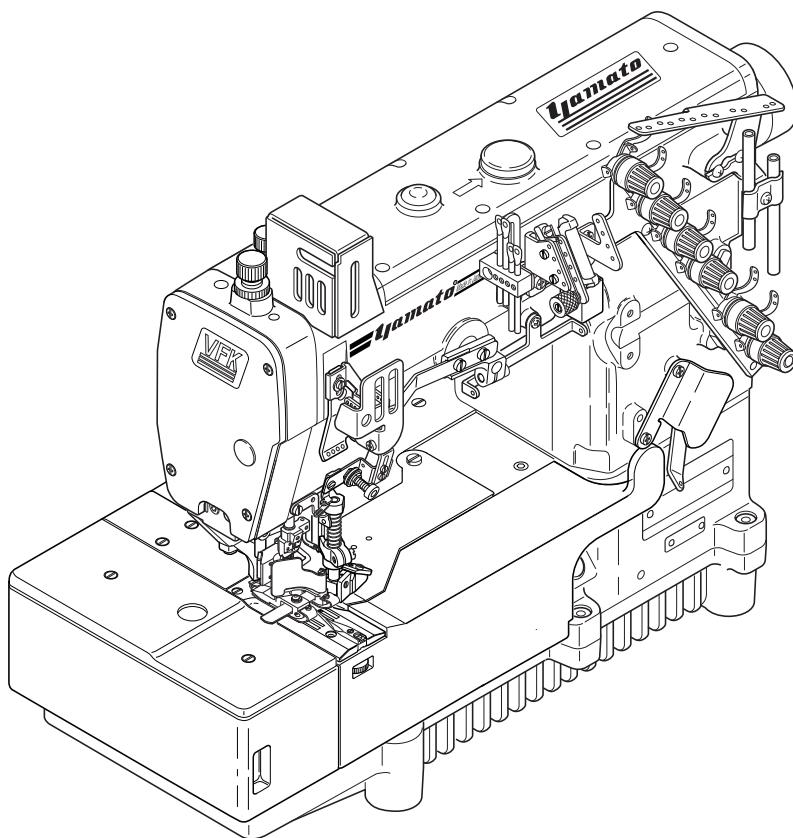




Instruction Manual

4 NEEDLE HIGH SPEED FLATBED FLATSEAMER

VFK2560-8 class



Thank you for having purchased the Model VFK2560-8 class.

Before using your VFK2560-8 class, please read the instruction manual and understand the contents well.

After reading the instruction manual, please keep it in a location where it is easily accessible to the operator.














YAMATO SEWING MACHINE MFG. CO., LTD.


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Safety instructions


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Attention

- ◇ This instruction manual is designed mainly for technicians, but it is advisable that also operators read the instructions with  mark to use the machine properly.
- ◇ The numbers in lower left corners of figures are figure numbers. We use them in texts as needed for your reference.

Attention

The parts used for this product are subject to change without notice. If such a change is made, any part of the contents and illustrations of this instruction manual may not conform to this product.

In preparing the instruction manual, we have made our best efforts for making it free of any error or omission. If any error or omission should yet be found, it might not be rectified immediately.



Safety instructions



1. To ensure safe use

Always observe the following instructions to ensure the safe use of the industrial sewing machines and devices.

1-1 Application and purpose

The sewing machine is designed to improve productivity in the sewing industry and must not be used for other applications and purposes. Do not use this sewing machine until it can be confirmed that safety measures for the drive units have been taken.

1-2 Before use

Read all instruction manuals thoroughly before starting the use of this machine and follow them.

Also, read the instruction manual for the installed drive unit.

1-3 Working environment

DO NOT WORK IN THE FOLLOWING ENVIRONMENTS:

- Place where atmosphere temperature and humidity give a bad influence the performance of sewing machines.
- Outdoors and place where the sewing machines are exposed to sunlight directly.
- Atmosphere containing dust, corrosive gases or flammable gases.
- Place where voltage fluctuation exceeds $\pm 10\%$ of the rated voltage.
- Place where power capacity necessary for the used motor specifications cannot be secured.
- Place where strong electric or magnetic fields are generated such as near large-output high frequency transmitters or high frequency welding machines.

1-4 Unpacking and transportation

- (1) Unpack from the top.
- (2) Never hold the parts near the needle or threading parts when removing the sewing machine head from the buffer of box.
- (3) When carrying the sewing machine head, have an assistant.
- (4) Pay attention not to get excessive impact or shock when moving the sewing machine head with a pushcart.

2. Installation and preparation

2-1 Instruction and training

Operators and workers, who supervise, repair or maintain the machine head and machine unit, are required to have the adequate knowledge and operation skills to do the job safely. In order to establish such necessary conditions, it needs for the employer to plan and enforce the safety education and training to those workers.

2-2 Sewing table and motor

- (1) Prepare a machine table that has enough strength to withstand the weight of the sewing head and any reaction while operating.
- (2) Maintain a comfortable working environment with considering the lighting and the arrangement of sewing machine so that the operators can work smoothly.
- (3) When installing the control box and the related parts on the sewing machine, take care about the posture of the worker.
- (4) Install the drive unit correctly according to the instruction manual.

2-3 Wiring

- (1) Never connect the plug for power supply until assembly is finished.
- (2) Fix the connectors securely to the sewing machine head, motor, and electric apparatus.
- (3) Do not apply excessive force to the connection cords.
- (4) Connect the cords away from the driving parts.
- (5) Place the ground wire securely to the designated position on the machine head.

2-4 Before operation

- (1) Take care not to attach lubricant, silicone oil, and grease on the eyes or skin. Keep them away from children.
- (2) Be sure to fill or drop lubrication oil before operating the sewing machine. Use the Yamato SF oil as specified.
- (3) Never put your hand under the needle or near the moving parts of the machine when turning on power supply switch.



Safety instructions



- (4) When operating a new sewing machine, make sure the rotating direction of pulley agrees with the rotating-direction mark.

2-5 During operation

- (1) Be sure to operate the sewing machine with the safeguards such as belt cover, finger guard, and eye guard.
- (2) Never place the finger, hair or objects under the needle or close to the moving parts while operating the sewing machine.
- (3) Be sure to turn off the power supply switch when threading or replacing the needles.
- (4) Never place your hands close to the knives when operating the sewing machine with the trimming devices.
- (5) Be sure to turn off the power supply switch when terminating the sewing work or leaving the sewing machine.
- (6) If the sewing machine malfunctions, abnormal sound or smell something unusual while operating, be sure to turn off the power supply switch.

2-6 Removal

- (1) Turn off the power supply switch if removed or replaced any parts or during adjustment of sewing machine.
- (2) Do not pull the cord when removing the plug. Be sure to hold the plug itself.
- (3) A high voltage is applied inside the control box. Turn off the power supply switch and wait more than 5 minutes before opening the cover.

3. Maintenance, inspection, and repair

- (1) Follow the instruction manuals for maintenance, inspection, and repair.
- (2) Entrust the maintenance, inspection, and repair to specially trained personnel.
- (3) Be sure to turn off the power supply switch and make sure the sewing machine and motor completely stop before the maintenance, inspection, and repair. (If using a clutch motor, take care that the motor keeps turning for a while even after turning off the power

supply switch.)

- (4) Be sure to remove the gasket too, when the cover removed at the maintenance, inspection, and repair. If not removed, may be injured at the edge of gasket.
- (5) Do not modify the sewing machine by the customer's judgment.
- (6) Be sure to use original replacement parts for repairs or maintenance.

4. Caution signs and alert pictorial markings

This instruction manual contains the following caution signs and alert pictorial markings to prevent you from injuring yourself or the sewing machine from being damaged. Please follow the instructions.

4-1 Meanings of caution signs

WARNING

WARNING indicates potentially hazardous situations which, if not heeded, could result in death or serious injury to you and others.

CAUTION

Caution indicates hazardous situations which, if not heeded, may result in minor or moderate injury to you and others, or may result in machine damage.

NOTE is used to emphasize essential information.



Safety instructions



4-2 Alert pictorial markings



This mark indicates the warning which, if not heeded, could result in death or Serious injury.



This mark indicates the caution for high temperature.



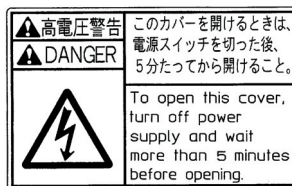
This mark indicates the warning which, if not heeded, could result in death or Serious injury.



High-voltage applies in the control box. This label indicates that electric shock may be caused.



This mark indicates the caution which, if not grounded, the machine or device could malfunction and could result in personal injury.



High-voltage applies in the control box. This label indicates that electric shock may be caused.



This label is affixed on the safeguards. Considering the operation, it is not affixed on the finger guard and eye guard. Be sure to operate with the finger guard and eye guard in position.

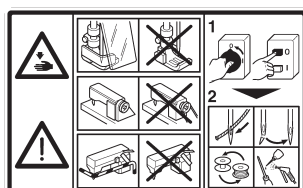


Stepping motor and solenoid may overheat if used continuously. To prevent a burn, take care not to touch.

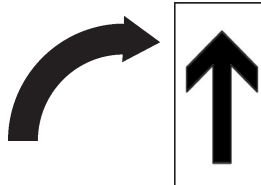


If not connected earth line, static electricity may be generated and inflict injury on person. In addition, the malfunction of electric system may cause injury to person.

5. Warning labels on sewing machines



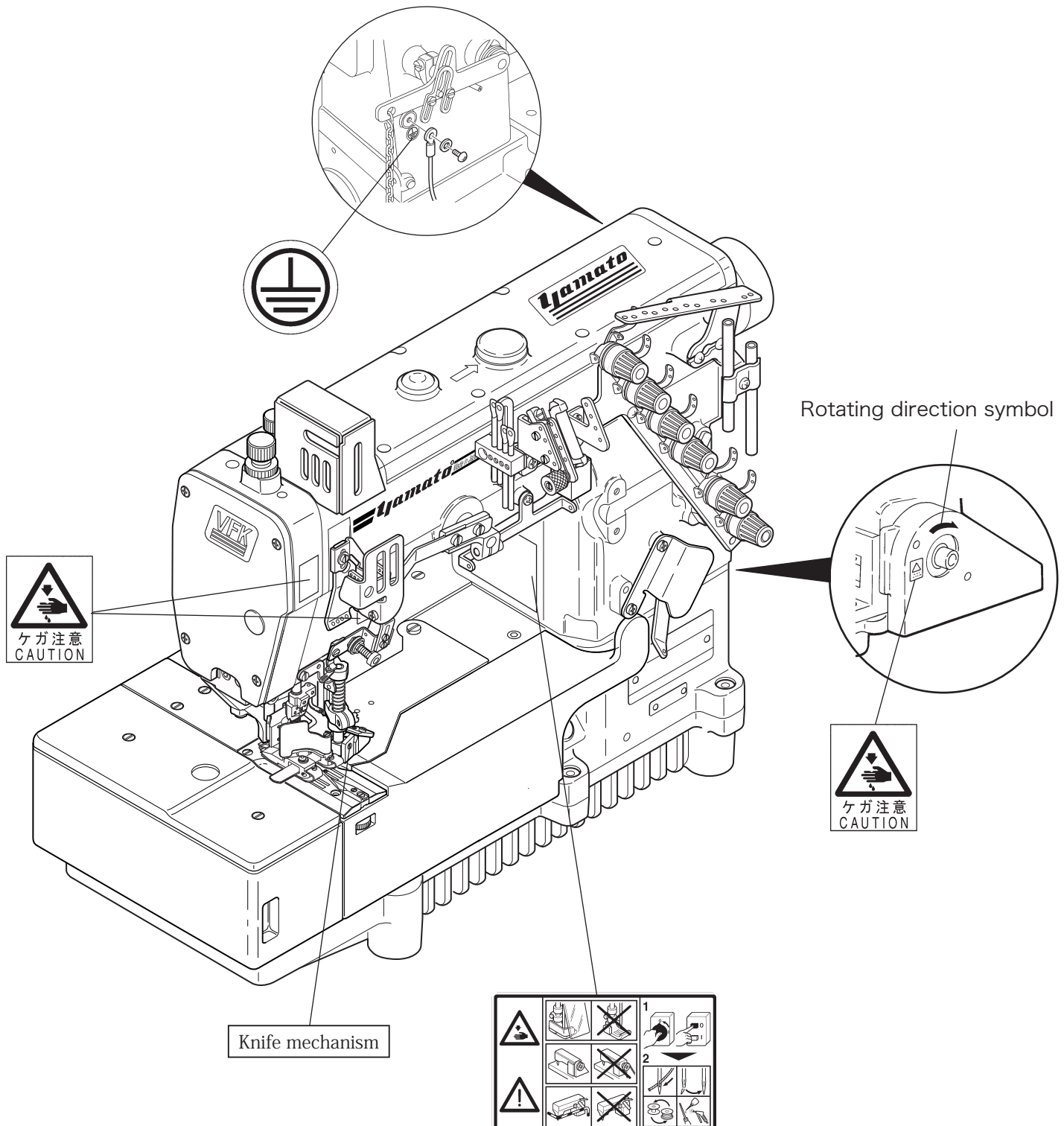
This label indicates that removal of the safeguards and works except for sewing performance while the power supply switch is on are prohibited. (For details, see the next page.)



Check the rotating direction of machine pulley agrees with 'ROTATING-DIRECTION SYMBOL'.



Safety instructions



6. Other factor which may cause injury, precaution against it

Knife mechanism

As the knife trimming mechanism is moving to the right-and-left while sewing, if your hand holding the fabric comes close to the mechanism, your hand may be in danger of being struck or pinched in the gap below.

1. Name of each part

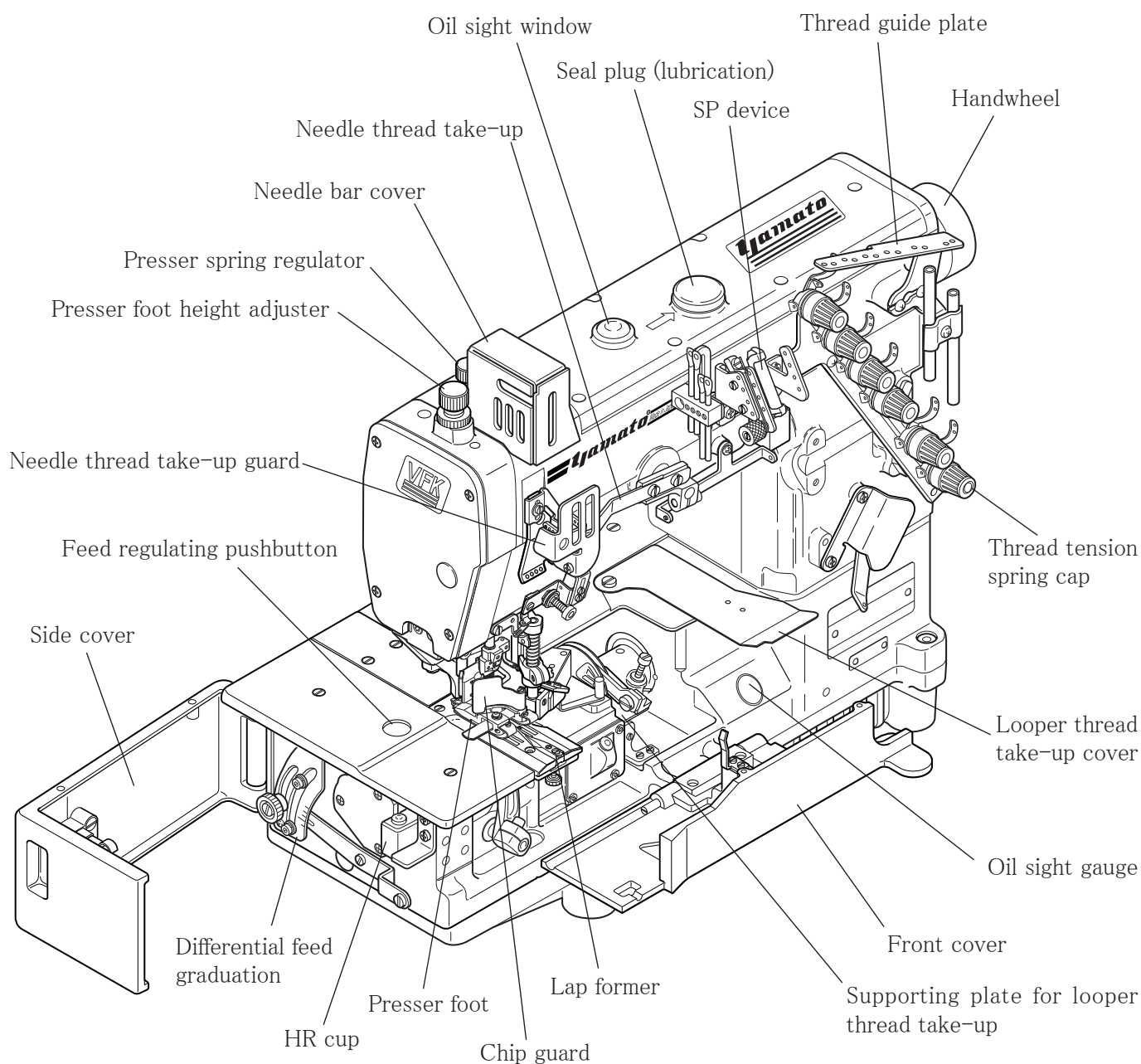


Fig. 1-1

2. Installation

2.1 Semi-submerged type

2.1.1 Table cutting diagram

Standard

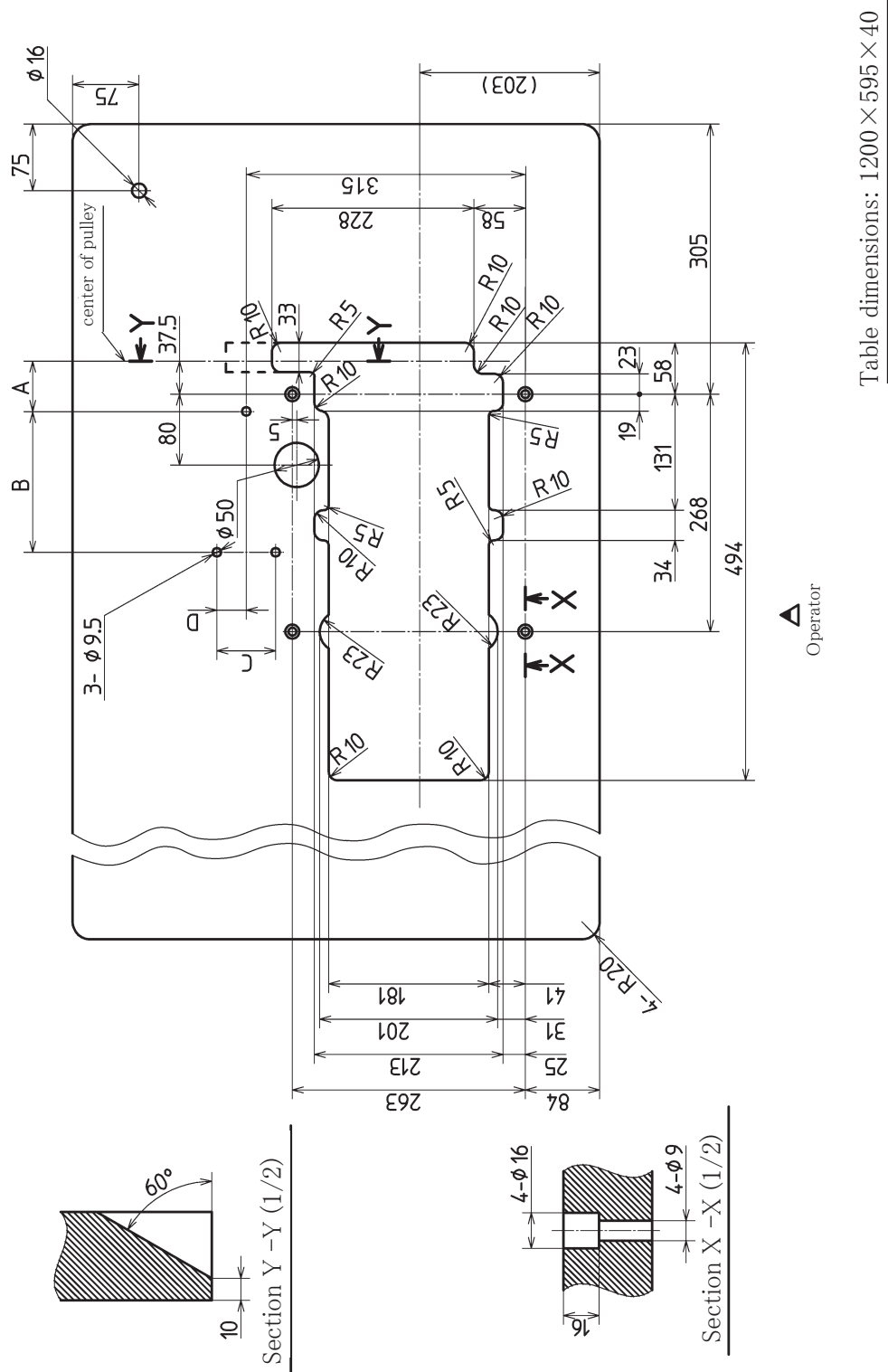


Fig. 2-1

2.1.2 Installation

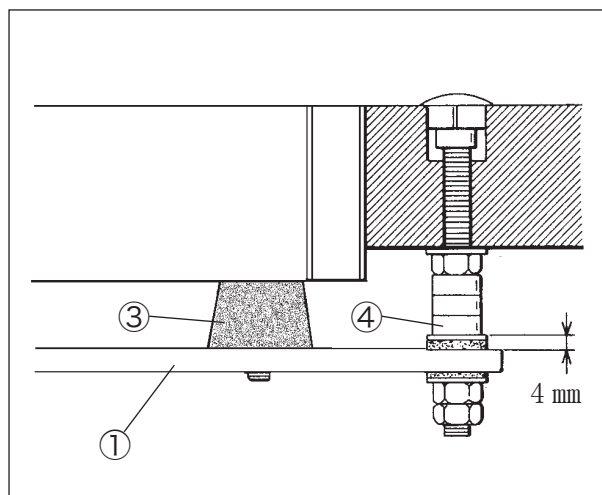


Fig. 2-2

Install a machine correctly referring to Figs. 2-2 and 2-3. Set the screws ② in the supporting board ① and cover the screws ② with the rubber cushions ③. Fix the supporting board ① to the machine table and install a machine securely on the rubber cushions ③.

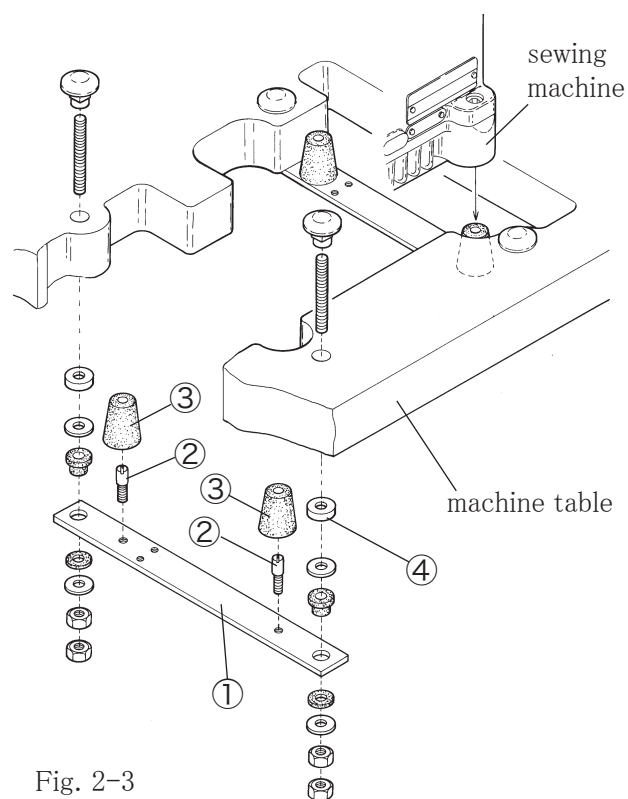


Fig. 2-3

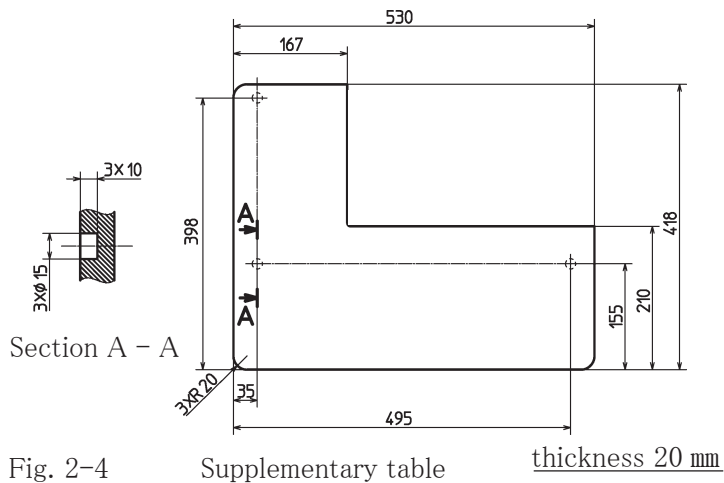
☆ The number of spacers ④

Thickness of table	The number of spacer ④
40 mm	3 pcs. \times 4=12 pcs.
45 mm	2 pcs. \times 4= 8 pcs.
50 mm	1 pc \times 4= 4 pcs.

Table 1

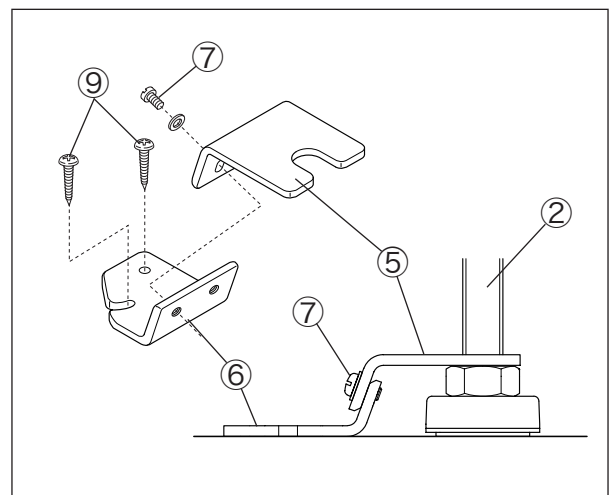
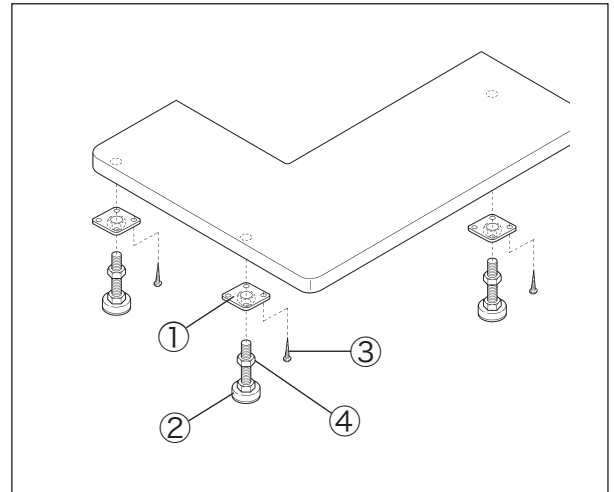
2. Installation

2.1.3 Installing supplementary table



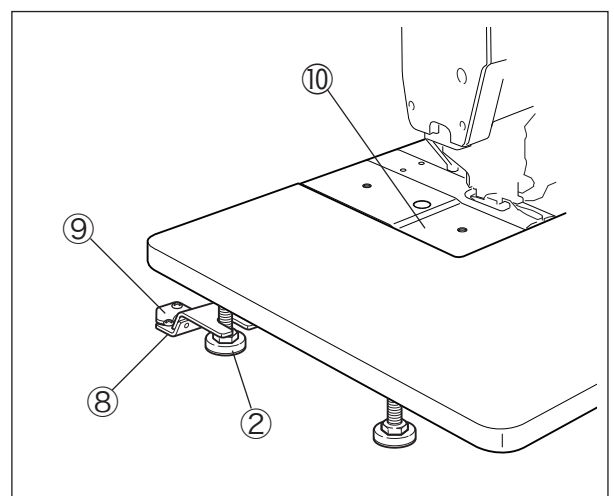
Assembly

- (1) Mount the adjustable feet ② on the adjustable foot plate ① (3 sets).
- (2) Mount (1) above onto the supplementary table by wood screws ③.
- (3) Turn the adjustable feet and adjust their heights so that the top of the supplementary table and cloth plate (small) ⑩ are made level at the same height, and secure the feet ② using the nuts ④.
- (4) Adjust the supplementary table stay (lower) ⑤ and stay (upper) ⑥ to the same height as the base of adjustable feet ②, and join them using the screw ⑦.



Installation

Place the supplementary table on the machine, and anchor it to the machine table using the wood screws ⑨ at the position where the supplementary table stays ⑧ press down on the adjustable foot ② at the rear left. Tighten the wood screws ⑨ so that the supplementary table stays ⑧ turn.



⚠ CAUTION



The supplementary table stays ⑧ must be mounted without fail in order to ensure that the supplementary table will not turn over.

2.2 Full-submerged type

2.2.1 Table cutting diagram

Standard

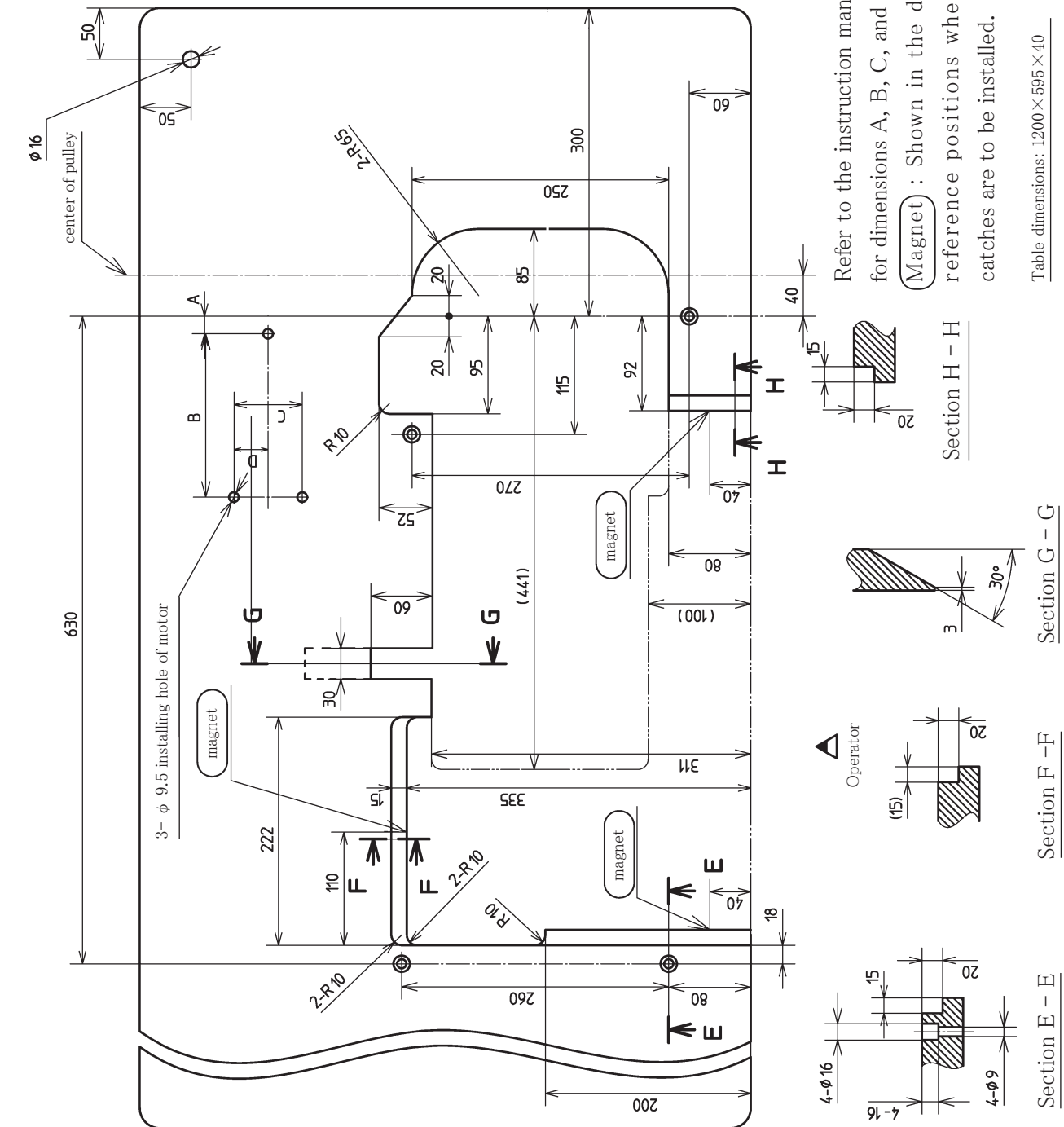


Fig. 2-8

2. Installation

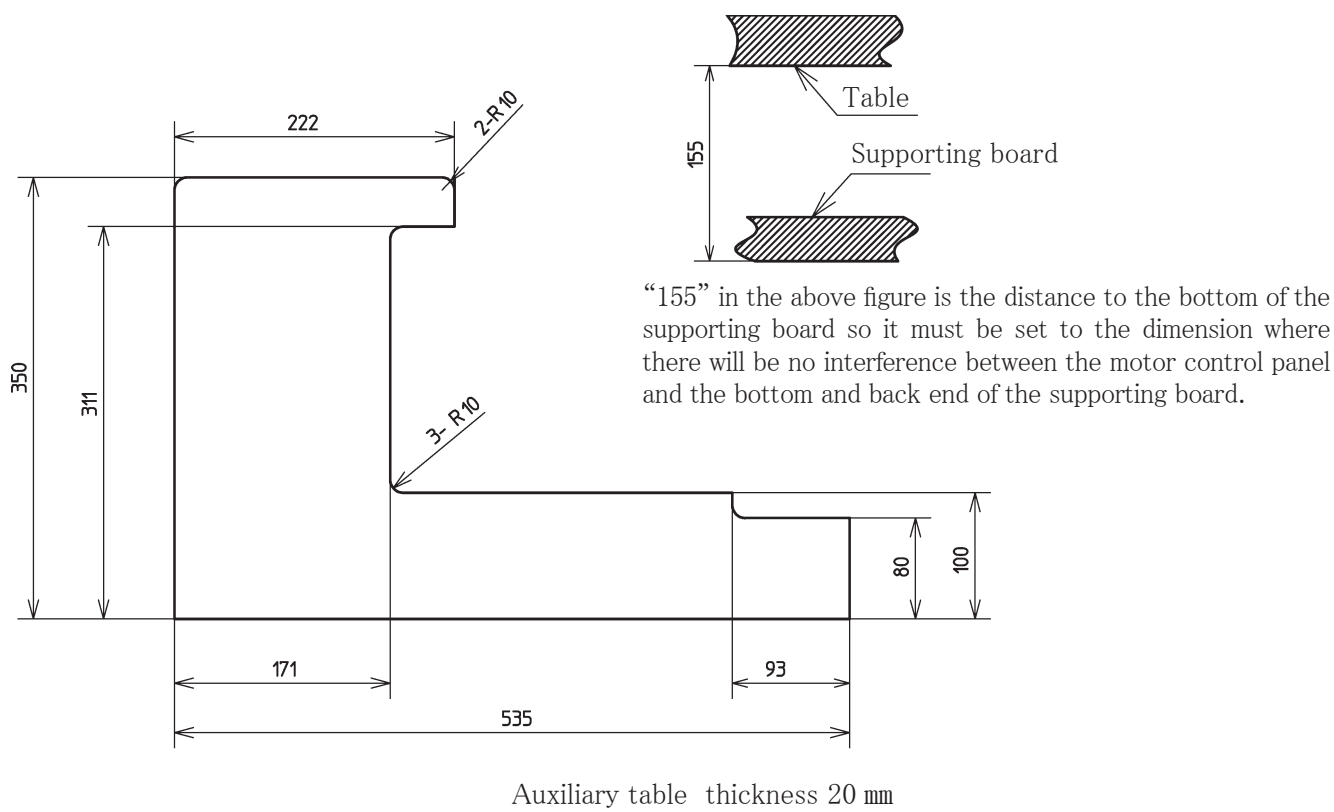


Fig. 2-9

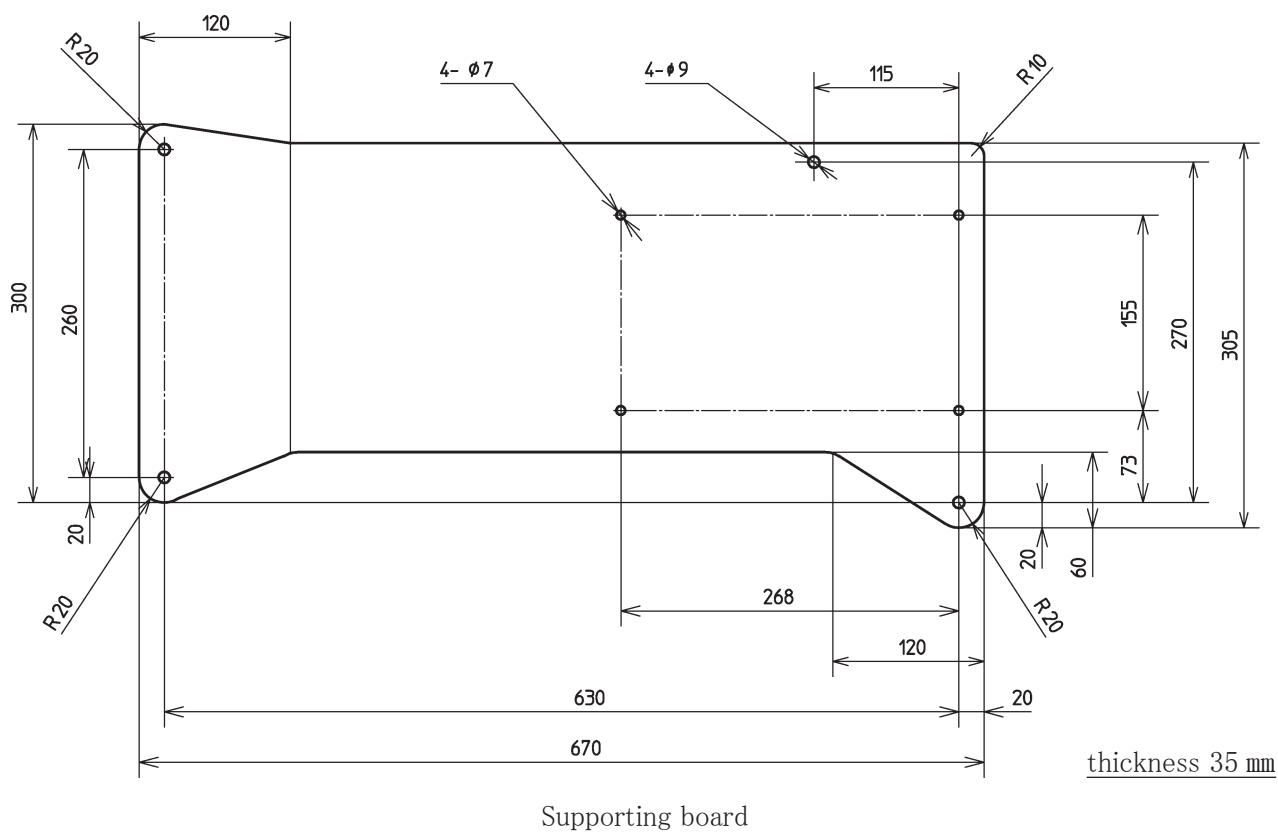


Fig. 2-10

2.2.2 Installation

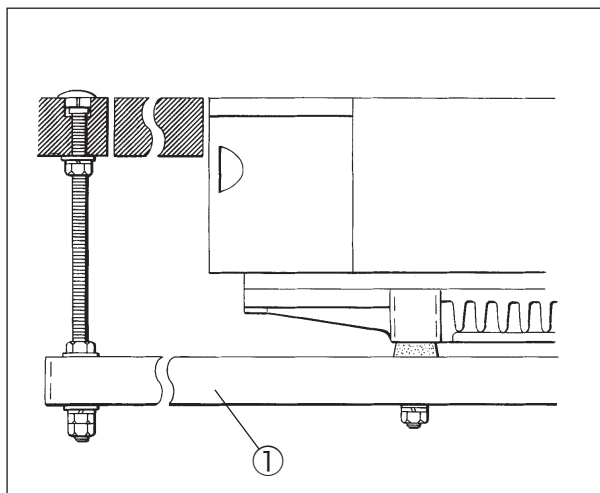


Fig. 2-11

Install a machine correctly referring to Figs. 2-11 and 2-12.

Set the screws ② in the supporting board ① and cover the screws ② with the rubber cushions ③. Fix the the supporting board ① to the machine table and install a machine securely on the rubber cushions ③.

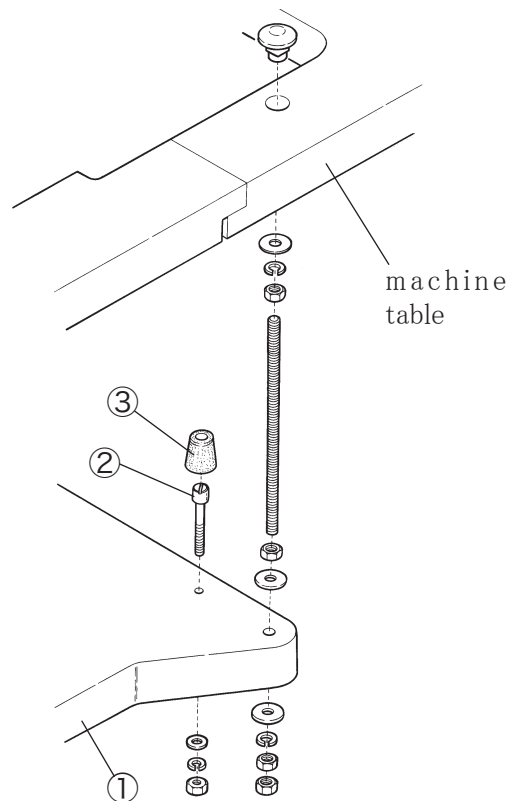


Fig. 2-12

2. Installation

2.3 Motor, pulley and belt

See the instruction manual for the motor used and install the motor properly.

Clutch motor:

To install the clutch motor, align the center of the machine pulley with that of the motor pulley when the motor pulley shifts to the left while toeing down the pedal.

Note: Table 2 shows the outside diameter of the motor pulley, rpm of the machine, and size of the belt when using a clutch motor of 3-phase, 2-pole, 550 W (3/4 HP).

The outside diameter on the table shows the nearest size to the calculated values based on the commercial available pulleys at intervals of 5 mm .

CAUTION

Use only those motor pulleys applicable to the machine. If not applicable, the sewing machine will be over maximum and it can cause the damage to the machine.

Servomotor:

Use a servomotor with 500 W or more.

Calculate the outside diameter of a motor pulley from the formula as below.

Or see Table 3 to select a proper motor pulley.

$$\text{Outside diameter of motor pulley} = \frac{\text{Usual sewing speed}}{\text{Servomotor speed}} \times 58 + 5 \text{ mm}$$

Belt

Use an M type V-belt.

See Table 2 for belt size.

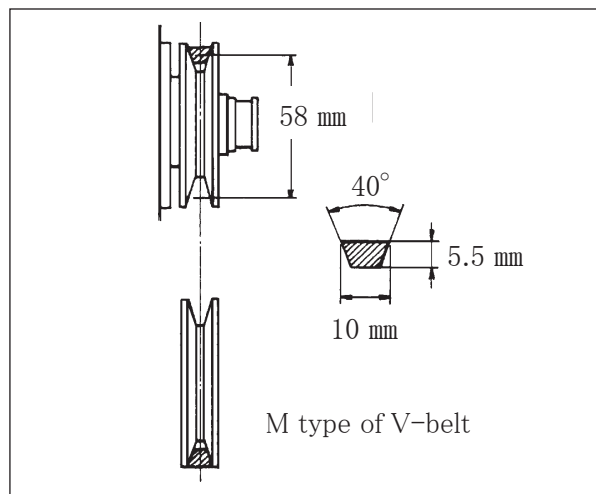


Fig. 2-13

Outside diameter of pulley (mm)	Sewing speed of machine (sti/min)		Size of belt	
	50 H z	60 H z	Semi-submerged	Fully-submerged
45		2550	M31	M32
50		2800	M31	M32
55	2600	3100	M31	M32
60	2850	3400	M32	M33
65	3100	3650	M32	M33
70	3300	3950	M32	M33
75	3550		M33	M34
80	3800		M33	M34

Table 2

Sewing speed of machine (sti/min)	Outside diameter of motor pulley (mm)	
	rpm of servomotor	
	3000 rpm	3600 rpm
2700	57	49
3000	63	53
3200	67	57
3500	73	61
3700	77	65
4000	82	69

Table 3

2.4 Hanging belt

⚠ CAUTION

Before hanging belt, ALWAYS turn the power switch OFF and check that the machine has already stopped.

Use the M-type of V-belt.

- (1) Hang the belt ① on the machine pulley ②, and then on the motor pulley ③ while rotating the machine pulley.
- (2) Adjust the belt tension so that the belt has a slack of 10 – 20 mm when its center is pushed with 10 N.
- (3) Lock the motor with the adjusting bar ④.

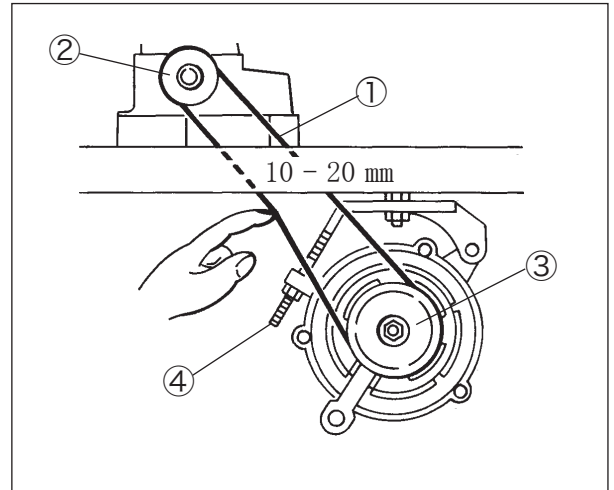


Fig. 2-14

2.5 Belt cover

Set the belt cover ⑤. (Fig. 2-15)

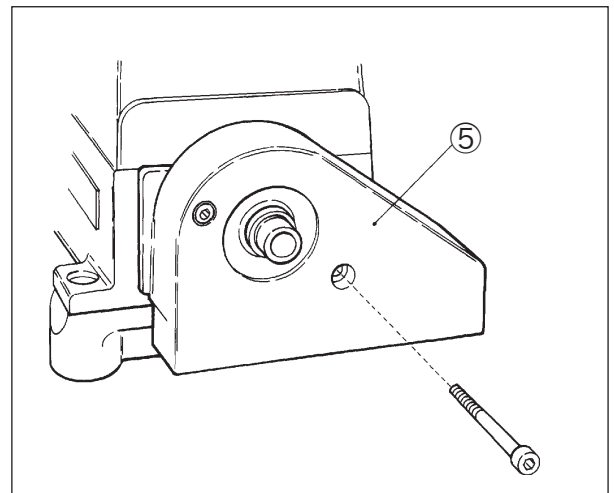



Fig. 2-15

2.6 Thread guide plate

- (1) Put the screws ⑥ into the hole  of the thread guide plate ⑦ and push it to the left.
- (2) Fix the thread guide plate ⑦ with the screws ⑥ securely.

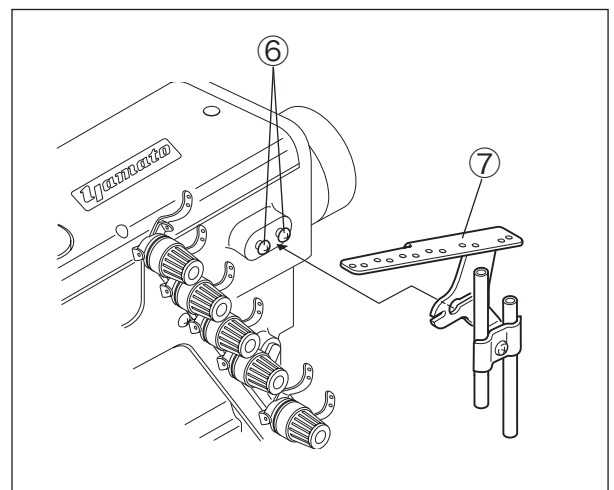
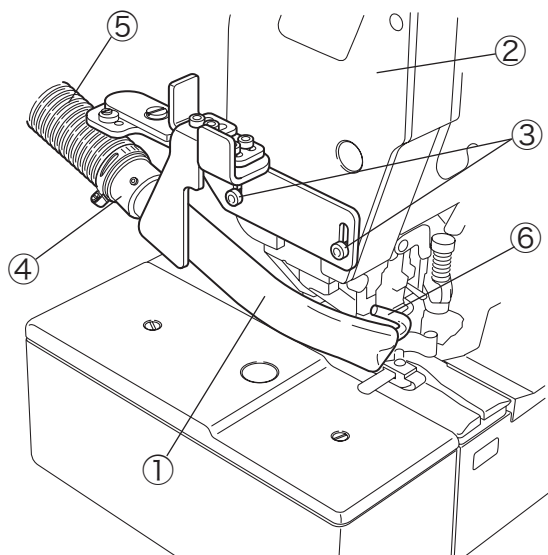


Fig. 2-16

2.7 Installing SC30 device

- (1) Install the 30 device ① on the head cover ② with the screws ③ .
- (2) Connect the dust hose ⑤ to the suction pipe ④ .
- (3) When using an air compressor, connect the air tube to the nozzle ⑥ at the end of the suction pipe.

Make separate arrangements to provide the dust bag, air regulator, air valve and other parts.



3. Sewing speed and rotating direction of pulley

The maximum sewing speed is 4000 sti/min and usually sewing speed is 3500 sti/min.

Run a new machine at speed about 15 – 20% lower than maximum speed during the first 200 hours (for about one month) so that a machine can offer a long service life in good condition.

The rotating directions of the machine pulley ① and the handwheel ② are clockwise as shown in the figure.

CAUTION

If rotated in reverse direction, oil cannot be supplied properly. It can cause the damage to the machine.

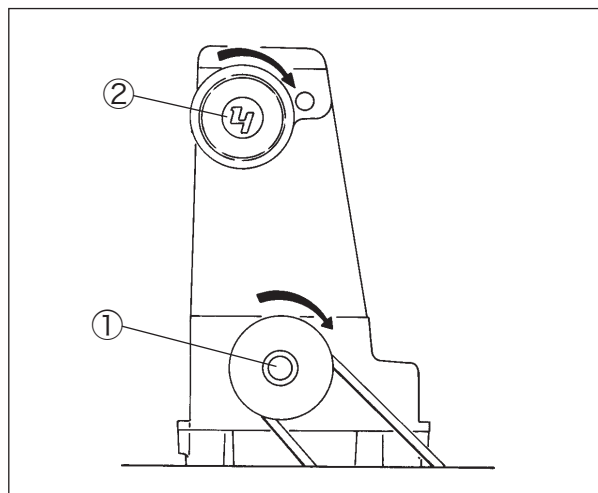


Fig. 3-1

4. Lubrication

⚠ CAUTION

Before lubricating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

4.1 Lubricating oil

Use YAMATO SF OIL No. 28.

⚠ CAUTION

Never add additives to the oil.

If added, it can cause the deterioration of the oil and the damage to the machine.

4.2 Lubricating

When using a new machine, or a machine which has not been run for a while, supply a few drops of oil to the needle bar ① .

Remove the seal plug ② indicated “OIL-IN” and supply oil to the upper line of the oil sight gauge ④ .

Check that oil splashes from the nozzle inside the oil sight window ③ while running a machine.

If oil does not splash from the nozzle, see “4.4 Checking and replacing oil filter” on page 13.

⚠ CAUTION

Too much or insufficient oil can cause oil leakage and machine trouble. Be sure to keep the oil level between the lines. Also too much lubrication can cause the oil scatter and material stain.

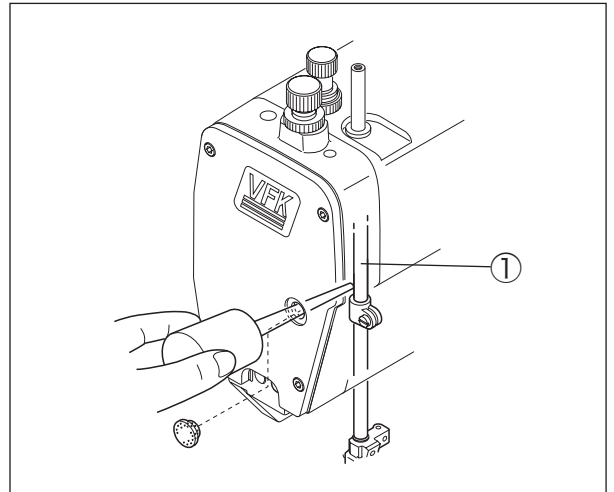


Fig. 4-1

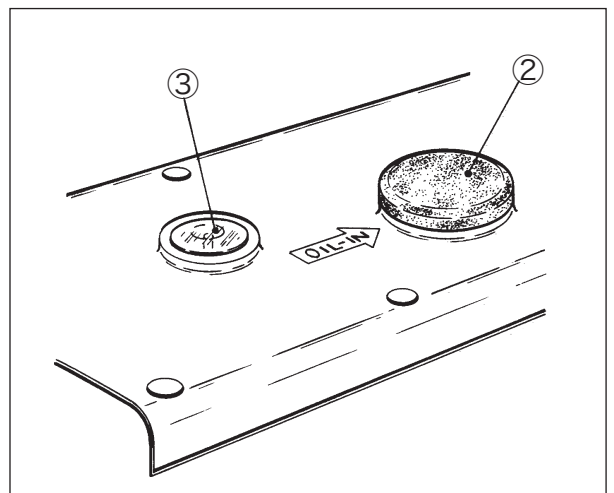


Fig. 4-2

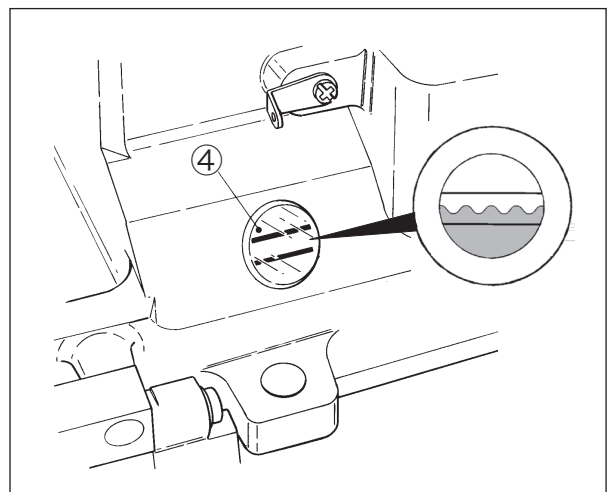


Fig. 4-3

⚠ CAUTION

Before lubricating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

4.3 Changing oil

Period of changing:

When using a new machine, change the lubricating oil after running a machine for 200 hours (for about one month). After that, change the oil once or twice a year.

Procedure for changing:

- (1) Remove the belt cover. (page 9)
- (2) Remove V-belt from the motor pulley. (page 9)
- (3) Remove the machine from the machine table.
- (4) Set a container received the oil under the screw ① .
- (5) After removing screw ① , oil is drained.

⊘ NOTE

Be careful not to soil the V-belt and the machine pulley with the oil.

- (6) Reset the screw ① .
- (7) Change the oil. (See “4.2 Lubricating” on page 12)
- (8) Reset the machine on the machine table.
- (9) Hang V-belt on the motor pulley and reset the belt cover. (page 9)

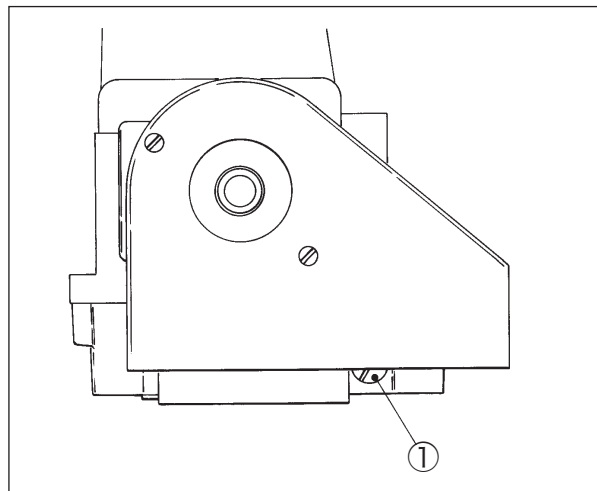


Fig. 4-4

4.4 Checking and replacing oil filter

- ◆ If the oil filter ② is clogged with dust, lubrication cannot be done properly.
- ◆ Remove the oil filter cap ③ and the oil filter ② to check them every six months. If clogged or cracked, clean or replace the oil filter.
- ◆ If oil is splashed from the nozzle insufficiently or includes many bubbles though the oil is sufficiently kept, check or replace the oil filter.

i NOTICE

Carefully check and replace them without spilling oil stagnant in the oil filter ② when loosening screw ④ .

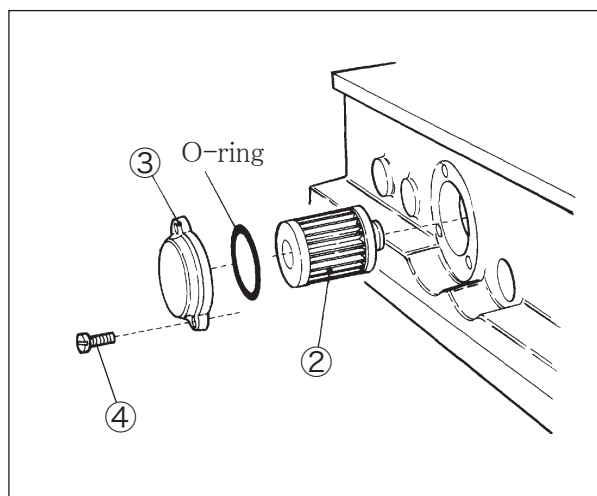


Fig. 4-5

5. Proper operation

5.1 Opening and closing covers



Front cover ①

Pull the top part of the right end toward you, and lower it forward.

Cam cover ②

Pull the left end toward you, and turn it to the right.

Side cover ③

Push the right end to the left, and turn it to the left.

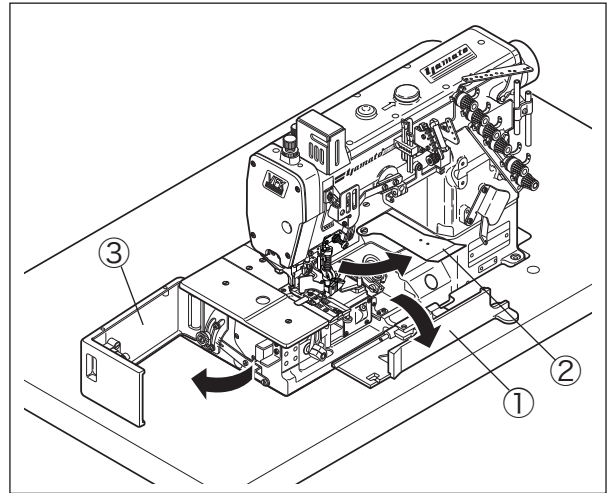


Fig. 5-1

5.1.1 Semi-submerged type table + supplementary table



Pull the supplementary table ④ toward you, and remove it.
Turn the supplementary table stays ⑤ to the left.
(The side cover ③ will now open sufficiently.)
Open the covers.

⚠ CAUTION



To prevent the supplementary table from overturning, first return the supplementary table stays ⑤ to their original position, and then return the supplementary table ④ to its original position.

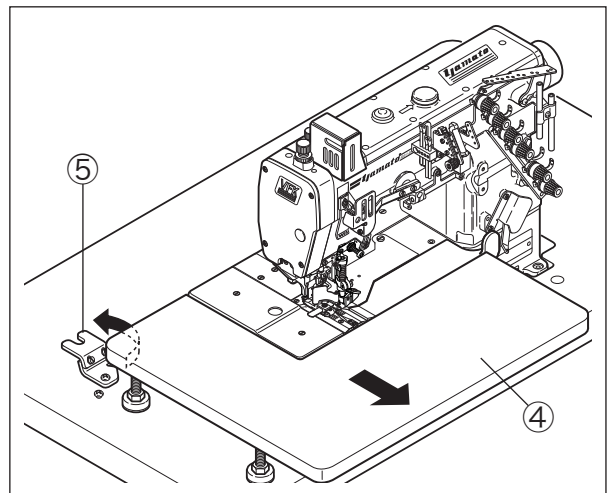


Fig. 5-2

5.1.2 Full-submerged type table



Lift the auxiliary table ⑥, and remove it.
Open the covers.

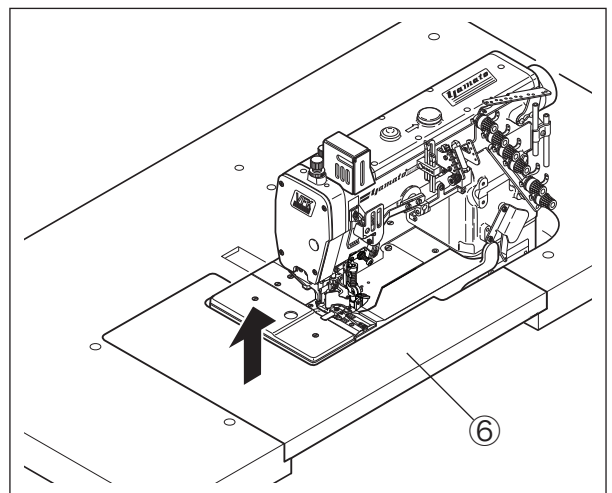


Fig. 5-3

5.2 Needle system

Use MY × 1014H SAN10.

Select a proper needle in size depending on the thickness and type of fabric.

The MY × 1014H SAN10 needles are also used as the retainer.

Japanese standard	9	10	11
Metric standard	65	70	75

Table 4

5.3 Installing needles



⚠ CAUTION

Before installing, ALWAYS turn the power switch OFF and check that the machine has already stopped.

- (1) Loosen the screws ① with a screwdriver. (Fig. 5-4)
- (2) Remove an old needle with a pair of tweezers.
- (3) Insert a new needle into the needle clamp ② as far as it will go with facing its scarf to the right back. (Figs. 5-5 and 5-6)
- (4) Tighten the screws ① with a screwdriver.

- ❗ **Retainer is not used under the standard specifications.**
Need more thread than standard, use retainer.

! NOTE

Tighten the screws ① with a tightening torque of 0.6 N·m

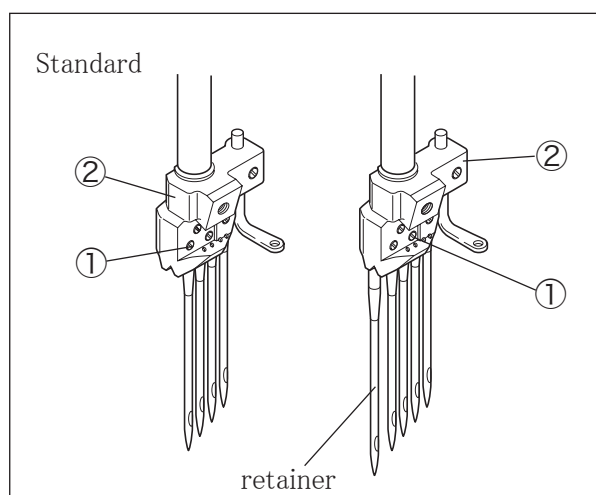


Fig. 5-4

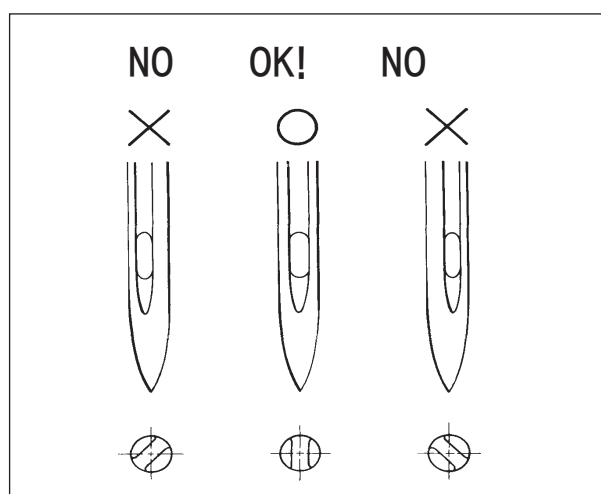


Fig. 5-5

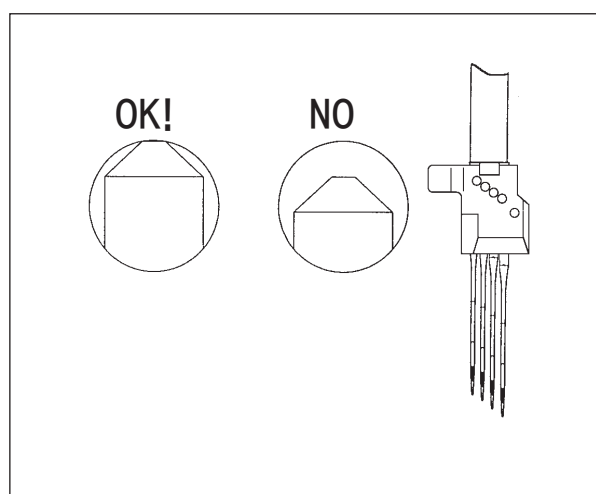


Fig. 5-6

5.4 Threading



When threaded, rethread after knotting preset threads.

When not threaded, thread correctly as shown in Fig. 5-7.

Incorrect threading can cause skip stitch, thread breakage, or uneven seam.

A, B, C, D: Needle thread E: Top cover thread F: Looper thread

Needle thread

Pull out the thread until it is in front of the needles. Then, cut off the knots before needle eye to rethread.

Thread correctly for the left needle in the inmost position as shown in the figure.

Looper thread and top cover thread

Pull the thread until the knot is out. Then, cut off the knot.

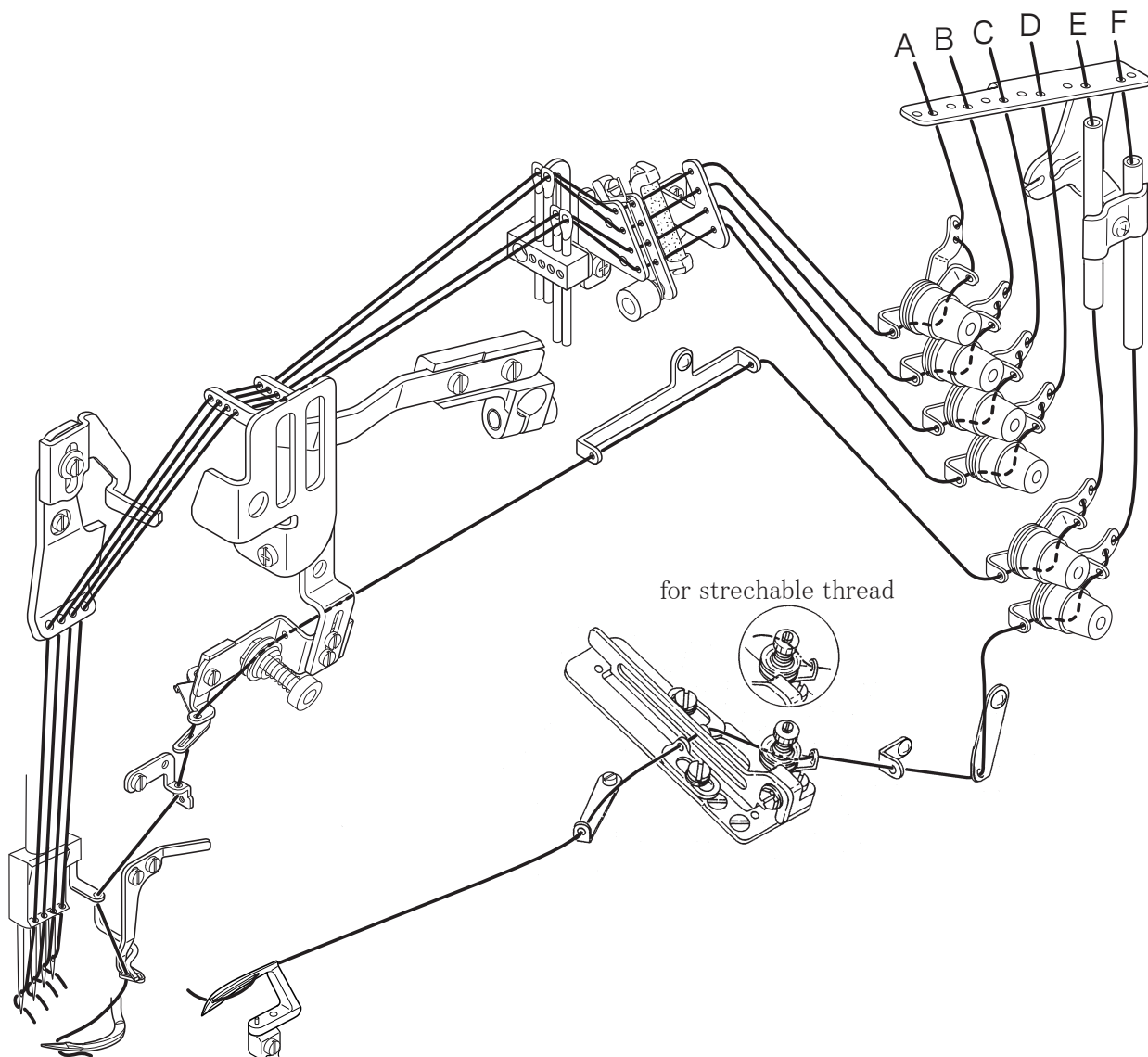


Fig. 5-7

5.5 Adjusting thread tension



Adjust the thread tension with the thread tension spring caps ① depending on fabric type, thread type, seam width, stitch length, and other sewing conditions.

- To tighten the thread tension, turn them clockwise.
- To loosen the thread tension, turn them counterclockwise.

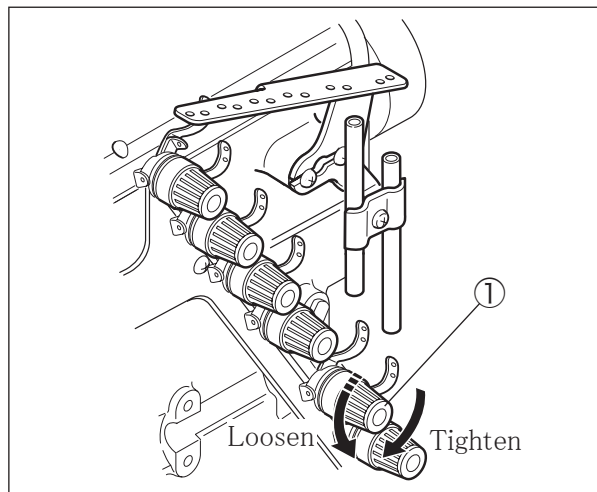


Fig. 5-8

5.6 Pressure of presser foot



Loosen the lock nut ② and adjust the pressure of the presser foot by turning the adjusting screw ③.

- To increase the pressure, turn it clockwise.
- To decrease the pressure, turn it counterclockwise.

Keep the pressure as low as possible for stable sewing performance.

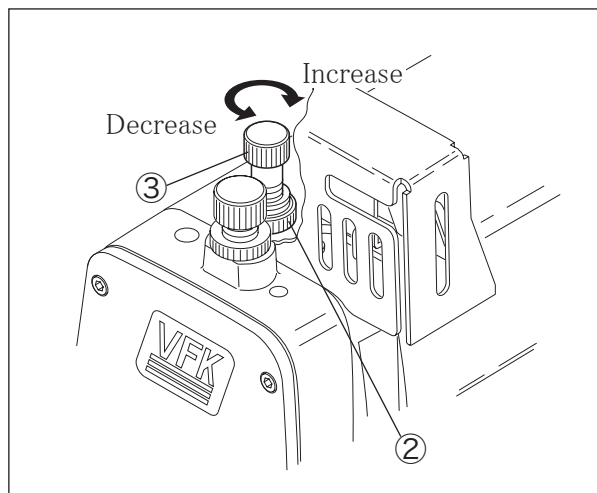


Fig. 5-9

5.7 Up-and-down position of presser foot



Following effective points will be obtained by slightly raising the presser foot.

- Prevention of fabric jam
- Prevention of feed scratch mark
- Improvement of durability of presser foot spring plate
- Reduction of vibration and noise
- Available for fine adjustment of lapped fabric width

Adjusting:

Adjust the clearance between the presser foot spring plate ③ and the bottom of the presser foot ④. The clearance which was set at shipment is 0.3 mm.

To adjust, loosen the lock nut ①, and turn the adjusting screw ②.

- To lower the pressure, turn it clockwise.
- To raise the pressure, turn it counterclockwise.

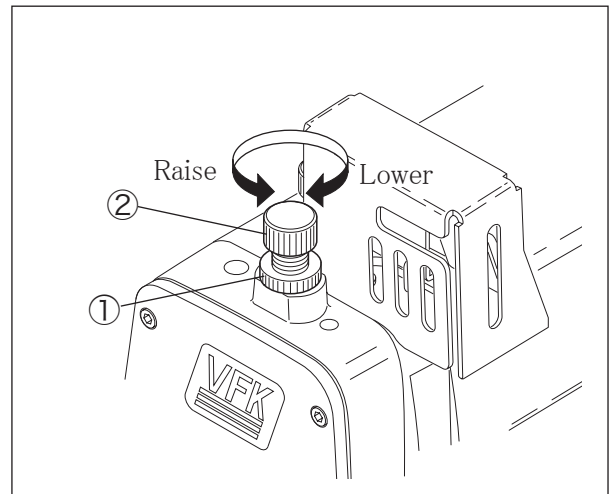


Fig. 5-10

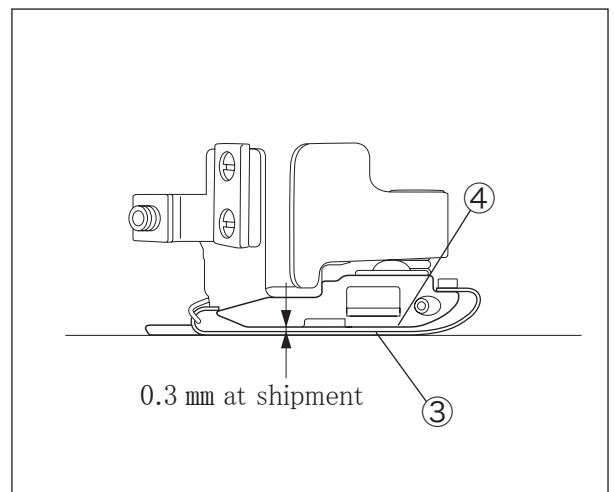


Fig. 5-11

5.8 Adjusting differential feed dog



(1) Normal differential feed (gathering)

Loosen the nut ① and move the differential lever(left) ② up or down to set it at the desired position. Tighten the nut ① securely.

When the differential lever(left) is set at graduation (Long) ③, the ratio of main feed to differential feed is 1 : 1.

To obtain normal differential feed, raise the differential lever(left) above the graduation ③. The maximum ratio of main feed to differential feed is 1 : 2.

(2) Reverse differential feed (stretching)

To obtain reverse differential feed, lower the differential lever(left) below the graduation ③.

When it is set at "S", the ratio of main feed to differential feed is 1 : 0.6.

(3) Adjustment of differential feed during operation

To adjust differential feed during operation, connect the chain to the differential lever(left).

Fix stop ④ (2pcs.) at the desired position to set upper and lower limits between which the differential lever(left) is moved up and down.

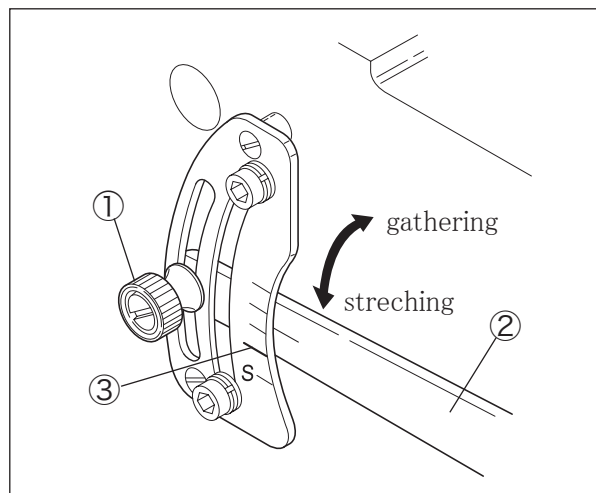


Fig. 5-12

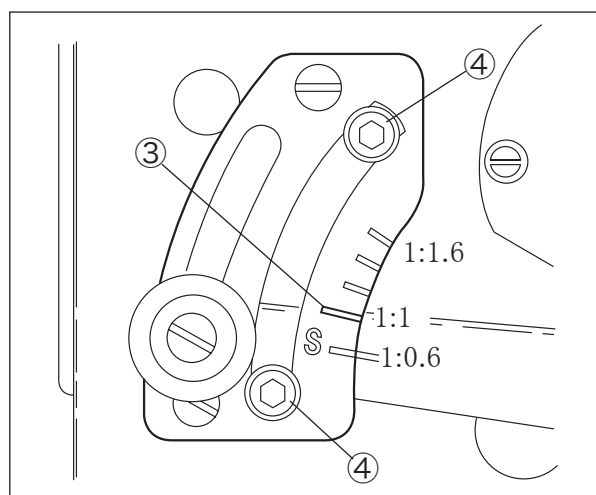


Fig. 5-13

The range for the differential ratio differs depending on the stitch length. Refer to Table 5.

Stitch length (mm)	Max. normal differential	Max. reverse differential
1.4	1:1.6	1:0.6
2.0	1:1.6	1:0.6
3.0	1:1.5	1:0.6
3.6	1:1.2	1:0.6

Table 5

5. Proper operation

CAUTION

Before operating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

5.9 Adjusting stitch length



Stitch length can be adjustable from 1.4 to 3.6 mm .

Table 6 shows the number of stitches per inch (25.4 mm) and 30 mm converted to the stitch length.

Stitch length (mm)	Number of stitch (per 1 inch) (25.4 mm)	Number of stitch (per 30 mm)
1.4	18.0	21
2.0	13.0	15
3.0	8.5	10
3.6	7.0	18

Table 6

Each graduation on the machine pulley indicates the length (mm) for one stitch.

After sewing, the actual stitch length has difference from the length on graduation. It depends on the application, a type and a thickness of fabric, or the differential ratio.

- (1) Rotate the pulley while the pushing pushbutton ① . At the point as far as it will go, again push it securely.
- (2) With keeping that, align desired graduation of the pulley with the mark ② on the machine.
- (3) Release the pushbutton ① .

- To decrease stitch length, turn the pulley in the direction “S” .
- To increase stitch length, turn the pulley in the direction “L” .

CAUTION

Check that push button is released completely and the pulley rotates smoothly.

Pushbutton stop:

Use the pushbutton stop ④ to keep the stitch length to be set.

Loosen the screws ③ to raise the pushbutton stop ④ .

After setting it under the pushbutton, tighten the screws ③ securely.

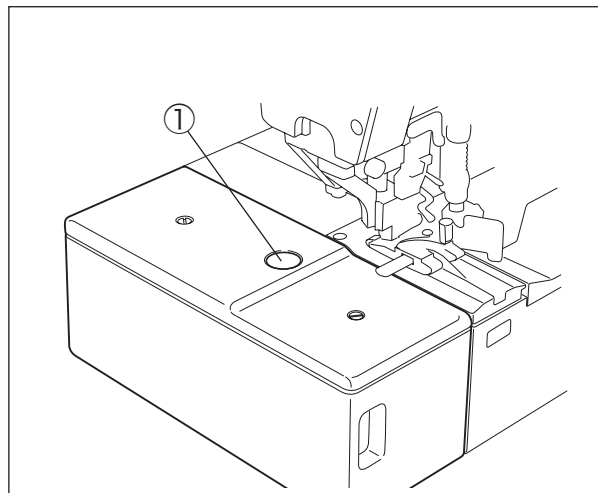


Fig. 5-14

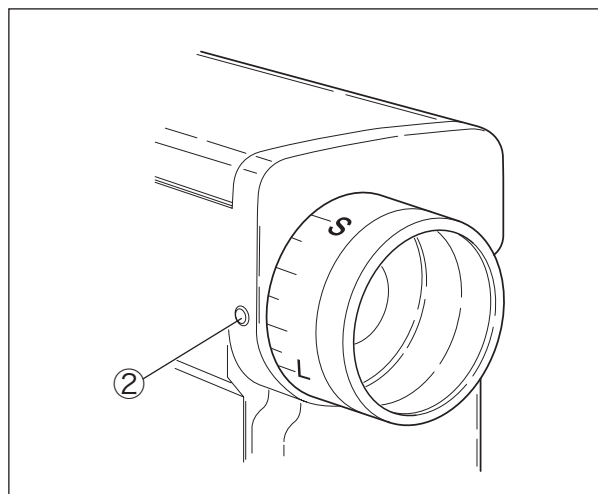


Fig. 5-15

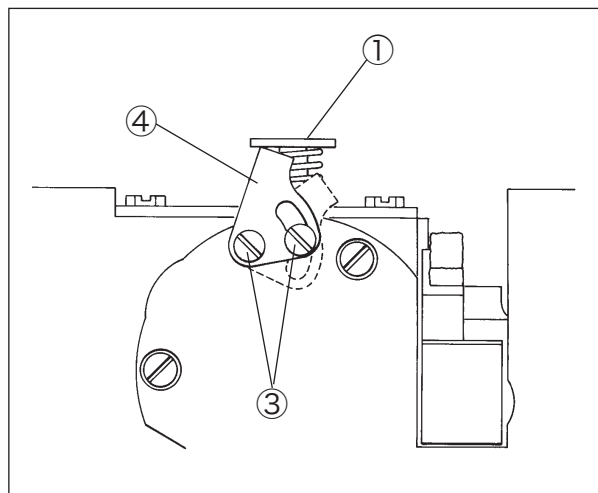


Fig. 5-16

⚠ CAUTION

Before operating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

5.10 Height of lower knife

The lower knife height is adjusted after loosening the screw ①. Adjust this height to suit the amount of overlap in the fabric.

When the lower knife is raised, the fabric overlap increases.

When the lower knife is lowered, the fabric overlap decreases.

! ATTENTION

Check that the tip of the upper knife does not touch the presser foot.

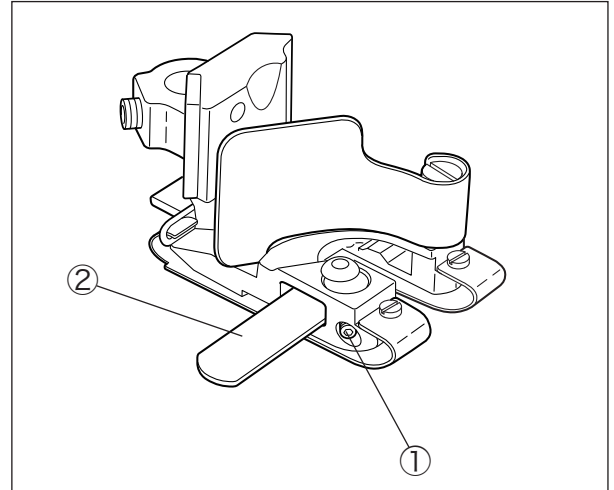


Fig. 5-17

5.11 Use of lap former



Right-and-left position:

In the standard position, the tip of the lap former ③ is aligned with the center point of the four needles.

According to the right-and-left fabric overlap or feed condition, adjust the right-and-left position. Loosen the screws ⑥ to make this adjustment.

- When the position is moved toward the left, the upper fabric overlap increases, and the lower fabric decreases.
- When the position is moved toward the right, the upper fabric overlap decreases, and the lower fabric increases.

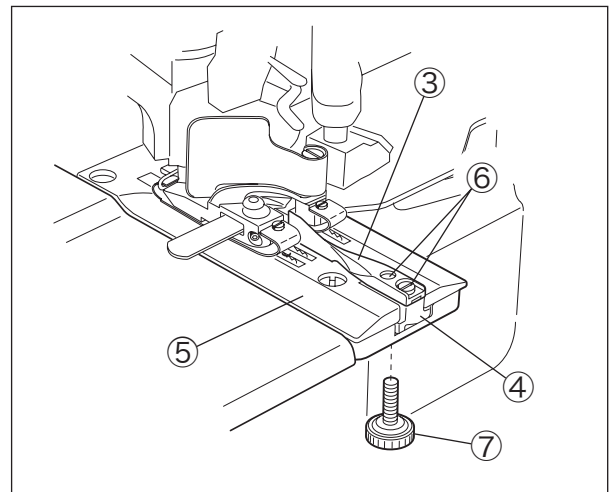


Fig. 5-18

Back-and forth position:

In the standard position, the lap former slide block ④ touches and stops at the stitch plate ⑤.

According to the fabric thickness, loosen the screw ⑦, and adjust the position slightly toward the operator.

⚠ CAUTION

Before operating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

5.12 Adjusting lapped width of upper fabric

For the standard position of the lower knife ①, make the distance between the lower knife ① tip and the part A of presser foot to 0.5 mm. (Fig. 5-19)

For the standard position of the upper knife ②, engage between the upper knife ② and lower knife ① to 0.5 mm when the upper knife ② is at the extreme left. (Fig. 5-20)

The amount of the upper fabric overlap differs depending on the right-and-left position of the lower knife.

- When the lower knife is moved to the right, the upper fabric overlap decreases.
- When the lower knife is moved to the left, the upper fabric overlap increases.

Changing the position of the lower knife ①, the engagement of the upper knife ② is readjusted to 0.5 mm. (Fig. 5-20)

Loosen the screws ③ and ④ to adjust the lower and upper knives respectively. (Fig. 5-19 and 5-21)

ⓘ ADVICE

Increasing the amount of the upper fabric overlap too much may result in stitch skipping, stitching in place or fabric pinching.

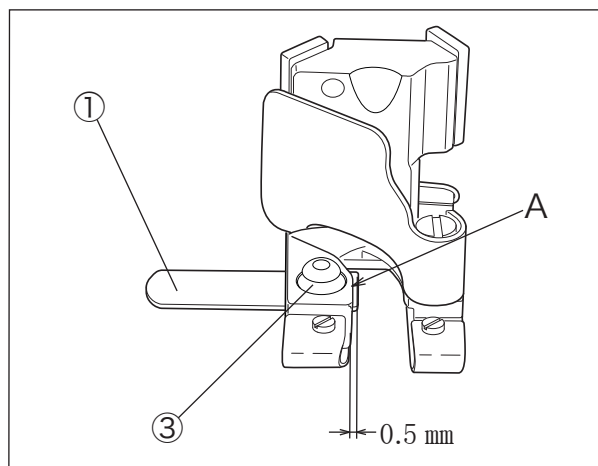


Fig. 5-19

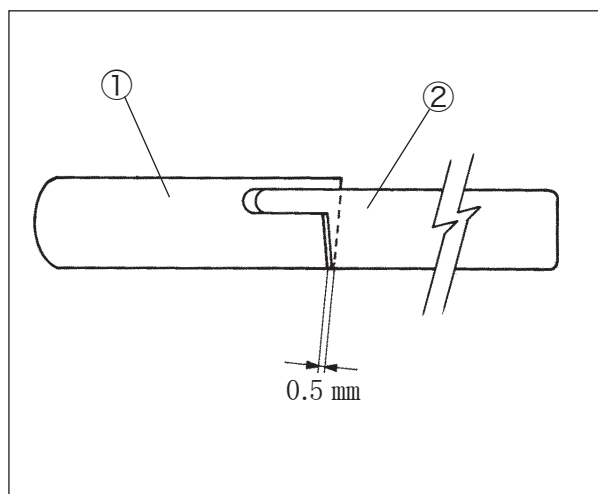


Fig. 5-20

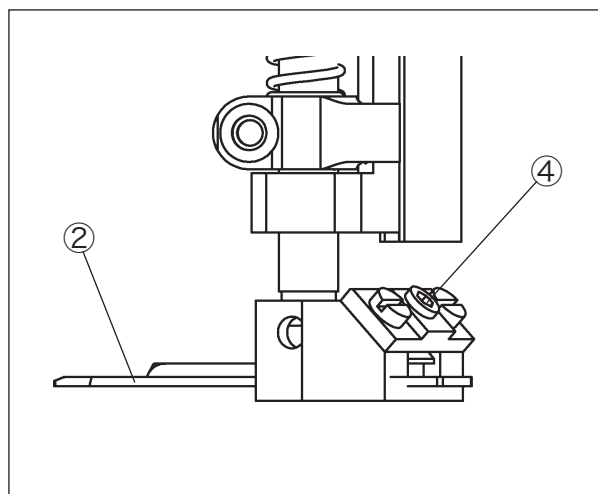


Fig. 5-21

⚠ CAUTION

Before operating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

5.13 Adjusting the fabric lapping (both-side fabric edge trimming)

Take the following steps to adjust the fabric lapping.

When the presser foot has not been removed or replaced, etc., skip steps (1) and (2), and start the procedure at step (3).

- (1) Check whether the side of the presser foot ① is parallel to the slots of the stitch plate ②. If adjustment is required, refer to “6.13 Replacing presser foot.”
- (2) Reduce the pressure of the presser foot to check whether the presser foot moves up and down smoothly and to check that there is no play at the left or right. If adjustment is required, refer to “6.13 Replacing presser foot.”
- (3) Adjust the differential feeding so that the fabric is sewn to be flat.
- (4) Adjust the lapped width of the upper fabric and lower fabric using the height of the lower knife. (Refer to “5.10 Height of lower knife.”)
- (5) Adjust the right and left position of the lower fabric using the right and left position of the lap former end. (Refer to “5.11 Use of lap former.”)
- (6) Adjust the right and left position of the upper fabric using the right and left position of the lower knife.

This adjustment also affects the position of the lower fabric so check the position of the lower fabric as well. (Refer to “5.12 Adjusting lapped width of upper fabric.”)

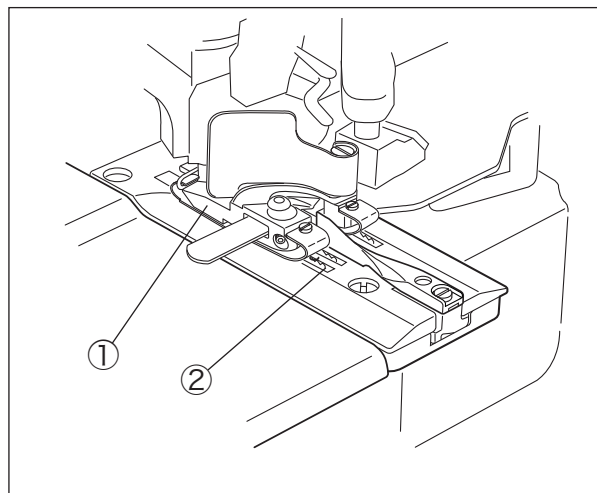


Fig. 5-22

i ADVICE

Start the adjustment procedure from a state in which there is a less amount of lapping between the lower and upper fabric.

Even when the amount of lapping between the lower and upper fabric is sufficient from the beginning, it is still hard to determine whether the lapping is appropriate or too much, and if the lapping is too much, fabric pinching and other problems will occur in the finishing.

5.14 Adjusting SC30 device

Top-and-bottom position

Use the screws ③ to adjust this position so that when the presser foot ① is raised, the presser foot ① and lower end of the suction pipe ② will not come into contact and the suction pipe ② will be at its lowest position.

Back-and forth, right-and-left positions

To ensure that the waste can be sucked up with as low a force as possible, bring the suction pipe ② as close to the presser foot ① as possible without touching it.

Use the screw ④⑤ (each 2 pcs.) to make this adjustment.

Suction force

Set to the lowest force with which the waste can be sucked up.

If the suction force is too high, the stitch finish will be uneven or the fabric overlap will be decreased.

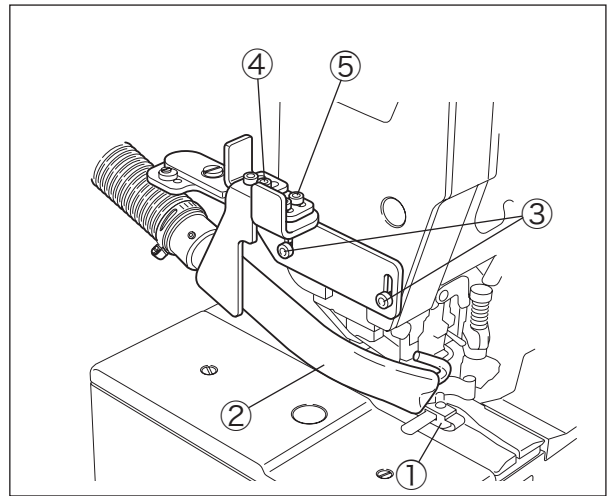


Fig. 5-23

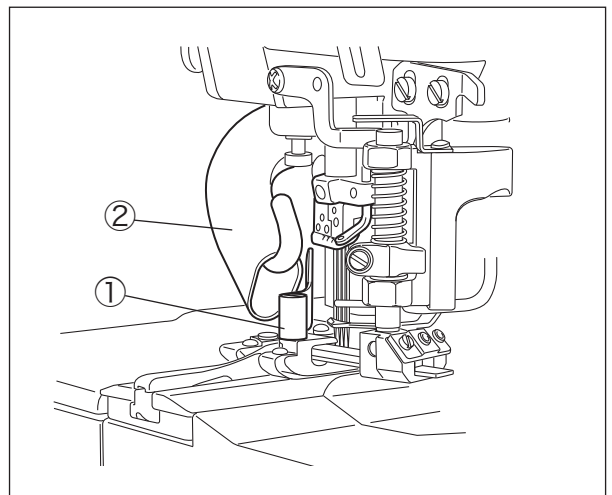


Fig. 5-24

5.15 HR device and SP device

Use SP device (needle thread oiling) and HR device (needle point cooling) as standard equipment to prevent thread breakage and skip stitch when running a machine at high speed or using synthetic thread and/or synthetic fabric.

Use dimethyl silicon oil.

Note: Check the oil amount after opening the oil container plug ① of HR device. If not enough, supply the oil. Check the oil amount in SP tank ②. If not enough, supply the oil into the hole ③.

⚠ CAUTION

1. When not using SP or HR device, remove the felt ④ or ⑤. If attached, it may occur irregular condition during sewing.
2. If silicone oil is attached to the parts other than SP and HR devices, it can cause the machine trouble. Be sure to wipe it away.

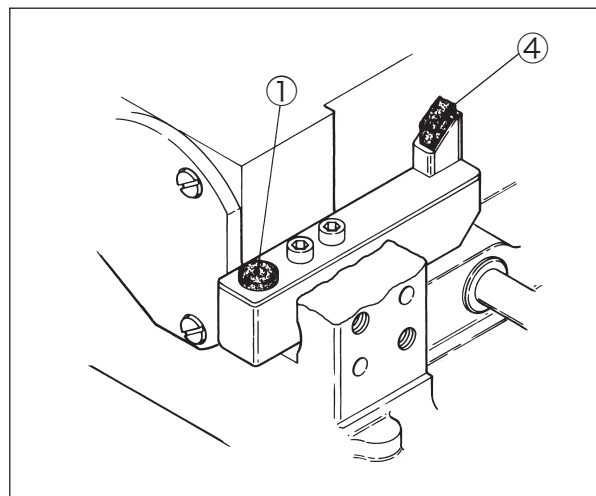


Fig. 5-25 HR device

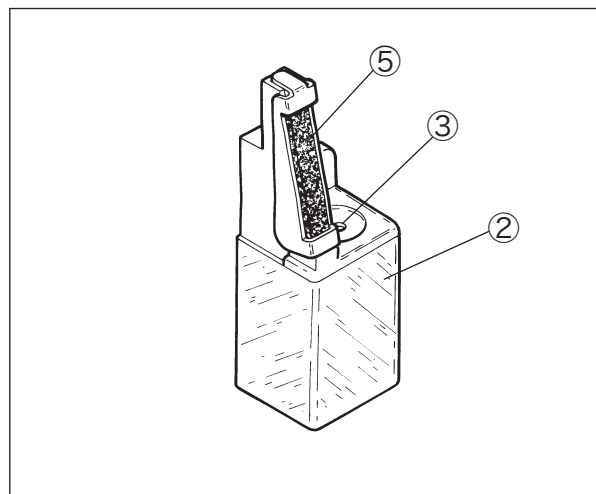


Fig. 5-26 SP device

5.16 Cleaning



⚠ CAUTION

Before operating, ALWAYS turn the power switch OFF and check that the machine has already stopped.

Clean waste thread and dust inside the machine at the end of work a day.

Clean the grooves in the stitch plate, feed dog area, and looper thread take-up area once a week.

⚠ CAUTION

Clogged dust can cause breakage to parts and oil leakage.

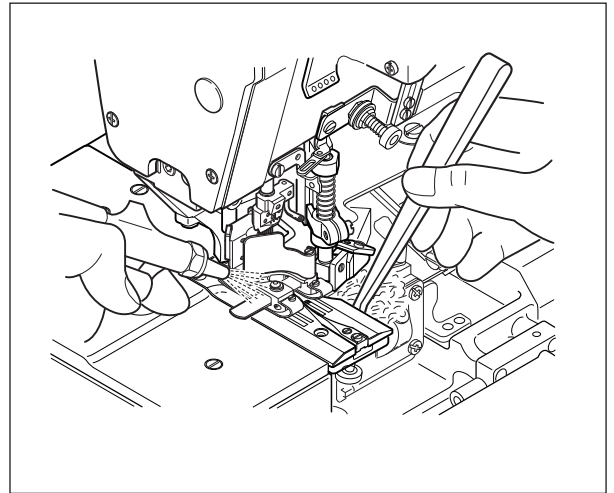


Fig. 5-27

Checking of the machine at the sewing factory (by maintenance of technician)

Daily maintenance:

- (1) Before operating, remove the machine cover and re-thread correctly without slacking.
Check that the thread hanger is right above the soopl seat discs of the thread stands (the thread stands should be fixed securely).
- (2) Check the lubricating and silicone oil amount. Supply them if necessary.
- (3) Check the order of threading.
- (4) Check the bend of needles, damage to tips, and the setting positions respectively.
- (5) Check the sharpness of knives.
- (6) Check the seam by testing sewing of fabric.
 - ◆ stitch length, differential feeding
 - ◆ adjusting knives and thread tension

Weekly maintenance:

- (1) On weekends, clean the machine carefully by removing the presser foot and the stitch plate.
- (2) Check the tension of V-belt.
- (3) Replenish the lubricating oil.

6. Adjustments

⚠ CAUTION

Before adjusting, ALWAYS turn the power switch OFF and check that the machine has already stopped.

6.1 Needle thread tension

As standard, set the part “a” of needle thread take-up ① to be horizontal when the needle bar is at its lowest point.

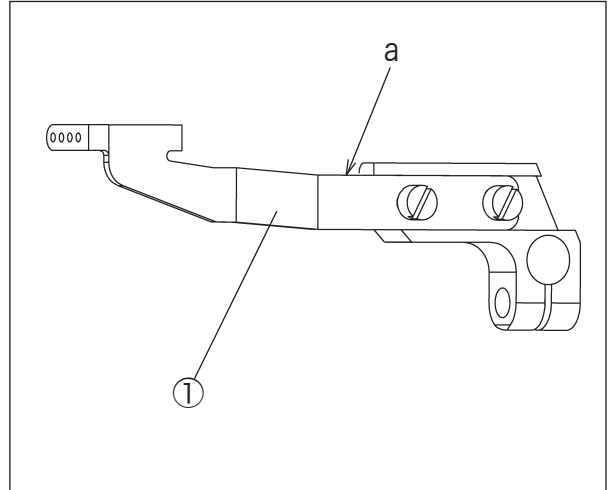


Fig. 6-1

To adjust the needle thread tension by adjusting each needle thread, move the needle thread eyelets ②.

- When the needle thread eyelets ② is moved toward “T,” the needle thread is tightened.
- When the needle thread eyelets ② is moved toward “L,” the needle thread is loosened.

The standard positions of the needle thread eyelets ② are as follows:

Left needle:	35 mm
Left inside needle:	35 mm
Right inside needle:	25 mm
Right needle:	25 mm

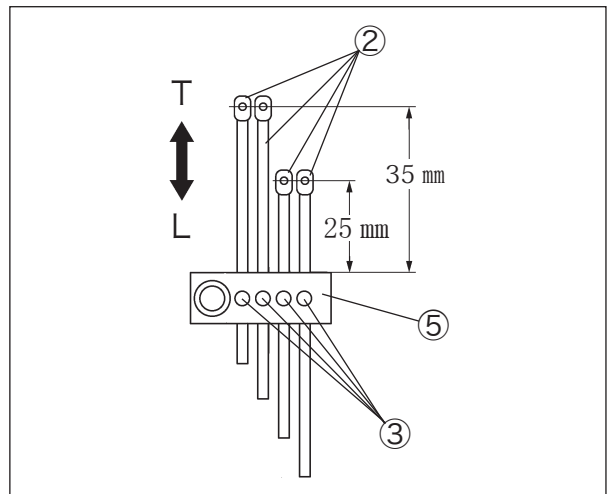


Fig. 6-2

Adjust the positions using the screws ③.

Move the needle thread eyelet holder ③, loosen the screws ④ and adjust the needle thread tension.

- When the holder ③ is moved toward “T,” the needle thread is tightened.
- When the holder ③ is moved toward “L,” the needle thread is loosened.

The standard position of the needle thread eyelet holder ⑤ is where the bottom end of the needle thread eyelet holder plate ⑥ and bottom end of the tension post support ⑦ are aligned.

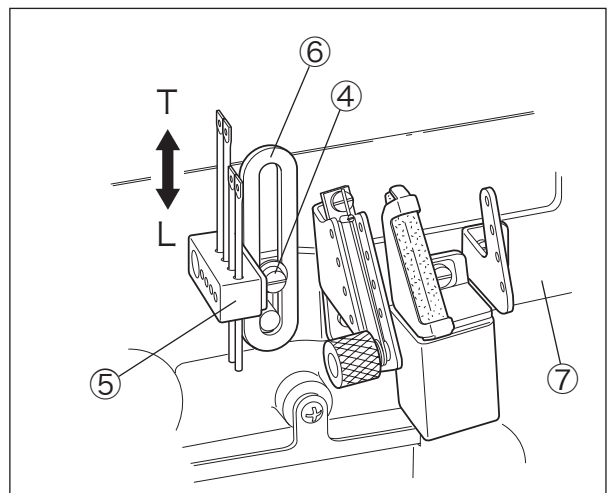


Fig. 6-3

6. Adjustments

Needle thread guide:

Make the distance between the center of the eye in the needle thread take-up ② and the top of the needle thread guide ① to 1.0 mm when the needle thread take-up ② is at the lowest point as standard.

Loosen the screw ③ to adjust it ①.

- To make the needle thread loop larger or when using stretchable thread, raise the needle thread guide ①.
- To make the loop smaller, lower the needle thread guide ①.

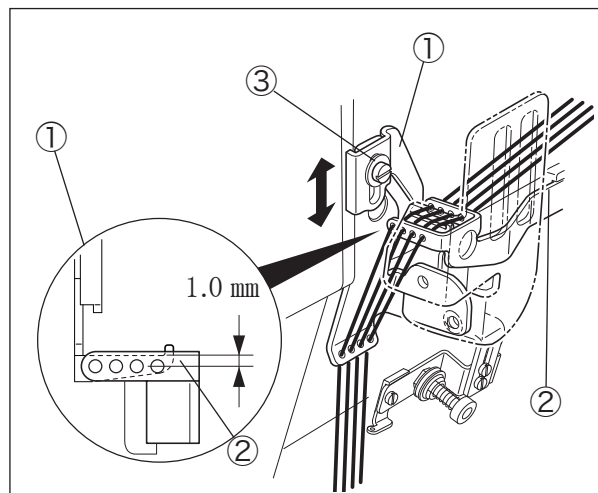


Fig. 6-4

6.2 Top cover thread tension

The standard position of the top cover thread eyelet (upper) ④ is the position where the top cover thread, which passes through the top cover thread eyelet (upper) ④ and top cover thread eyelet (lower) ⑥, touches the right edge of the slot of the top cover thread take-up ⑤ without bending when the top cover thread take-up ⑤ has reached the far right.

- When the top cover thread eyelet (upper) ④ is moved to the right, the take-up amount increases.
- When the top cover thread eyelet (upper) ④ is moved to the left, the take-up amount reduces.

Loosen the screw ⑦ to perform this adjustment.

The standard position of the top cover thread eyelet (upper) ④ is at its lowest position.

If the take-up amount is too much even after the above adjustment has been performed, raise the top cover thread eyelet (upper) ④.

Loosen the screw ⑧ to perform this adjustment.

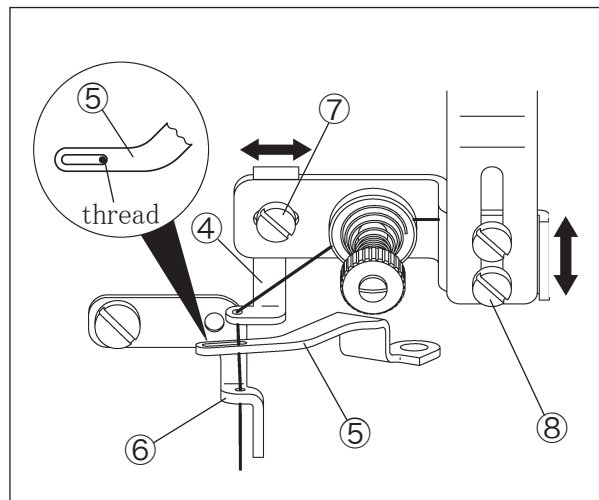


Fig. 6-5

6.3 Looper thread tension

6.3.1 Looper thread tension

The figures show the supporting plate.

Align the eyes of the thread take-up eyelets ③④ with mark ② of the cast-off plate ① as standard.

Loosen the screws ⑥ and move each eyelet ③④ to adjust it.

- To increase take-up amount, move the thread take-up eyelets forward.
- To decrease take-up amount, move the thread take-up eyelets backward.

ADVICE

Too much take-up of the looper thread can cause skip stitch.

For stretchable thread:

Move the thread take-up eyelets ③④ frontward fully and never thread it through the supplementary tension disc ⑤.

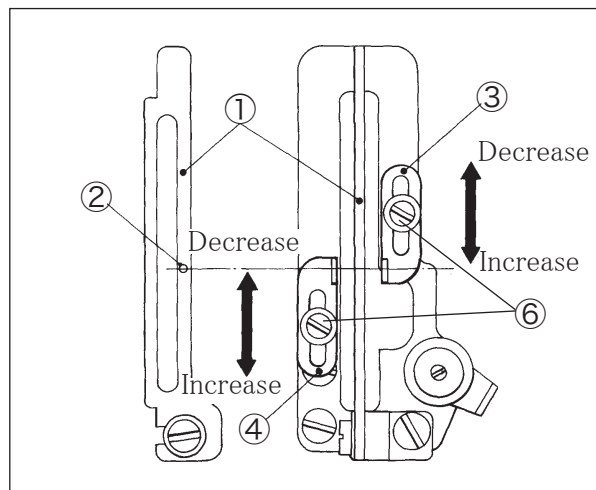


Fig. 6-6

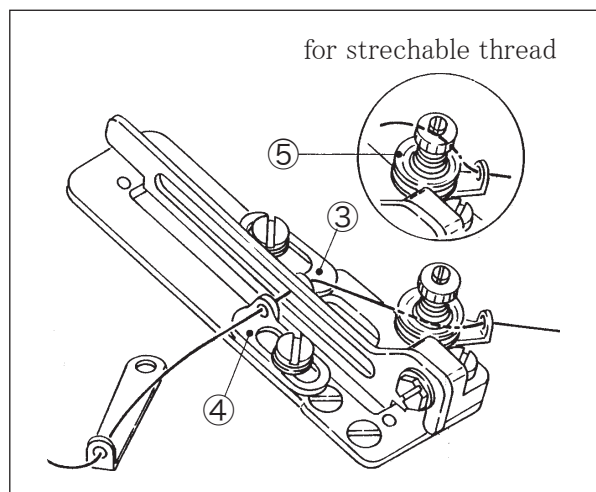


Fig. 6-7

6. Adjustments

6.3.2 Position of looper thread take-up

Fig. 6-8 shows the looper thread take-up ① seen from the needle bar side.

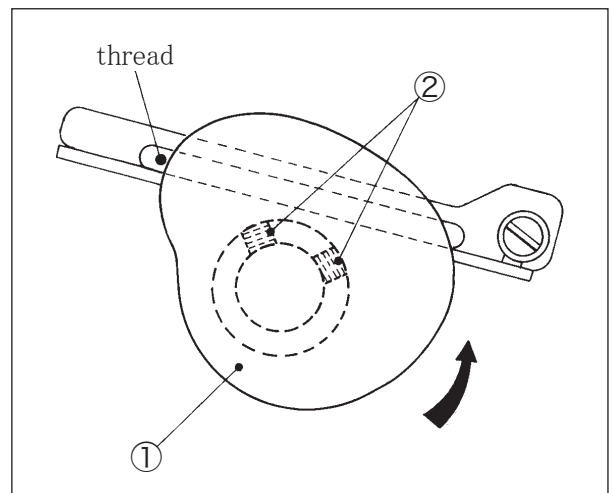


Fig. 6-8

Non-use of retainer (standard)

When the left needle ③ lowers from the highest point and meets a half of the looper ④, the thread comes off from the top of the looper thread take-up ①. Loosen the screws ② to adjust it.

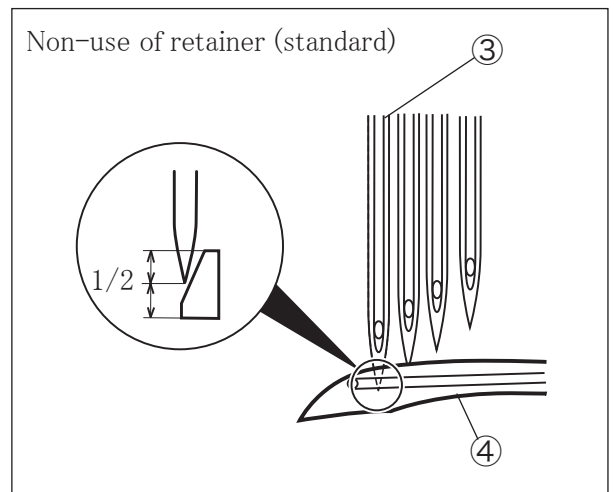


Fig. 6-9

Use of retainer

When the retainer ⑤ lowers from the highest point and meets a half of the looper ④, the thread comes off from the top of the looper thread take-up ①. Loosen the screws ② to adjust it.

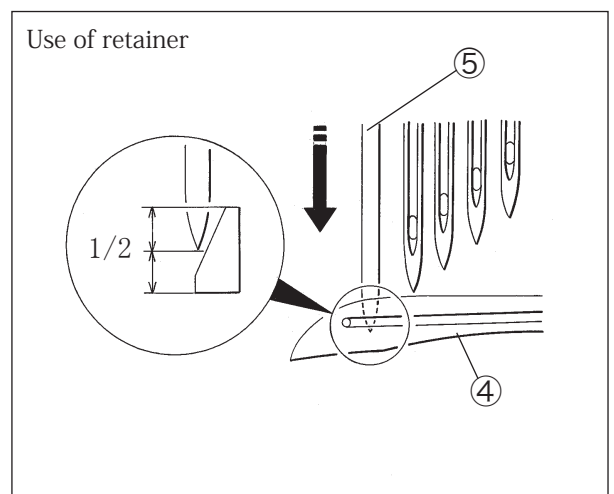


Fig. 6-10

6.4 Height of presser foot

Adjusting

- (1) Loosen the screws ② .
- (2) Push down the lifter lever ③ to make the height from the top of the stitch plate to the bottom of the presser foot to 5.0 mm .(from the top of the stitch plate to the bottom of the presser foot spring plate to 4.5 mm)
- (3) Touch the lifter lever stop ① to the pin ④ , then tighten the screws ② securely.

After adjusting, push down the lifter lever ③ fully to check the height of the presser foot.

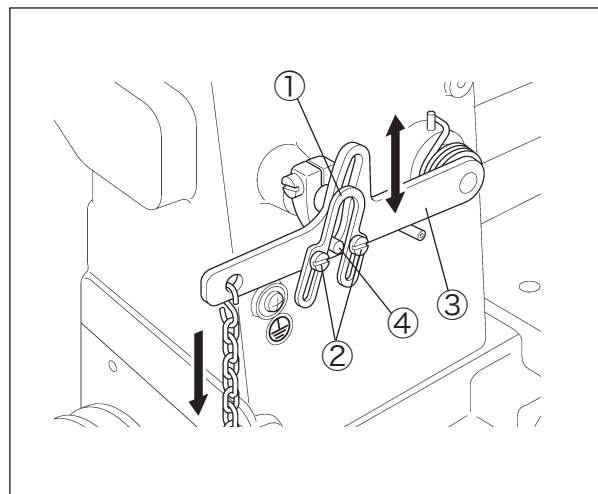


Fig. 6-11

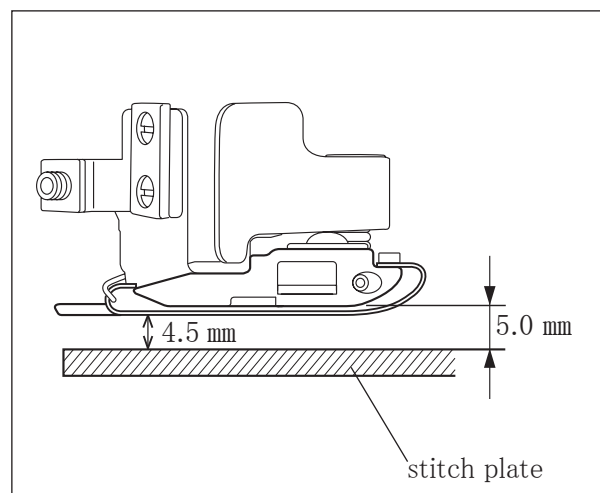


Fig. 6-12

6.5 Replacing presser foot spring plate

Removing:

- (1) Remove the screws ⑤ .
- (2) Remove the presser foot spring plates ⑥ from the presser foot.
- (3) Remove each plate ⑥ from the spring plate holder ⑦ .

Resetting:

- (1) Reset each presser foot spring plate ⑥ with the spring plate holder ⑦ .
- (2) Reset the plates ⑥ parallel each other on the side ⑧ of the presser foot.
- (3) Tighten the screws ⑤ securely.

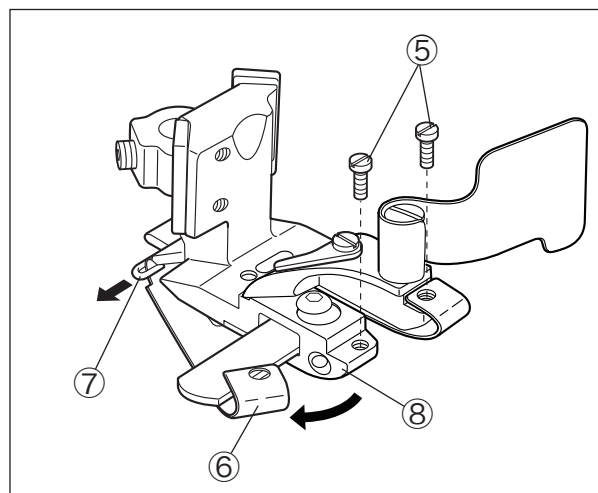


Fig. 6-13

6.6 Replacing and adjusting knives

Pressure of upper knife:

When the needle is at the highest point and the upper knife ① is at the extreme left, the presser foot touches the stitch plate, and the upper knife ① touches the lower knife ② closely.

The standard clearance between the bearing of the knife holder shank support ③ and the knife holder guide collar ④ is 1.0 mm .

Loosen the screw ⑤ and move the knife holder guide collar ④ to adjust the pressure.

- To increase the pressure, move the collar ④ upward.
- To decrease the pressure, move the collar ④ downward.

① NOTICE

Align the front sides of the upper ① and lower ② knives without touching the upper knife ① to the presser foot. After check them, fix the knife holder guide collar ④ with the screw.

Removing:

- (1) Loosen the screws ⑤ and ⑥ then remove the upper knife ① .
- (2) Loosen the screw ⑦ then remove the lower knife ② .

Resetting:

- (1) Reset the lower knife ② with the screw ⑦ .
- (2) Reset the upper knife ① with the screw ⑥ .
See “5.12 Adjusting lapped width of upper fabric” for engagement of the knives.
- (3) Adjust the knife holder guide collar ④ , referring to above “Pressure of upper knife” .

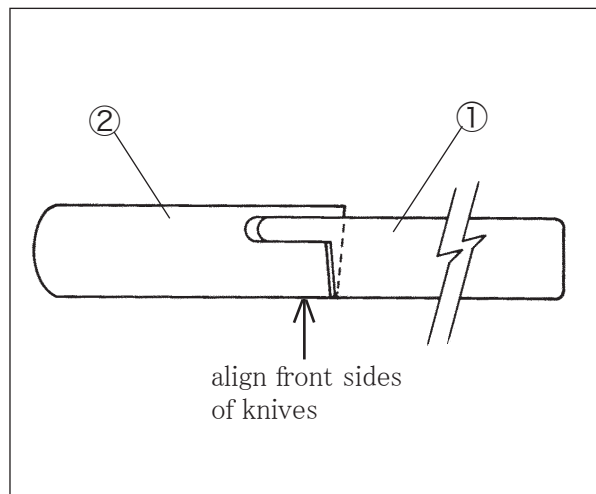


Fig. 6-14

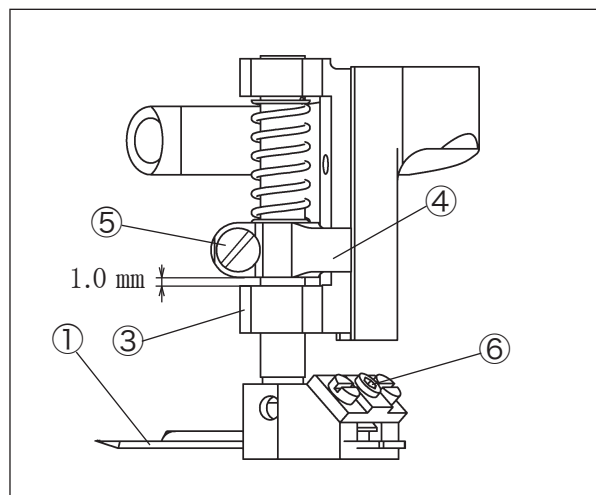


Fig. 6-15

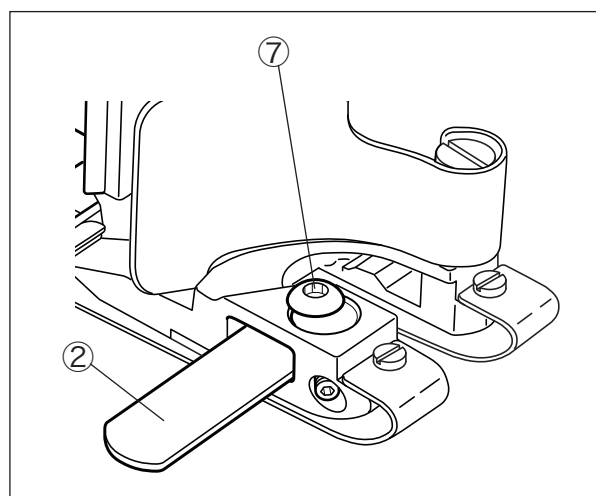


Fig. 6-16

6.7 Height of needle bar

Check points:

- ◇ Needles should be inserted fully into the needle holes of the needle clamp and fixed securely.

Adjusting:

- (1) Set the needle into the left needle installation hole of the needle clamp.
- (2) Remove the seal plug ①.
- (3) Loosen the screw ② and adjust the needle bar ③ in the vertical direction so that the tip of the left needle is the height “H” given in the table 7 from the stitch plate top surface.(Fig.6-17)
- (4) Check the needle drops in the center of the needle hole on the stitch plate, then tighten the screw ②.(Fig.6-19)
- (5) Reset the seal plug ①.

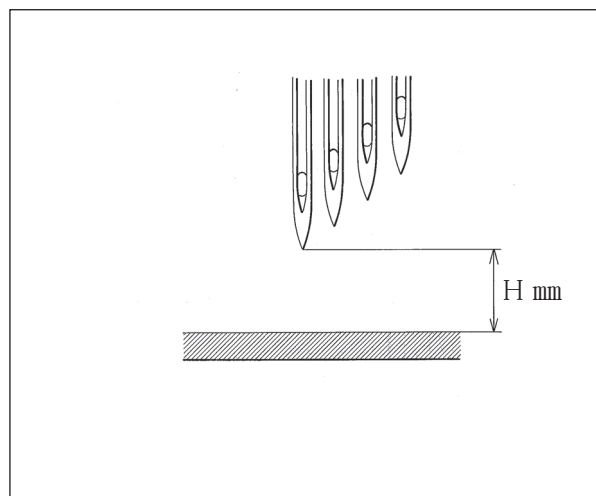


Fig. 6-17

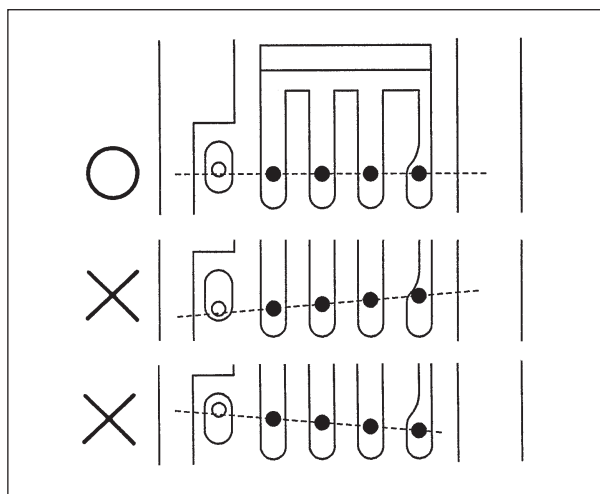


Fig. 6-18

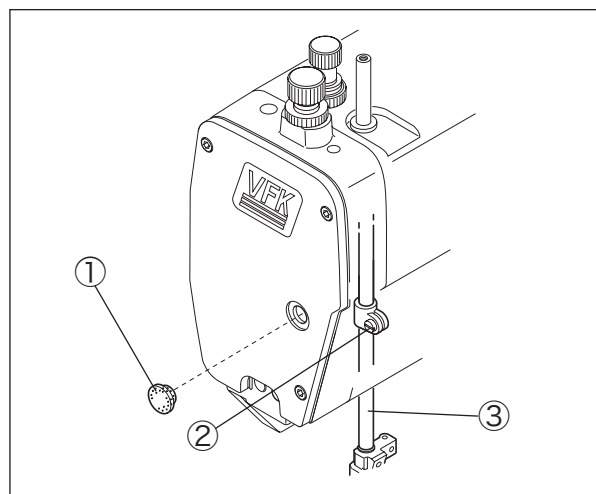


Fig. 6-19

ADVICE

Remove the retainer and middle of two needles,easily to check the relation between needles and stitch plate.

Needle distance	Needle height(H)
5.2 mm	11.0 mm (11.0 - 11.3 mm)
6.0 mm	10.5 mm (10.5 - 10.8 mm)

Table 7

6.8 Looper

6.8.1 Installing angle and height of looper

Insert the looper ① into the looper holder ② fully and tighten the screw ③ securely.

It makes the height and installing angle (0°).

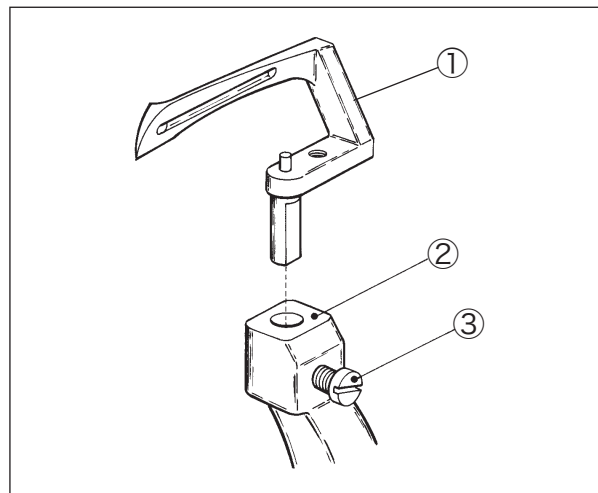


Fig. 6-20

6.8.2 Distance between looper and needle

When the looper is at the extreme right, the distance between the looper ① tip and the center of the needle bar is 5.5 mm (5.5 – 5.7 mm) even if the needle distance differs. Loosen the screw ④ of the looper holder to adjust this distance.

i SUPPLEMENT

The distance “M” between the looper tip and the center of the right needle differs according to the needle distance so adjust to the distances shown in Table 8.

Needle distance	Looper's distance “M”
5.2 mm	2.9 - 3.1 mm
6.0 mm	2.5 - 2.7 mm

Table 8

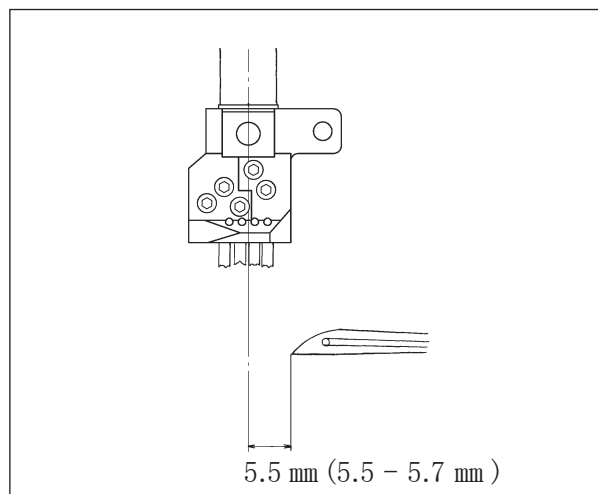


Fig. 6-21

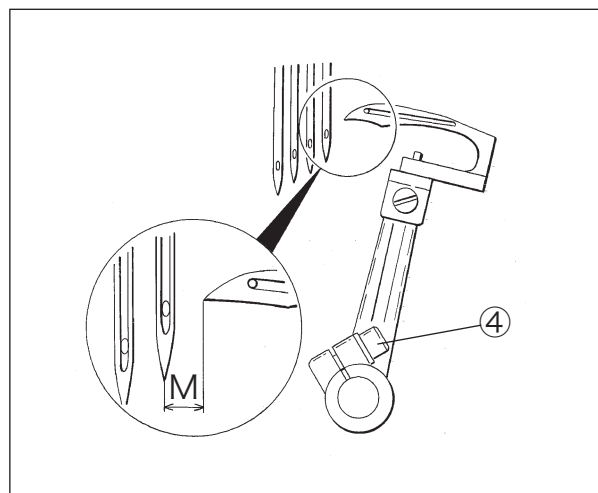


Fig. 6-22

6.9 Back-and-forth position of needle and looper

Adjust so that the looper ① tip makes 0 – 0.05 mm contact with the needle ② when the looper ① is moved from the far right to the left and its tip meets to the center of the right needle.

This adjustment is done after loosening the screw ③.

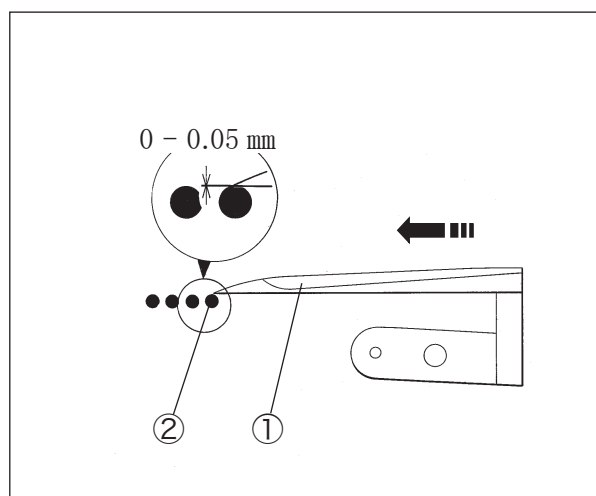


Fig. 6-23

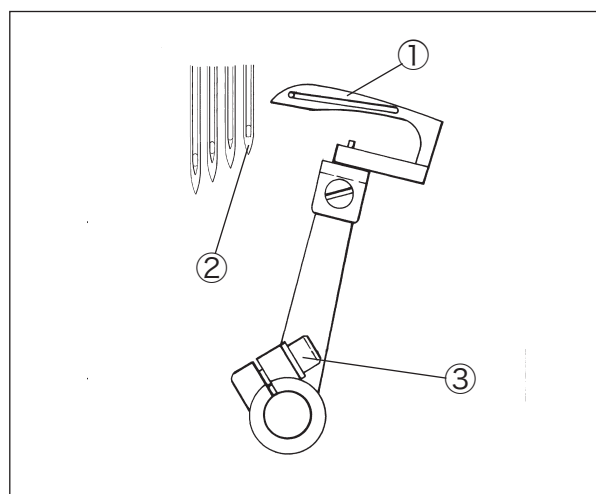


Fig. 6-24

6.10 Needle and needle guard

6.10.1 Needle guard(rear)

Height of needle guard (rear)

Position ridgeline “a” of the needle guard (rear) ① at the same height as the needle eye bottom end of the needle at the far right when the needle is at its lowest point.

Loosen the screw ② to make this adjustment.

Back-and-forth position of needle guard (rear)

Loosen the screws ② and ③, and adjust so that the conditions below are satisfied at the same time.

- (1) Push the needle with the needle guard (rear) ① so that the clearance between the needle and looper is adjusted to between 0 – 0.05 mm when the looper tip has reached the center of the right needle.
- (2) The clearance between the second needle from the right and the needle guard (rear) is between 0.05 – 0.1 mm.

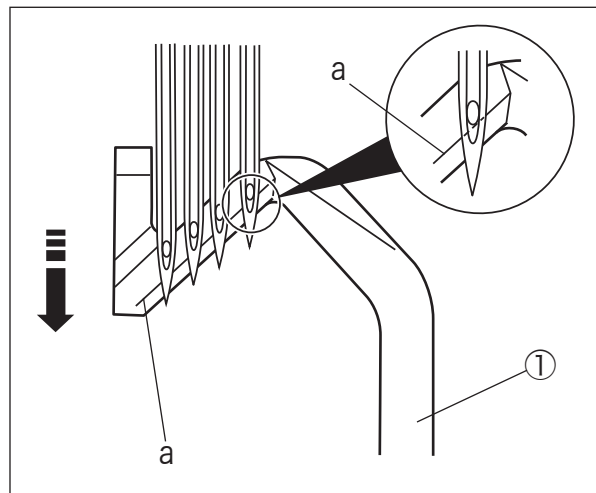


Fig. 6-25

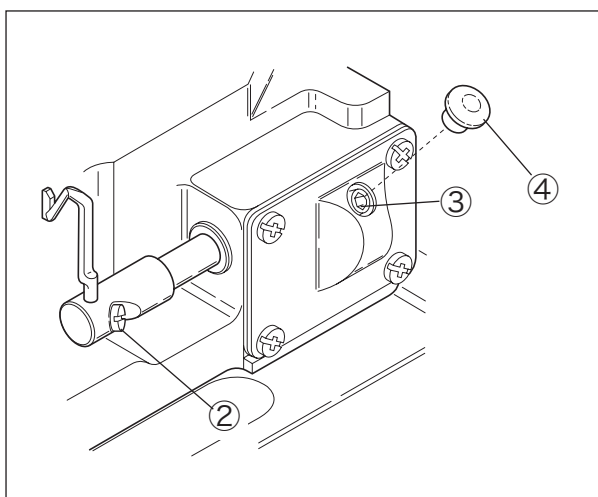


Fig. 6-26

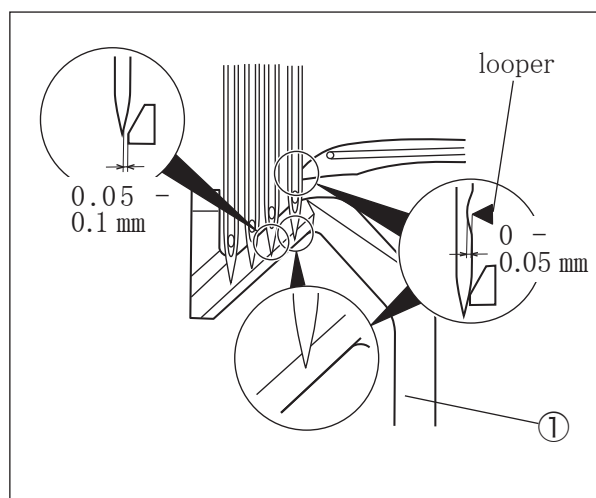


Fig. 6-27

6.10.2 Needle guard(front)

Make the clearance between right needle ② and the needle guard(front) ③ to 0 – 0.05 mm respectively when the looper ① tip comes at the centers of the right needle ② .

Loosen the screw ④ to adjust it.

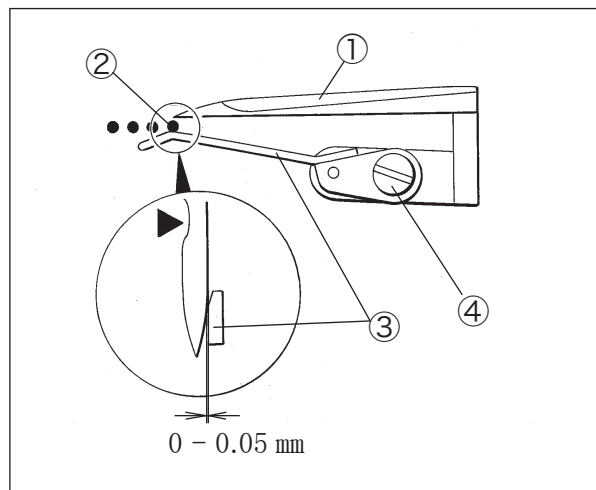


Fig. 6-28

6.11 Height of feed dog

When the feed dogs are at highest points, their tops are parallel to the top of the stitch plate. Make the even height of the differential feed dog ⑤ and the main feed dog ⑥ , and the height from the top of the stitch plate to their tops to 1.0 – 1.2 mm .

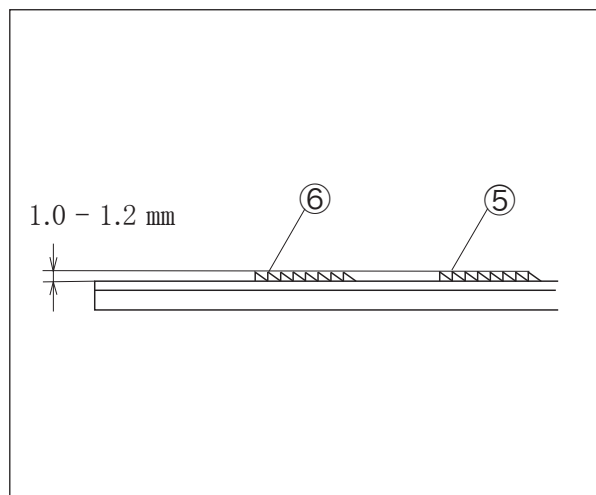


Fig. 6-29

6.12 Needle and spreader

6.12.1 Spreader

- (1) Loosen the screws ④ and ⑤ . (Fig. 6-32)
- (2) Make the height from the top of the stitch plate to the bottom of the spreader ③ to 10.5 - 11.0 mm . (Fig. 6-31 and 6-32)
- (3) Make the clearance between the left needle and the hook “a” of the spreader ③ to 0.3 mm , when the spreader ③ moves from right to left. Then tighten the screw ④ securely. (Fig. 6-30)
- (4) Make the distance between the left side of the left needle and the hook “a” to 2.5 - 3.5 mm when the spreader ③ is at the extreme left. Then tighten the screw ⑤ securely. (Fig. 6-30 and 6-32)

! HINT

Adjust the height of the spreader so that the top cover thread passes behind the second from the right needle and passes in front of the third from the right needle within adjustable range based on the needle distance.

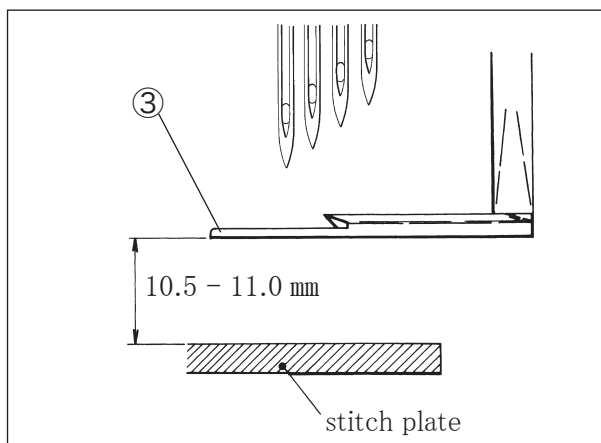


Fig. 6-31

Use of retainer

When the spreader ③ moves from right to left, make the clearance between the left needle and hook “a” to 0.3 mm , and when it has reached the extreme left, make the distance between the left side of the left needle and the hook “a” to 1 - 2 mm .(Fig. 6-33)

! ATTENTION

Up-down position of the spreader holder ⑥ should be aligned with the bottom end of the spreader bar ⑦ .

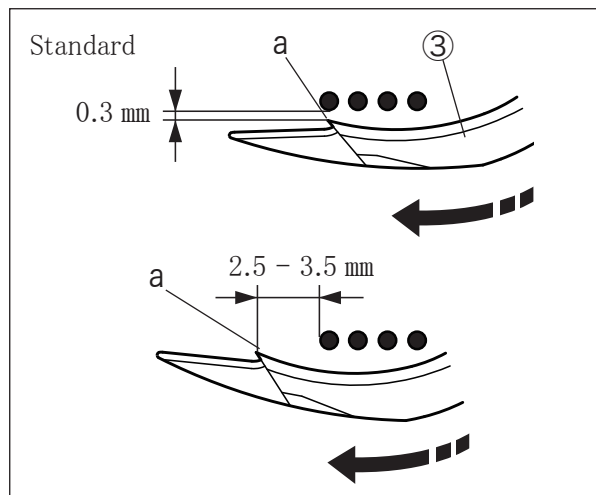


Fig. 6-30

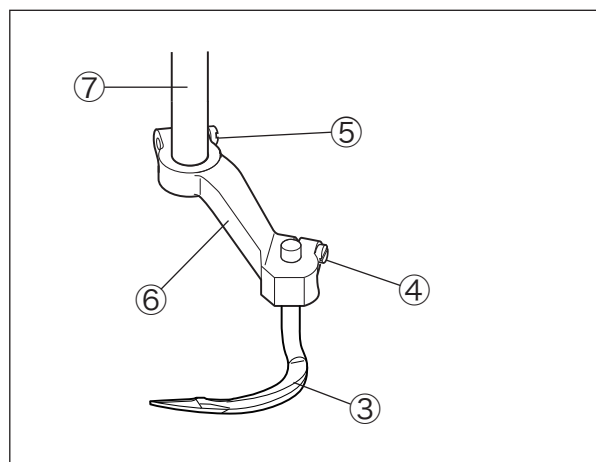


Fig. 6-32

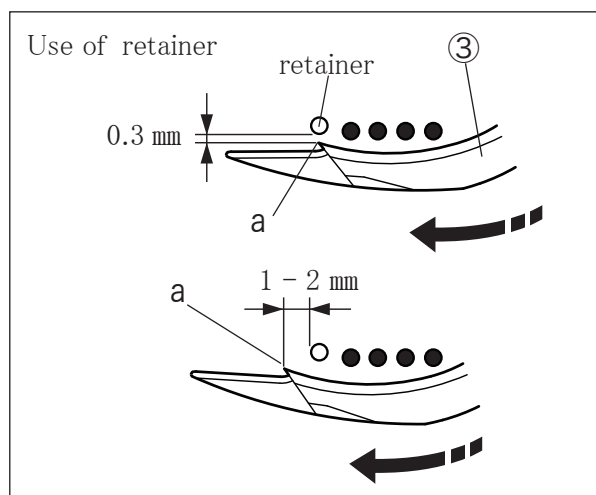


Fig. 6-33

6.12.2 Top cover thread guide

Provide a clearance of 0.8 mm between the bottom of the top cover thread guide ① and top of the spreader ②, and tighten the screw ③ at the position where the hook “a” is aligned with the edge “b” of the hole of the top cover thread guide ① as seen from above when the spreader ② has reached the far right end.

Checking when sewing

Check that the spreader ② moves from left to right, and that the top cover thread get over the hook “a” of the spreader from right to left at a position 0.5 mm before the extreme right. (Refer to Fig. 6-36.)

If this does not happen, adjust the right-and-left position of the top cover thread guide ①.

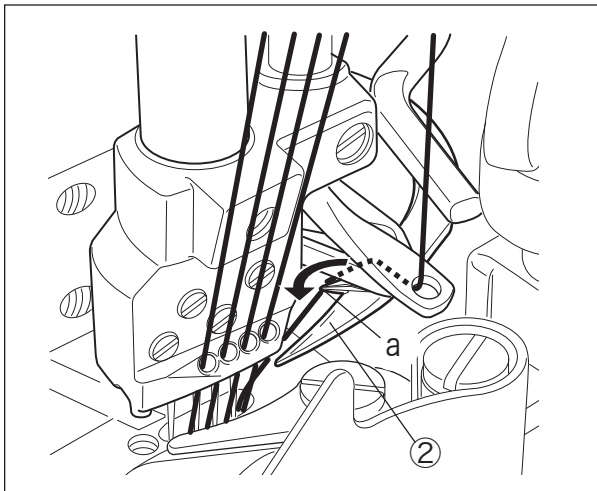


Fig. 6-36

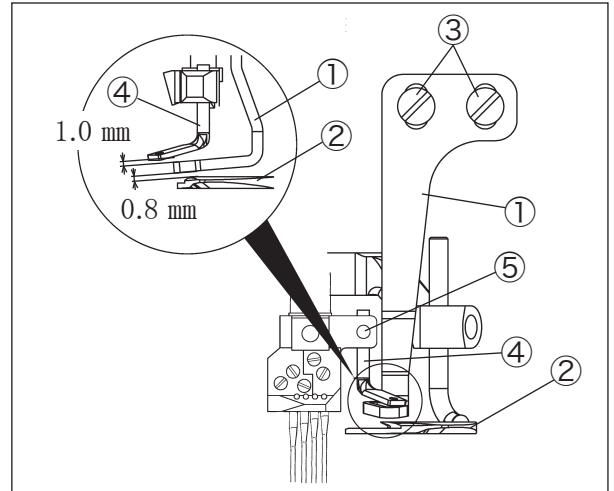


Fig. 6-34

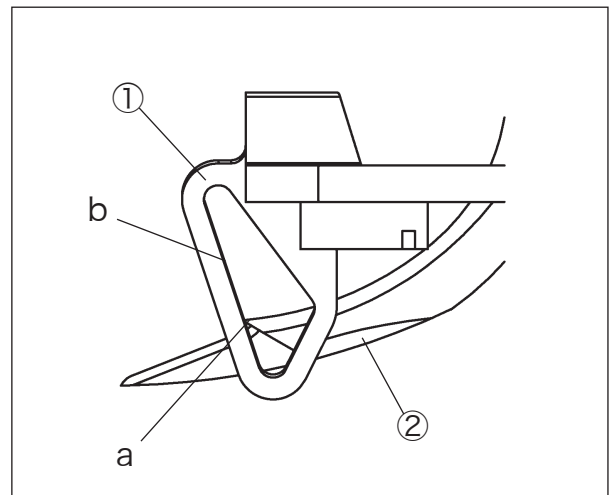


Fig. 6-35

6.12.3 Top cover thread eyelet

Provide a clearance of 1.0 mm between the top of the top cover thread guide ① and the bottom of the top cover thread eyelet ④ when the needle bar is at the lowest point (Fig. 6-34), and tighten the screw ⑤ so that the center of the thread hole in the top cover thread eyelet ④ is positioned along the extension of edge “b” of the hole of the top cover thread guide ①.

* Adjust the spreader ②, top cover thread guide ① and top cover thread eyelet ④ to suit the thread to be used.

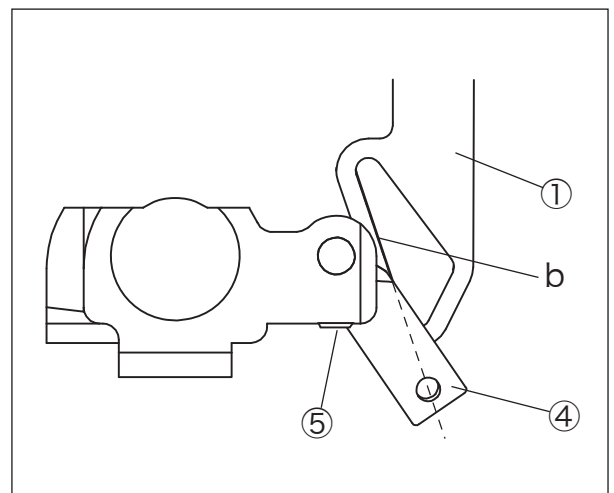


Fig. 6-37

6.12.4 Top cover thread pusher

Right-and-left position

Loosen the screws ④ and ⑤, and adjust the top cover thread pusher ① and top cover thread pusher holder ③ so that the following conditions are satisfied.

- (1) The top cover thread is pushed at part “a” of the top cover thread pusher ① and positioned at the rear-most part of the hole “b” of the top cover thread guide ② when the needle bar is at the highest point.
- (2) The clearance between the right needle and the top cover thread pusher ① is between 2.5 – 3.0 mm when the top cover thread pusher ① has reached the extreme left.

Top-to-bottom position

Provide a clearance of 1 mm between the top cover thread pusher ① and top of the top cover thread guide ②.

Check that the top cover thread pusher ① and the top cover thread eyelet do not touch when the needle comes down and the top cover thread pusher ① moves to the right.

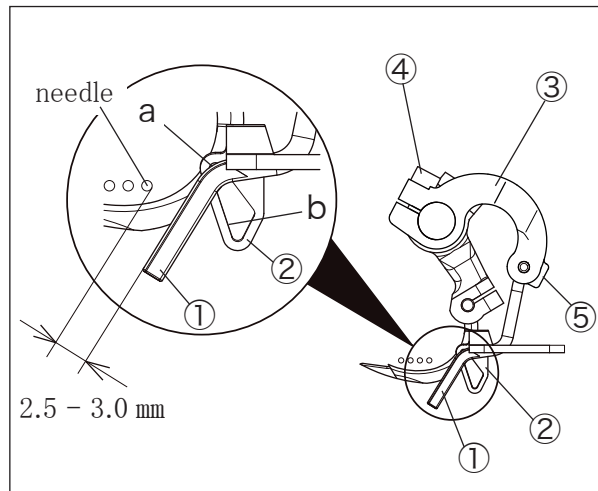


Fig. 6-38

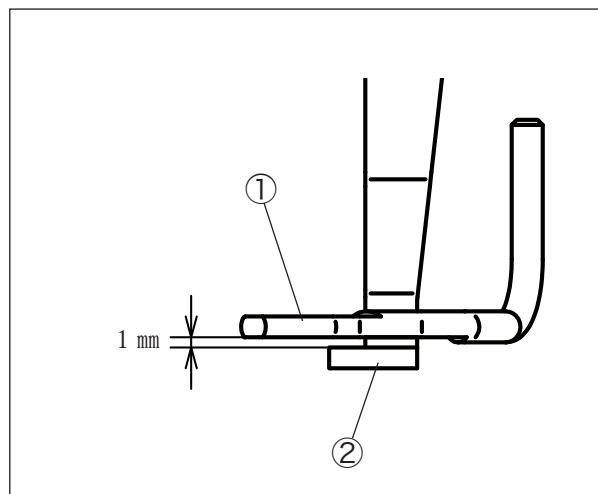


Fig. 6-39

6.13 Replacing presser foot

Removal

- (1) Loosen the screw ①, and pull out the lap former ② toward you.

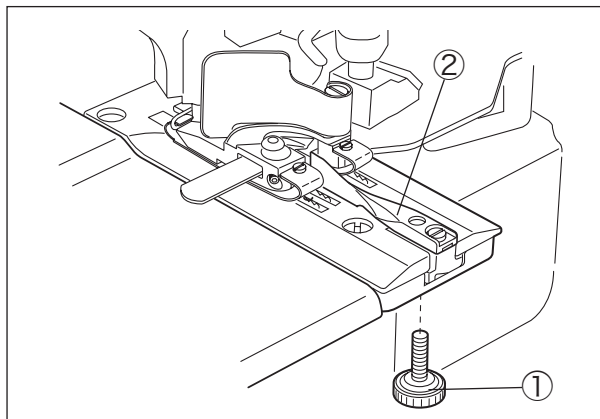


Fig. 6-40

- (2) Loosen the screw ⑤ of the lifter lever stop ④ of the presser lifter lever ③.

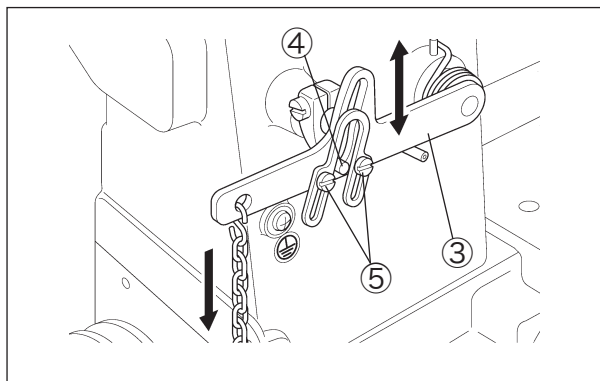


Fig. 6-41

- (3) Loosen the screw ⑥, and while raising the upper knife holder guide collar ⑦ slightly, pull until the tip of the upper knife ⑧ separates from the presser foot.

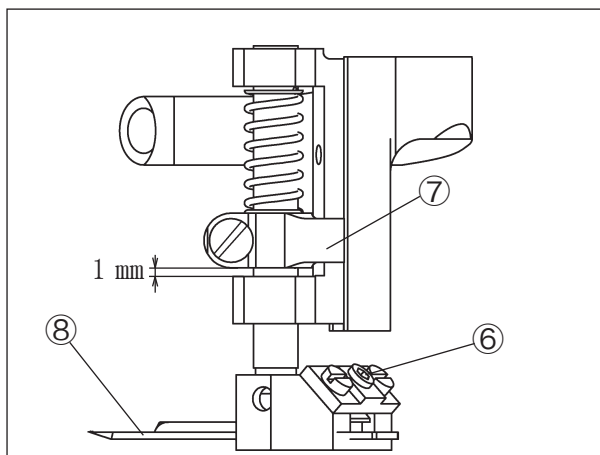


Fig. 6-42

- (4) Loosen the presser spring regulator ⑨.

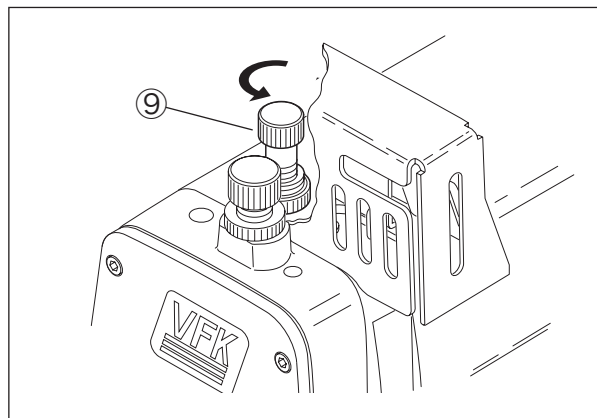


Fig. 6-43

- (5) Remove the presser foot guide (left) ⑩.

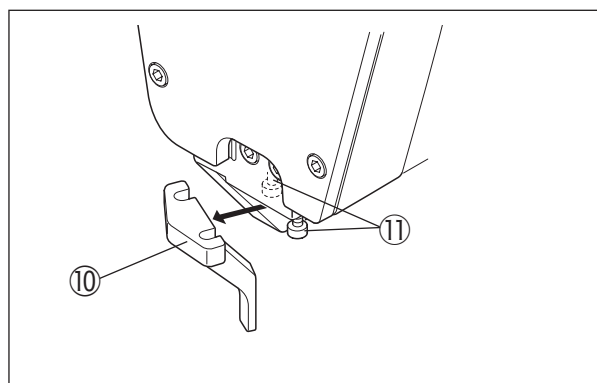


Fig. 6-44

i Just loosen the screw ⑪ and leave it in the sewing machine.

- (6) Loosen the screw ⑬ of the presser foot ⑫.

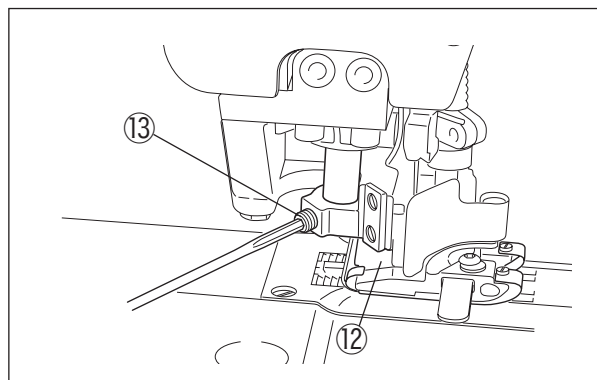


Fig. 6-45

6. Adjustments

- (7) Turn the handwheel to raise the needle. Push the presser foot lifter lever ③ down, and turn the presser foot ⑫ to left side by 60 to 80 degrees.
- (8) Turn the handwheel, and set the feed dog to the same height as the top surface of the stitch plate. While pushing the presser foot ⑫ down so that it will not be made to rise by the yielding section, detach the presser foot ⑫ from the presser bar ⑭ .

Mounting

- (1) Turn the handwheel, and set the feed dog to the same height as the top surface of the stitch plate. At the position where the presser foot lifter lever ③ was pushed down and the presser foot ⑫ was turned to left side by 60 to 80 degrees, insert the presser foot into the presser bar ⑭ while pushing the presser foot ⑫ down so that it will not be made to rise by the yielding section. (Fig. 6-41, 6-47)
- (2) Turn the handwheel to raise the needle. Bring back the presser foot ⑫ original position, and tighten the screw ⑬ while pressing the presser foot ⑫ against the presser foot guide (right) ⑭ . (Fig. 6-48)
- (3) Bring the presser foot guide (left) ⑩ into close contact with the presser foot ⑫ , and tighten the screw ⑪ . (Fig. 6-49)
- (4) Move the presser foot ⑫ up and down using the presser foot lifter lever ③ , and check that it moves smoothly. (Sufficiently loosen the presser spring regulator.)
- (5) Keep lowering the needle, and check that the needle arrives at the center of the needle hole of the presser foot ⑫ .

Also check whether the side of the presser foot and the slots of the stitch plate are parallel.

- (6) Return the upper knife ⑧ to its original position. For details on engaging the upper and lower knives, refer to “5.12 Adjusting lapped width of upper fabric” and “5.13 Adjusting lapped of fabric” .
- (7) Adjust the lifter lever stop ④ position. (Fig. 6-41) (Refer to “6.4 Height of presser foot”)
- (8) Mount the lap former ② . (Fig. 6-40)
- (9) Tighten the presser spring regulator ⑨ , and adjust the presser foot pressure. (Fig. 6-43)(Refer to “5.6 Pressure of presser foot” .)

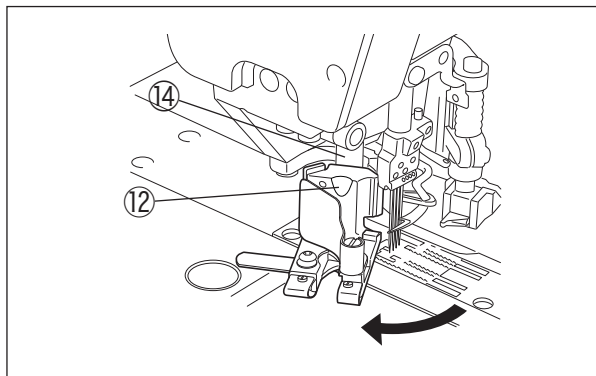


Fig. 6-46

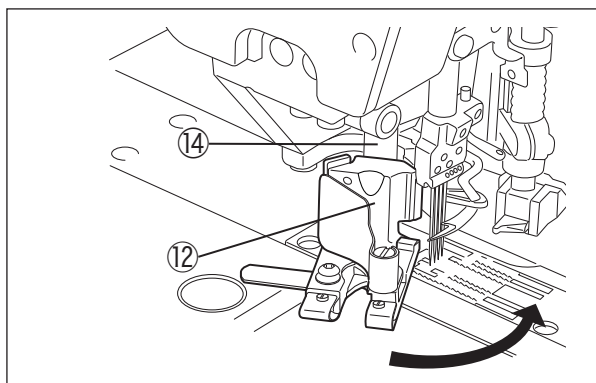


Fig. 6-47

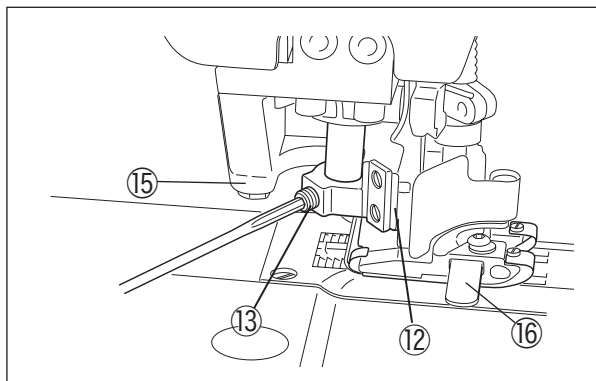


Fig. 6-48

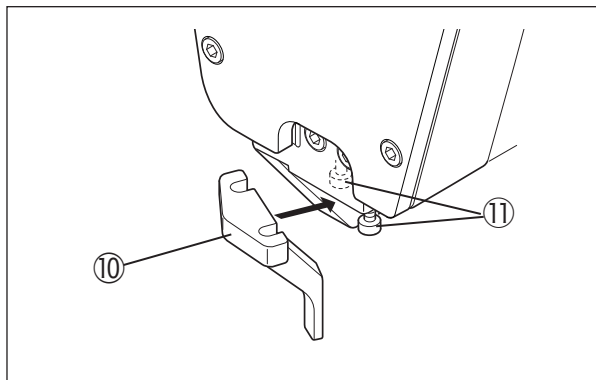


Fig. 6-49

7. Specifications

Model	VFK2560-8 class
Description	High speed 4 needle flatbed flatseamer
Dimensions	500 mm (L) × 250 mm (W) × 430 mm (H)
Weight	42kg
Stitch type	ISO 607
Application	Plain seam, Joint seam operation for knitted fabric
Sewing speed	Max. 4000 sti/min (during intermittent operation)
Stitch length	1.4 – 3.6 mm Number of stitches 7 – 18 stitches per inch (25.4 mm) 8 – 21 stitches per 30 mm
Needle system	MY-1014H SAN10 #9 – #11 (Standard #10) (65 – 75)
Needle distance	4-needle : 5.2 mm , 6.0 mm
Needle stroke	31 mm
Presser foot lift	5.0 mm (from the top of the stitch plate to the bottom of the presser foot)
Feed regulation	Pushbutton system
Differential ratio	Max. normal differential 1:1.6 Max. reverse differential 1:0.6
Differential feed regulation	external lever even during operation
Lubrication	Automatic lubrication by trochoid-shaped pump
Lubricating oil	YAMATO SF OIL No.28
Capacity of oil reservoir	1100ml
Installation	Table top type or semi-submerged type
Compliance with Regulator	CE Marking
Noise level	Lp _A =80 dB (4000sti/min) according to ISO 10821-C6.2-ISO 11204 GR2

yamato

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