before using your LS-341N.
Retain this Instruction Manual for future reference.

No.02
29176906

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



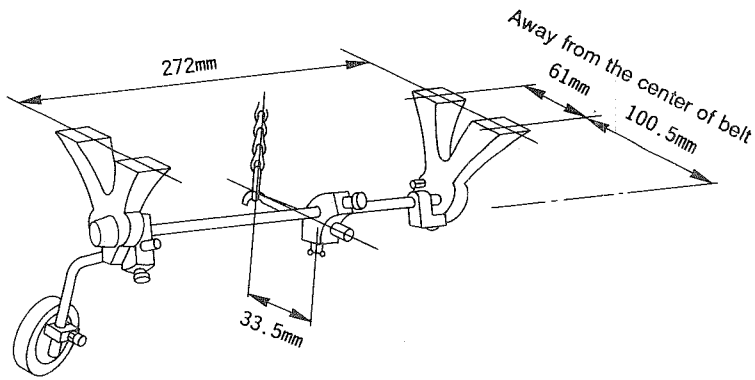
1. Keep your hands away from needle when you turn ON the power switch or while the machine is in operation.
2. During operation, be careful not to allow your or any other person's head or hands to come close to the thread take-up, handwheel, V-belt, bobbin winder and motor. Also, do not place anything close to them.
3. Do not operate your machine with the finger guard, belt cover and any other protectors removed.
4. Before tilting the machine head, be sure to confirm that the head support bar is properly attached to your machine head.
5. Before tilting the machine or removing the V belt, be sure to turn OFF the power switch and confirm that the motor of the sewing machine stops.
6. Tilt the machine head after removing the hook for the knee lifter.
7. When having tilted the machine head, wipe out oil on the bed underside, the top face of bed support and hinge area, and then raise up the machine head.



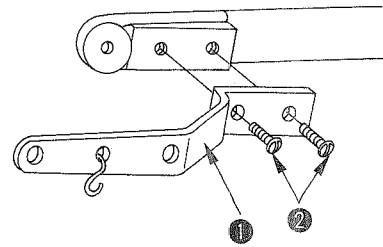
8. To ensure safety, never operate the machine with the ground wire for the power supply removed.
9. When inserting/removing the power plug, the power switch has to be turned OFF in advance.
10. In time of thunder and lightening, stop your work and disconnect the power plug from the receptacle so as to ensure safety.
11. If the machine is suddenly moved from a cold place to a warm place, dew condensation may be observed. In this case, turn ON the power to the machine after your have confirmed that there is no danger of water drops in the machine.
12. Turn OFF the power to the machine in the event of a power failure.
13. Do not allow the power cord to trail on the floor.

1. SETTING UP THE SEWING MACHINE

Mounting the knee lifter



(Caution) The knee lifter should be mounted before the motor is installed.



When using the knee lifting pedal, attach knee lifter bracket A ① in place using screws ② as illustrated in the figure.

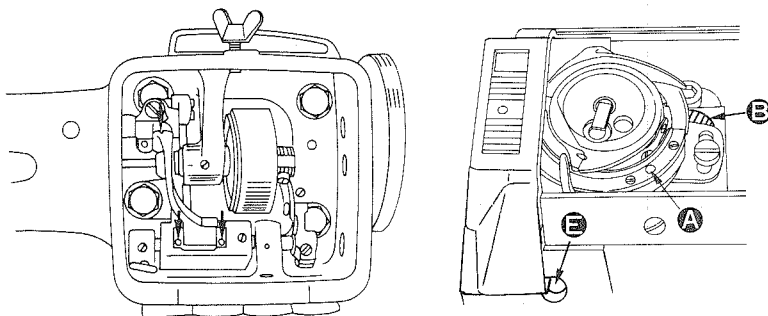
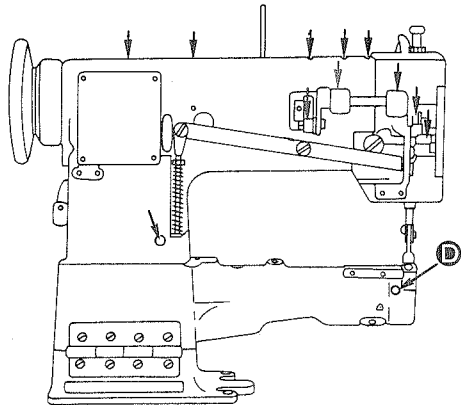
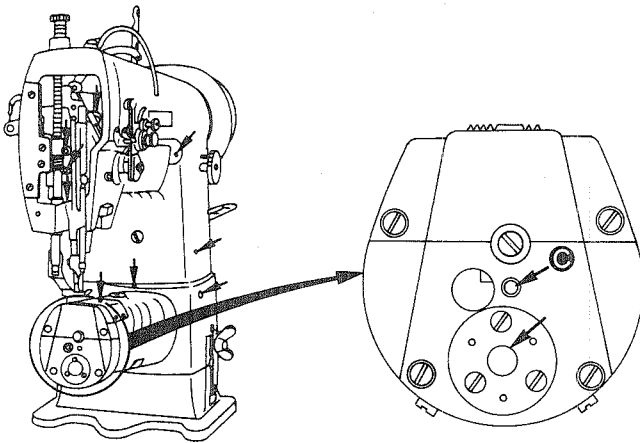
(Caution) Knee lifter bracket ① and screws ② are supplied with the machine in the accessory box.

2. LUBRICATION



WARNING:

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



★ Before starting the sewing machine

Prior to operation, apply adequate amount of oil to the points marked with the arrows.

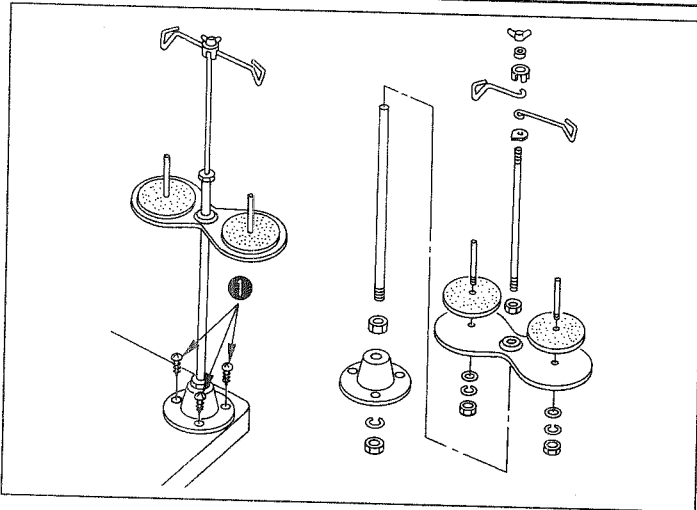
★ Lubricating the hook and hook shaft saddle

Shift the slide plate, and apply two or three drops of oil every day to the hole shown with the arrow ①. And four or five drops of oil every day to the felt shown with the arrow ②.

★ Lubricating the feed bar

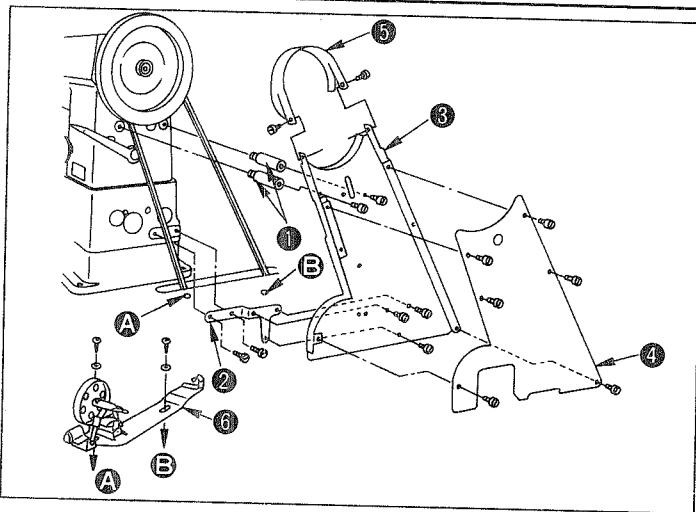
Prior to operation, apply two or three drops of oil to the holes shown with the arrows ③, ④ and ⑤ without fail.

3. INSTALLING THE THREAD STAND



Assemble the thread stand, and install it on the far right-hand side edge of the table using three screws ①.

4. INSTALLING THE BELT COVER AND THE BOBBIN WINDER

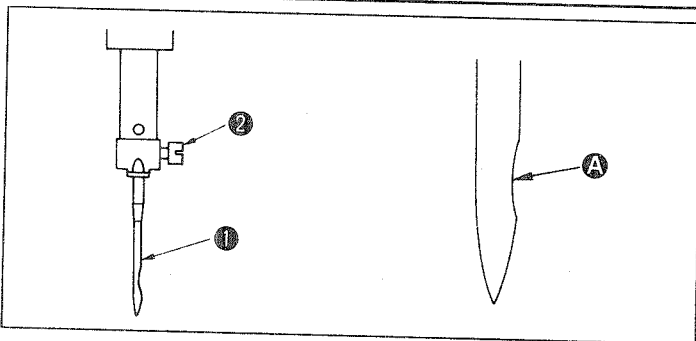


WARNING:

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

- 1) Drill guide holes **A** and **B** for wooden screws to be used in the table.
- 2) Insert belt cover support ① into the tapped hole in the machine arm.
- 3) Install belt cover support plate ② on the machine head.
- 4) Attach belt cover ③ to support ① and support plate ②.
- 5) Fit bobbin winder ⑥ in belt cover ③, and adjust the position of the bobbin winder properly.
- 6) Fix bobbin winder ⑥ on the table.
- 7) Put the V belt on the handwheel. Attach rid ④ of the belt cover and top cover ⑤ in place.

5. ATTACHING THE NEEDLE

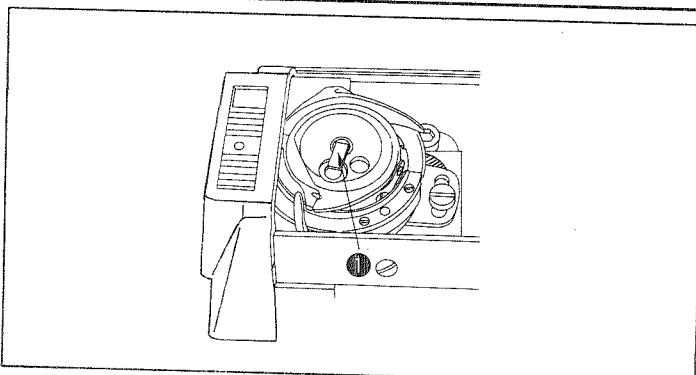


WARNING:

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

- Turn OFF the power to the motor.
- 1) Turn the handwheel to move the needle bar up to its highest position.
 - 2) Loosen needle clamp screw ②. Hold needle ① so that its indented part **A** faces exactly to the right.
 - 3) Insert the needle into the needle bar until it will go no further.
 - 4) Securely tighten the needle clamp screw ②.

6. ATTACHING/REMOVING THE BOBBIN CASE

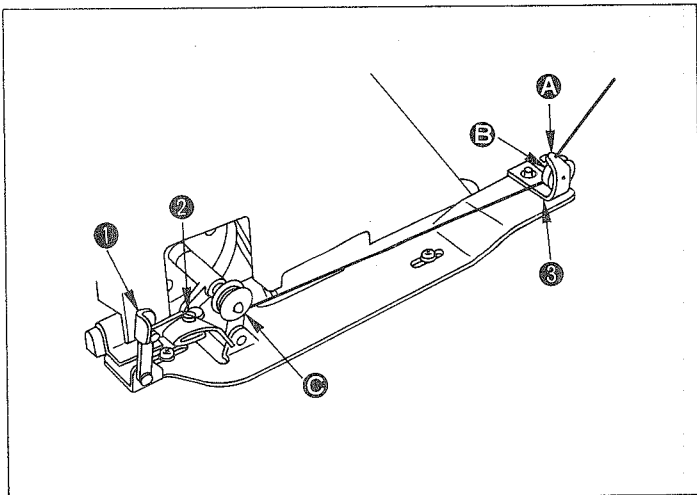


WARNING:

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

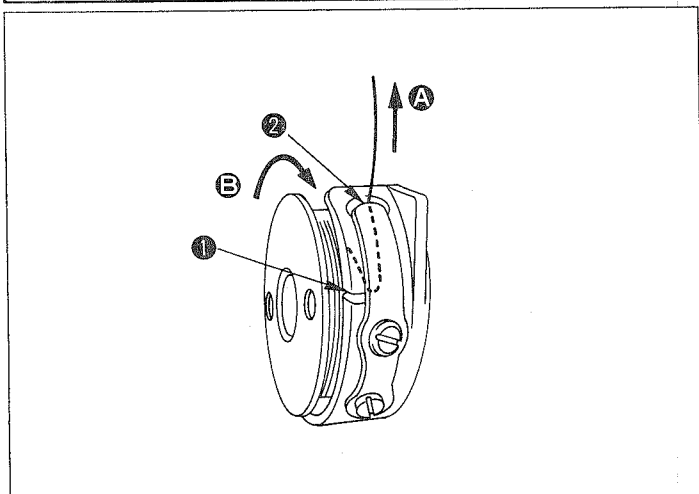
- 1) Raise lever ① of the hook, and remove the bobbin case together with the bobbin in it.
- 2) Fit the bobbin case into the hook driving shaft, and tilt the lever.

7. WINDING A BOBBIN



- 1) Route the thread in the order of **A**, **B** and **C** before winding it round the bobbin several times.
- 2) Set bobbin presser **1** down to bring the winder in contact with the belt.
- 3) Adjust screw **2** to adjust the amount of thread to be wound round the bobbin so that the bobbin is wound with thread about 80% of its capacity. Turn the screw clockwise to increase the amount of thread wound round the bobbin, or counterclockwise to decrease it.
- 4) If thread is wound unevenly round the bobbin, move winder tension adjuster base **4** to the right or left so that thread is evenly wound round the bobbin.
- 5) The moment the bobbin has been wound up, the bobbin presser is released, and the bobbin winder will stop automatically.

8. PLACING A BOBBIN IN THE BOBBIN CASE



WARNING:

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

- 1) Hold a bobbin so that the end of the thread wound round the bobbin is directed to the right and put it into the bobbin case.
- 2) Pass the thread in threading slit **1** in the bobbin case, route it under the tension spring and draw it out from notch **2**.

(Caution) As long as the bobbin is correctly placed in the bobbin case, pulling the thread in direction **A** makes the bobbin rotate in direction **B**.

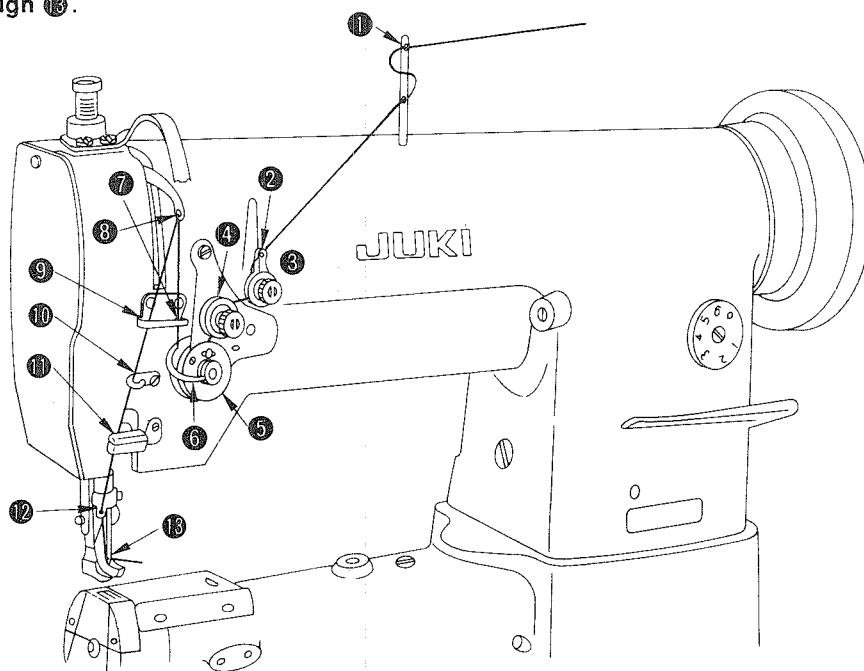
9. THREADING THE MACHINE HEAD



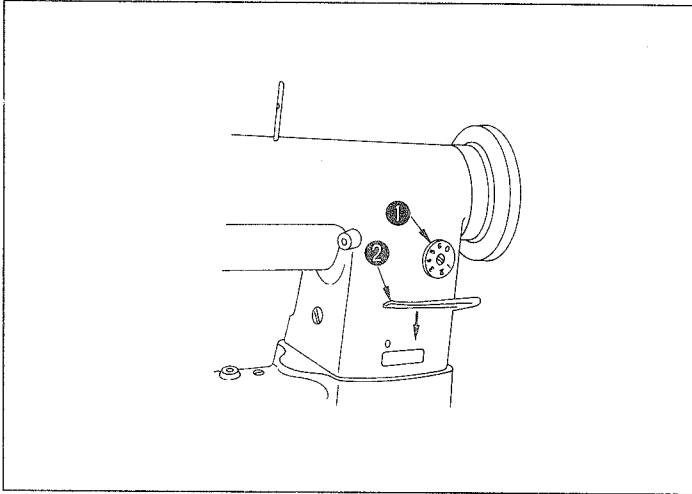
WARNING:

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

Thread the machine as illustrated in the figure in the order of **1** through **18**.



10. ADJUSTING THE STITCH LENGTH

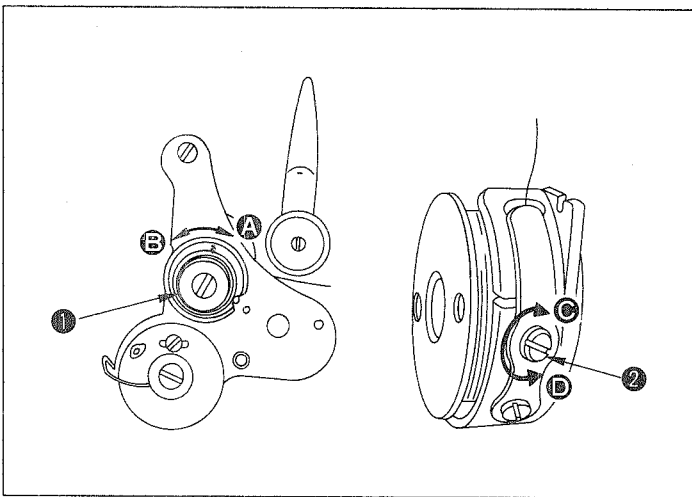


Turn stitch length dial ① counterclockwise or clockwise to bring the desired value to the top of the dial so that the value is aligned with the pin.

★ Reverse feed stitching

- 1) Push down feed lever ②.
- 2) The machine performs reverse feed stitching as long as the lever is held depressed.
- 3) The moment you release the lever, the machine resumed the normal stitching mode.

11. THREAD TENSION



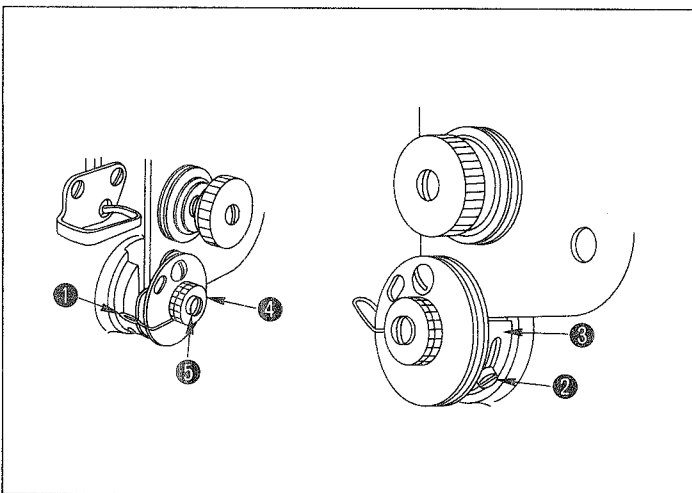
★ Adjusting the needle thread tension

Turn tension nut No. 2 ① clockwise (toward ③) to increase the needle thread tension, or counterclockwise (toward ④) to decrease it.

★ Adjusting the bobbin thread tension

Turn tension screw ② clockwise (toward ⑤) to increase the bobbin thread tension, or counterclockwise (toward ⑥) to decrease it.

12. THREAD TAKE-UP SPRING



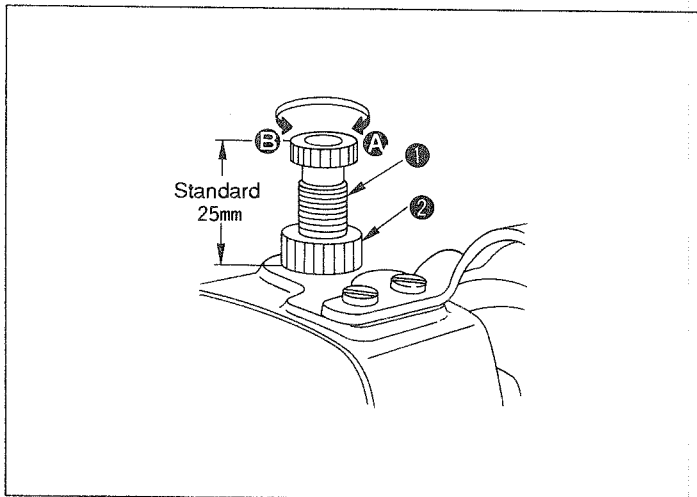
★ To change the stroke of thread take-up spring ①

- 1) Loosen screw ② in the stopper, and move stopper ③ to the right or left.
- 2) Move the stopper to the right to increase the stroke of the thread take-up spring, or to the left to decrease it.

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

Loosen nut ④. Turn spring shaft ⑤ counterclockwise to increase the tension of the spring, or clockwise to decrease it. Fit a screwdriver in the groove in the spring shaft and turn it until the desired tension is provided.

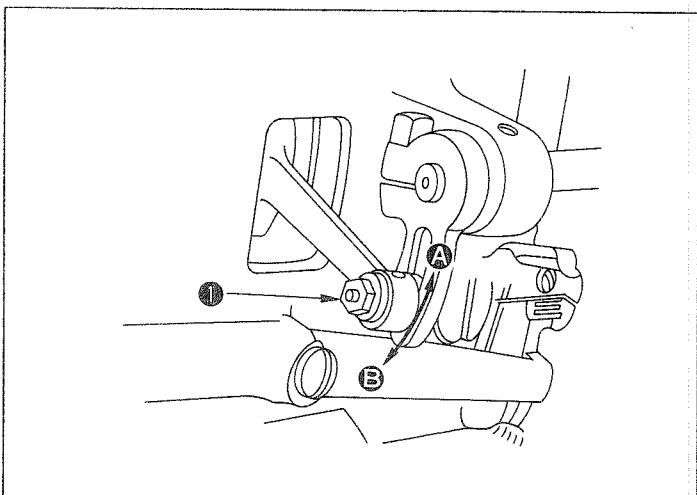
13. ADJUSTING THE PRESSURE OF THE PRESSER FOOT



Adjust the pressure of the presser foot in accordance with the type of material to be used. (Standard height of the pressure spring regulator: 25 mm)

- 1) Turn pressure spring regulator Ⓐ clockwise (toward Ⓐ) to increase the pressure of the presser foot, or counterclockwise (toward Ⓑ) to decrease it.
- 2) After the adjustment, securely tighten nut ② of the regulator.

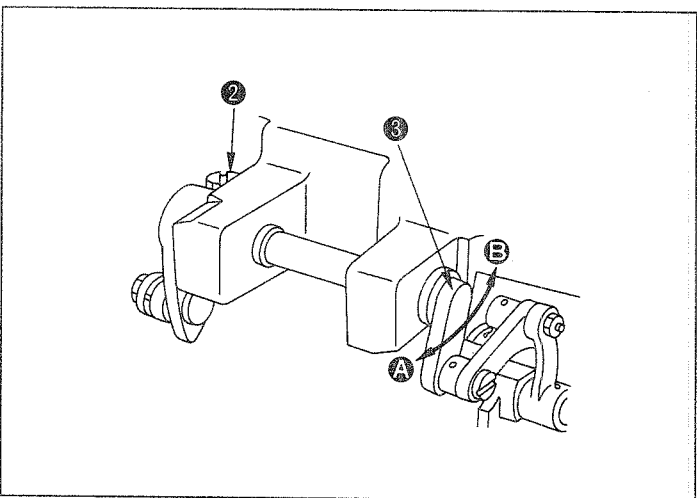
14. ADJUSTING THE PRESSER FOOT AND THE WALKING FOOT



★ Operating height of the walking foot and the presser foot

The operating height of the walking foot and the presser foot has been adjusted to the marker of "1/8" engraved on the top feed crank. A better result may be obtained by adjusting the operating height of the walking foot and the presser foot.

- Loosen nut ①, and change the position of the cam rod boss accordingly.
- Highest position → The stroke is maximized. Ⓐ
- Lowest position → The stroke is minimized. Ⓑ

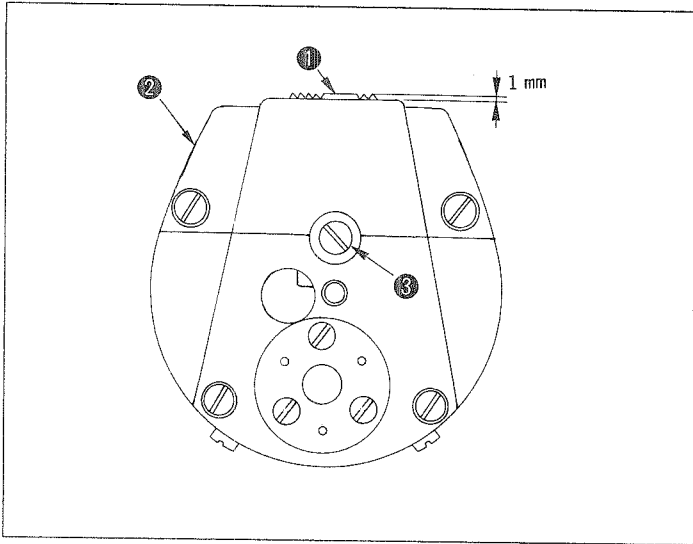


★ Alternate vertical motions of the walking foot and presser foot

The alternate vertical strokes of the walking foot and presser foot are normally equal.

- 1) Loosen screw ② of the top feed crank.
 - 2) Bring the thread take-up lever to its highest position, and lower the presser bar lifting lever.
- Move top feed crank Ⓑ to left Ⓐ to increase the stroke of the presser foot, or to the right Ⓑ to increase it.

15. HEIGHT OF THE FEED DOG



Feed dog ① has been factory-adjusted to jut out 1 mm from the surface of throat plate ②. When the feed dog height needs to be adjusted according to the sewing conditions or after the feed dog is replaced, follow the procedure described below.

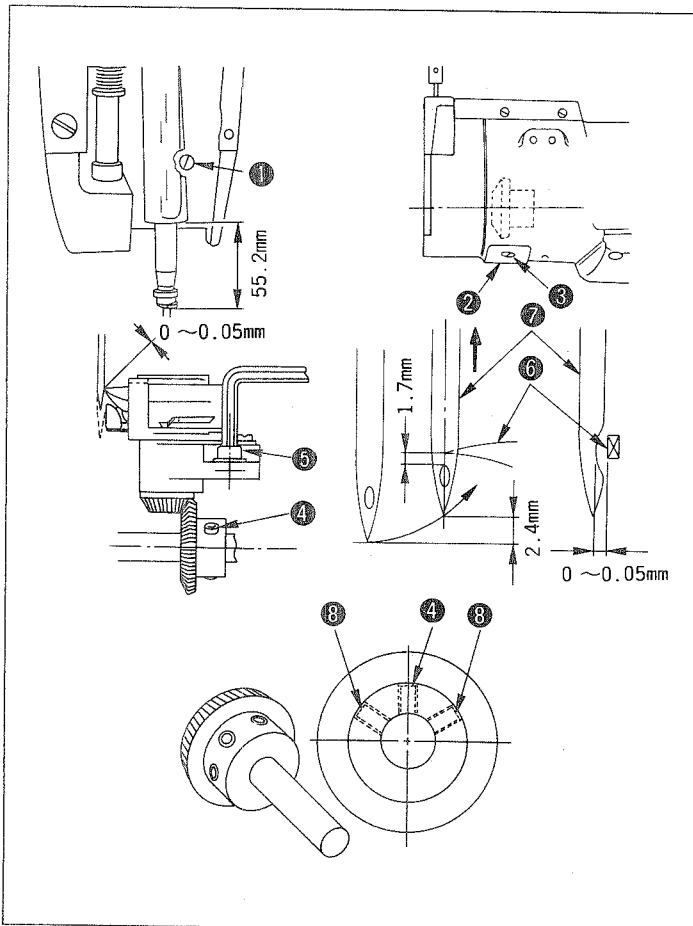
- 1) Maximize the feed dog height.
- 2) Loosen screw ③ in the feed dog.
- 3) Adjust the feed dog height comparatively higher than the standard height, and temporarily fix it at that position.
- 4) Now, adjust the height of the feed dog appropriately, and securely tighten the screw ③ in the feed dog.

16. NEEDLE-TO-HOOK RELATIONSHIP



WARNING:

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



Adjust the timing between the needle and the hook following the procedure described below.

- 1) Set the feed regulating dial to "3".
- 2) Turn the handwheel to bring the needle bar to the lowest position of its stroke, and loosen needle bar connection screw ①.

★ Determine the height of the needle bar.

- 3) The standard height of the needle bar is obtained when a distance of 1.7 mm is provided between the top end of the needle eyelet and blade point ⑥ of the hook when the needle ascends 2.4 mm from the lowest position of its stroke.

(The lowest position of the needle bar for reference)

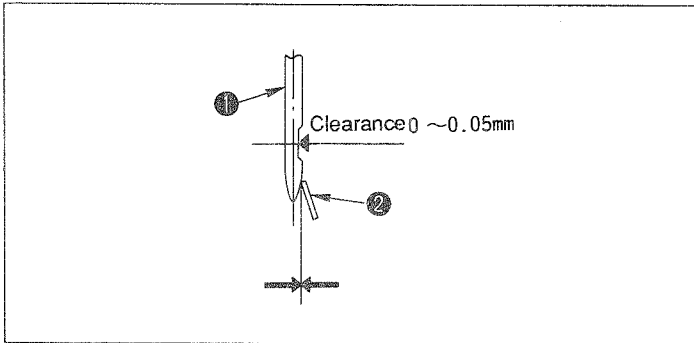
Distance from the bottom face of the needle bar frame to the bottom end of the needle bar: 55.2 mm

★ Determine the position of the hook

- 4) Loosen screw ③ in the gear cover ②, remove gear cover ② and loosen screws ④ and ⑧ in the large bevel gear.
- 5) In the state described in 3), loosen screw ⑤ in the hook driving shaft saddle and move the hook driving shaft saddle to the right or left until a clearance of 0 to 0.05 mm is provided between the blade point of the hook and needle ⑦. After the adjustment, securely tighten the screw.
- 6) Then, align the blade point of the hook with the center of the needle, and tighten screw ④ in the gear.
- 7) Turn the handwheel clockwise and alternately tighten screws ⑧ little by little.
(Never tighten either screw only.)

17. ADJUSTING THE NEEDLE GUARD OF THE HOOK

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

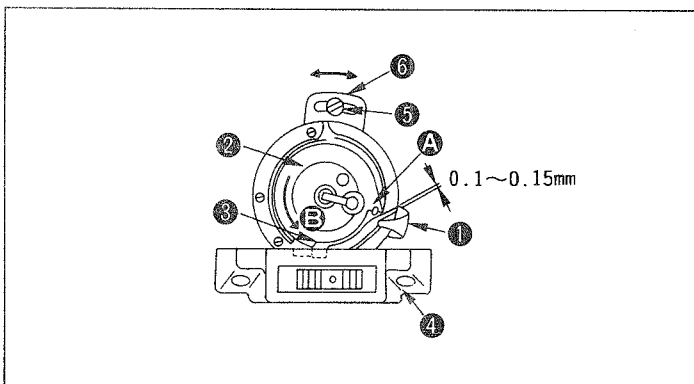


After replacing the hook, be sure to confirm the position of the needle guard. The standard position of the needle guard is obtained when needle guard ② lightly comes in contact with the side face of needle ① as illustrated in the figure. If not, adjust the position of the needle guard by bending it accordingly.

- 1) To bend the needle guard inward, apply a screwdriver to the outside of the needle guard.
- 2) To bend the needle guard outward, apply a screwdriver to the inside of the needle guard.

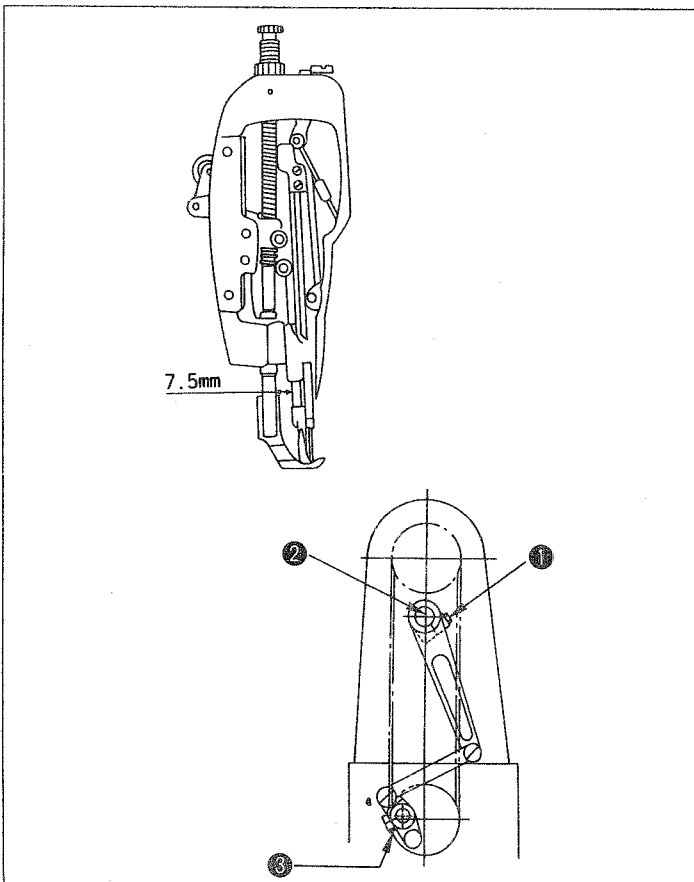
18. ADJUSTING THE BOBBIN CASE OPENING LEVER

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 in its normal rotational direction to bring bobbin case opening lever ① to its back end position.
- 2) Turn bobbin case ② in the direction of arrow ⑤ until stopper ③ comes in contact with the groove in throat plate ④.
- 3) Loosen screw ⑤ in the bobbin case opening lever adjustment plate and move bobbin case opening lever adjustment plate ⑥ in the direction of the arrow so that a clearance of 0.1 to 0.15 mm is provided between the bobbin case opening lever and protruding section ① of the bobbin case.

19. ADJUSTING THE LONGITUDINAL POSITION OF THE NEEDLE BAR FRAME



★ Adjusting the relationship between the top feed rod and presser bar

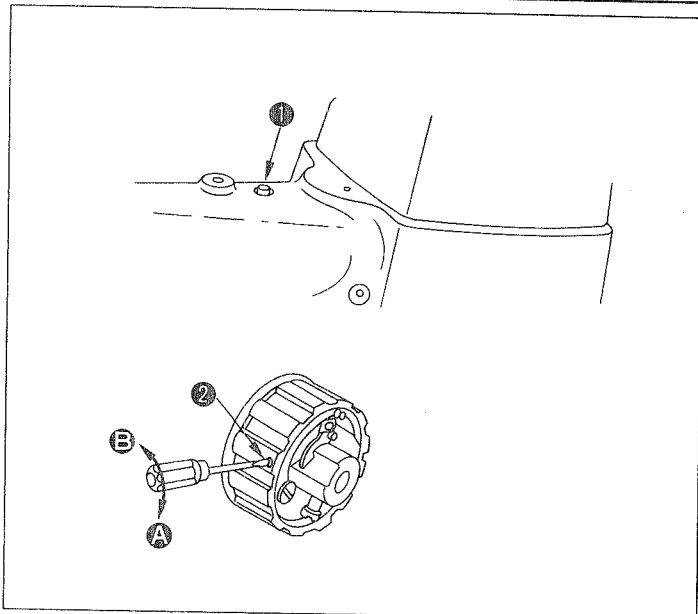
- 1) Set the feed regulating dial to its minimum value.
- 2) Loosen clamping screw ③ in the needle bar frame rear arm, and adjust the clearance between the top feed rod and the presser bar to 7.5 mm.

(Caution) Take care not to allow any play in needle bar frame ②.

★ Adjusting the relationship between the feed dog and the needle bar

- 1) Set the feed regulating dial to its minimum value.
- 2) Loosen clamping screw ③ in the feed rock shaft crank.
- 3) Adjust the position of the feed dog so that the needle comes to the center of the needle hole in the feed dog (slightly closer to the operator).

20. SAFETY MECHANISM



WARNING:

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

If the thread is caught in the hook while the sewing machine is in operation, the safety mechanism actuates to idle the lower sprocket only.

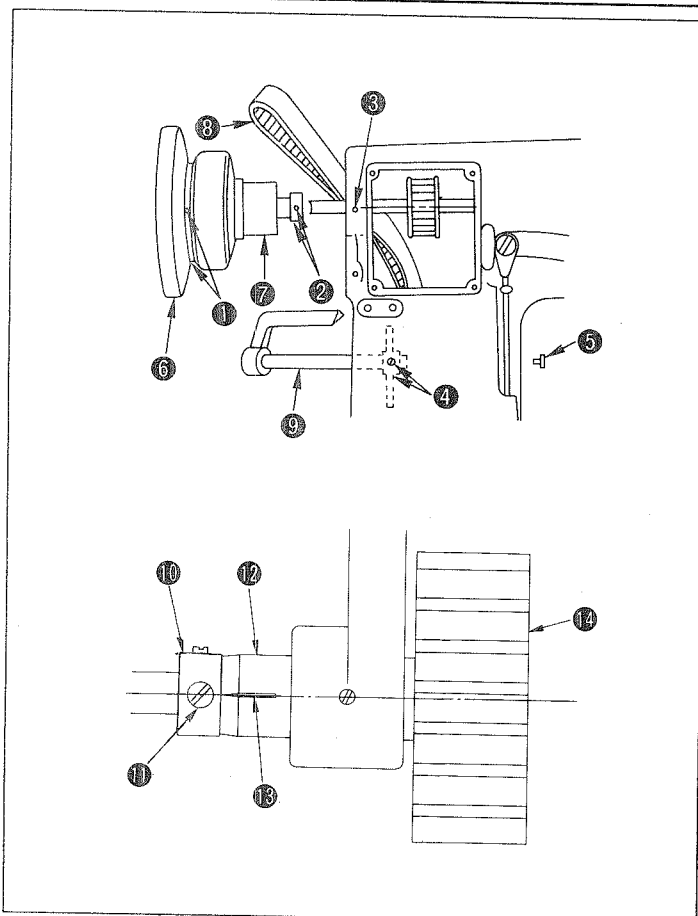
★ How to reset

- 1) Remove the thread caught in the hook.
- 2) Pressing push button (1), strongly turn the pulley in the direction opposite to its normal rotational direction.

★ Safety load

Turn adjustment screw (2) in direction A (clockwise) to increase the safety load, or in direction B (counterclockwise) to decrease it.

21. REPLACING THE TIMING BELT



WARNING:

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

★ How to remove the timing belt

- 1) Loosen screw (1) in the handwheel, screws (2) in main shaft rear bushing (2), screw (3) in the main shaft rear bushing, clamping screws (4) in the feed lever shaft arm and screw (5) in the feed lever shaft in the written order.
- 2) Remove handwheel (6), and pull out main shaft rear bushing (7).
- 3) Draw feed lever shaft (9) until a clearance enough to allow timing belt (8) to come off is provided.
- 4) Remove the timing belt from the lower sprocket, draw it from the side window and pull out it from the hole in the main shaft rear bushing.

★ How to install the timing belt

- 1) Installation is carried out analogously in reverse order.
- 2) To adjust the timing between the main shaft and the hook driving shaft, turn the handwheel to bring the thread take-up to its highest dead point and the screw No. 1 (10) engraved on the hook driving shaft thrust collar (10) with marker line (11) engraved on hook driving shaft rear bushing (12). In this state, insert the timing belt into lower sprocket (14).

22. MOTOR PULLEY AND V BELT

1. Use an M type V belt.
2. The following table show the relationship between the motor pulley, belt length and the rotational speed of the sewing machine.

| Rotational speed of sewing machine | Frequency | Outside diameter of motor | Size of V belt |
|------------------------------------|-----------|---------------------------|----------------|
| 2000 s.p.m | 50 Hz | ø115 mm | M57 |
| | 60 Hz | ø95 mm | M56 |

(Caution) The effective diameter of the motor pulley is 5 mm smaller than the outside diameter.
When your machine uses a single-phase motor, apply the belt which is 1 inch longer than those given in the table above.

23. TROUBLE IN SEWING AND CORRECTIVE MEASURES

| Trouble | Cause | Corrective measures |
|---|--|---|
| <p>1. Thread breakage (Thread frays or wears out.)</p> <p>(Needle thread remains 2 to 3 cm on the wrong side of the cloth.)</p> | <p>① The thread path, needle point, blade point of the hook or the stopper groove in the throat plate has scratches.</p> <p>② The needle thread tension is too high.</p> <p>③ The clearance in the bobbin case opening lever is too large.</p> <p>④ The needle comes in contact with the blade point of the hook.</p> <p>⑤ The needle thread tension is too low.</p> <p>⑥ The thread take-up spring has an excessively high tension while it has an excessively small stroke.</p> <p>⑦ The timing between the needle and hook too early or too late.</p> | <p>○ Remove the scratches on the blade point of the hook using a fine emery paper. Buff up the stopper groove in the throat plate.</p> <p>○ Adjust the needle thread tension properly.</p> <p>○ Decrease the clearance in the bobbin case opening lever. Refer to "18. Adjusting the bobbin case opening lever".</p> <p>○ Refer to "16. Needle-to-hook relationship".</p> <p>○ Adjust the needle thread tension properly.</p> <p>○ Decrease the tension of the thread take-up spring, and increase the stroke of the spring.</p> <p>○ Refer to "16. Needle-to-hook relationship".</p> |
| 2. Stitch skipping | <p>① The clearance between the needle and the blade point of the hook is too large.</p> <p>② The timing between the needle and hook is too early or too late.</p> <p>③ The presser foot pressure is too low.</p> <p>④ The height of the needle bar is inadequate.</p> <p>⑤ The needle guard of the hook does not function.</p> <p>⑥ The size of the needle is wrong.</p> <p>⑦ Defective needle thread path.</p> <p>⑧ The hook has scratches.</p> | <p>○ Refer to "16. Needle-to-hook relationship".</p> <p>○ Refer to "16. Needle-to-hook relationship".</p> <p>○ Tighten the pressure spring regulator.</p> <p>○ Refer to "16. Needle-to-hook relationship".</p> <p>○ Refer to "17. Adjusting the needle guard of the hook".</p> <p>○ Replace the needle by one which is one count thicker.</p> <p>○ See "9. Threading the machine head".</p> <p>○ Remove the scratches on the blade point of the hook using a fine emery paper.</p> |
| 3. Loose stitches (isolated idling loop) | <p>① The thread path is poorly finished.</p> <p>② The bobbin fails to rotate smoothly.</p> <p>③ The clearance in the bobbin case opening lever is too large.</p> <p>④ The bobbin thread tension is too low.</p> <p>⑤ The bobbin thread has been wound too tight round the bobbin.</p> <p>⑥ The forked part of the tension spring of the bobbin case is not threaded.</p> | <p>○ Grind it using a fine emery paper, or buff it up.</p> <p>○ Replace the bobbin, or replace the hook.</p> <p>○ See "18. Adjusting the bobbin case opening lever".</p> <p>○ Properly adjust the bobbin thread tension.</p> <p>○ Decrease the bobbin thread winding tension.</p> <p>○ Correctly thread the bobbin case.</p> |

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