JUKI

1-NEEDLE, TOP AND BOTTOM FEED
LOCKSTITCH MACHINE

DU-141NH

INSTRUCTION MANUAL

No.00
29060605

Congratulations on your purchase of a JUKI sewing machine.
Please read this Instruction Manual carefully before using the unit in order to get the most out of it and to enjoy using it for a long time. Please keep this Instruction Manual at hand taking care not to lose it.

BEFORE OPERATION

1. Do not run the machine even for trial before lubricating it.
2. Confirm that the voltage and phase (single- or 3-phase) are correct by checking them against the ratings shown on the motor nameplate.
3. When running your machine for the first time after the set-up, check the rotational direction of the handwheel.
   - Turn ON the power switch. Run the machine at a low speed while checking the rotational direction of the handwheel. (The handwheel should turn counterclockwise as observed from the handwheel side.)
4. For the first month, run the machine at a speed of 1,800 s.p.m. or less.

OPERATION PRECAUTIONS

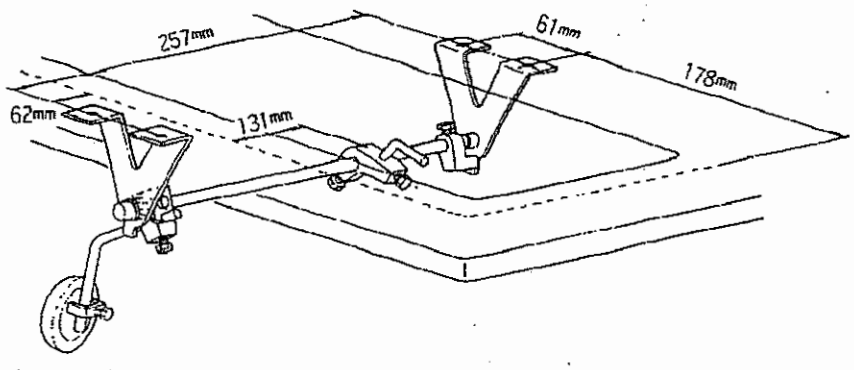
1. Keep your hands away from the needle when you turn ON the power switch or while the machine is operating.
2. During operation, be careful not to allow your or any other person's head or fingers to come close to the handwheel, V belt, bobbin winder or motor. Also, do not place anything close to them.
3. Do not run the machine with the finger guard, belt cover or any other protectors removed.
4. Be sure to confirm that the machine head support bar is properly set in place before tilting the machine head.
5. Be sure to turn OFF the power switch and confirm that the motor is completely stopped before tilting the machine head or removing the V belt.

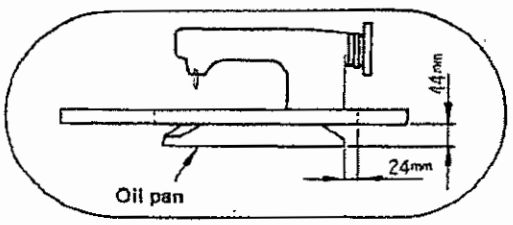
SPECIFICATIONS

Type of sewing machine head	1-Needle, Top and Bottom Feed Lockstitch Machine	Needle bar stroke	37 mm
		Needle to be used	DB x 1
Usage	Suited for sewing medium-to heavy weight materials	Needle system	#14 – #23 (Standard #21)
Sewing speed	Max. 2,000 s.p.m.	Thread	#40 – #8
Stitch length	Max. 9 mm	Stitch adjusting method	Dial
Lift of presser foot	Handlifter 7mm, Knee lifter 15mm	Lubrication method	Hand oiling (Hook: self-lubrication)
Thread take-up lever	Link-type thread take-up lever	Motor to be used	400W clutch motor (4P)
		Oil to be used	New Defrix Oil No. 1

1. INSTALLING THE MACHINE

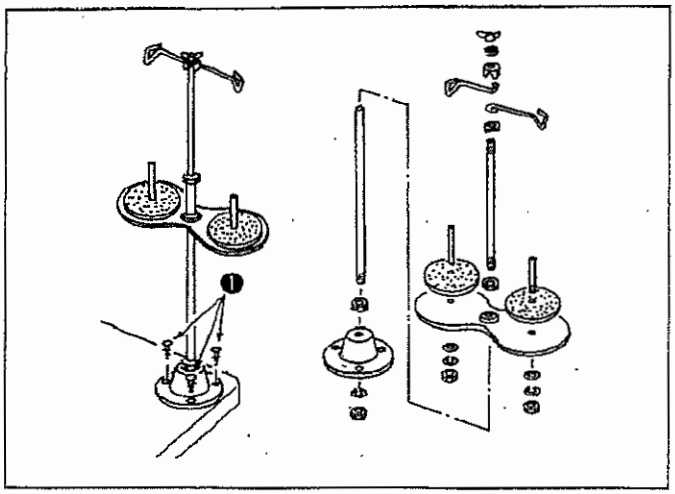
Mounting positions of the knee lifter and the oil pan





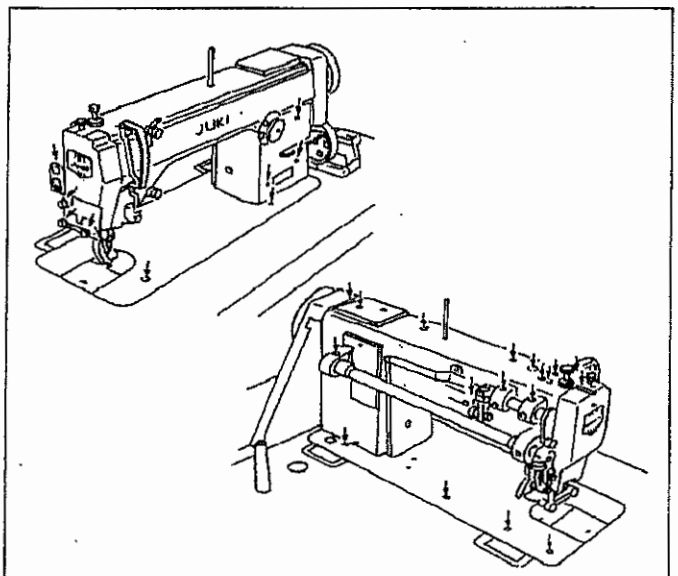
(Caution) The knee lifter should be mounted before the motor is installed.

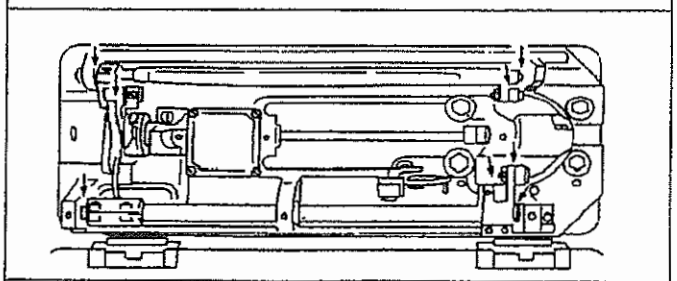
2. INSTALLING THE THREAD STAND

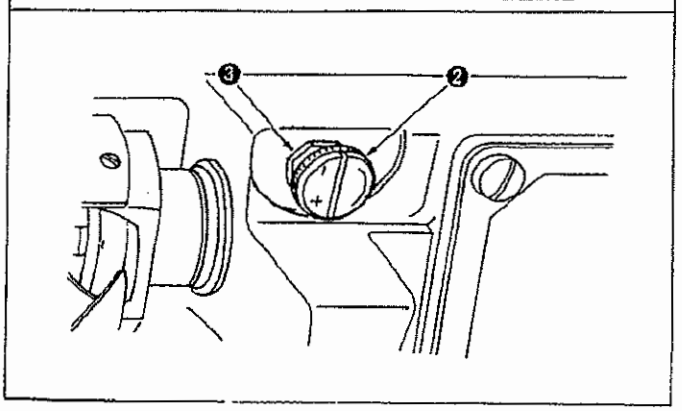


Assemble the thread stand unit, and install it at the far right corner of the table using three screws ❶ .

3. LUBRICATION

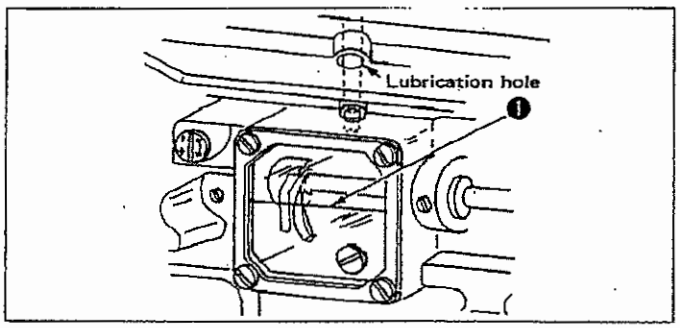






★ **Before starting the sewing machine**
Prior to operation, be sure to properly lubricate these points marked with the arrows.

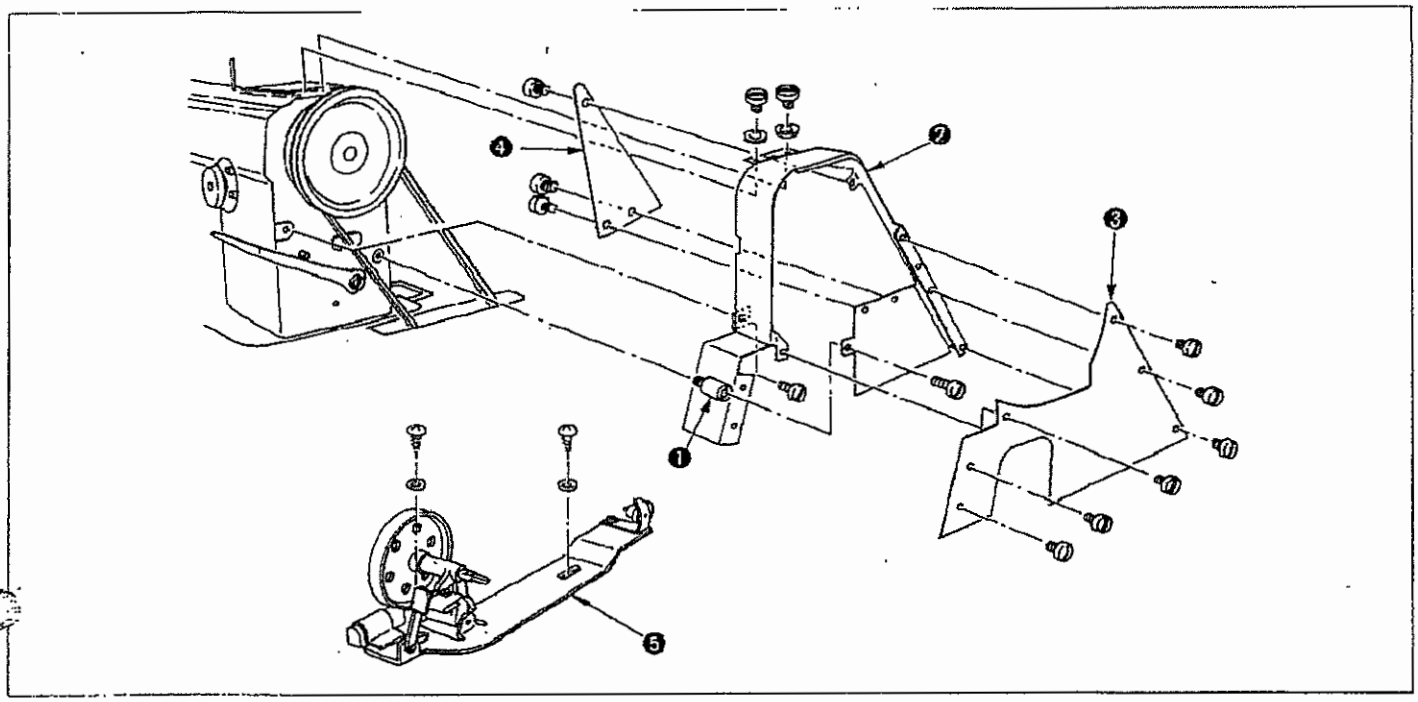
★ **Refilling the oil tank in the bed**
When the oil level drops to 1/3 or less, supply JUKI New Defrix Oil No. 1 up to maker line ❶ .



★ **Adjusting the amount of oil supplied to the hook**
If it is necessary to change the amount of oil supplied to the hook, adjust it using oil amount adjustment screw ❷ mounted on the left-hand side of the tank.

- Loosen nut ❸ .
- Turn the adjustment screw clockwise (in the "+" direction). → The amount of oil to be supplied to the hook is increased.
- Turn the adjustment screw counterclockwise (in the "–" direction). → The amount of oil to be supplied to the hook is decreased.
- After the adjustment, securely tighten the nut.

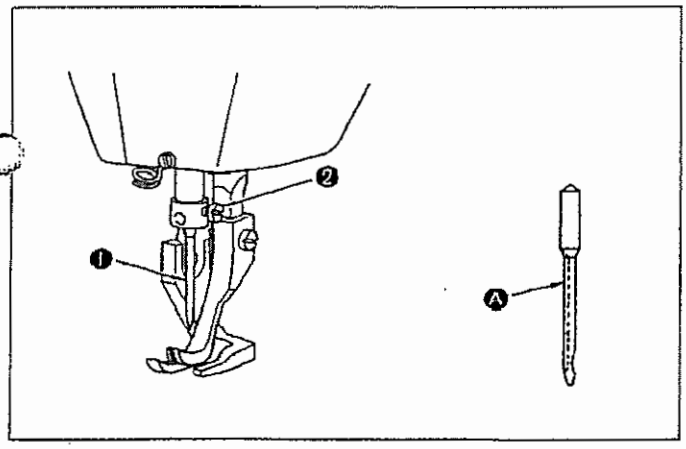
4. INSTALLING THE BELT COVER AND THE BOBBIN WINDER



(Installing procedure)

1. Put the V belt on the pulley of the sewing machine.
2. Attach belt cover support ❶ on the arm.
3. Attach belt cover ❷ on the arm and the support.
4. Place bobbin winder ❺ in the belt cover, and position it so that it does not contact the machine arm or the belt cover before fixing it with wooden screws.
5. Install side plate A ❸ and side plate B ❹ to the belt cover.
6. Tilt the machine head, and check that the belt cover does not come in touch the belt slot in the machine table.

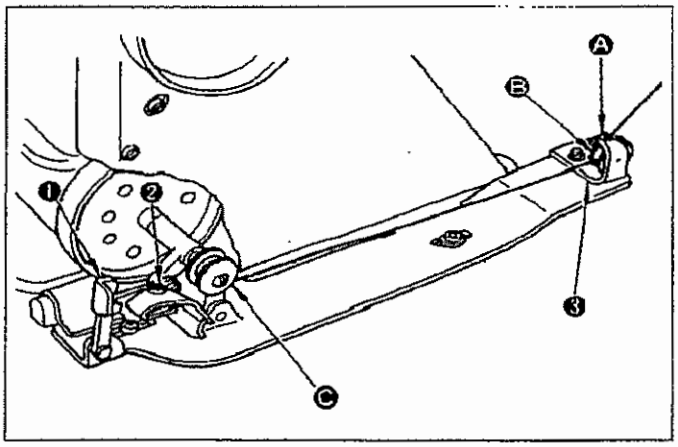
5. ATTACHING THE NEEDLE



☆ Turn the motor power OFF.
The standard needle is a DB × 1 #21.

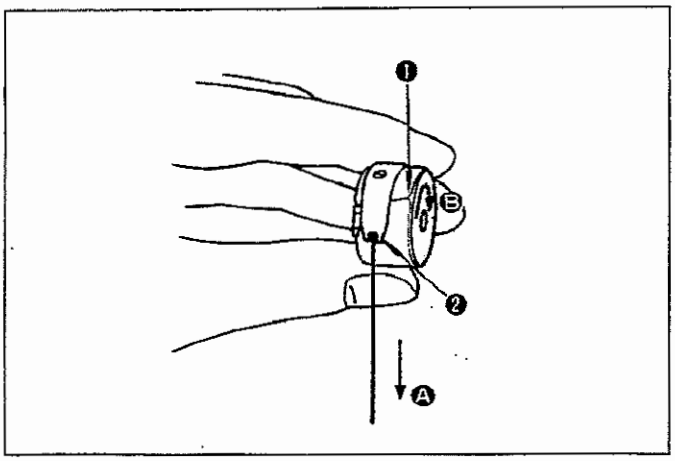
1. Turn the handwheel to move the needle bar up to its highest position.
2. Loosen needle clamping screw ❷, and hold needle ❶ so that long groove Ⓐ in needle ❶ faces exactly to the left.
3. Insert the needle into the needle bar until it will go no further.
4. Securely tighten the needle clamping screw.

6. WINDING A BOBBIN



1. Route the thread in the order of Ⓐ, Ⓑ and Ⓒ, and then wind it round the bobbin several times.
2. Set bobbin presser ❶ down to make the winder come in contact with the belt.
3. Adjust adjustment screw ❷ of the amount of bobbin thread to be wound round the bobbin so that the bobbin in wound with thread about 80%.
   Turn the adjustment screw clockwise to increase the bobbin thread amount or counterclockwise to decrease it.
4. If thread is wound unevenly, move winder tension adjust base ❸ to the right or left until it is correctly positioned.
5. The moment the bobbin has been wound up, the bobbin presser is released, and the bobbin winder will stop automatically.

7. THREADING THE BOBBIN CASE

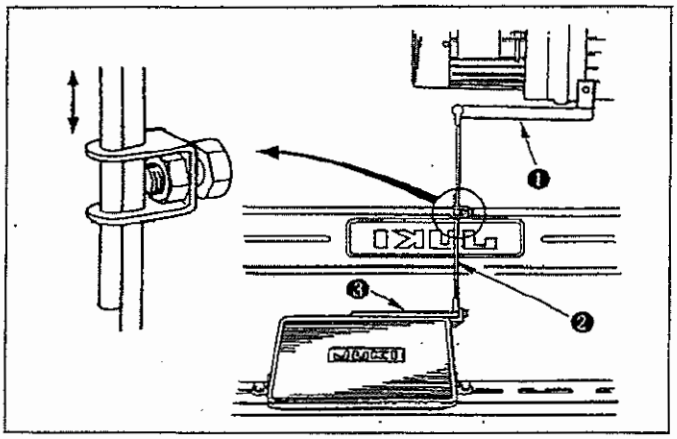


★ **Removing the bobbin case**
Raise the bobbin case latch to remove the bobbin case.

★ **Threading the bobbin case**
1. Pass the thread through threading slit ❶ in the bobbin case, and route it under tension spring ❷.
2. Hold the latch of the bobbin case, and set the bobbin case into the hook.

(Caution) Place the bobbin in the bobbin case taking care of the winding direction of the thread.
The bobbin should turn in the direction of arrow Ⓑ when the thread is pulled in the direction of arrow Ⓐ.)

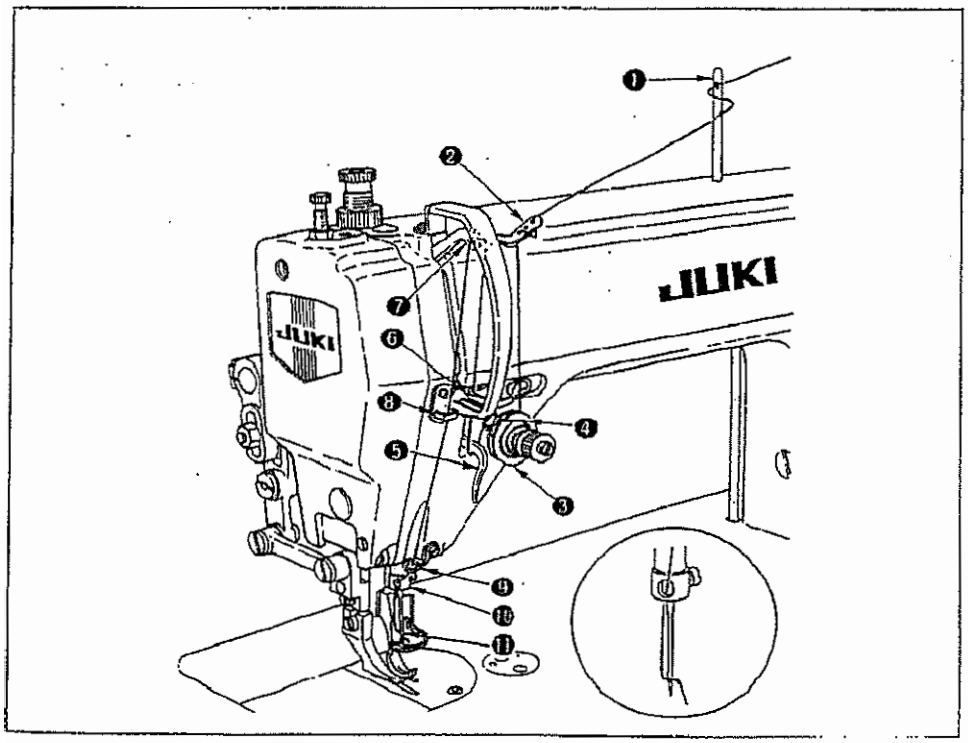
8. ADJUST THE PEDAL



★ **Installing the link rod**
Move pedal adjustment plate ❸ to the right or left until motor control lever ❶ is leveled and link rod ❷ is vertically positioned.

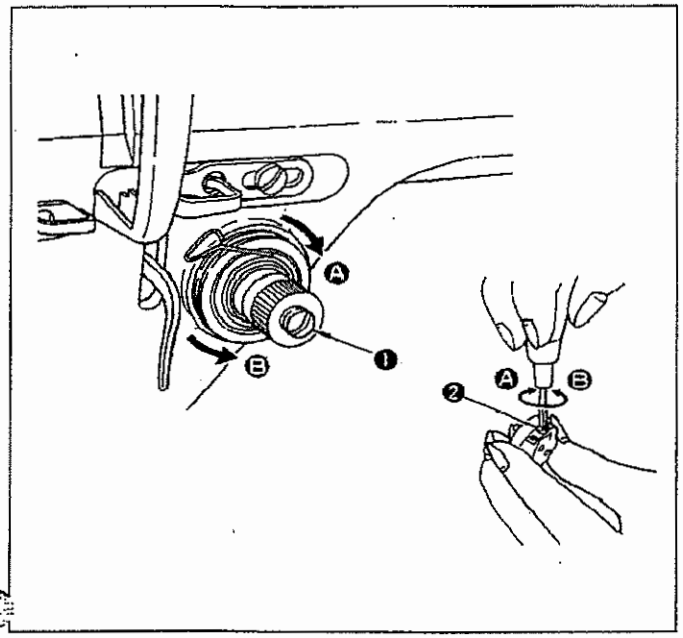
★ **Pedal angle**
The pedal angle can be changed as desired by adjusting the length of the link rod.
Loosen the adjustment screw, and adjust the length of the link rod.

9. THREAD THE MACHINE HEAD



Thread the machine head in the order as illustrated in the figure.

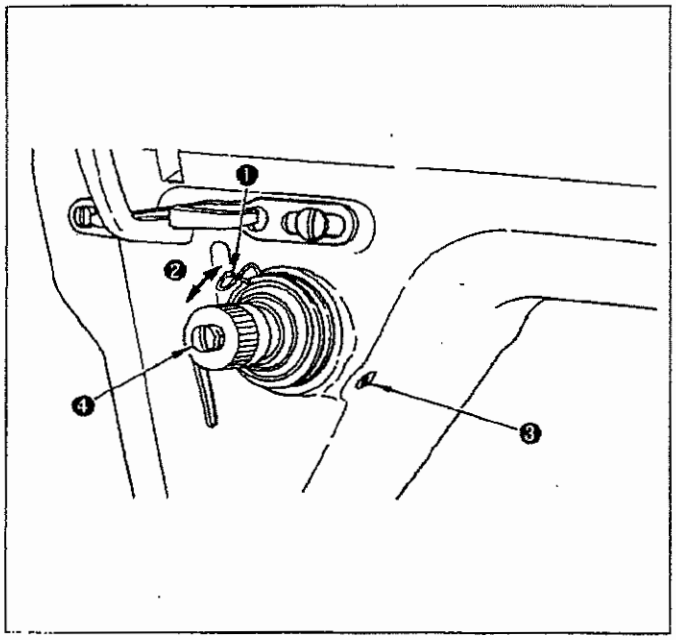
10. THREAD TENSION



★ **Adjusting the needle thread tension**
Turn tension nut No. 2 ❶ clockwise (toward Ⓐ) to increase the needle thread tension, or counterclockwise (toward Ⓑ) to decrease it.

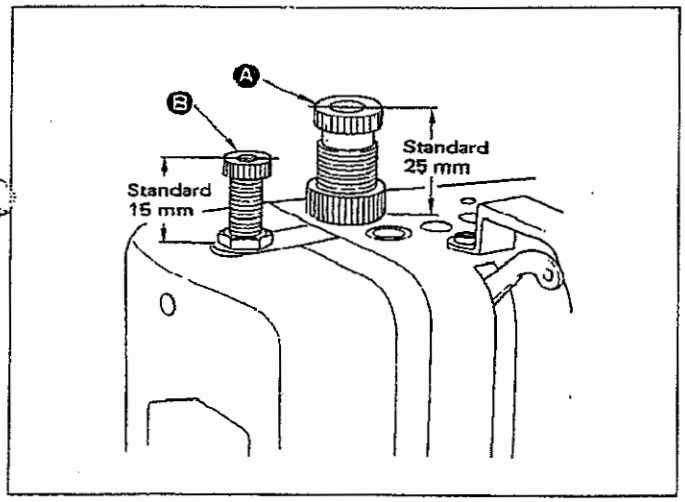
★ **Adjusting the bobbin thread tension**
Turn thread tension screw ❷ clockwise (toward Ⓐ) to increase the bobbin thread tension, or counterclockwise (toward Ⓑ) to decrease it.

11. THREAD TAKE-UP SPRING



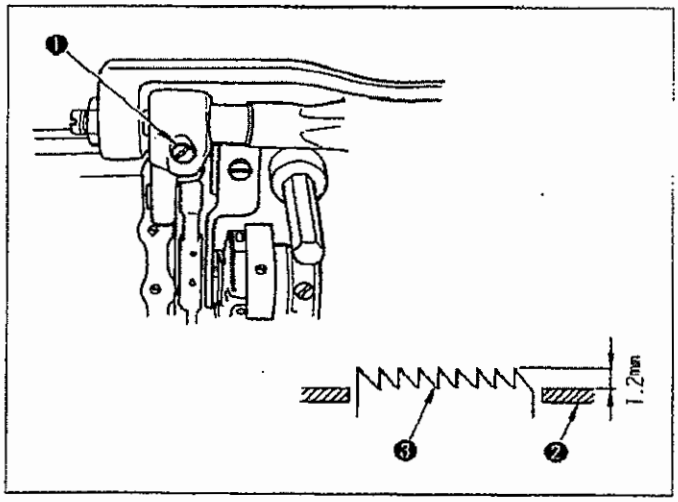
Standard stroke ❷ of thread take-up spring ❶ is 8 to 10 mm. To adjust the stroke, loosen screw ❸ , and turn whole thread controller ❹ .
The standard spring tension is 40 to 50 g.
To adjust the tension of the spring, insert a screwdriver into the groove in the tension post, and turn the tension post.

12. PRESSURES OF THE PRESSER FOOT AND WALKING FOOT



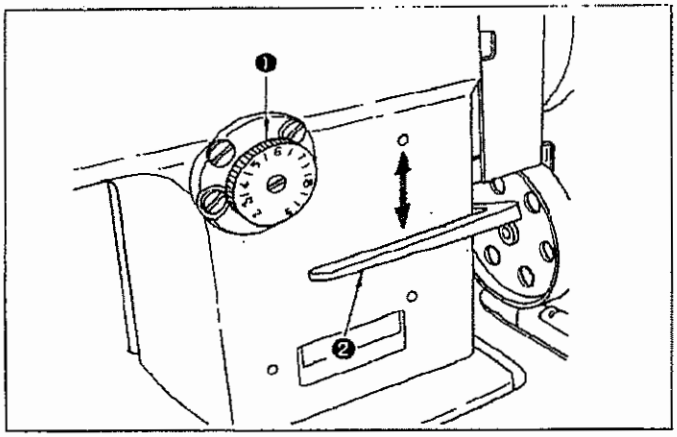
Adjust the pressure applied to presser foot Ⓐ (standard height of the presser foot pressure regulator: 25 mm) and walking foot Ⓑ (standard height of the walking foot pressure regulator: 15 mm) according to the type of material to be sewn.

13. HEIGHT OF THE FEED DOG



Feed dog ❸ is factory-adjusted to jut out 1.2 mm from the surface of throat plate ❷ .
When the feed dog height needs to be adjusted according to the sewing specifications or after the feed dog is replaced, do as follows:
1. Loosen screw ❶ .
2. Move the feed bar up or down to perform adjustment, then securely tighten the screw.

14. ADJUSTING THE STITCH LENGHT

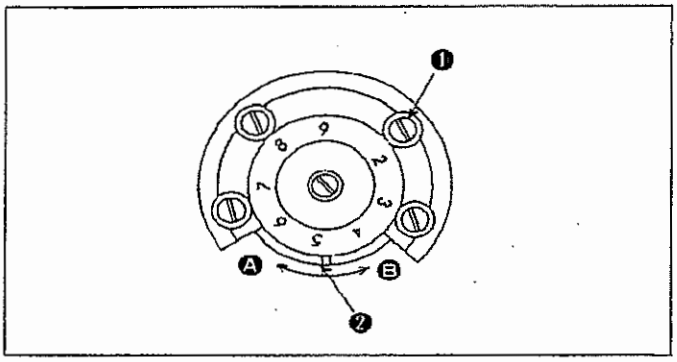


Turn stitch length adjustment dial ❶ counterclockwise/ clockwise to bring the desired value at the top so that the desired value meets the pin.

★ **Reverse feed stitching**

1. Push feed lever ❷ down.
2. The machine performs reverse feed stitching as long as the lever is held depressed.
3. Release the lever, and the machine will immediately resume the forward stitching mode.

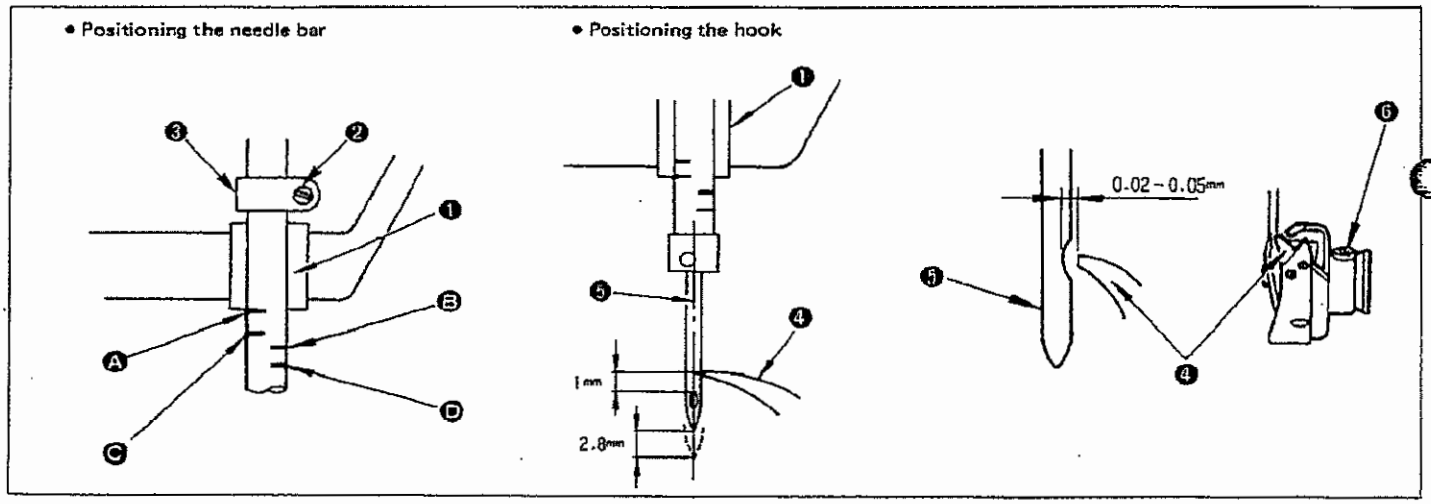
15. THE RATIO OF THE FORWARD STITCH LENGTH TO THE REVERSE FEED STITCH LENGTH



The ratio of the forward stitch length to the reverse feed stitch length is factory-adjusted to 1:1. This ratio may change according to the sewing conditions given. To adjust the ratio to 1:1, follow the procedure stated below.

1. Loosen four screws ❶ in the feed adjustment screw bushing.
2. If you wish to increase the forward stitch length, turn eccentric bushing ❷ in direction Ⓐ applying a screwdriver or the like onto the slot of the bushing.
3. If you wish to decrease the forward stitch length, turn eccentric bushing ❷ in direction Ⓑ.
4. After the adjustment, tighten four screws ❶ in the feed adjustment screw bushing.

16. NEEDLE-TO-HOOK RELATIONSHIP



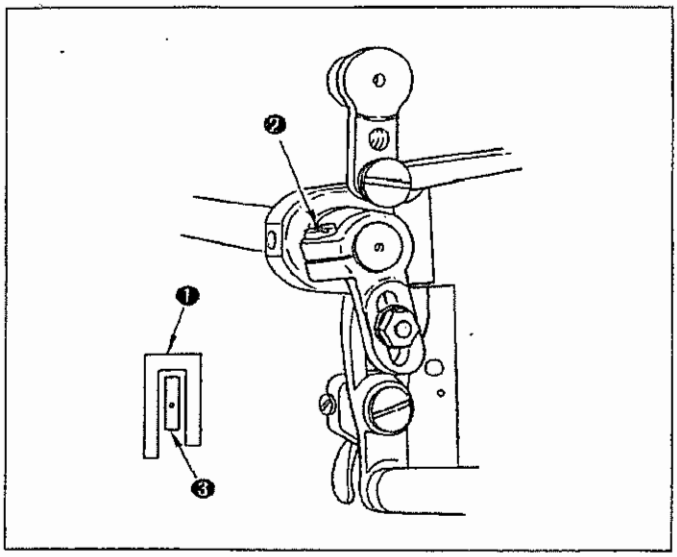
★ **Set the needle bar at the proper height first following the procedure stated below:**

1. Bring the needle bar down to its lowest position, and adjust so that the specified marker line (fourth line Ⓐ from the bottom for a DB x 1 needle, or second line Ⓔ from the bottom for a DP x 17 needle) engraved on the needle bar aligns with the bottom end of needle bar lower bushing ❶. Then, tighten needle bar connection screw ❷.

★ **Position the needle and the hook.**

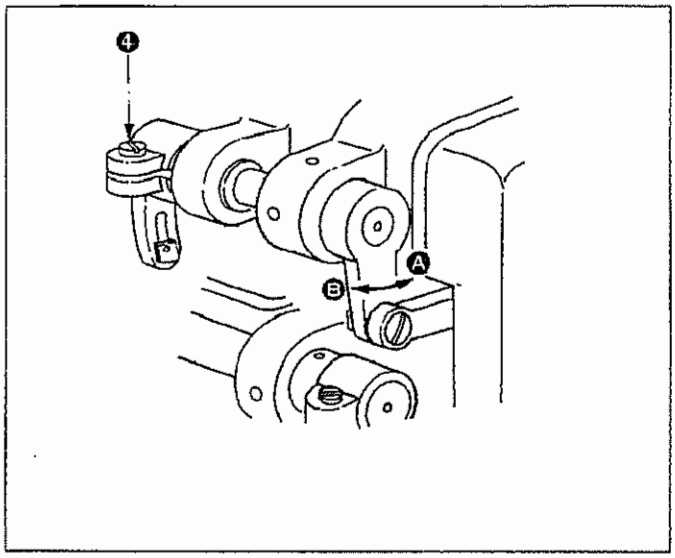
2. Adjust so that the specified marker line (third line Ⓒ from the bottom for a DB x 1 needle, or line Ⓓ at the bottom for a DP x 17 needle) on the ascending needle bar aligns with the bottom end of lower bushing ❶. Further adjust to make hook point ❹ nearly meet the center of needle ❺, and adjust the clearance between needle ❺ and hook point ❹ to 0.02 to 0.05 mm. Then tighten hook screw ❻.
3. Remove the throat plate, loosen hook screw ❻ and adjust the hook.

17. ADJUSTING THE WALKING FOOT AND THE PRESSER FOOT



★ **Adjusting the longitudinal position of the walking foot**

1. Maximize the stitch length, and turn the handwheel until walking foot ❶ reaches its front end position. Now, loosen screw ❷ in the center shaft bell crank.
2. Bring the walking foot as close to presser foot ❸ as possible to the extent that it does not come in contact with the rear face of presser foot.
3. Securely tighten screw ❷ in the center shaft bell crank.

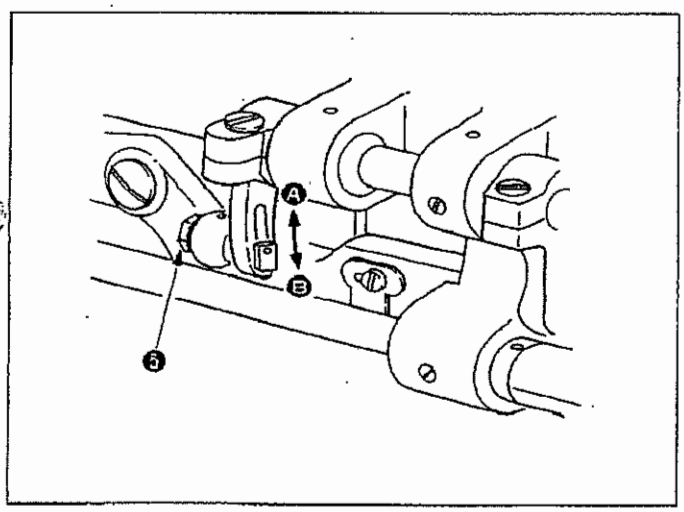


★ **Alternate vertical motions of the walking foot and the presser foot**

The alternate vertical strokes of the walking foot and the presser foot are normally equal. Depending on the type of material to be sewn, however, the vertical stroke of the presser foot may be set smaller than that of the walking foot.

1. Loosen screw ❹ .
2. Raise the thread take up to its highest position, and lower the hand lifter.

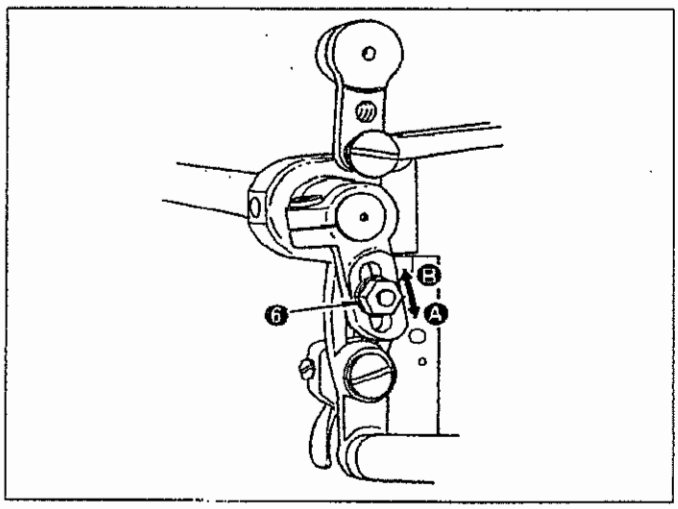
- When you move the top feed crank to the right (toward Ⓐ), the vertical stroke of the presser foot will increase.
- When you move the top feed crank to the left (toward Ⓑ), the vertical stroke of the presser foot will decrease.



★ **Operating height of the walking foot and the presser foot**

The operating height of the walking foot and the presser foot are normally minimized. Their height may be changed, depending on the type of material to be sewn.

- Loosen nut ❺ , and change the position of the cam rod boss.
  - When you set the cam rod boss at the highest position within the slot, the operating height will be maximized (5 mm) Ⓐ .
  - When you set the cam rod boss at the lowest position within the slot, the operating height will be minimized (2 mm) Ⓑ .

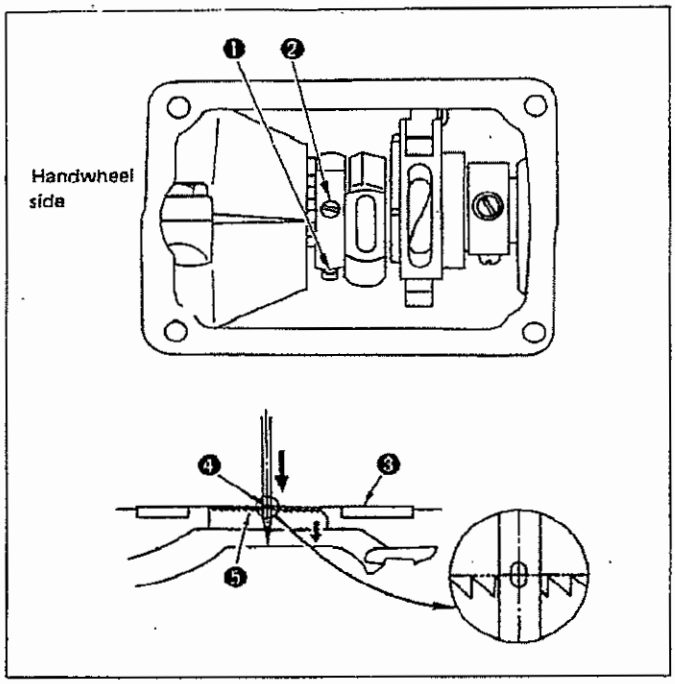


★ **Adjusting the feeding amount of the walking foot**

The ratio of the bottom feed amount to the top feed amount is factory-adjusted to 1:1. If necessary, the top feed amount may be changed as follows:

- Loosen nut ❻ , and move the slide block up or down.
  - When you move the slide block to the highest position Ⓑ in the slot, the top feed amount will be minimized.
  - When you move the slide block to the lowest position Ⓐ in the slot, the top feed amount will be maximized.

18. RELATIONSHIP BETWEEN THE FEED TIMING AND THE NEEDLE POSITION

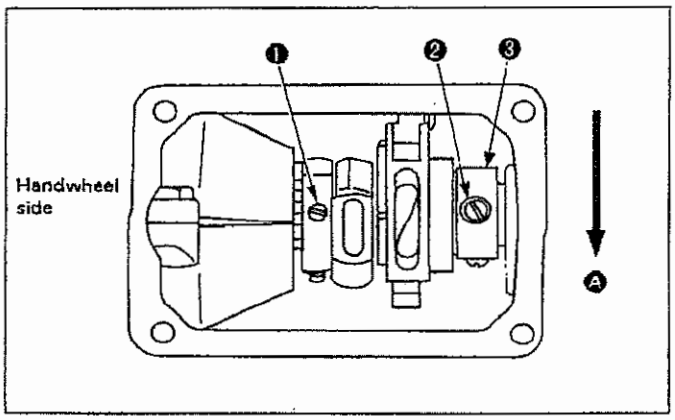


- The standard relationship between the feed motion and the needle position is such a state where the center of the feed dog aligns with the throat plate surface and the center of the needle eyelet also aligns with the throat plate surface when the feed dog starts descending from the throat plate surface turning the handwheel toward you with the scale dial set to 9 mm.
- To adjust, follow the procedure described below.
  1. Loosen screws ❶ and ❷ in the feed driving cam.
  2. Turn the feed driving cam until it reaches the position where all of the three components such as the surface of throat plate ❸ , center ❹ of the needle eyelet and feed dog ❺ (the center section) are aligned. Then fix the cam at that position.

(Reference for standard adjustment)

When the needle bar is brough to its lowest position, screw ❷ in the feed driving cam nearly comes just above the needle.

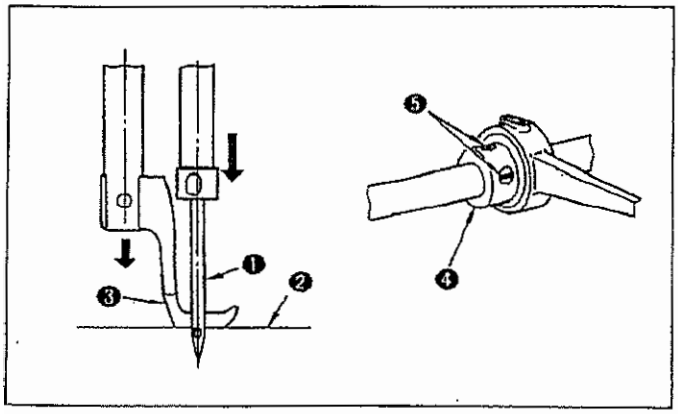
19. TIMING OF FEED MOTION



- For standard adjustment of the feed timing, first screw ❶ in the feed driving cam sould be aligned with first screw ❷ in the feed rock cam.
  To achieve well-tensed stitching the feed timing should be retarded by moving feed rock eccentric cam ❸ in direction Ⓐ .

(Caution) If you move the eccentric cam excessively in direction Ⓐ troubles including needle breakage may result.

20. RELATIONSHIP BETWEEN THE TOP FEED MOTION AND THE NEEDLE POSITION



- For standard adjustment, the center of the descending needle eyelet should be aligned with throat plate surface ❷ when the descending presser foot ❸ is flush with throat plate surface.
- To adjust, follow the procedure described below.
  1. Loosen two screws ❺ in top feed cam ❹ .
  2. Turn the top feed cam until it reaches the position to allow the three components such as the throat plate surface, needle eyelet and intermediate presser (pressing plane) to align, and fix the cam at that position.

(Reference for standard adjustment)

When the thread take-up is brought to its hightest dead point, the second screw in the top feed cam levels.

21. MOTOR PULLY AND V-BELT

1. Use an M-type V belt.
2. The relationship between the motor pulley/belt length and the sewing speed of the machine is shown in the table.

Sewing speed (s.p.m.)	Hz	Outside diameter of motor pulley	V-belt length
2000 s.p.m.	50 Hz	115 mm	M43
	60 Hz	95 mm	M42

(Caution) **Effective diameter of the motor pulley is 5 mm shorter than the outside diameter.**
When using a single phase motor, use belts of 1 inch longer than those shown in the right-hand table.

22. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Trouble	Cause	Corrective measure
1. Stitch skipping	① The machine head has not been properly threaded.	○ Refer to "9. Threading the machine head".
	② The hook has scratches.	○ Remove the scratches on the hook point using a fine emery paper.
	③ The timing between the needle and hook is too early or too late.	○ Refer to "16. Needle-to-hook relationship".
	④ The clearance between the needle and the hook point is too large.	○ Refer to "16. Needle-to-hook relationship".
	⑤ The pressure of the presser foot is too low.	○ Tighten the pressure regulator.
	⑥ The needle number selected is improper.	○ Replace the needle with one which is one count thicker.
2. Thread breakage (Thread frays or wears out.)	① The hook has scratches.	○ Remove the scratches on the hook point using a fine emery paper.
	② The returning force of the thread take-up spring is insufficient.	○ Decrease the tension and increase the stroke of the thread take-up spring.
	③ The timing between the needle and hook is too early or too late.	○ Refer to "16. Needle-to-hook relationship".
	④ The needle thread tension is excessive.	○ Adjust the needle thread tension properly.
	⑤ The needle comes in contact with the hook point.	○ Refer to "16. Needle-to-hook relationship".
	⑥ The clearance between the needle and the hook point is too large.	○ Refer to "16. Needle-to-hook relationship".
3. Loose stitches (Isolated idling loops)	① The thread has not been passed through the notch of the bobbin case tension spring.	○ Properly thread the bobbin case.
	② The thread path is poorly finished.	○ Grind it using a fine emery paper or buff it up.
	③ The bobbin does not rotate smoothly.	○ Replace the bobbin or the bobbin case.
	④ The bobbin thread tension is too high.	○ Decrease the bobbin thread tension.
	⑤ The bobbin thread tension is too low.	○ Increase the bobbin thread tension.
	⑥ A uniwisted synthetic thread is used.	○ Slightly lower the sewing speed. (1,800 s.p.m.)