

DU-140

INSTRUCTION MANUAL

NOTE : Read safety instructions carefully and understand them before using.
 Retain this Instruction Manual for future reference.

TO ENSURE SAFE USE OF YOUR SEWING MACHINE

For the sewing machine, automatic machine and ancillary devices (hereinafter collectively referred to as "machine"), it is inevitable to conduct sewing work near moving parts of the machine. This means that there is always a possibility of unintentionally coming in contact with the moving parts. Operators who actually operate the machine and maintenance personnel who are involved in maintenance and repair of the machine are strongly recommended to carefully read to fully understand the following **SAFETY PRECAUTIONS** before using/maintaining the machine. The content of the **SAFETY PRECAUTIONS** includes items which are not contained in the specifications of your product.

The risk indications are classified into the following three different categories to help understand the meaning of the labels. Be sure to fully understand the following description and strictly observe the instructions.

(I) Explanation of risk levels

	DANGER : This indication is given where there is an immediate danger of death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	WARNING : This indication is given where there is a potentiality for death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	CAUTION : This indication is given where there is a danger of medium to minor injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	Items requiring special attention.

(II) Explanation of pictorial warning indications and warning labels

Pictorial warning indication		There is a risk of injury if contacting a moving section.	Pictorial warning indication		Be aware that holding the sewing machine during operation can hurt your hands.
		There is a risk of electrical shock if contacting a high-voltage section.			There is a risk of entanglement in the belt resulting in injury.
		There is a risk of a burn if contacting a high-temperature section.			There is a risk of injury if you touch the button carrier.
		Be aware that eye deficiency can be caused by looking directly at the laser beam.	Indication label		The correct direction is indicated.
		There is a risk of contact between your head and the sewing machine.			Connection of a earth cable is indicated.

Warning label		
	<p>① • There is the possibility that slight to serious injury or death may be caused. • There is the possibility that injury may be caused by touching moving part.</p> <p>② • To perform sewing work with safety guard. • To perform sewing work with safety cover. • To perform sewing work with safety protection device.</p> <p>③ • Be sure to turn the power OFF before carrying out "machine-head threading", "needle changing", "bobbin changing" or "oiling and cleaning".</p>	
Electrical-shock danger label		<p>危険</p> <p>高電圧部分に触れて、大けがをすることがある。 電源を切って、5分以上たってからカバーをはずすこと。</p>
		<p>DANGER</p> <p>Hazardous voltage will cause injury. Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover.</p>

SAFETY PRECAUTIONS

Accident means "to cause personal injury or death or damage to property."



DANGER

1. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident leading to electrical shock.



CAUTION

Basic precaution

1. Be sure to read the instruction manual and other explanatory documents supplied with accessories of the machine before using the machine. Carefully keep the instruction manual and the explanatory documents at hand for quick reference.
2. The content of this section includes items which are not contained in the specifications of your product.
3. Be sure to wear safety goggles to protect against accident caused by needle breakage.
4. Those who use a heart pacemaker have to use the machine after consultation with a medical specialist.

Safety devices and warning labels

1. Be sure to operate the machine after verifying that safety device(s) is correctly installed in place and works normally in order to prevent accident caused by lack of the device(s).
2. If any of the safety devices is removed, be sure to replace it and verify that it works normally in order to prevent accident that can result in personal injury or death.
3. Be sure to keep the warning labels adhered on the machine clearly visible in order to prevent accident that can result in personal injury or death. If any of the labels has stained or come unstuck, be sure to change it with a new one.

Application and modification

1. Never use the machine for any application other than its intended one and in any manner other than that prescribed in the instruction manual in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the use of the machine for any application other than the intended one.
2. Never modify and alter the machine in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the machine which has been modified or altered.

Education and training

1. In order to prevent accident resulting from unfamiliarity with the machine, the machine has to be used only by the operator who has been trained/educated by the employer with respect to the machine operation and how to operate the machine with safety to acquire adequate knowledge and operation skill. To ensure the above, the employer has to establish an education/training plan for the operators and educate/train them beforehand.

Items for which the power to the machine has to be turned off

Turning the power off: Turning the power switch off, then removing the power plug from the outlet.
This applies to the following.

1. Be sure to immediately turn the power off if any abnormality or failure is found or in the case of power failure in order to protect against accident that can result in personal injury or death.
2. To protect against accident resulting from abrupt start of the machine, be sure to carry out the following operations after turning the power off. For the machine incorporating a clutch motor, in particular, be sure to carry out the following operations after turning the power off and verifying that the machine stops completely.
 - 2-1. For example, threading the parts such as the needle, looper, spreader etc. which have to be threaded, or changing the bobbin.
 - 2-2. For example, changing or adjusting all component parts of the machine.
 - 2-3. For example, when inspecting, repairing or cleaning the machine or leaving the machine.
3. Be sure to remove the power plug by holding the plug section instead of the cord section in order to prevent electrical-shock, earth-leakage or fire accident.
4. Be sure to turn the power off whenever the machine is left unattended between works.
5. Be sure to turn the power off in the case of power failure in order to prevent accident resulting of breakage of electrical components.

PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

Transportation

1. Be sure to lift and move the machine in a safe manner taking the machine weight in consideration. Refer to the text of the instruction manual for the mass of the machine.
2. Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.
3. Once the machine has been unpacked, never re-pack it for transportation to protect the machine against breakage resulting from unexpected accident or dropping.

Unpacking

1. Be sure to unpack the machine in the prescribed order in order to prevent accident that can result in personal injury or death. In the case the machine is crated, in particular, be sure to carefully check nails. The nails have to be removed.
2. Be sure to check the machine for the position of its center of gravity and take it out from the package carefully in order to prevent accident that can result in personal injury or death.

Installation

(I) Table and table stand

1. Be sure to use JUKI genuine table and table stand in order to prevent accident that can result in personal injury or death. If it is inevitable to use a table and table stand which are not JUKI genuine ones, select the table and table stand which are able to support the machine weight and reaction force during operation.
2. If casters are fitted to the table stand, be sure to use the casters with a locking mechanism and lock them to secure the machine during the operation, maintenance, inspection and repair in order to prevent accident that can result in personal injury or death.

(II) Cable and wiring

1. Be sure to prevent an extra force from being applied to the cable during the use in order to prevent electrical-shock, earth-leakage or fire accident. In addition, if it is necessary to cable near the operating section such as the V-belt, be sure to provide a space of 30 mm or more between the operating section and the cable.
2. Be sure to avoid starburst connection in order to prevent electrical-shock, earth-leakage or fire accident.
3. Be sure to securely connect the connectors in order to prevent electrical-shock, earth-leakage or fire accident. In addition, be sure to remove the connector while holding its connector section.

(III) Grounding

1. Be sure to have an electrical expert install an appropriate power plug in order to prevent accident caused by earth-leakage or dielectric strength voltage fault. In addition, be sure to connect the power plug to the grounded outlet without exceptions.
2. Be sure to ground the earth cable in order to prevent accident caused by earth leakage.

(IV) Motor

1. Be sure to use the specified rated motor (JUKI genuine product) in order to prevent accident caused by burnout.
2. If a commercially available clutch motor is used with the machine, be sure to select one with an entanglement preventive pulley cover in order to protect against being entangled by the V-belt.

Before operation

1. Be sure to make sure that the connectors and cables are free from damage, dropout and looseness before turning the power on in order to prevent accident resulting in personal injury or death.
2. Never put your hand into the moving sections of the machine in order to prevent accident that can result in personal injury or death.
In addition, check to be sure that the direction of rotation of the pulley agrees with the arrow shown on pulley.
3. If the table stand with casters is used, be sure to secure the table stand by locking the casters or with adjusters, if provided, in order to protect against accident caused by abrupt start of the machine.

During operation

1. Be sure not to put your fingers, hair or clothing close to the moving sections such as the handwheel, hand pulley and motor or place something near those sections while the machine is in operation in order to prevent accident caused by entanglement that can result in personal injury or death.
2. Be sure not to place your fingers near the surround area of the needle or inside the thread take-up lever cover when turning the power on or while the machine is in operation in order to prevent accident that can result in personal injury or death.
3. The machine runs at a high speed. Never bring your hands near the moving sections such as looper, spreader, needle bar, hook and cloth trimming knife during operation in order to protect your hands against injury. In addition, be sure to turn the power off and check to be sure that the machine completely stops before changing the thread.
4. Be careful not to allow your fingers or any other parts of your body to be caught between the machine and table when removing the machine from or replacing it on the table in order to prevent accident that can result in personal injury or death.

5. Be sure to turn the power off and check to be sure that the machine and motor completely stop before removing the belt cover and V-belt in order to prevent accident caused by abrupt start of the machine or motor.
6. If a servomotor is used with the machine, the motor does not produce noise while the machine is at rest. Be sure not to forget to turn the power off in order to prevent accident caused by abrupt start of the motor.
7. Never use the machine with the cooling opening of the motor power box shielded in order to prevent fire accident by overheat.

Lubrication

1. Be sure to use JUKI genuine oil and JUKI genuine grease to the parts to be lubricated.
2. If the oil adheres on your eye or body, be sure to immediately wash it off in order to prevent inflammation or irritation.
3. If the oil is swallowed unintentionally, be sure to immediately consult a medical doctor in order to prevent diarrhea or vomiting.

Maintenance

1. In prevention of accident caused by unfamiliarity with the machine, repair and adjustment has to be carried out by a service technician who is thoroughly familiar with the machine within the scope defined in the instruction manual. Be sure to use JUKI genuine parts when replacing any of the machine parts. JUKI assumes no responsibility for any accident caused by improper repair or adjustment or the use of any part other than JUKI genuine one.
2. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for repair and maintenance (including wiring) of electrical components.
3. When carrying out repair or maintenance of the machine which uses air-driven parts such as an air cylinder, be sure to remove the air supply pipe to expel air remaining in the machine beforehand, in order to prevent accident caused by abrupt start of the air-driven parts.
4. Be sure to check that screws and nuts are free from looseness after completion of repair, adjustment and part replacement.
5. Be sure to periodically clean up the machine during its duration of use. Be sure to turn the power off and verify that the machine and motor stop completely before cleaning the machine in order to prevent accident caused by abrupt start of the machine or motor.
6. Be sure to turn the power off and verify that the machine and motor stop completely before carrying out maintenance, inspection or repair of the machine. (For the machine with a clutch motor, the motor will keep running for a while by inertia even after turning the power off. So, be careful.)
7. If the machine cannot be normally operated after repair or adjustment, immediately stop operation and contact JUKI or the distributor in your area for repair in order to prevent accident that can result in personal injury or death.
8. If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.
9. Be sure to periodically clean up the air vent of the fan and inspect the area around the wiring in order to prevent fire accident of the motor.

Operating environment

1. Be sure to use the machine under the environment which is not affected by strong noise source (electromagnetic waves) such as a high-frequency welder in order to prevent accident caused by malfunction of the machine.
2. Never operate the machine in any place where the voltage fluctuates by more than "rated voltage $\pm 10\%$ " in order to prevent accident caused by malfunction of the machine.
3. Be sure to verify that the air-driven device such as an air cylinder operates at the specified air pressure before using it in order to prevent accident caused by malfunction of the machine.
4. To use the machine with safety, be sure to use it under the environment which satisfies the following conditions:

Ambient temperature during operation	5°C to 35°C
Relative humidity during operation	35 % to 85 %
5. Dew condensation can occur if bringing the machine suddenly from a cold environment to a warm one. So, be sure to turn the power on after having waited for a sufficient period of time until there is no sign of water droplet in order to prevent accident caused by breakage or malfunction of the electrical components.
6. Be sure to stop operation when lightning flashes for the sake of safety and remove the power plug in order to prevent accident caused by breakage or malfunction of the electrical components.
7. Depending on the radio wave signal condition, the machine may generate noise in the TV or radio. If this occurs, use the TV or radio with kept well away from the machine.
8. In order to ensure the work environment, local laws and regulations in the country where the sewing machine is installed shall be followed.
In the case the noise control is necessary, an ear protector or other protective gear should be worn according to the applicable laws and regulations.
9. Disposal of products and packages and treatment of used lubricating oil should be carried out properly according to the relevant laws of the country in which the sewing machine is used.

Precautions to be taken so as to use the DU-140 more safely



1. Keep your hands away from needle when you turn ON the power switch or while the machine is in operation.
2. Do not put your fingers into the thread take-up cover while the machine is operating.
3. Turn OFF the power switch when tilting the machine head, or removing the belt cover or the V belts.
4. During operation, be careful not to allow your or any other person's head, hands or clothes to come close to the handwheel, V belt and motor. Also, do not place anything close to them.
5. Do not operate your machine with the belt cover and finger guard removed.
6. When tilting the machine head, be sure to confirm that the head support bar is properly attached to your machine head, and be careful not to allow your fingers or the like to be pinched in the machine head.



1. To ensure safety, never operate the machine with the ground wire for the power supply removed.
2. When inserting/removing the power plug, the power switch has to be turned OFF in advance.
3. In time of thunder and lightening, stop your work and disconnect the power plug from the receptacle so as to ensure safety.
4. 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 you have confirmed that there is no danger of water drops in the machine.
5. To prevent fires, periodically draw out the power plug from the plug socket and clean the root of the pins and the space between pins.
6. The hook rotates at a high speed while the machine is in operation.
To prevent possible injury to hands, be sure to keep your hands away from the vicinity of the hook during operation. In addition, be sure to turn OFF the power to the machine when replacing the bobbin.
7. To avoid possible accidents due to abrupt start of the machine, be sure to turn OFF the power to the machine.
8. Be careful of handling this product so as not to pour water or oil, shock by dropping, and the like since this product is a precision instrument.
9. When tilting or returning the sewing machine to the home position, hold the upper side of the machine head with both hands and perform the work quietly so that fingers or the like are not caught in the machine.



CAUTION :

Note that safety devices such as "eye guard", "finger guard", etc. may be omitted from the illustrations in this Instruction Manual for easy explanation.

When operating the machine, be sure not to remove these safety devices.

DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

We hereby declare that the sewing machine (sewing head) described below ;

1. Must not be put into service until the machinery to which it is incorporated has been declared in conformity with the provisions of the Directive 2006/42/EC, and
2. Conforms to the essential requirements of the Directive 2006/42/EC, described in the technical documentation, and
3. To be prepared with the above technical documentation compiled in accordance with part B of Annex VII, and
4. Also to conform to the RoHS Directive 2011/65/EU
5. Relevant information on which should be transmitted in response to a reasoned request by the national authorities, by the electronic method or other according to the request.

Model	DU-140 Series
Description	Industrial Sewing Machine
Function	make stitches and sew

Applied harmonized standards, in particular :
EN ISO12100, EN ISO10821, EN 50581

Manufacturer :
JUKI CORPORATION
2-11-1, Tsurumaki, Tama-shi, Tokyo, Japan

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BEFORE OPERATION



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

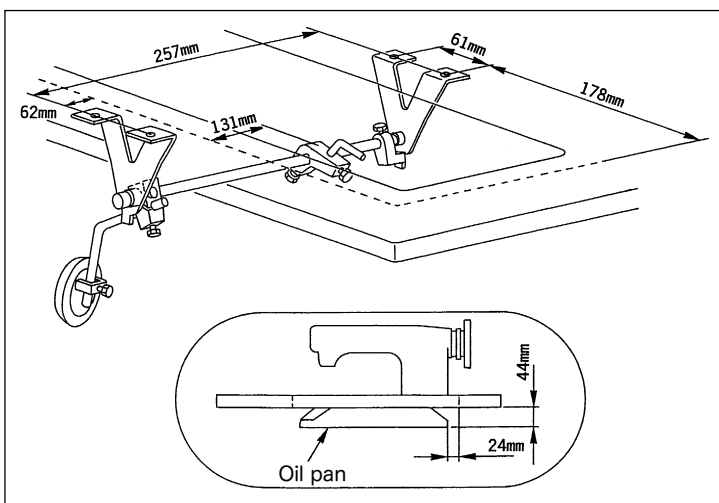
- Before you put the machine into operation for the first time after the set-up, clean it thoroughly . Remove all dust gathering during transportation and oil it well.
- Confirm that voltage has been correctly set.
Confirm that the power plug has been properly connected to the power supply.
- Never use 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.
- When tilting the machine head, tilt it after removing knee lifter hook.
- Never operate the machine unless the machine head and the oil tank have been filled with oil.
- For a test run, remove the bobbin and the needle thread.
- For the first month, decrease the sewing speed and run the sewing machine at a speed of 1,800 sti/min or less.
- Operate the handwheel after the machine has totally stopped.

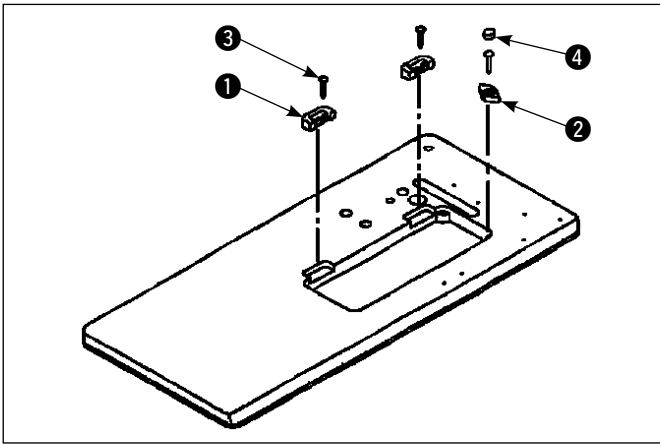
SPECIFICATIONS

Stitch system	1-needle, top & bottom feed, lockstitch machine	Needle	Schmetz 1738 Nm90 to Nm160 (standard: Nm130) (Schmetz 135×17 Nm90 to Nm160)
Application	Medium- to heavy-weight materials	Count of thread to be used	#40 to #8
Sewing speed	Max. 2,000 sti/min	Stitch adjustment method	By dial
Stitch length	Max. 9 mm	Lubrication method	By an oiler (The hook is automatically lubricated.)
Lift of presser foot	By lifting lever 7 mm, By knee lifter 15 mm	Motor to be used	400W clutch motor (4P)
Thread take-up	Link type thread take-up	Lubrication oil	JUKI New defrix oil No.1
Needle bar stroke	35 mm		
Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 76.5 dB; (Includes $K_{pA} = 2.5$ dB); according to ISO 10821- C.6.2 -ISO 11204 GR2 at 2,000 sti/min.		

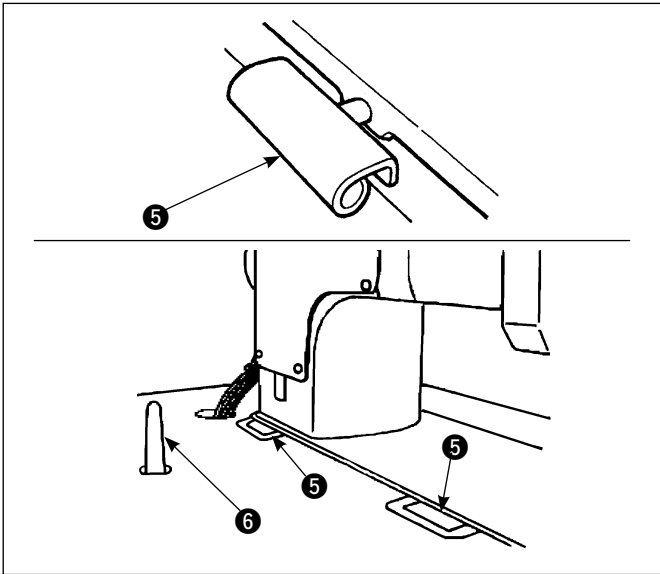
1. INSTALLATION OF THE MACHINE

1. Carry the sewing machine with two persons.
(Caution) Do not hold the handwheel.
2. Do not put protruding articles such as the screwdriver and the like at the location where the sewing machine is placed.
3. Mounting positions of the knee lifter and the oil pan
(Caution) The knee lifter should be mounted before the motor is installed.





4. Attaching the hinge washer and rubber cushion
 Fix the rubber hinge washer ①, the head support rubber ② supplied with the machine on the table using the nails ③.
 Put the head cushion ④ into the head support rubber ②.



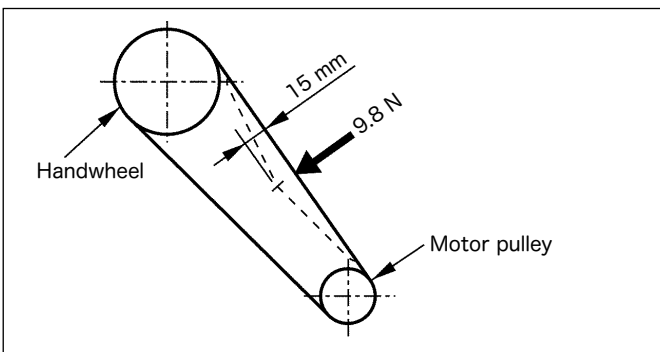
5. Fit hinge ⑤ into the opening in the machine bed, and fit the machine head to table rubber hinge before placing the machine head on rubber seats on the four corners.
 6. Securely attach head support rod ⑥ to the table until it goes no further.

2. ADJUSTING THE BELT 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.



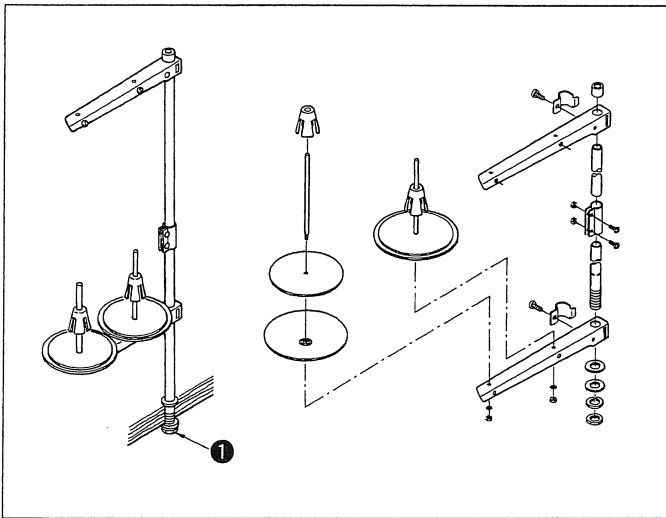
Adjust the belt tension with the height of the motor so that the belt sags 15 mm when the center of V belt is applied with a 9.8 N load.

3. INSTALLATION OF THREAD STAND



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.



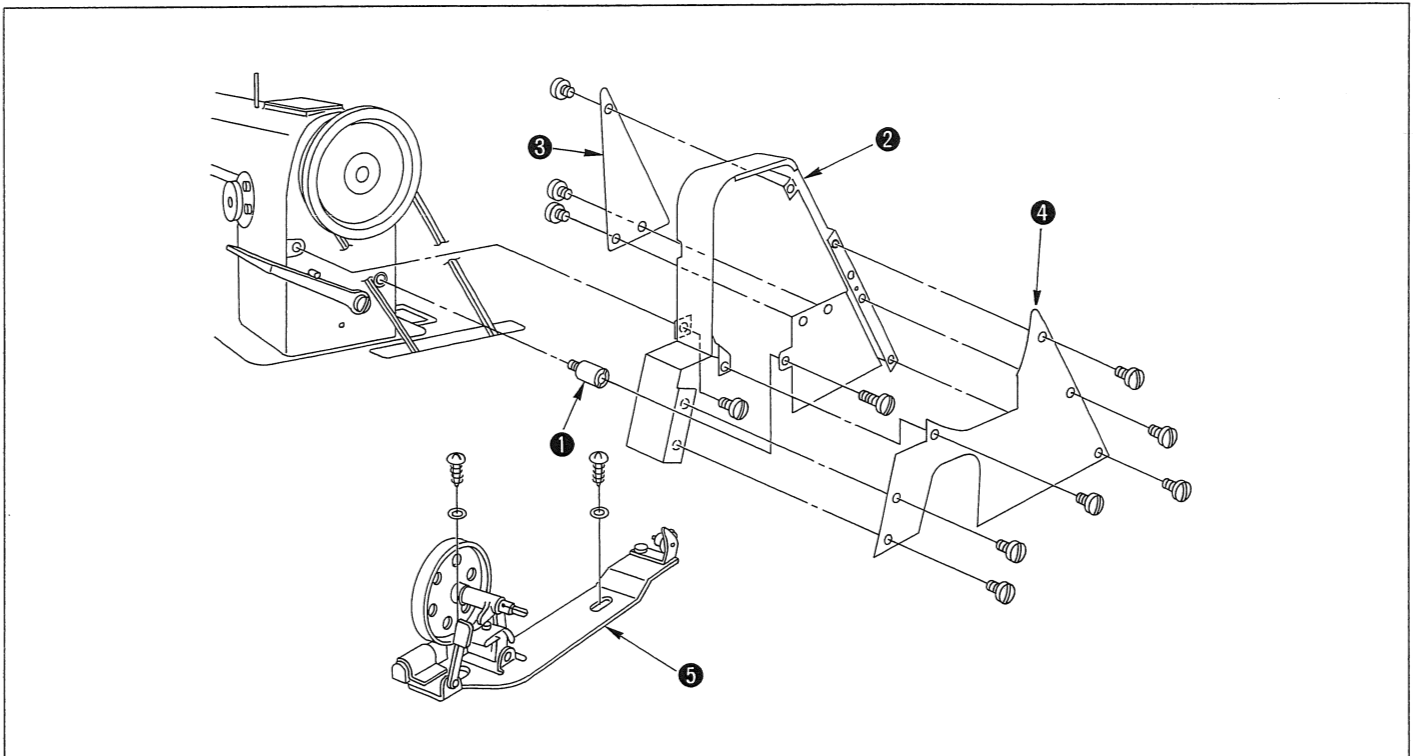
- 1) Assemble the thread stand unit, and insert it in the hole in the machine table.
- 2) Tighten locknut **1** to fix the thread stand.

4. ATTACHING THE BELT COVER AND BOBBIN WINDER



WARNING :

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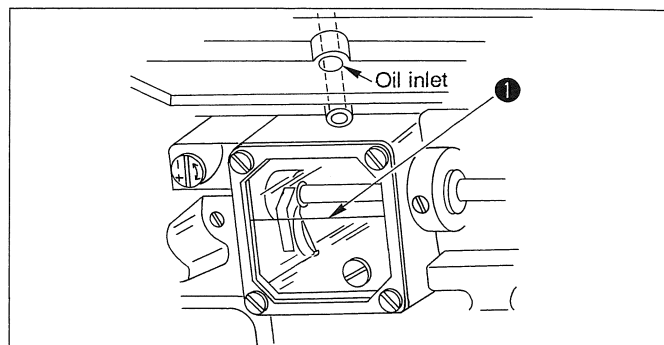
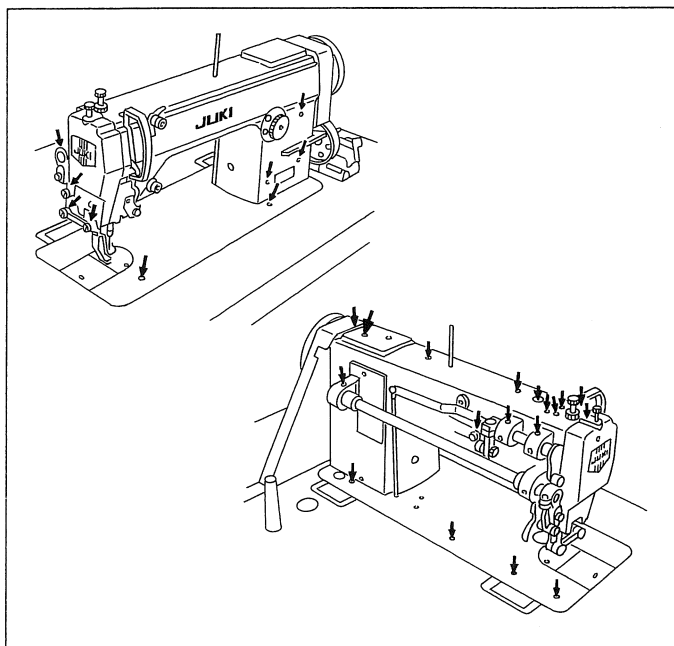
1. Put the V belt on the pulley of the sewing machine.
2. Install belt cover support **1** in the tapped hole in the machine arm.
3. Fit belt cover **2** onto the support and the machine arm.
4. Place bobbin winder **5** in the belt cover, and position it so that it does not come in contact with the machine arm and belt cover. Then fix the bobbin winder using the wooden screws.
5. Attach belt cover rid A **4** and belt cover rid B **3** in place.
6. Tilt the machine head, and confirm that the belt cover does not come in contact with the belt in the table.

5. 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.

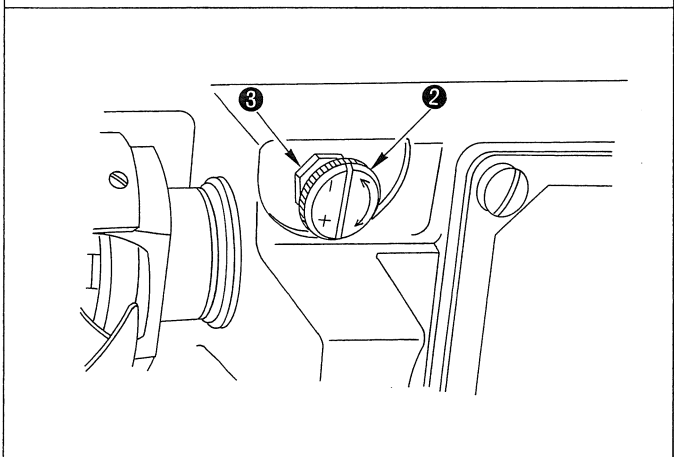
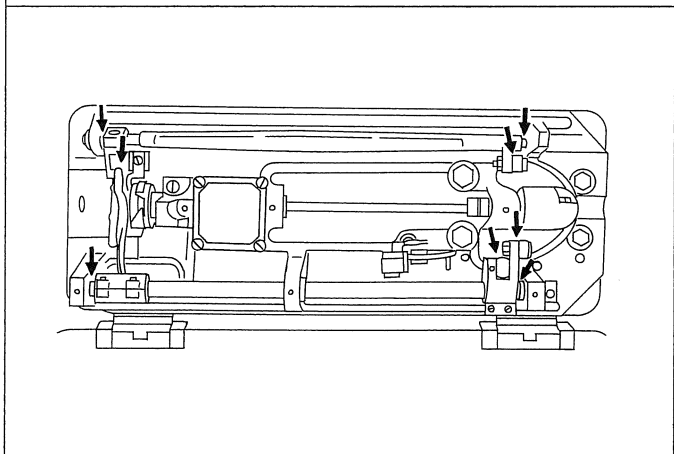


★ Before starting the sewing machine

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

★ Refilling the oil tank

When the oil level in the tank drops to 1/3 or less, supply JUKI New Defrix Oil No. 1 up to marker line ①.



★ Adjusting the amount of oil supplied to the hook

If it is necessary to change the amount of oil supplied to the hook in accordance with the type of material to be sewn, adjust it using oil amount adjustment screw ② located on the left-hand side of the oil tank.

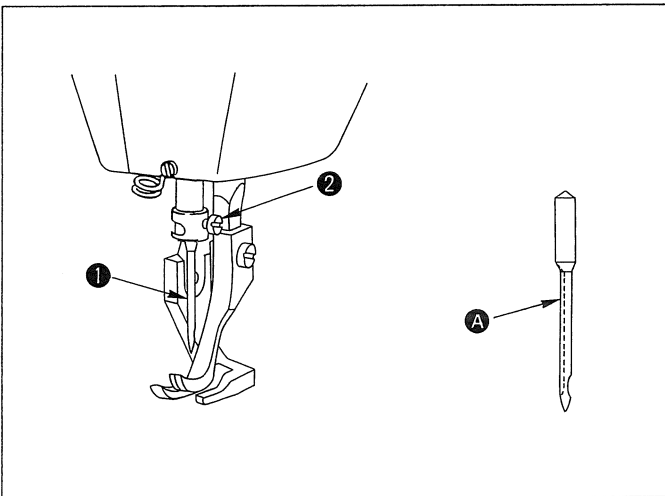
- Loosen nut ③.
- Turn the nut clockwise (toward the “+”) to increase the oil supplied to the hook, or turn it counterclockwise (toward the “-”) to decrease it.
- After the adjustment, firmly tighten the nut.

6. ATTACHING THE NEEDLE



WARNING :

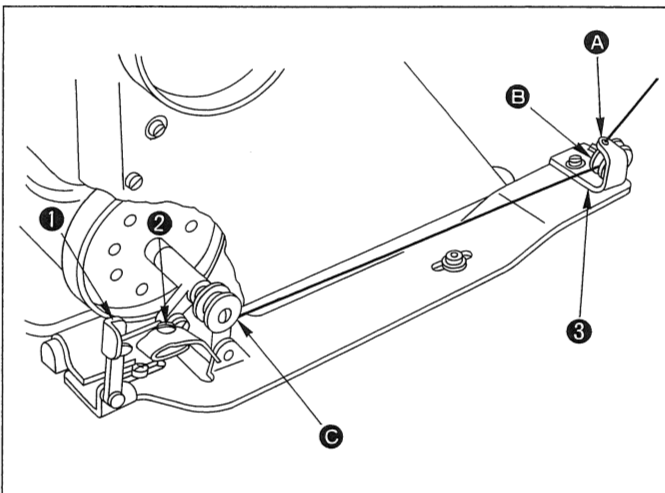
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



The standard needle to be used is Schmetz 1738 Nm 130.

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

7. WINDING A BOBBIN



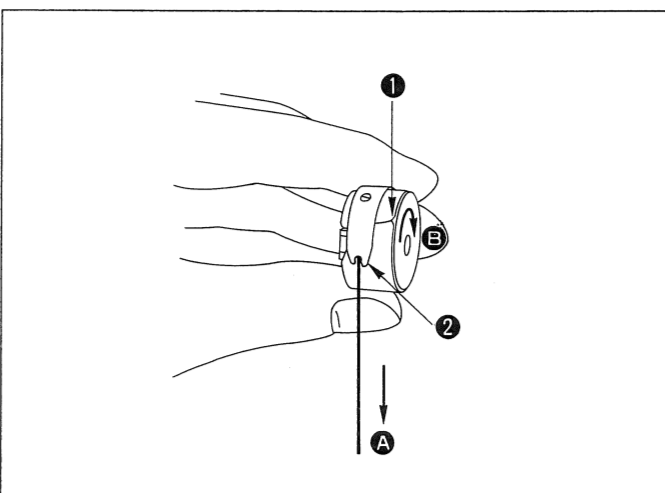
1. Route the thread in the order of A, B and C before winding it round the bobbin several times.
2. Set bobbin presser ① down to bring the winder in contact with the belt.
3. Adjust screw ② to adjust the amount of thread to be wound round the bobbin so that the bobbin is wound with thread about 80% of 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 ③ 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. THREADING THE BOBBIN CASE



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.



★ 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 ① in the bobbin case, and route it under tension spring ②.
2. Holding the latch of the bobbin case, set the bobbin case into the hook.

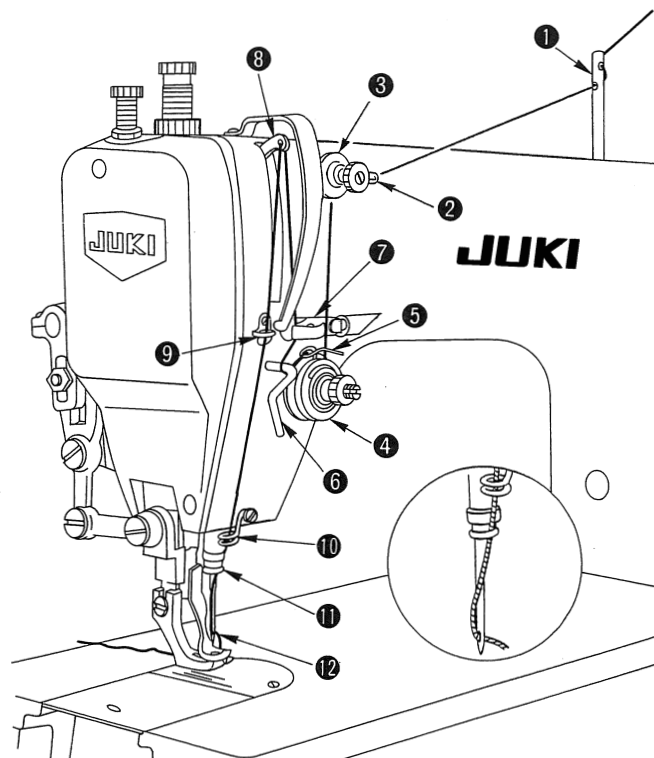
(Caution) When setting the bobbin in the bobbin case, take care of the direction of the thread wound round the bobbin. (The bobbin should rotate in the direction of arrow B when the thread wound round the bobbin is pulled in the direction of arrow A.)

9. THREADING THE MACHINE HEAD



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.



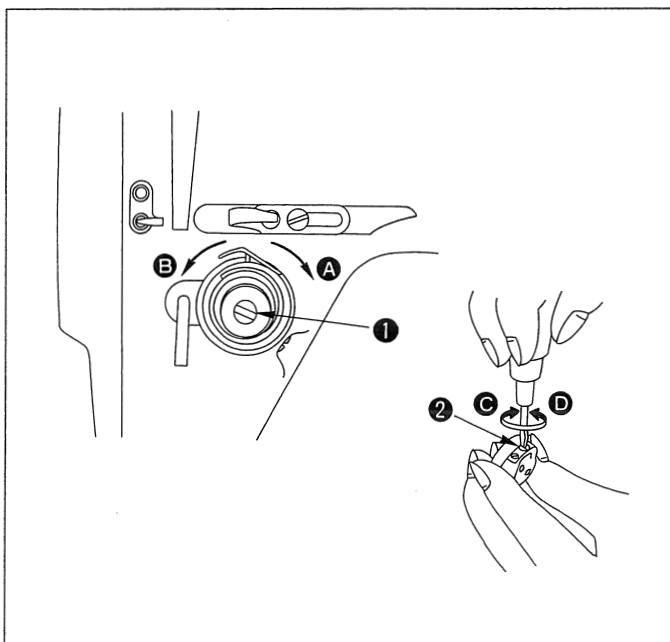
Thread the machine as illustrated in the figure in the order of ❶ through ❷.

10. 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.



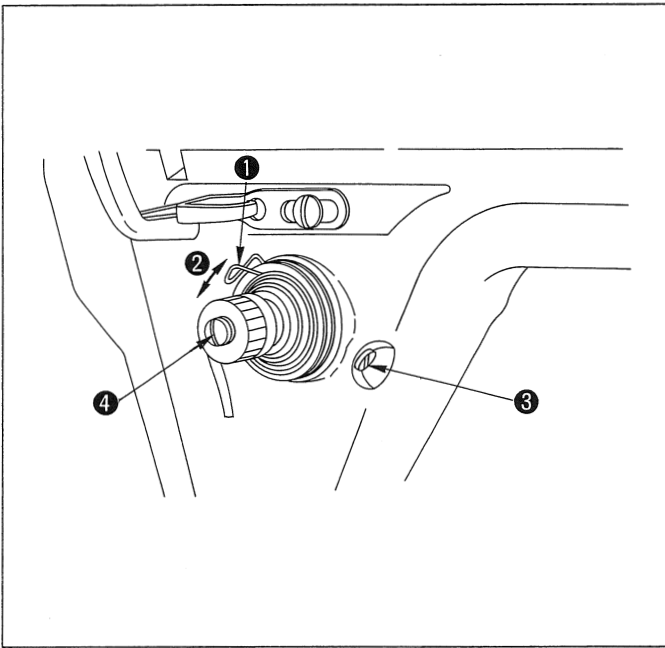
★ Adjusting the needle thread tension

Turn tension nut ❶ clockwise (toward A) to increase the needle thread tension, or counterclockwise (toward B) to decrease it.

★ Adjusting the bobbin thread tension

Turn tension screw ❷ clockwise (toward C) to increase the bobbin thread tension, or counterclockwise (toward D) to decrease it.

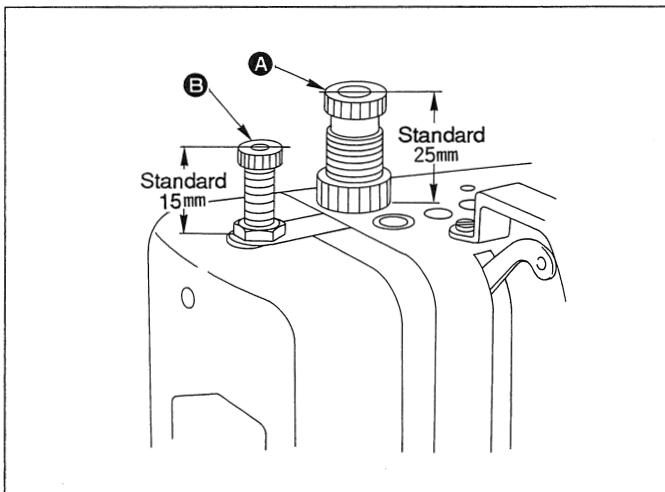
11. THREAD TAKE-UP SPRING



Standard stroke ② of thread take-up spring ① is 8 to 10 mm. To adjust the stroke, loosen screw ③ in the tension controller and turn the whole controller.

The standard tension of the thread take-up spring is 40 to 50 g. Apply a screwdriver to groove ④ in the tension post and turn it to properly adjust the tension.

12. ADJUSTING THE PRESSURES OF THE PRESSER FOOT AND WALKING FOOT



It is possible to adjust the pressure of presser foot ① (standard 25 mm) and that of walking foot ② (standard 15 mm) according to the type of material to be sewn.

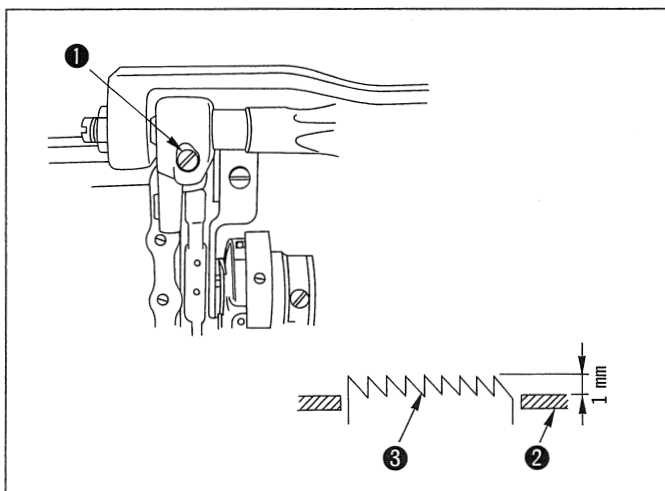
* It is advisable to minimize the pressure of both feet.

13. HEIGHT OF THE FEED DOG



WARNING :

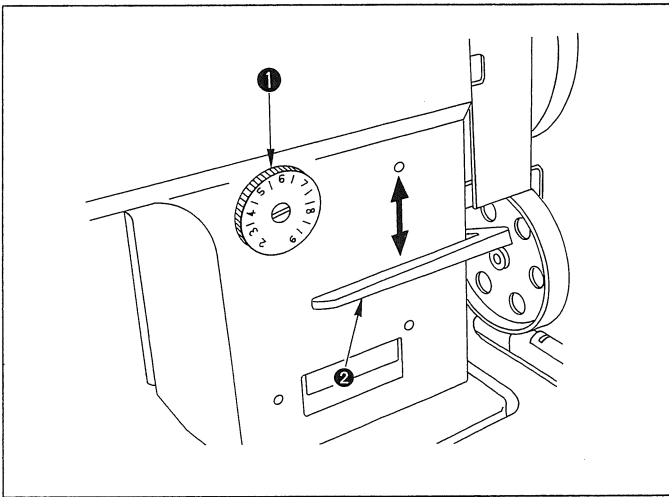
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has totally stopped rotating in prior.



Feed dog ③ has been factory-adjusted to jut out 1.0 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) Loosen screw ① in the feed driving arm.
- 2) Move the feed bar up or down to perform adjustment, then securely tighten the screw.

14. ADJUSTING THE STITCH LENGTH



Turn stitch dial ① counterclockwise or clockwise to bring the desired value at the top to align the value 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 resumes the normal stitching mode.

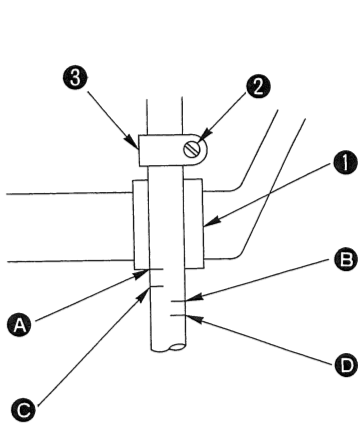
15. NEEDLE-TO-HOOK RELATION



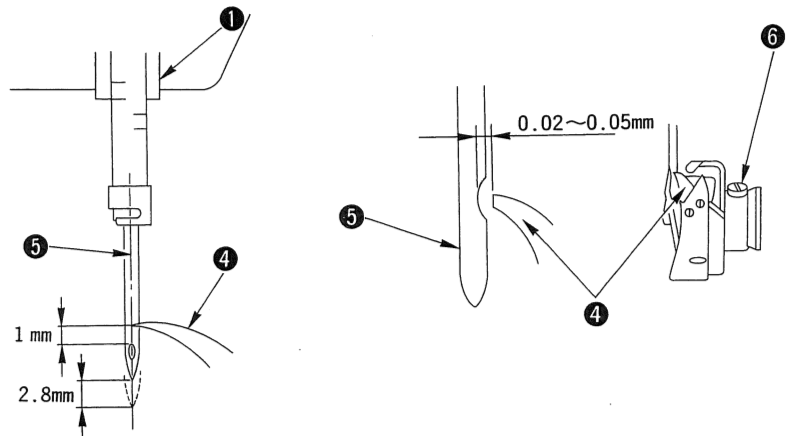
WARNING :

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.

• Positioning the needle bar



• Positioning the hook



★ Determine the position of the needle bar

1. Bring the needle bar down to its lowest position, and adjust so that the specified marker line (fourth line A from the bottom for a Schmetz 1738 needle, or second line B from the bottom for a Schmetz 135 × 17 needle) engraved on the needle bar aligns with the bottom end of needle bar lower bushing ①. Then tighten screw ② of needle bar connection ③.

★ Adjust the timing between the needle and the hook

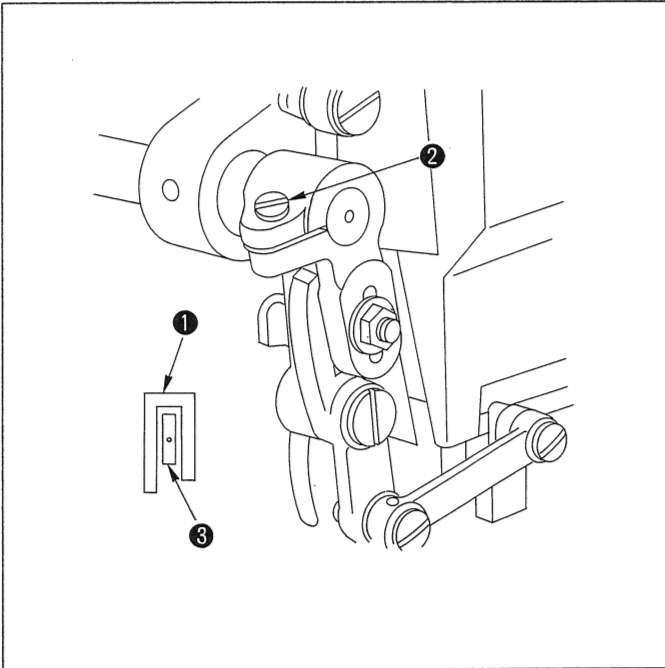
2. Adjust so that the specified marker line (third line C from the bottom for a Schmetz 1738 needle, or line D at the bottom for a Schmetz 135 × 17 needle) engraved on the ascending needle bar aligns with the bottom end of needle bar lower bushing ①. Further adjust to make blade point ④ of the hook nearly meet the center of needle ⑤. Then adjust the clearance between needle ⑤ and blade point ④ of the hook to 0.02 to 0.05 mm, and tighten screw ⑥ in the stopper.
3. Remove the throat plate, loosen screw ⑥ in the stopper and adjust the position of the hook properly.

16. ADJUSTING THE PRESSURES OF THE PRESSER FOOT AND WALKING FOOT



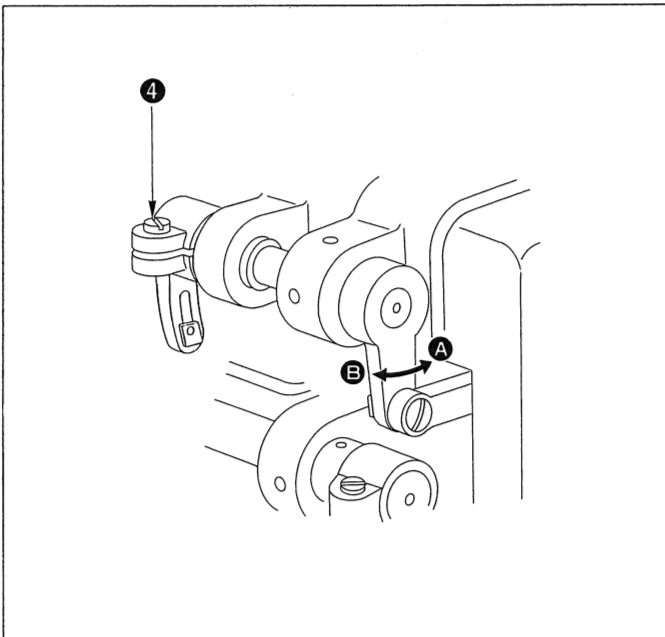
WARNING :

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.



★ Adjusting the longitudinal position of the walking foot

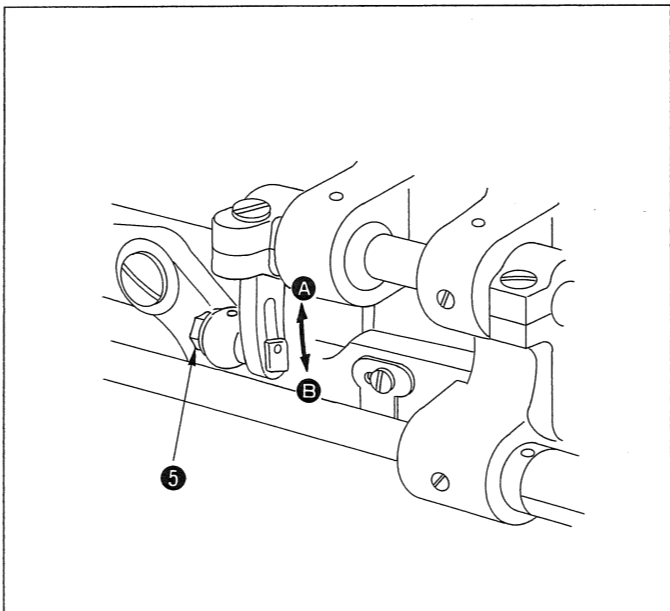
1. Maximize the stitch length. Turn the handwheel to bring walking foot ① to its front end, and loosen clamping screw ② in the center shaft bell crank.
2. Move the walking foot until it does not come in contact with the back of presser foot ③.
3. Securely tighten clamping screw ② in the center shaft 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. The stroke of the presser foot is slightly decreased in accordance with the type of material to be used.

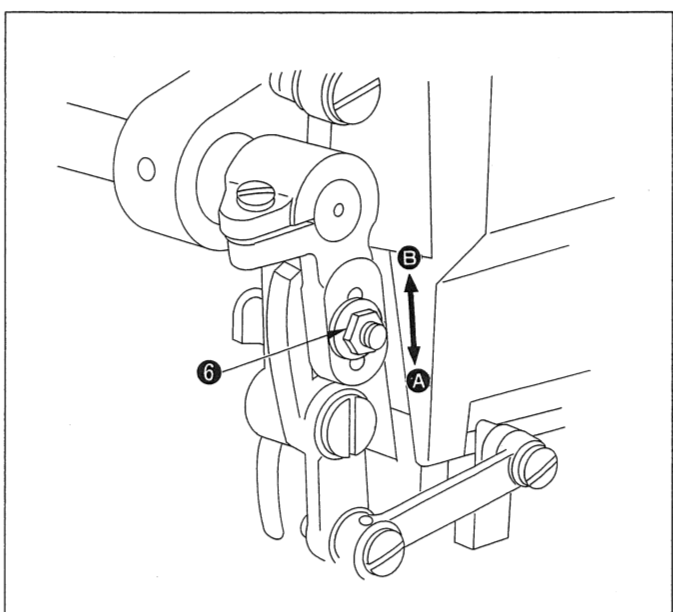
1. Loosen clamping screw ④ of the top feed crank.
 2. Bring the thread take-up lever to its highest position, and lower the presser bar lifting lever.
- Move the top feed bell crank to the right in direction ① to increase the stroke of the presser foot, or to the left in direction ② to decrease it.



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

Normally, the operating height of the feet is minimized. A better finish will be obtained by changing the operating height according to the material to be sewn.

- Loosen bolt **5**, and change the position of the cam rod boss accordingly.
 - Move the cam rod boss to the highest position (toward **A**) within the slot to maximize the operating height (5 mm), or to the lowest position (toward **B**) to minimize it (2 mm).



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

The ratio of the bottom feed to the top feed has been factory-adjusted to 1:1. If necessary, the top feed amount may be changed according to the material to be sewn following the procedure described below.

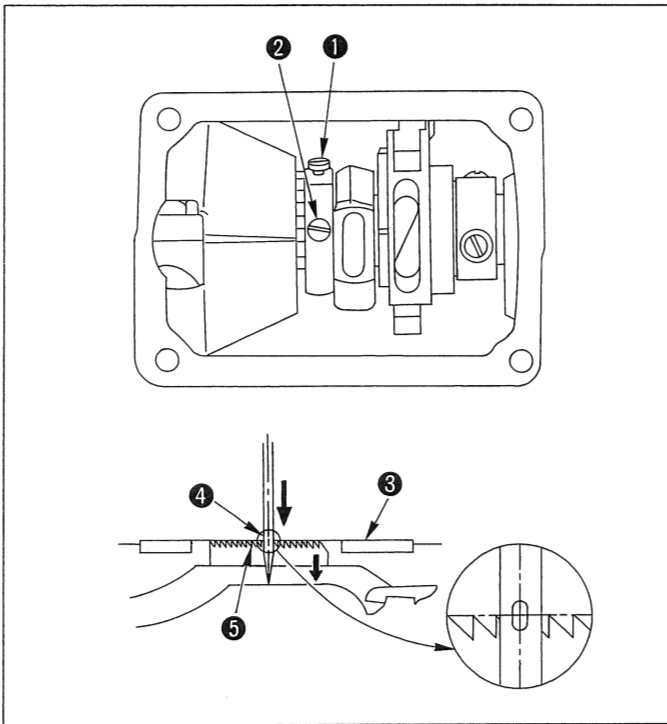
- Loosen nut **6**, and move the block up or down.
 - Move the block up toward **B** to decrease the top feed amount, or down toward **A** to increase it.

17. RELATIONSHIP BETWEEN THE FEED AND 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.



- As the standard relationship between the feed and the needle, both the center of the feed dog and the center of the needle eyelet are flush with the throat plate surface when the handwheel is turned toward you to make the feed dog start descending from the throat plate surface with the stitch dial set to 9 mm.
- To adjust the relationship between the feed dog and the needle, follow the procedure described below.
 1. Loosen screws ① and ② in the feed driving cam.
 2. Turn the feed driving cam until it reaches the position to allow center ④ of the needle eyelet and feed dog (the center of the feed dog) ⑤ to be flush with the surface of throat plate ③, and fix the cam at that position.

(Reference to be used to obtain the standard relationship between the feed and the needle)

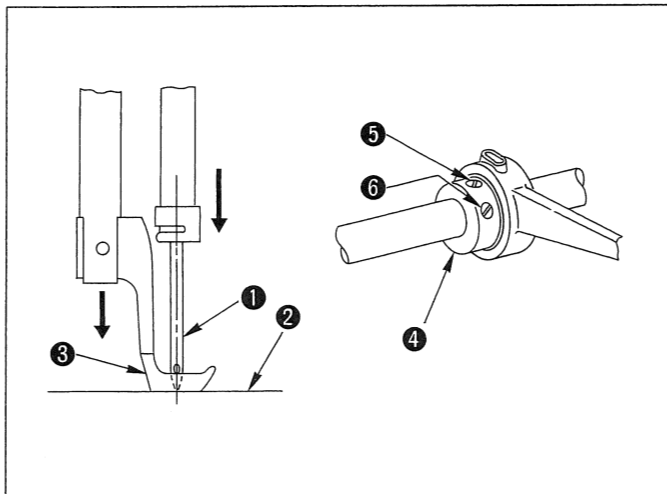
When the needle bar is in the lowest position of its stroke, screw ② in the feed driving cam nearly comes to the top of the cam.

18. RELATIONSHIP BETWEEN THE PRESSER FOOT AND 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.



- As the standard relationship between the presser foot and the needle, the top end of the needle should align with the throat plate surface when needle ① comes down and descending presser foot ③ is flush with throat plate surface ②.
- To adjust the relationship between the presser foot and the needle, follow the procedure described below.
 1. Loosen screws ⑤ and ⑥ in the top feed cam ④.
 2. Turn the top feed cam until it reaches the position to allow the tip of the needle aligns with the throat plate surface when the throat plate surface is flush with the presser foot. Then fix the top feed cam at that position.

(Reference to be used to obtain the standard relationship between the presser foot and the needle)

When the thread take-up lever is brought to its highest dead point, screw No. 2 ⑥ in the top feed cam is leveled.

19. MOTOR PULLEY AND SEWING SPEED

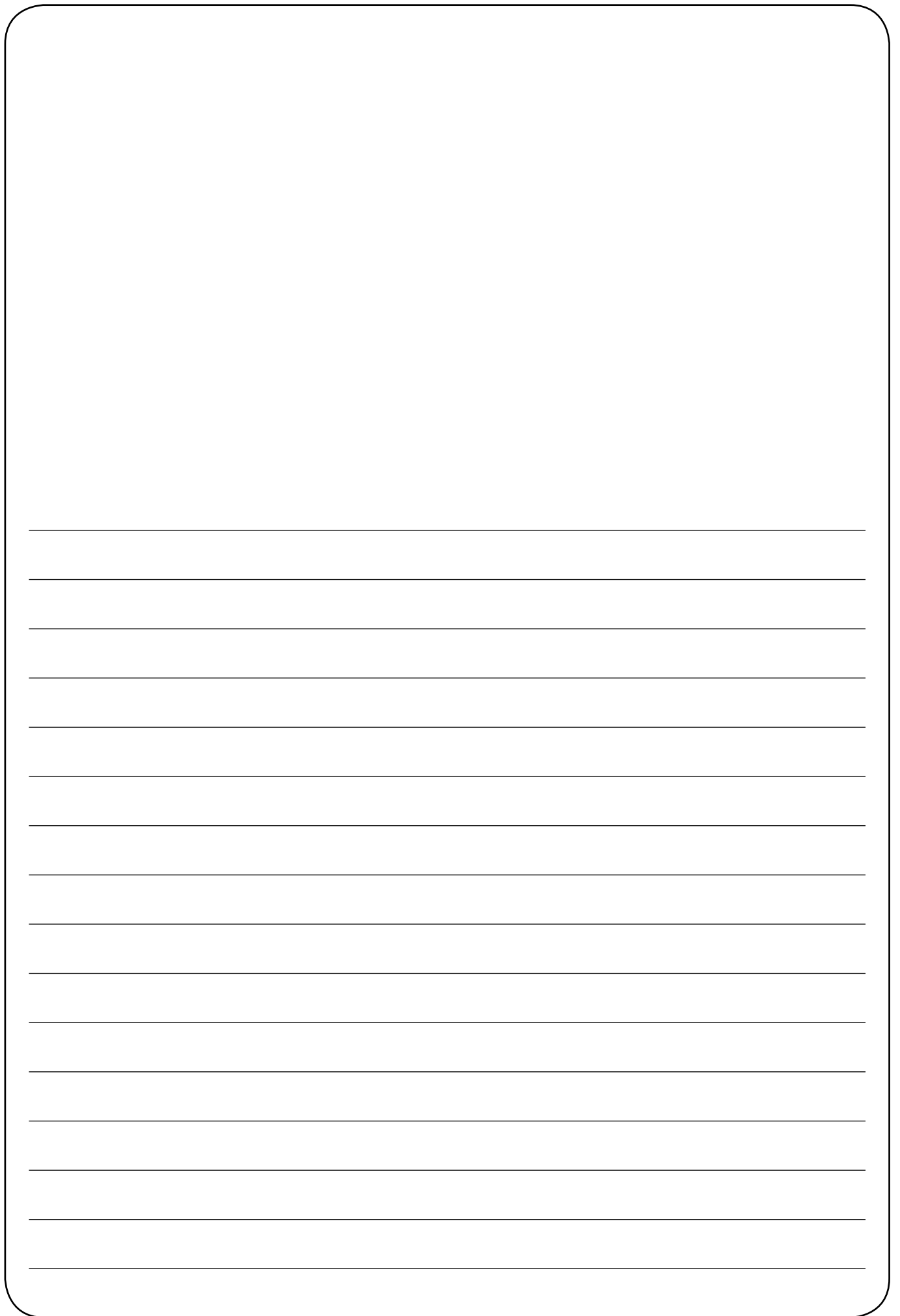
- 1) Use the 3-phase 400 W AC clutch motor.
- 2) Use an M type V belt.
- 3) The following table shows the relationship among the motor pulley and the sewing speed.

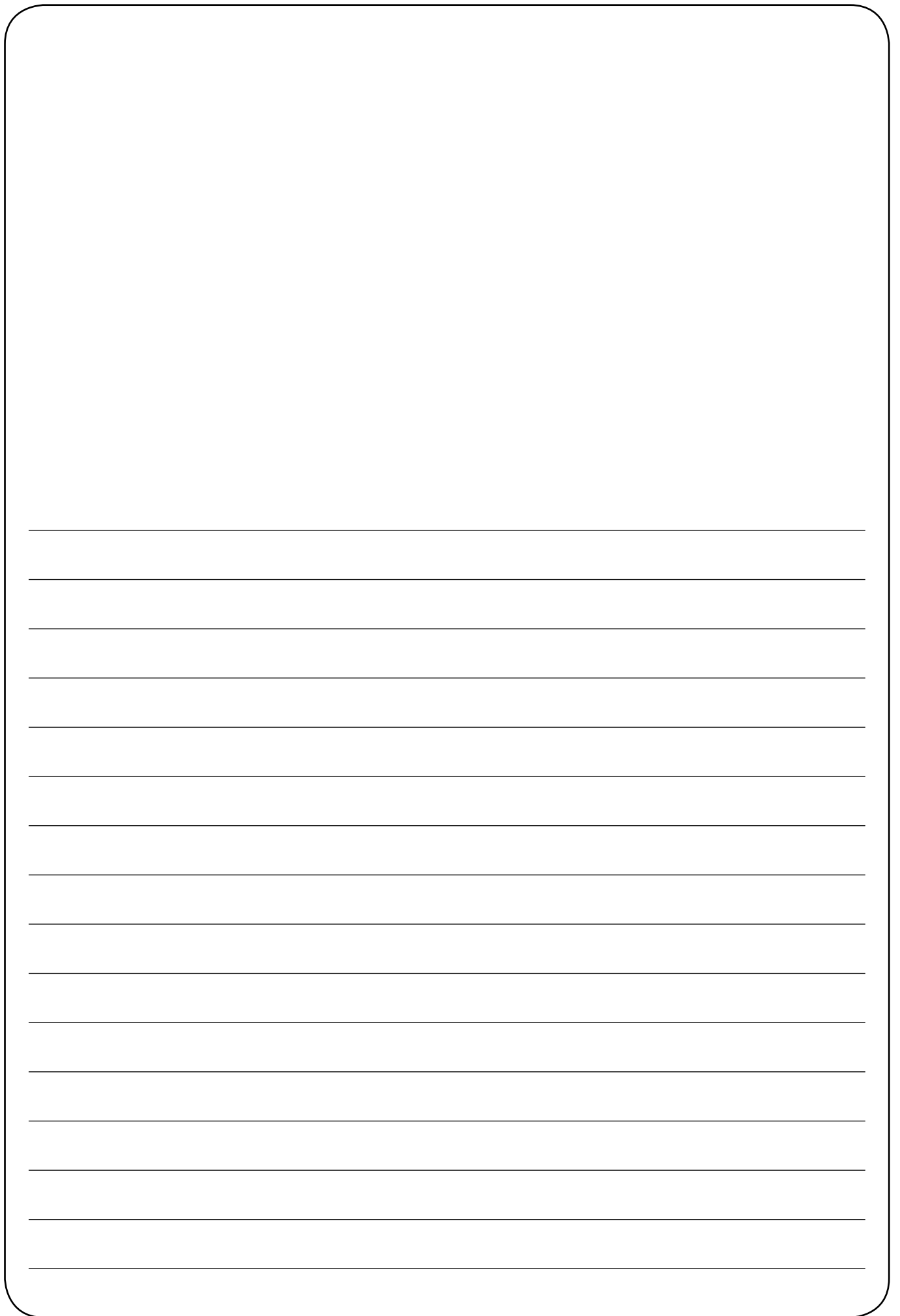
Model	Sewing speed	Effective diameter of handwheel	Number of poles	Frequency	Rotational speed of motor	Effective diameter of motor pulley
DU-140	2,000 sti/min	ϕ 76.0	4	50 Hz	1,430 rpm	ϕ 105
				60 Hz	1,715 rpm	ϕ 90

(Caution) The effective diameter of the motor pulley is obtained by subtracting 5 mm from the outside diameter.

20. TROUBLES AND CORRECTIVE MEASURES

Trouble	Cause	Corrective measures
1. Stitch skipping	<ol style="list-style-type: none"> ① Defective needle thread path. ② The hook has scratches. ③ The timing between the needle and hook is too early or too late. ④ The sewing speed at the start of sewing is too high, which makes it difficult for the needle and bobbin threads to be properly interlaced with each other. ⑤ The clearance between the needle and the blade point of the hook is too large. ⑥ Presser foot pressure is too low. ⑦ The size of the needle is wrong. 	<ul style="list-style-type: none"> o See “9. Threading the machine head”. o Remove the scratches on the blade point of the hook using a fine emery paper. o Refer to “15. Needle-to-hook relationship”. o Use the soft-start function. o Refer to “15. Needle-to-hook relationship”. o Tighten the pressure spring regulator. o Replace the needle by one which is one count thicker.
2. Thread breakage (Thread frays or wears out.)	<ol style="list-style-type: none"> ① The hook has scratches. ② The returning force of the thread take-up lever is excessive. ③ The timing between the needle and hook too early or too late. ④ The needle thread tension is too high. ⑤ The needle comes in contact with the blade point of the hook. ⑥ The clearance between the needle and the blade point of the hook is too large. 	<ul style="list-style-type: none"> o Remove the scratches on the blade point of the hook using a fine emery paper. o Decrease the tension of the thread take-up spring, and increase the stroke of the spring. o Refer to “15. Needle-to-hook relationship”. o Adjust the needle thread tension properly. o Refer to “15. Needle-to-hook relationship”.
3. Loose stitches (isolated idling loop)	<ol style="list-style-type: none"> ① The forked part of the tension spring of the bobbin case is not threaded. ② The thread path is poorly finished. ③ The bobbin fails to rotate smoothly. ④ The bobbin thread tension is too high. ⑤ The bobbin thread tension is too low. ⑥ Untwisted synthetic thread is used. 	<ul style="list-style-type: none"> o Correctly thread the bobbin case. o Grind it using a fine emery paper, or buff it up. o Replace the bobbin, or replace the hook. o Decrease the bobbin thread tension. o Increase the bobbin thread tension. o Slightly decrease the sewing speed. (1,800 sti/min)





JUKI®

JUKI CORPORATION
SEWING MACHINERY BUSINESS UNIT
2-11-1, TSURUMAKI, TAMA-SHI,
TOKYO, 206-8551, JAPAN
PHONE : (81)42-357-2371
FAX : (81)42-357-2380
<http://www.juki.com>



Please do not hesitate to contact our distributors or agents in your area for further information when necessary.
* **The description covered in this instruction manual is subject to change for improvement of the commodity without notice.**