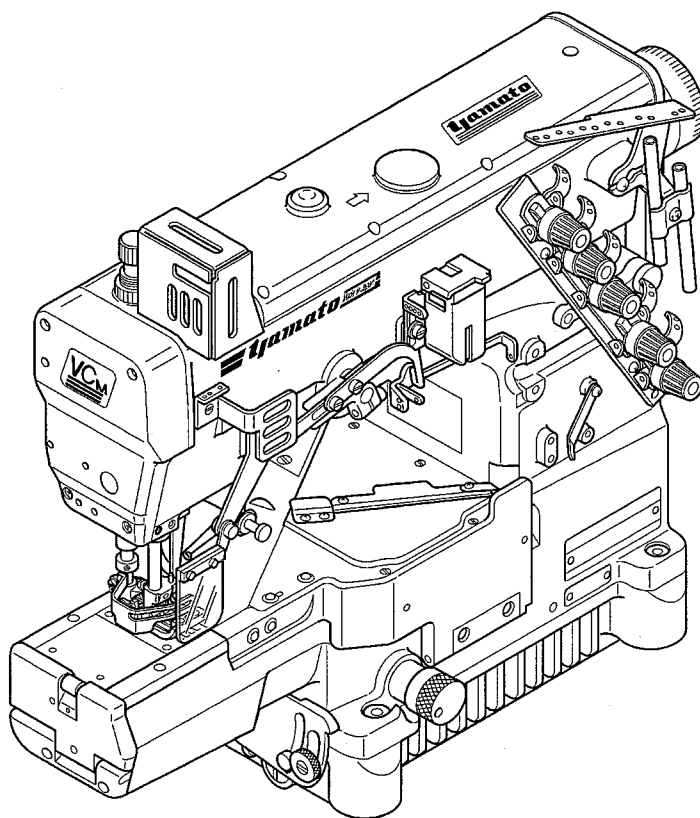


Yamato[®]

Instruction Manual








Super high speed cylinder bed 3-needle
interlock stitch machine

VC2700M class



Thank you for purchasing the Model VC2700M class.
Before using your VC 2700M 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.


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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 description in this instruction manual is subject to change for improvements of the commodity without notice.



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.



Safety instructions



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.
- (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) Do not modify the sewing machine by the customer's judgment.
- (5) 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 indicates potentially hazardous situations which, if not heeded, could result in death or serious injury to you and others.

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.



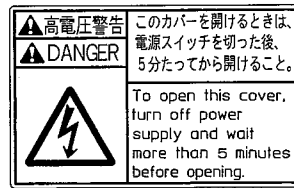
This mark indicates the warning which, if not heeded, could result in death or Serious injury.



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

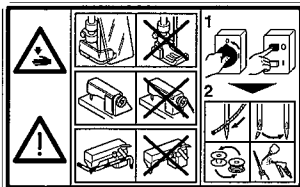


Stepping motor and solenoid may overheat if used continuously. To prevent a burn, take care not to touch.

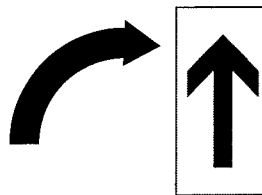


If not connected earth line, static electricity may be generated and inflict injury on person. In addition, the malfunction of

5 . Warning labels on sewing machines



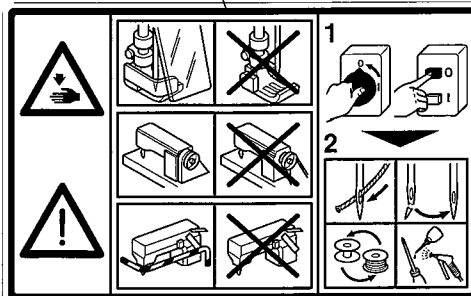
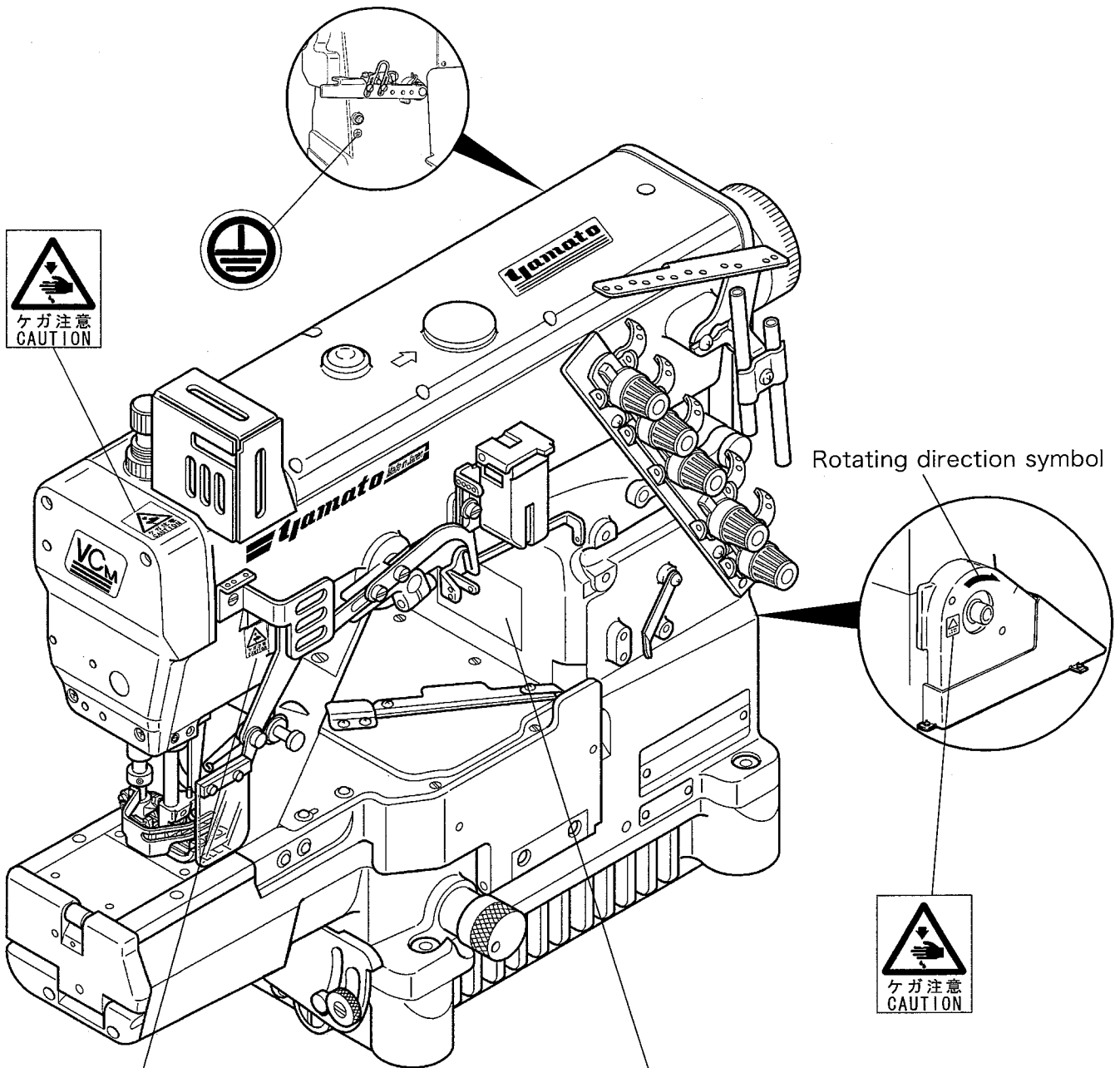
This label indicates that removal of the safeguards and works except for sewing performance while the power supply switch is on are prohibited. (For details, see the next page.)



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



Safety instructions



1.Name of each part

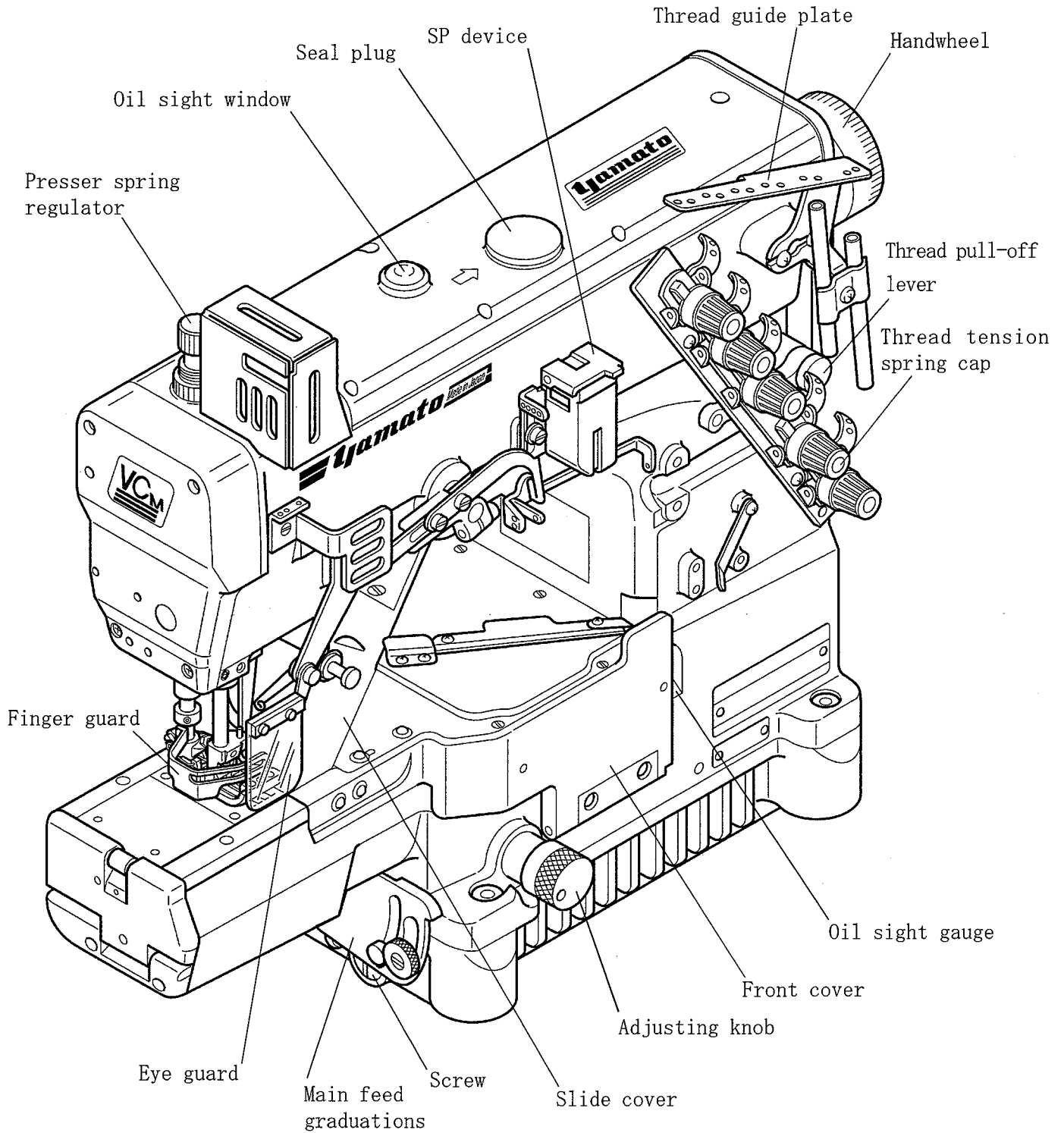


Fig. 1

2. Installation

2.1 Table cutting diagram

2.1.1 Table top type (Type A: standard)

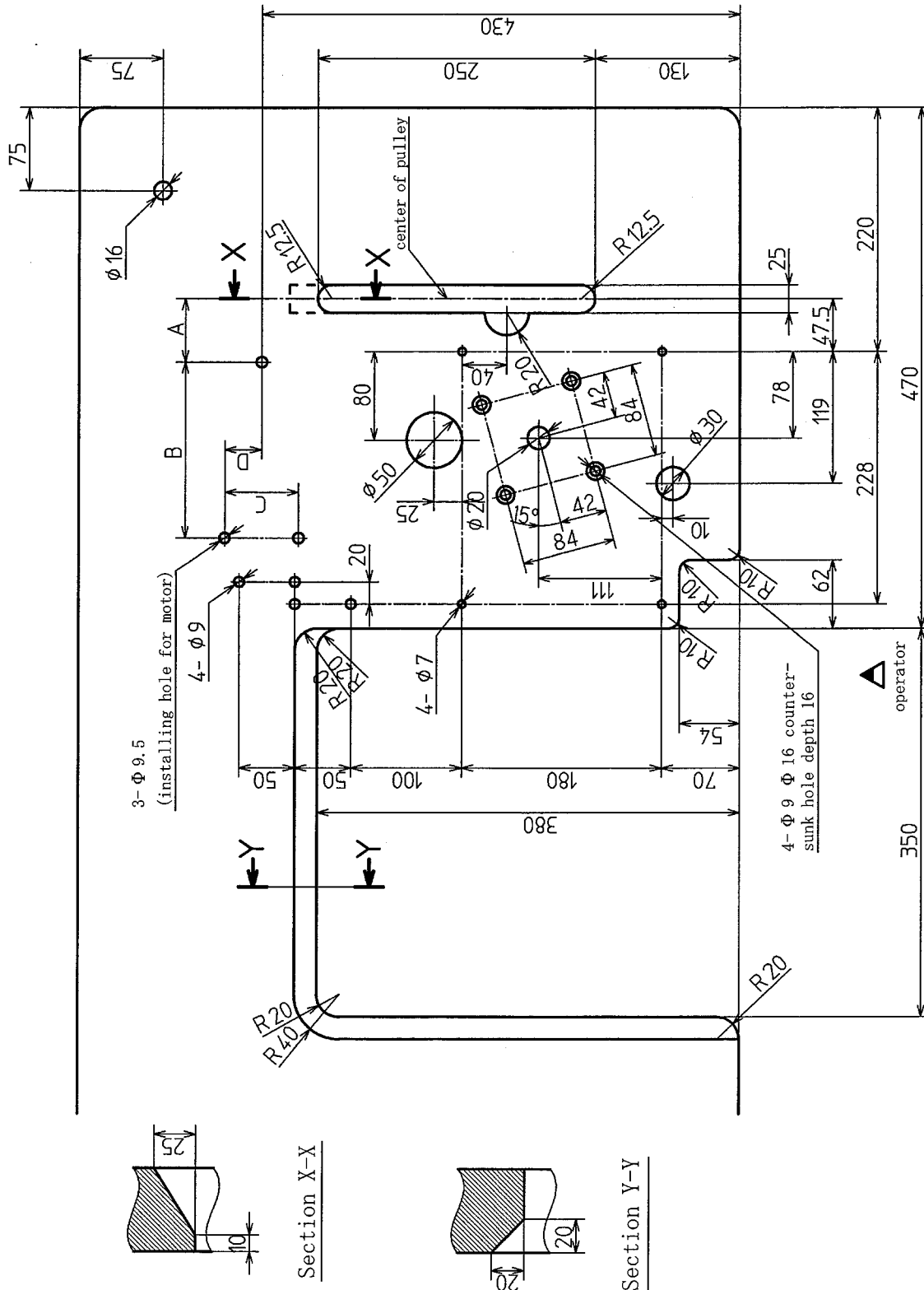


Table dimensions 1200 × 595 × 50

Refer to the instruction of the motor for dimensions A, B, C, and D.

Fig. 2

2.1.3 Semi-submerged type

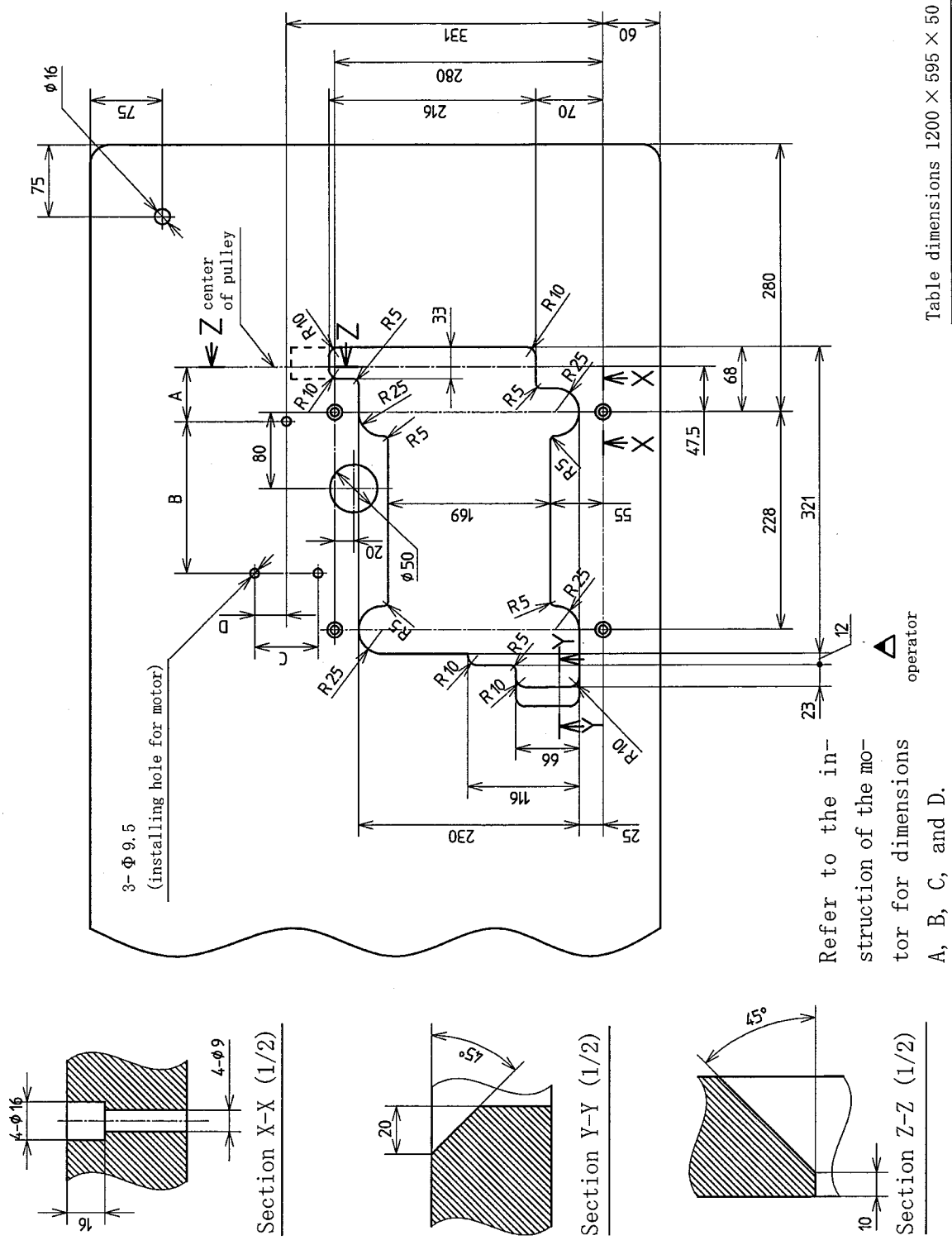


Fig. 4

2.2 Table top type

Install the machine correctly by referring to Fig. 5, 6.

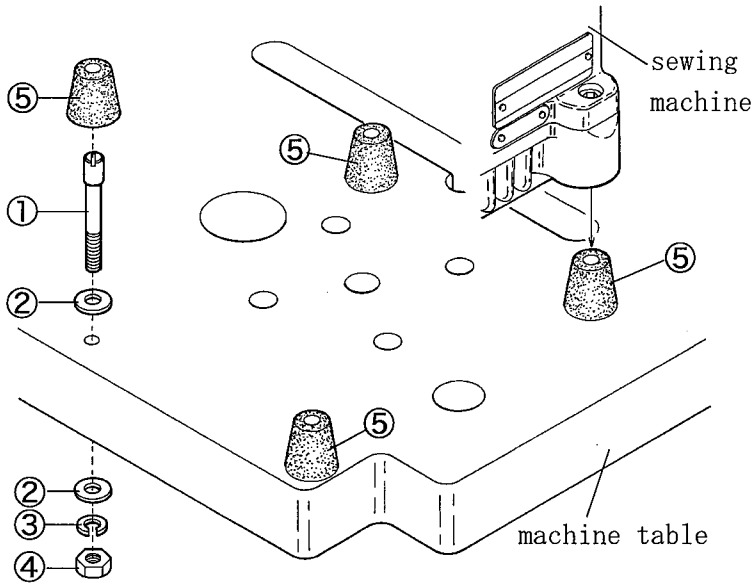


Fig. 5

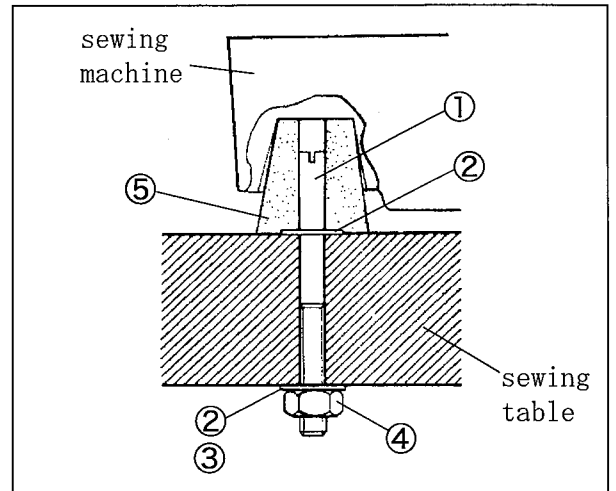


Fig. 6

2.3 Semi-submerged type

Install the machine correctly by referring to Fig. 7, 8.

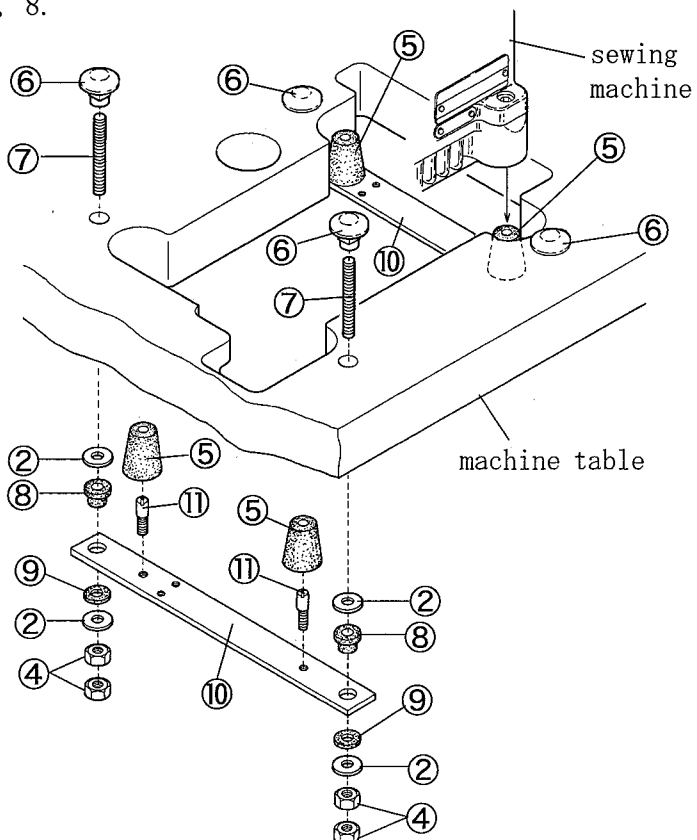


Fig. 7

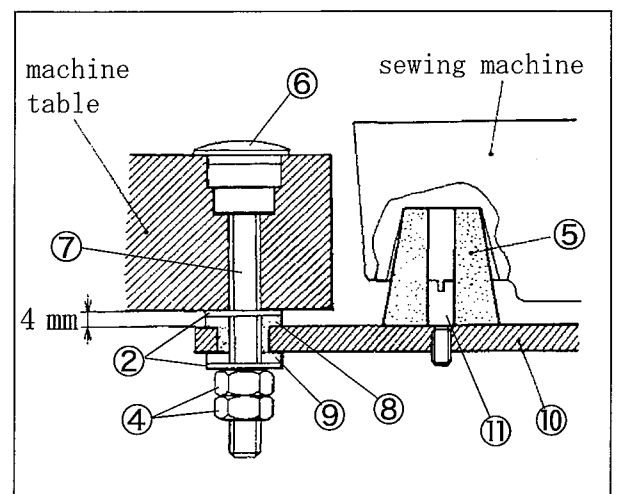


Fig. 8

2. Installation

2.4 Motor, pulley and belt

Refer to the instruction manual for the motor to use and install the motor properly.

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 with toeing down the pedal.

Note: Table 1 shows the outside diameter of the motor pulley, rpm of the machine, and size of the belt when using the clutch motor of 3-phase, 2-pole, 550W(3/4HP).

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, the machine can over the speed limit and be damaged.

Servomotor

Calculate the outside diameter of a motor pulley from the following formula.

Or see Table 2 to select a proper motor pulley.

$$\text{Outside diameter of motor pulley} = \frac{\text{Usual sewing speed}}{\text{Servomotor speed}} \times 61 + 5 \text{ mm}$$

Belt

Use a V-belt of M type.

For belt size, refer to Table 1.

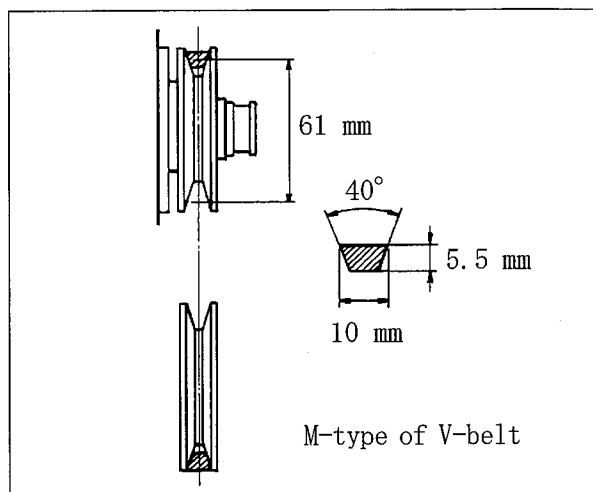


Fig. 9

Outside diameter of pulley (mm)	rpm of machine (rpm)		Belt size	
	50H z	60H z	Table top	Semi-submerged
80		4150	39	33
85		4400	40	33
90		4650	40	33
95	4000	4900	40	34
100	4250	5150	41	34
105	4500	5400	41	34
110	4700	5700	41	35
115	4900	6000	42	35
120	5100		42	35
125	5350		42	36
130	5550		43	36
135	5750		43	36
140	6000		43	37

Table 1

rpm of machine (rpm)	Outside diameter of motor pulley (mm)	
	rpm of servomotor	
	3000 rpm	3600 rpm
4000	86	73
4200	90	76
4500	97	81
4700	101	85
5000	107	90
5200	111	93
5500	117	98
5700	121	102
6000	127	107

Table 2

2.5 Hanging belt

WARNING

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

Use the V-belt of M type.

- (1) Hang the belt① on the machine pulley②, and then on the motor pulley③ while rotating the machine pulley.
- (2) Adjust the belt tension so that the belt has 10 - 20 mm slack when its center is pushed with about 10N(about 1 kgf).
- (3) Lock the pulley with the nut④.

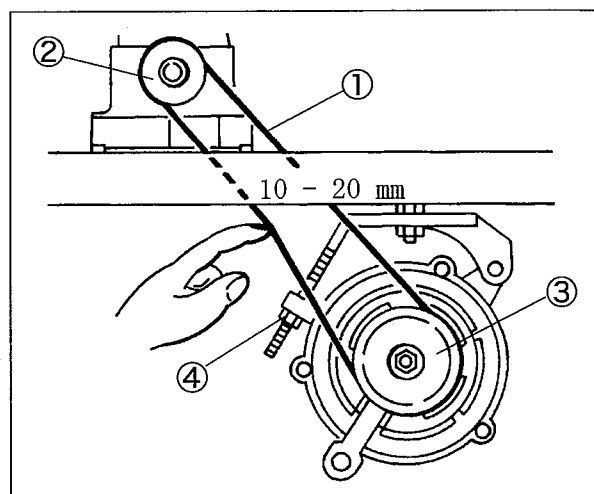


Fig. 10

2.6 Belt cover

WARNING

Be sure to install belt cover to prevent you from injuring and a material from being caught by the belt.

- (1) Install the belt cover⑤. (See Fig. 11)
- (2) Fix the belt cover(lower)⑥ on the machine table only for table top type. (See Fig. 12)

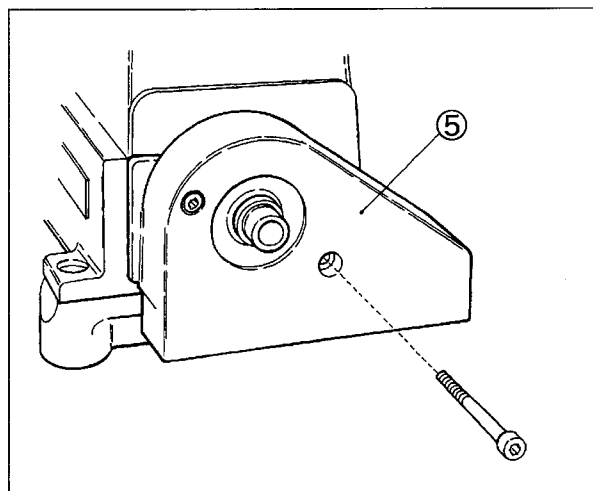


Fig. 11

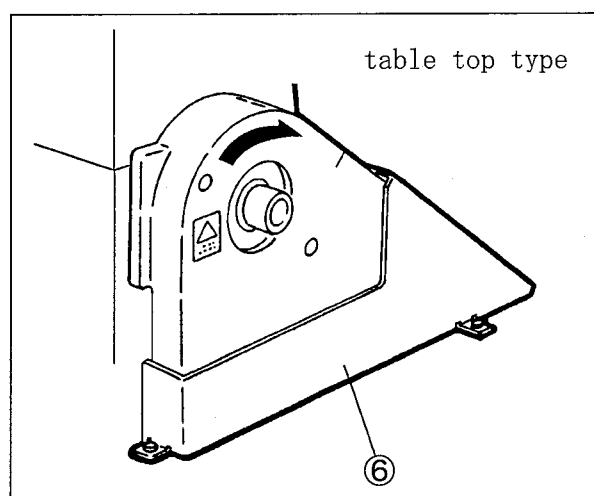


Fig. 12

2.7 Eye guard and finger guard

To ensure safety, always install the eye guard① and the finger guard② on the prescribed positions during operation.

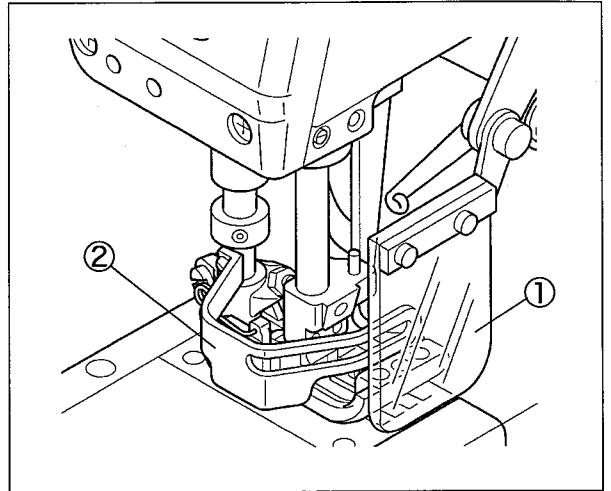


Fig. 13

3. Sewing speed and rotating direction of pulley

The maximum sewing speed is 6000 rpm (during intermittent operation). For the machines with puller, the maximum speed is 4500 rpm.

Run a new machine at 15-20% lower rotating speed of its maximum sewing speed during the first 200 hours (for about one month) so that the 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.

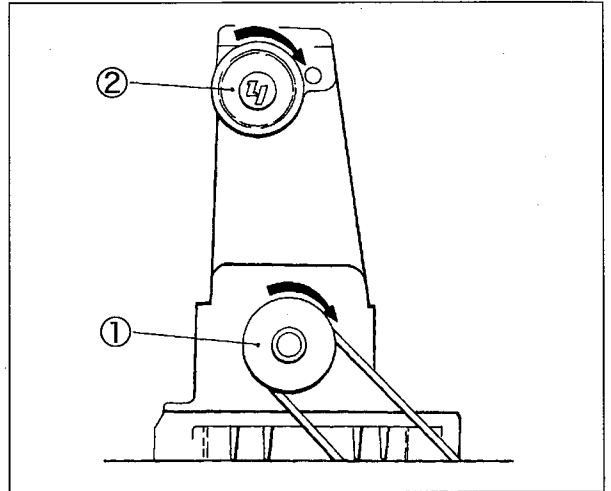


Fig. 14

⚠ CAUTION

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

4. Lubrication



WARNING

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

4.1 Lubricating oil

Be sure to 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 the oil to the needle bar ① and the looper bar ② with two or three drops.

Remove the seal plug ③ indicated "OIL-IN" and supply the oil to the upper line of the oil sight gauge ④.

Check that the oil splashes from the nozzle inside the oil sight window ⑤ with running the machine. If the oil does not splash from the nozzle, see "4.4 Checking and replacing oil filter" on page 11.



CAUTION

Too much oil 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 to scatter and material to be stained.

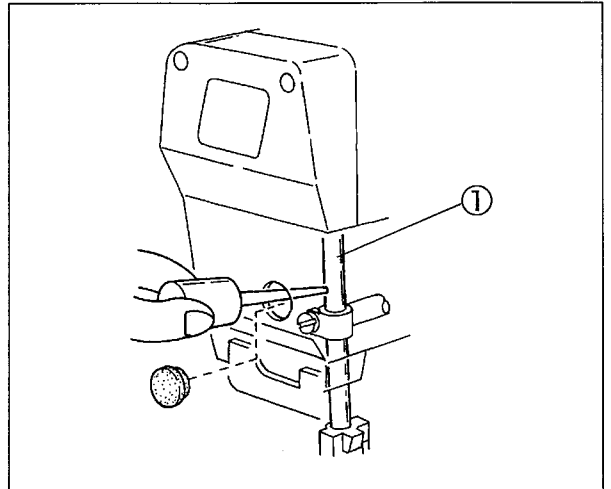


Fig. 15

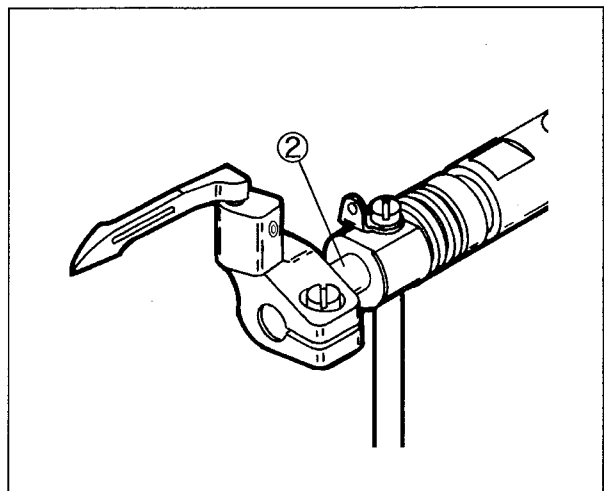


Fig. 16

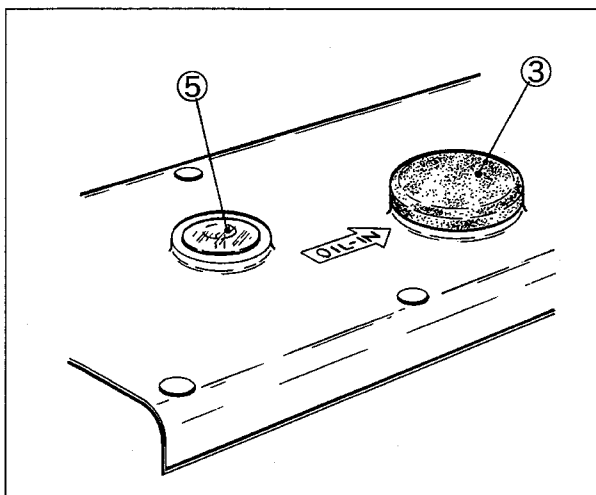


Fig. 17

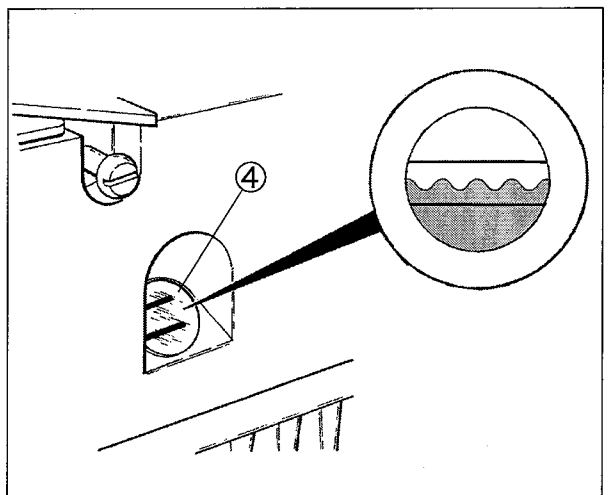


Fig. 18

⚠ WARNING

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

4.3 Changing oil

Period:

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

Procedure:

- (1) Remove the belt cover. (See page 7.)
- (2) Remove V-belt from the motor pulley. (See page 7.)
- (3) Remove the machine from the machine table.
- (4) Set a container to receive the oil under the screw ①.
- (5) After removing screw ①, the oil will drain out.

NOTE

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

- (6) Screw back the screw ①.
- (7) Change the oil. (See "4.2 lubricating" on page 10.)
- (8) Reinstall the machine on the machine table.
- (9) Hang V-belt on the motor pulley and reinstall the belt cover. (See pages 7.)

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 the oil splashes from the nozzle insufficiently or includes many bubbles though the oil is sufficiently kept, check or replace the oil filter.

NOTE

When removing the screw ④, be careful as the lubricating oil remaining in the oil filter ② may leak.

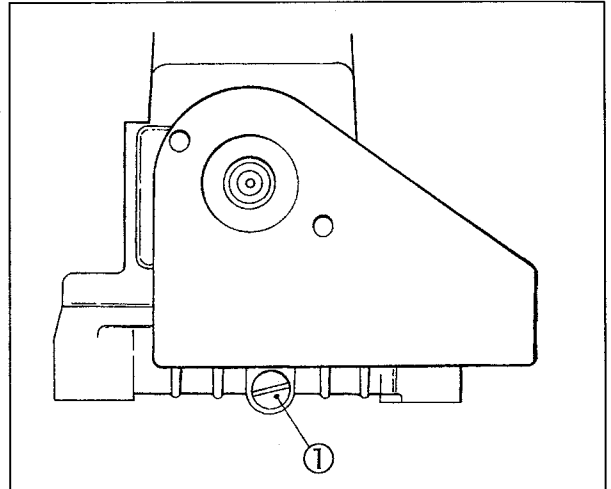


Fig. 19

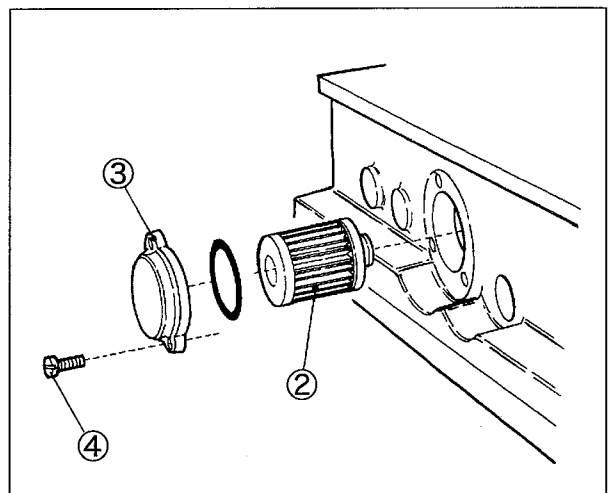


Fig. 20

5. Proper operation

5.1 Needle system

Be sure to use UY × 128GAS (UY128GAS).
 Select the proper needles in size according to the thickness and the type of the fabric.

Japanese standard	9	10	11	12	13	14
Metric standard	65	70	75	80	85	90

Table 3

5.2 Installing needles



⚠ WARNING

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

- (1) Loosen the screws① with a screwdriver. (Fig. 21)
- (2) Remove the old needle with a pair of tweezers.
- (3) Insert a new needle into the needle clamp② as far as it will go with facing its scarf to the right back. (Fig. 22, 23)
- (4) Tighten the screws① with a screwdriver.

NOTE

The tightening torque of the screws ① is 0.6N·m(6kgf·cm).

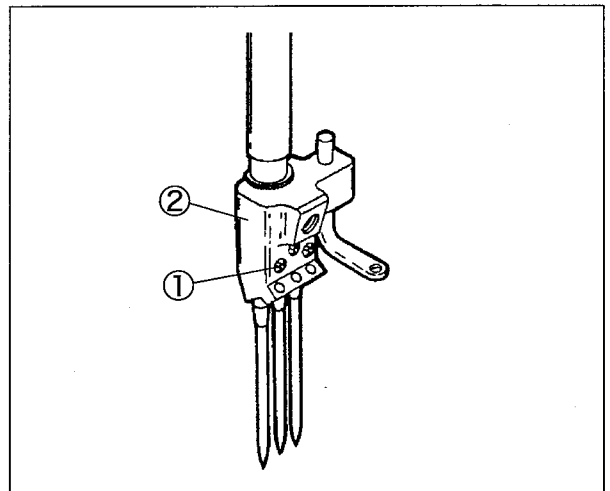


Fig. 21

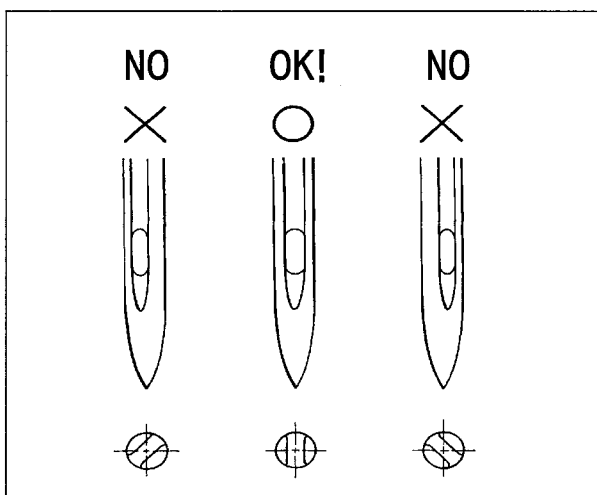


Fig. 22

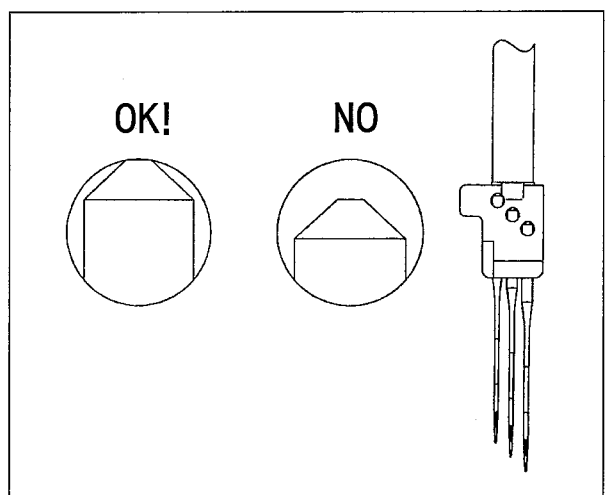


Fig. 23

5.3 Threading



When threaded, rethread by tying new threads with the preset threads.

When not threaded, thread correctly as shown in Fig. 26.

A: Needle thread

Pull out the threads until they come to the front of the needles. Then, cut off the knots before passing them through the needle eyes.

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

B: Looper thread

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

C: Spreader thread

Pull the thread until the knot comes out.

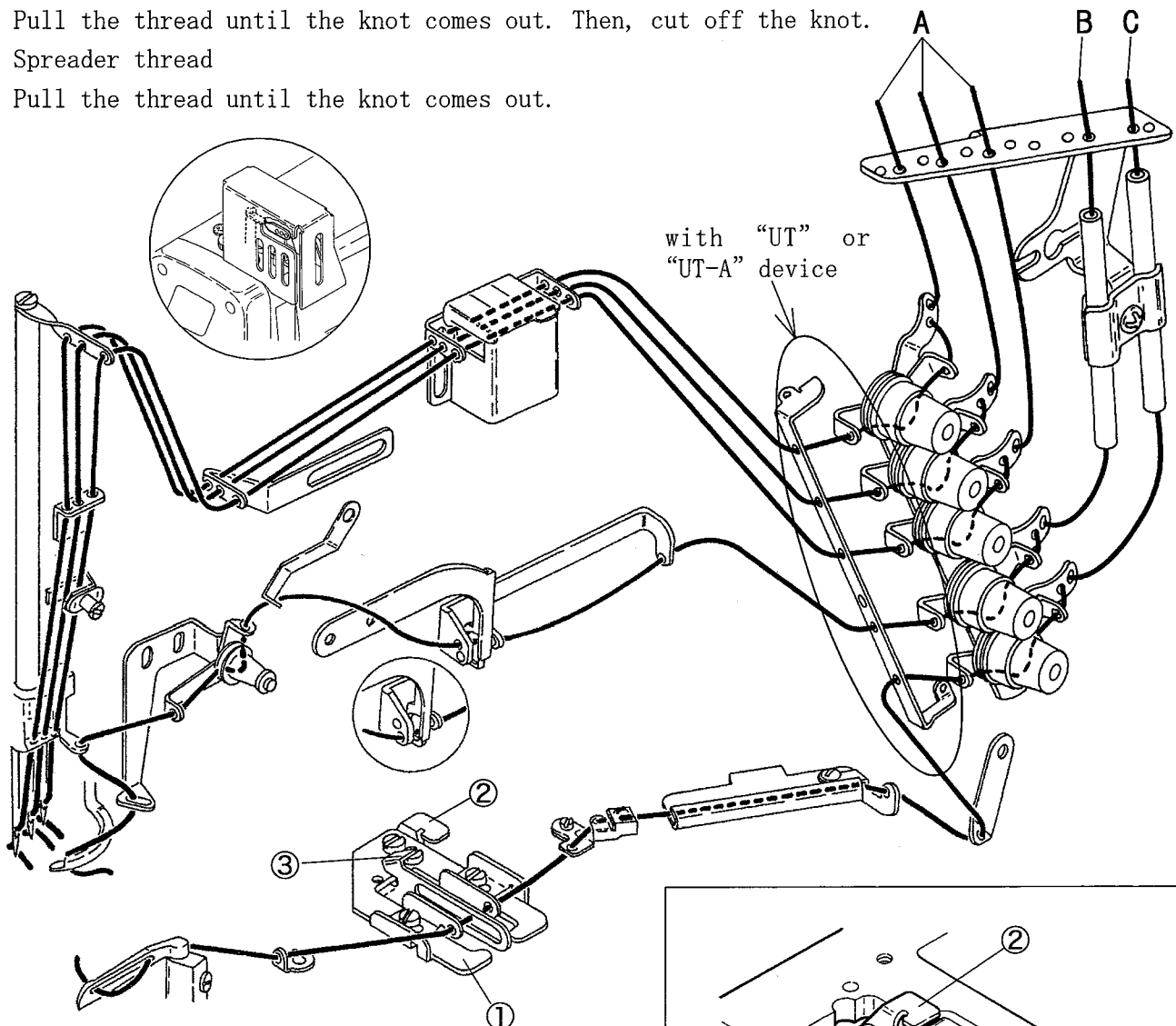


Fig. 24

Note: For easy threading, push the supporting plate stop ② to jump up the supporting plate ①.

After threading, push the cast-off plate ③ to reset the supporting plate securely.

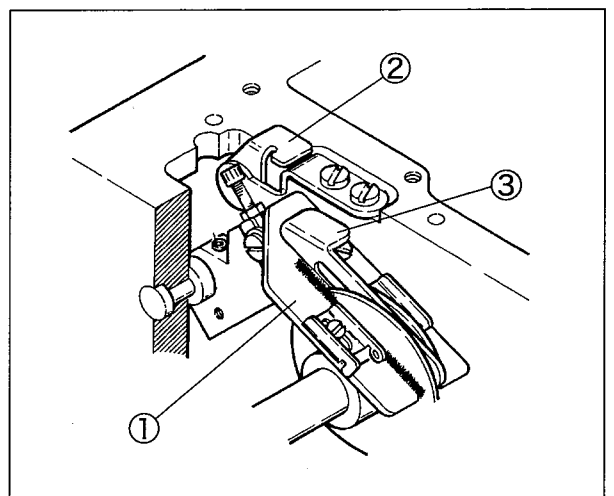


Fig. 25

5.4 Adjusting thread tension



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

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

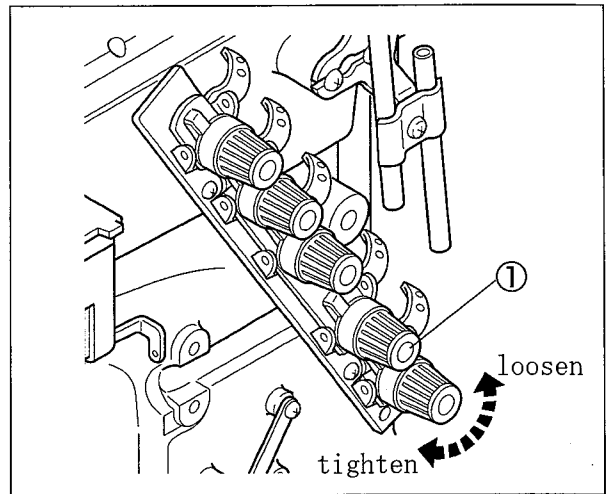


Fig. 26

5.5 Pressure of presser foot



Loosen the lock nut ② and turn the presser spring regulator ③ to adjust the pressure.

- 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.

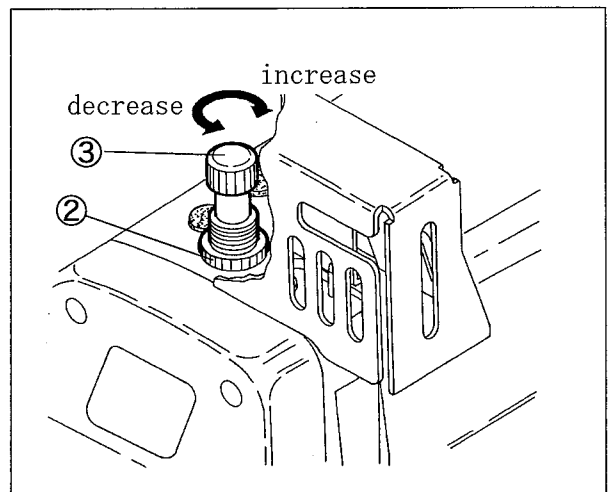


Fig. 27

5.6 Adjusting position of presser foot

WARNING

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

Adjust the left-and-right position of the needle holes of the presser foot.

Loosen the screw ④ and move the front part of the presser foot right or left so that the needles can drop into the centers of the needle drops respectively.

Then, tighten the screw ④ securely.

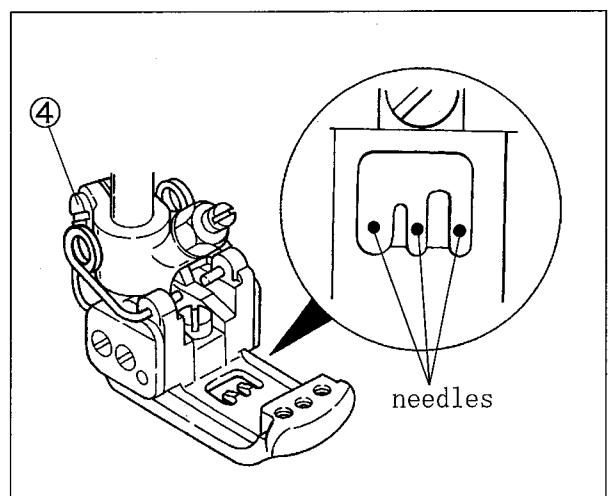


Fig. 28

⚠ WARNING

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

5.7 Adjusting stitch length



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

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

Procedure:

- (1) Press the push button ① lightly, it will be felt that the button head touches the parts inside the machine.
- (2) Rotate the pulley while pressing the push button ①. At the point the push button goes far, press it again securely.

● To decrease stitch length, turn the pulley clockwise.

● To increase it, turn it counterclockwise.

- (3) Under these conditions, align the desired graduation of the pulley with the mark ② on the machine arm. (Fig. 30)
- (4) Release the push button ①.

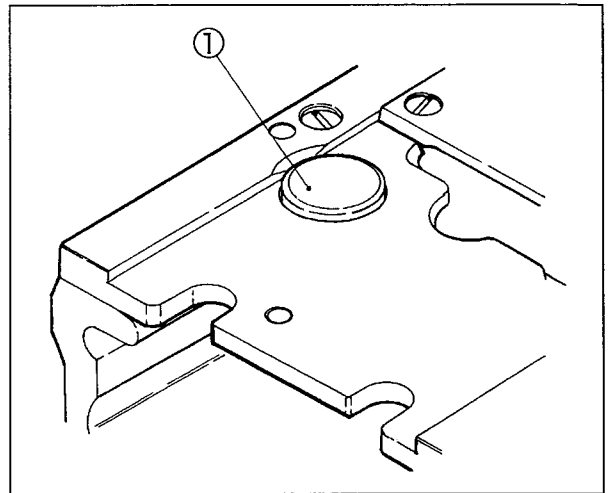


Fig. 29

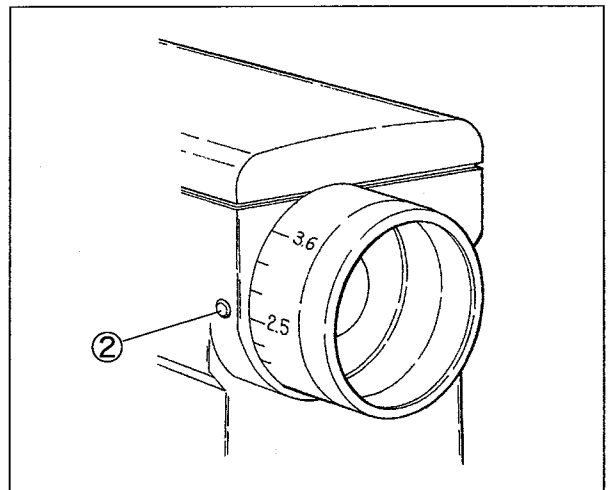


Fig. 30

⚠ CAUTION

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

Stitch length is adjustable from 1.4 to 3.6 mm. Table 4 shows the number of stitches per inch (25.4 mm) and every 30 mm.

Stitch length (mm)	Number of stitch (per 1 inch) (25.4 mm)	Number of stitch (per 30 mm)
3.6	7	8
2.5	10	12
2.0	12.7	15
1.4	18	21

Table 4

5.8 Adjusting movement of differential feed dog (differential feed)



The differential and the main feed dogs move independently.

The desired normal or reverse differential feed ratios can be obtained by changing the movement of each feed dog.

Be sure to readjust differential ratio after adjusting the stitch length.

◆ Example: “2” for the main feed dog

Align “2” on the graduations by turning the adjusting knob ① clockwise, resulting in differential ratio 1:1.

- more than “2” - normal differential
- less than “2” - reverse differential

The movement of the differential feed dog is adjustable up to “4”.

◆ Using differential feed control lever

The lever can be fixed to a position between the line indicated on the graduations when turning the adjusting knob ① and the stopper screw ② with the nut ③.

Tie a chain with the differential feed control lever when want to adjust the movement during sewing performance.

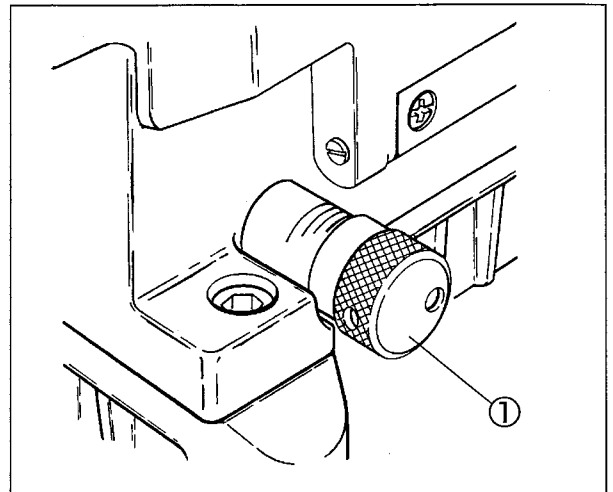


Fig. 31

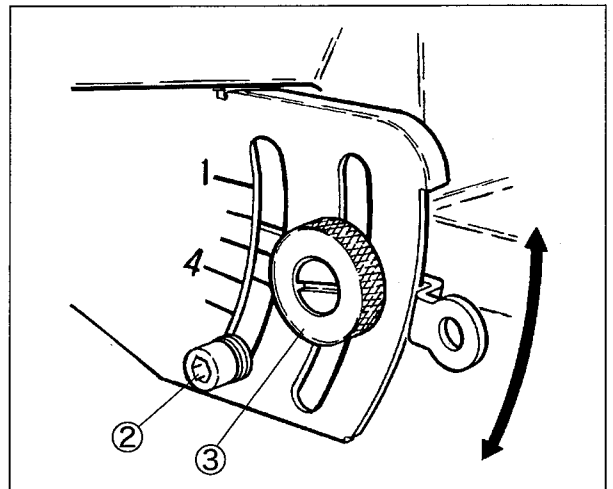


Fig. 32

Table 5 shows the differential ratios based on the stitch length.

Stitch length (mm)	Max. normal differential	Max. reverse differential
3.6	1:1.1	1:0.3
2.5	1:1.6	1:0.4
2.0	1:2	1:0.5
1.4	1:2.9	1:0.7

Table 5

⚠ WARNING

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

5.9 SP device and HR device

The SP device (needle thread oiling) and the HR device (needle point cooling) have been equipped as standard equipments to prevent thread breakage and skip stitch when running a machine at high speed or using synthetic thread and/or synthetic fabric.

Be sure to use dimethyl silicon oil for both devices.

Open the lid① of SP container and the lid② of HR container to check the oil level sometimes.

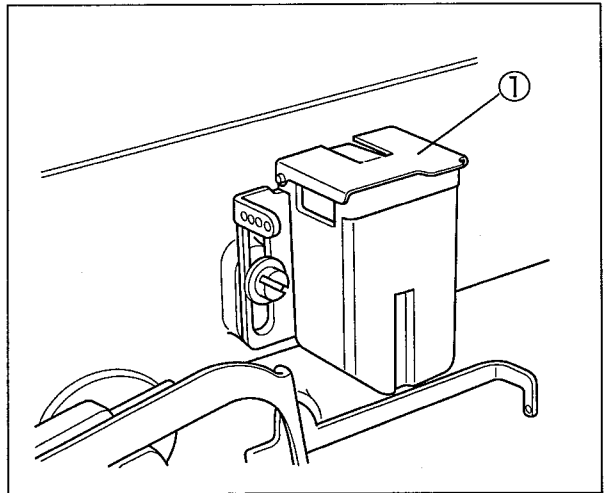


Fig. 33

⚠ CAUTION

1. When not using SP or HR device, remove the felt. If it is left in the device, the sewing condition may be adversely affected.
2. If silicone oil is adhered to other than devices, it can cause machine trouble. Be sure to wipe it away.

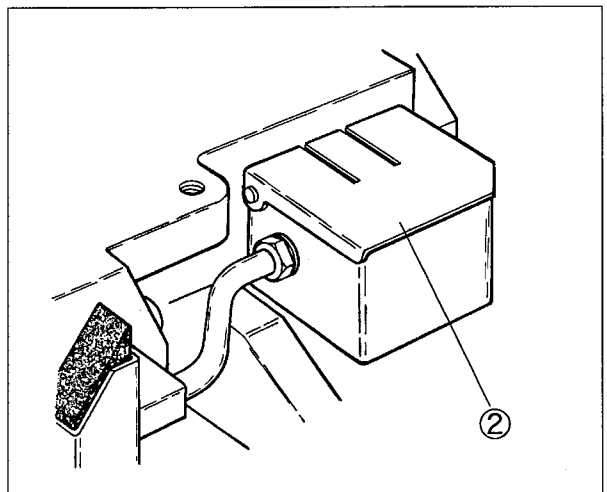


Fig. 34

5.10 Cleaning the machine



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

Remove the seal plug③ at the back of the machine and clean the grooves of stitch plate, the feed dog area, and the oil filter screen area once a week.

NOTE

If the oil filter screen is clogged with dust, oil in the cylinder can not return to the oil reservoir. It can cause oil leakage.

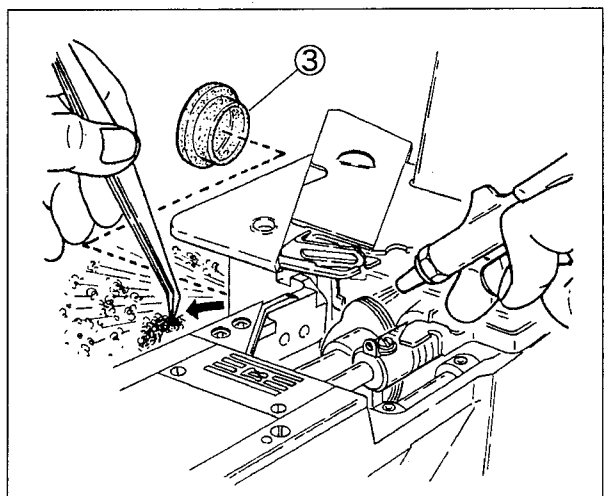


Fig. 35

6.Adjustments

⚠ WARNING

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

6.1 Needle thread tension

As standard, make the distance between the needle thread take-up① and the center of the left screw② to 57 mm, and set the part “a” horizontally when the needle bar is at the highest point.

Procedure:

- (1) Loosen the screws②③.
 - To tighten the needle thread, shift the needle thread take-up① in the direction T.
 - To loosen it, shift it① in the direction L.
- (2) Tighten the screws②③ securely.

If above mentioned adjustment is not enough, move the needle thread eyelet④ to make adjustment. Make the distance between the top of the needle thread eyelet and the center of the screw⑤ to 12 mm as standard.

Procedure:

- (1) Loosen the screw⑤.
 - To tighten the needle thread, move the needle thread eyelet④ in the direction T.
 - To loosen it, move it④ in the direction L.
- (2) Tighten the screw⑤ securely.

As the needle thread loop may difficult to be formed depending on the thread type, the looper can failed to catch the needle thread. This will cause skip stitch. If it happens, thread the needle thread through the attached needle thread retainer disc⑦ with the needle thread retainer support⑥(No. 3103000).

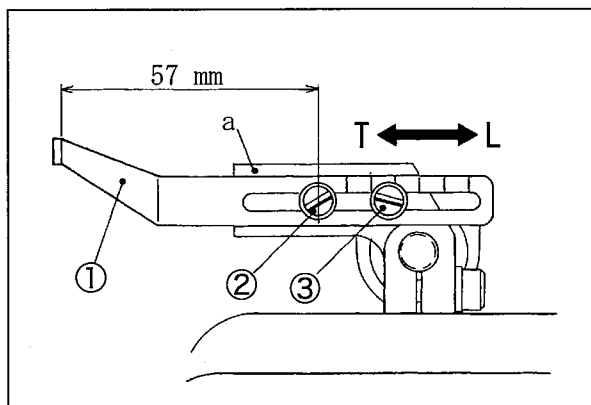


Fig. 36

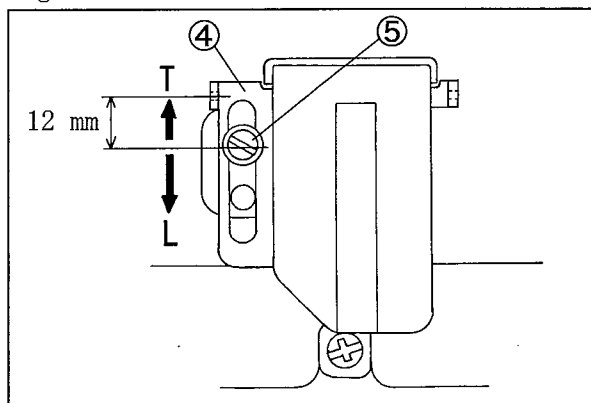


Fig. 37

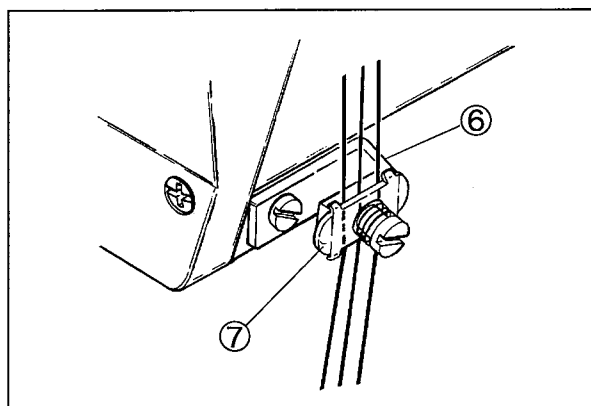


Fig. 38

NOTE

In case with UT device, do not use the needle thread retainer disc ⑥. If used, the needle thread loop can not be formed at the beginning of the sewing procedure.

Use the needle thread guide when the loops of needle thread can not be formed stably in case using stretchable thread like synthetic thread.

As standard, align the center of the needle bar thread eyelet① eye with the top of the needle thread guide②, and make sure they are parallel when the needle bar is at the lowest point.

Loosen the screw③ to adjust the height and right-and-left position of the needle thread guide②.

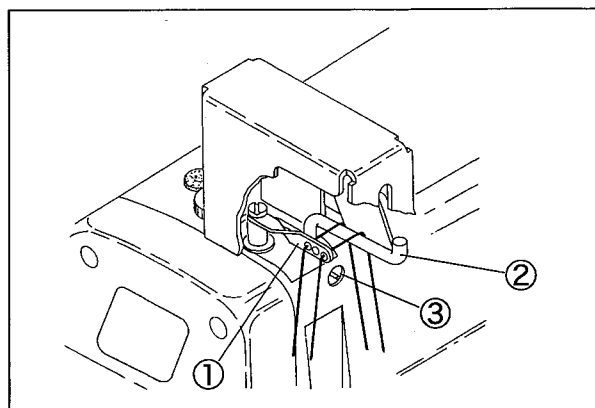


Fig. 39

6.2 Top cover thread tension

Loosen the screw⑤ and move the top cover thread eyelet(right)④ to make adjustment.

- To decrease take-up amount, move it in the direction T.

- To increase it, move it in the direction L.

When using stretchable thread like woolly, move it ④ in the direction L.

NOTE: Pass the woolly thread through the lower eye.

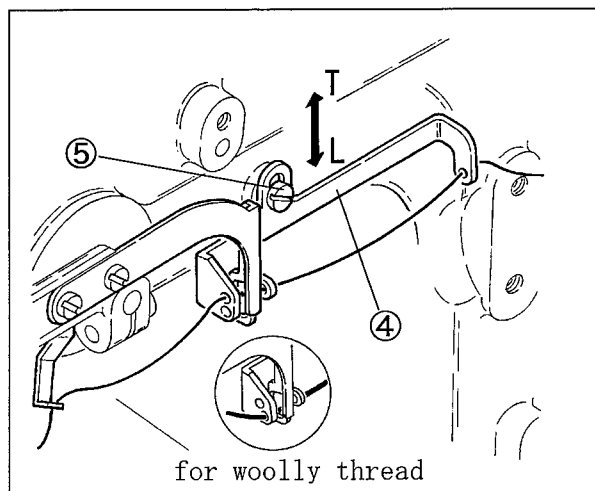


Fig. 40

6.3 Looper thread tension

Align the eyes of the thread take-up eyelets⑥ and ⑦ with the marks⑧ of the supporting plate as standard.

Loosen the screws⑨ and move each eyelet to make adjustment.

- To increase take-up amount, move it forward.

- To decrease it, move it backward.

When using woolly thread, move the thread take-up eyelets⑥ and ⑦ forward fully and never thread it through the supplementary tension disc⑩.

NOTE

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

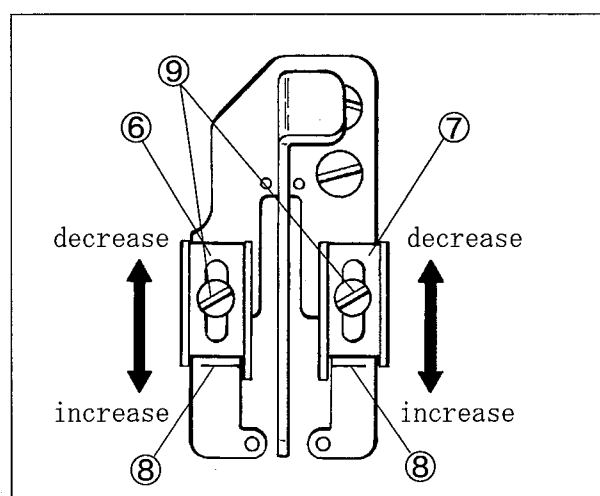


Fig. 41

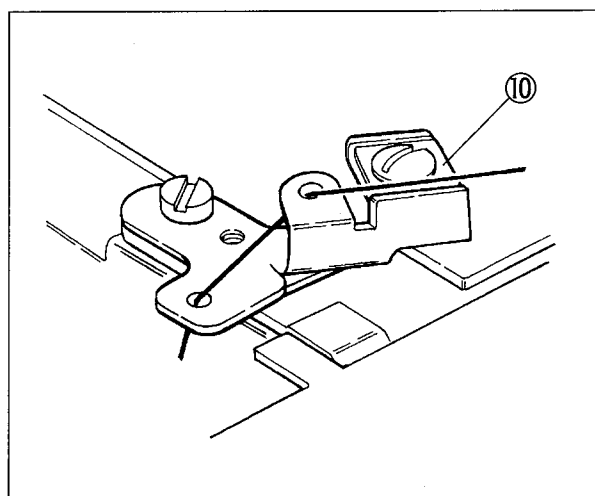


Fig. 42

6.4 Relation between needle and spreader

6.4.1 Spreader

- (1) Loosen the screws ③ and ④ of the spreader holder. (Fig. 45)
- (2) Make the clearance between the left needle and the hook ② of the spreader ① to 0.5 - 0.8 mm. (Fig. 43)
- (3) Make the clearance between the center of the left needle and the hook ② to 4.5 - 5.5 mm when the spreader ① is at the extreme left. Then tighten the screw ④ securely. (Figs. 43 and 45)
- (4) Make the height from the top of the stitch plate to the bottom of the spreader to 8.5 - 9.5 mm. Then tighten the screw ③ securely. (Fig. 44, 45)

NOTE

Adjust the height of the spreader so that the top cover thread can pass behind the right needle and can be caught by the left needle. Make adjustment according to the needle distance within the adjustable range.

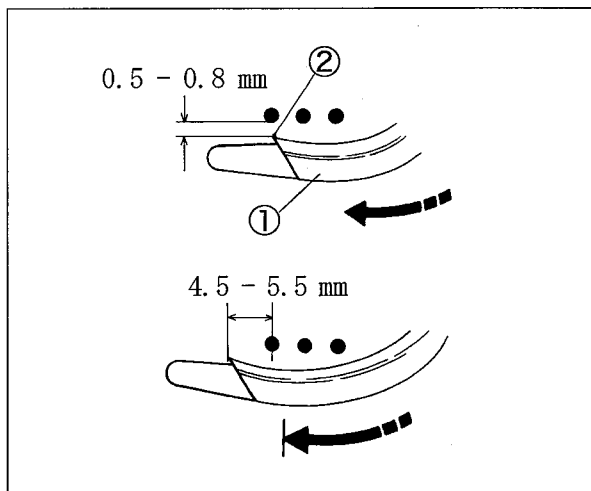


Fig. 43

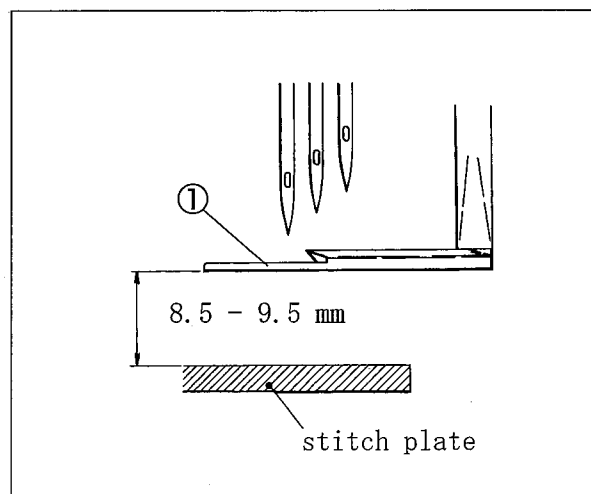


Fig. 44

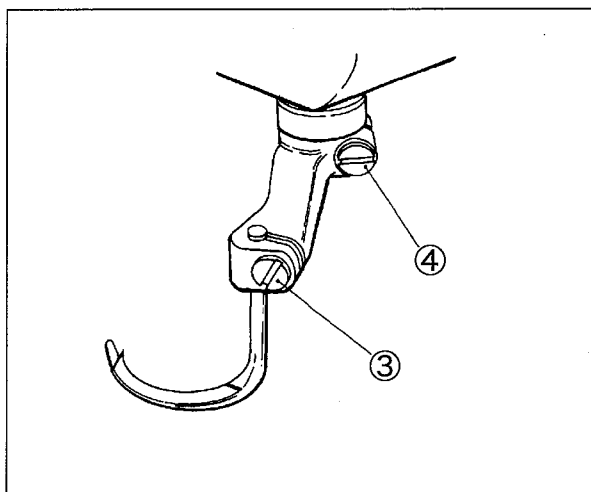


Fig. 45

6.4.2 Top cover thread guide

- (1) Loosen the screws ② of the top cover thread guide ①. (Fig. 46)
- (2) Make the clearance between the top of the spreader ③ and the bottom of the top cover thread guide ① to 0.5 mm. (Fig. 46)
- (3) Make the hook ④ come to the center of the slot of the top cover thread guide ① when the spreader ③ is at the extreme right. Then, tighten the screws ② securely. (Fig. 46, 47)

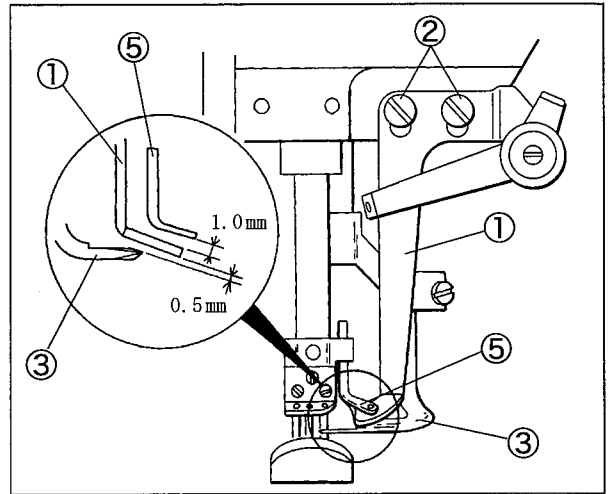


Fig. 46

6.4.3 Top cover thread eyelet

- (1) Loosen the screw ⑥ of the top cover thread eyelet ⑤. (Fig. 47)
- (2) Make the clearance between the top of the top cover thread guide ① and the top cover thread eyelet ⑤ to 1.0 mm when the needle bar is at the lowest point. (Fig. 46)
- (3) Set the eye of the top cover thread eyelet ⑤ along the extending line from the slot of the top cover thread guide ①. (Fig. 47)
- (4) Tighten the screw ⑥ securely. (Fig. 47)

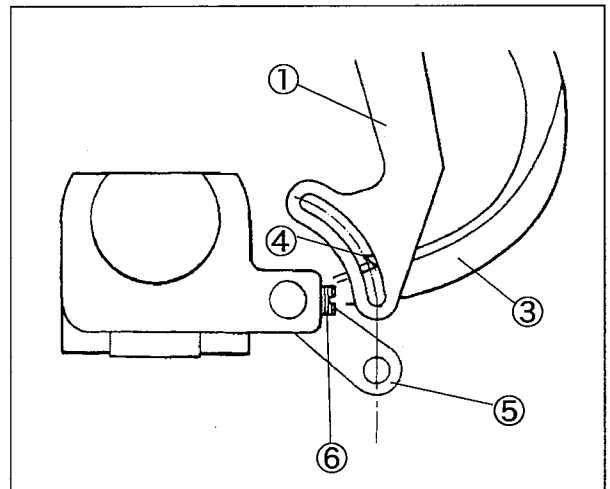


Fig. 47

6.Adjustments

6.5 Distance between needle and looper

The distance between the looper tip and the center of the right needle changes depending on the needle distance when the needles are at the lowest points and the looper ① is at the extreme right. See Table 6 to find out the distance.

Loosen the screw ② of the looper holder to make adjustment.

NOTE

The distance between the center of the needle bar and the looper ① tip is 6.0 mm even if the needle distance changes.

needle distance (mark)	gauge mark	looper's distance
3.2 mm (32)	A	4.4 mm
4.0 " (40)	B	4.0 "
4.8 " (48)	C	3.6 "
5.6 " (56)	D	3.2 "
6.4 " (64)	E	2.8 "

Table 6

The adjustment of the needle distance can be made easily by using timing gauge (No. 95220).

The gauge is a special order part. Please place an order through our agents or directly to us.

6.6 Using timing gauge

The gauge has the marks (A, B, C, D, E) for each needle distance.

Move the looper to the extreme right. Fit the right needle into the groove "V" according to the needle distance. Then fit the looper tip to the gauge, and tighten the screw ② securely.

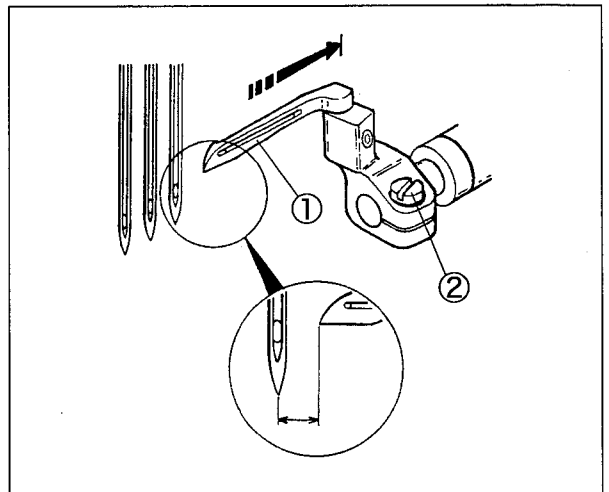


Fig. 48

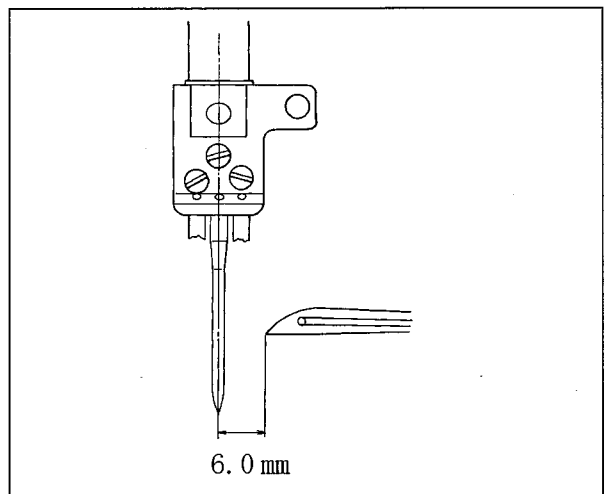


Fig. 49

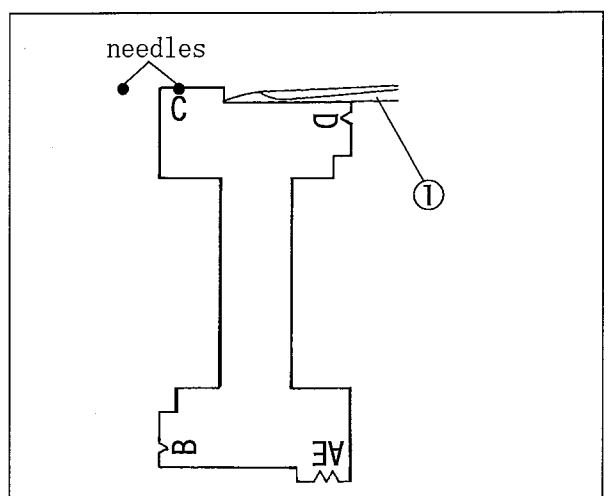


Fig. 50

6.7 Height of needle

- (1) Install the needle into the left hole on the needle clamp.
- (2) Check the looper has been inserted into the looper holder fully.
- (3) Turn the handwheel until the looper tip meets the center of the left needle.
- (4) Loosen the screw ① of the needle bar bracket. Move the needle bar up or down so that the looper tip can pass 0.8 - 1.3 mm above the top of the needle eye.
- (5) Tighten the screw ① securely. Check that the needles drop in the centers of the needle holes of the stitch plate respectively.

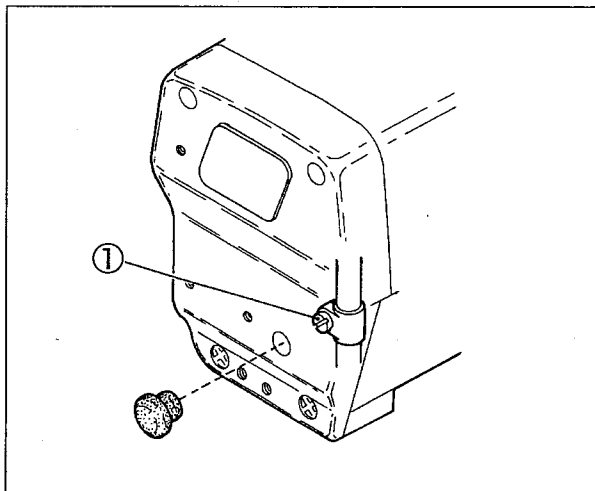


Fig. 52

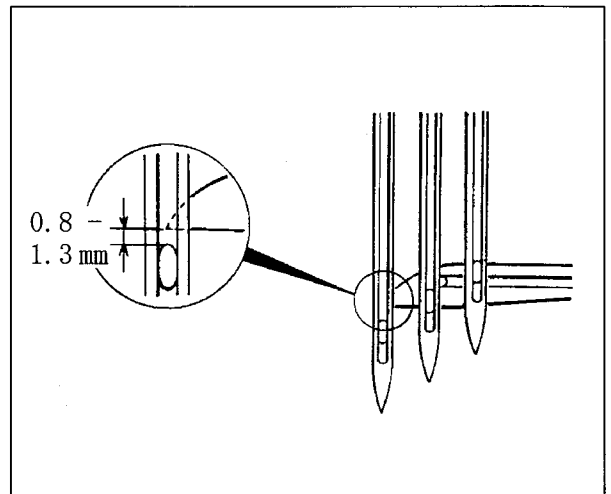


Fig. 51

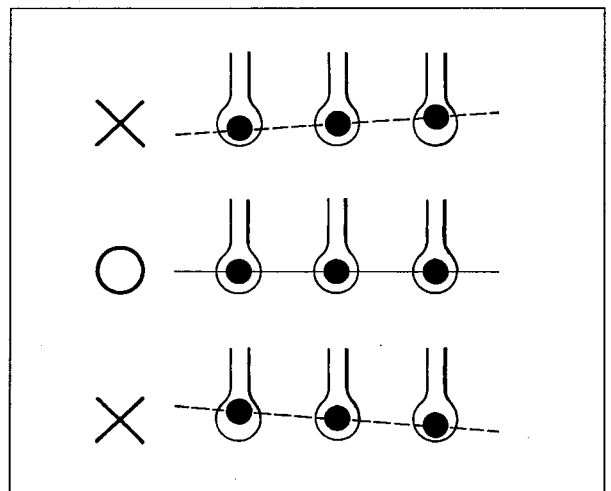


Fig. 53

6.8 Front-and-rear position of needle and looper

- (1) Turn the handwheel until the looper tip ④ meets the center of the left needle ⑤.
- (2) Loosen the screw ③. Move the looper holder back or forth to make the clearance between the back of the left needle ⑤ and the looper tip ④ to 0.2 - 0.3 mm. Then, tighten the screw ③ securely.

NOTE

When tightening the screw ③, front-and-rear position of the looper ② may be shifted. Recheck the position after tightening it.

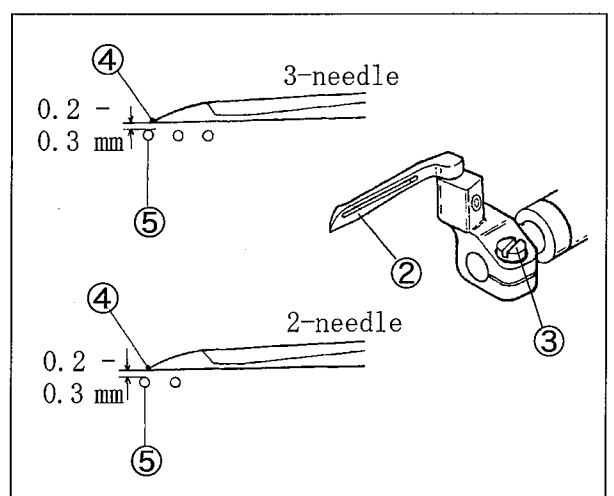


Fig. 54

6.9 Needle and needle guard (rear)

Height of needle guard(rear):

- (1) Rotate the handwheel until the needle is raised and the looper ① tip comes to the center of the left needle ②.
- (2) Loosen the screw ③.
- (3) Adjust the needle guard(rear) ④ so that the left needle ② tip can be held 0.1 - 0.3 mm above the flat part "b".
- (4) Tighten the screw ④ slightly.

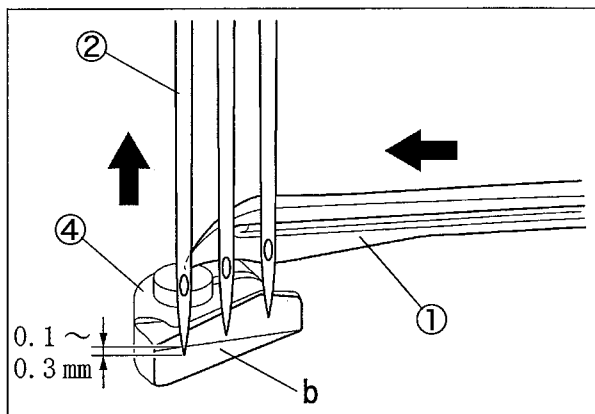


Fig. 55

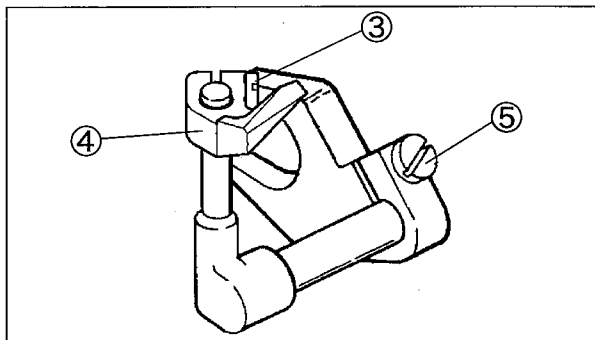


Fig. 56

Front-and-rear position and angle between needle guard (rear) and needle:

Loosen the screws ③ and ⑤ to make adjustments. At the same time, let the adjustments meet the following three conditions.

- (1) When the looper ① moves from the right to the left, and the looper ① tip meets the right needle, the needle guard(rear) ⑤ pushes the right needle so that the clearance between the right needle and the looper ① is 0. (Fig. 57)
- (2) When the looper ① tip meets the middle needle, adjust the angle of the needle guard(rear) ④ so that the clearance between the middle needle and the looper ① is 0. (Fig. 57)
- (3) When the looper ① tip meets the left needle ②, even if the left needle ② is pushed, the needle guard(rear) ④ holds the left needle ② without touching the looper ① tip. (Fig. 58)

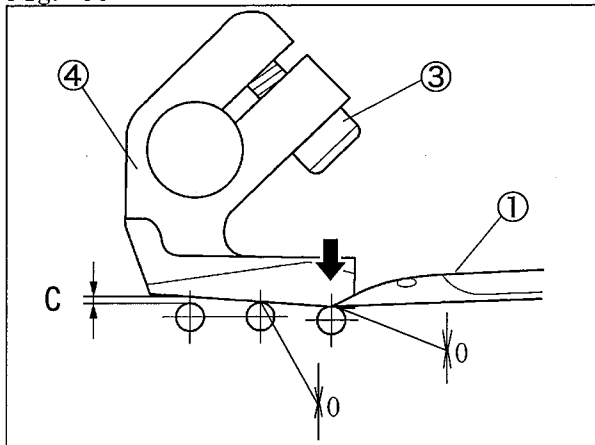


Fig. 57

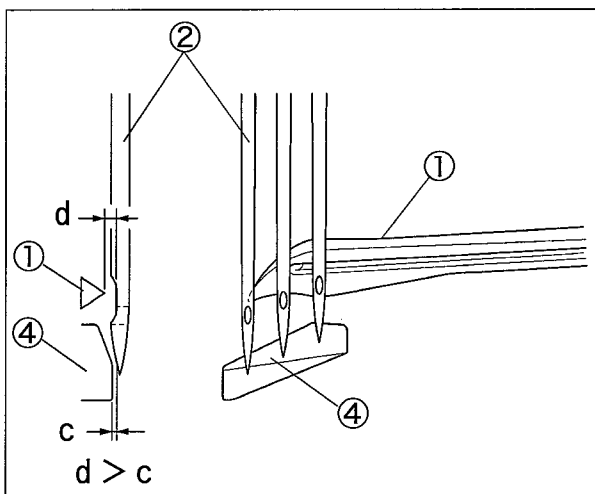


Fig. 58

In case of 2-needle machine:

Loosen the screws ③ and ⑤ to make adjustments. At the same time let the adjustment meet the conditions (1) and (3).

6.10 Needle and needle guard (front)

- (1) Turn the handwheel clockwise until the looper tip meets the center of the left needle. (Fig. 59)
- (2) Loosen the screw ①. Adjust the height from the needle tip to the angular part of the needle guard(front) ② to 1.5 - 2.0 mm.
- (3) Tighten the screw ① securely. (Fig. 60)
- (4) Loosen the screws ① and ③. Adjust the clearance between the needle guard(front) ② and the left or right needle to 0 - 0.3 mm respectively. (Fig. 61)
- (5) Tighten the screws ① and ③ securely. (Fig. 60)

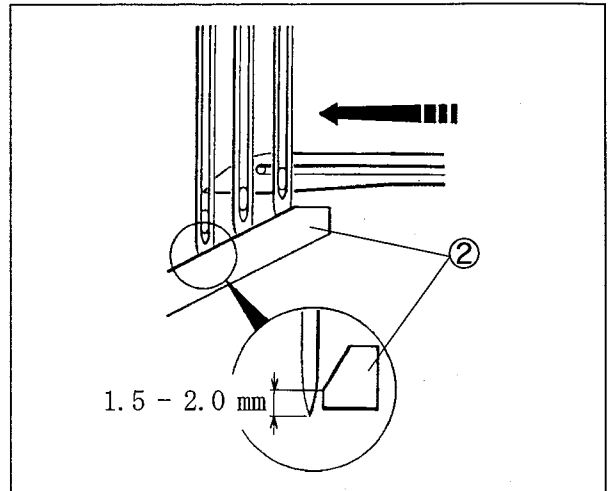


Fig. 59

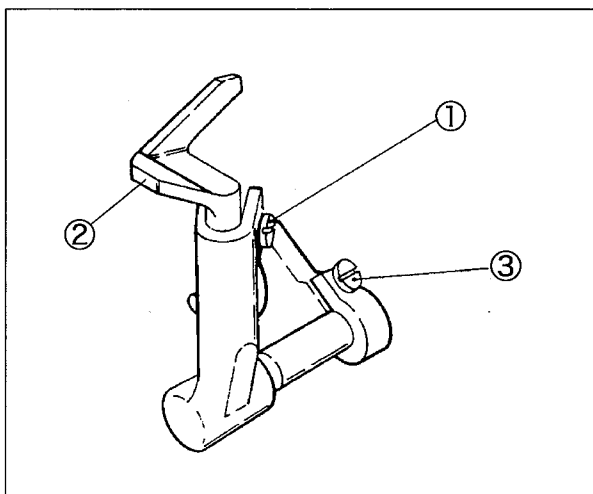


Fig. 60

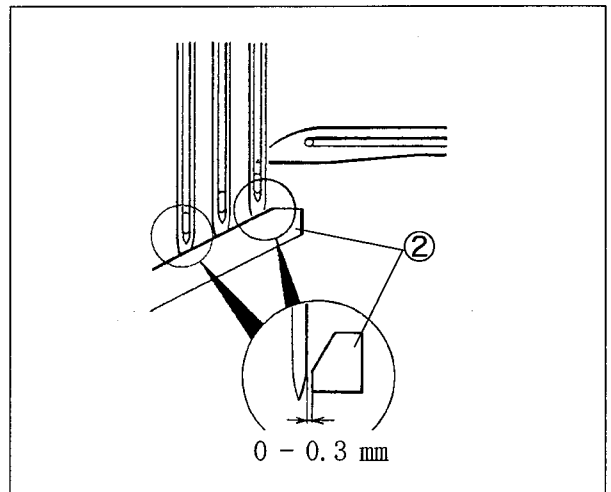


Fig. 61

6.11 Height of feed dog

As standard, adjust the height from the top surface of the stitch plate to the tops of the differential feed dog ⑤ and the main feed dog ④ to 1.0 - 1.2 mm, and make the feed dogs parallel to the top surface of the stitch plate when they are at the highest points.

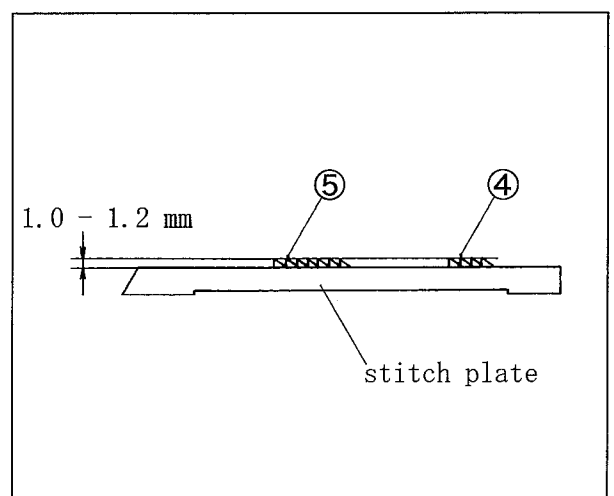


Fig. 62

6.12 Removing presser foot and presser foot lift

Presser foot lift

Without spreader: 6.0 mm

With spreader:5.0 mm

Removing presser foot

- (1) Loosen the screws② of the lifter lever stop ① and the screws⑤ of the collar④.
- (2) Loosen the screw⑦.
- (3) Push down the lifter lever③ to remove the presser foot⑧.

Adjusting height of presser foot

- (1) Push down the lifter lever③ to make the height from the top surface of the stitch plate to the bottom of the presser foot to 6.0 mm (in case with spreader 5.0 mm).
- (2) Make the lifter lever stop① touch the pin⑨, tighten the screws② securely.
- (3) Make the clearance between the presser bar bushing⑥ and the top of the collar④ to 0.2 mm.
- (4) Tighten the screws⑤ securely.

After making adjustment, push down the lifter lever③ fully to check the presser foot height.

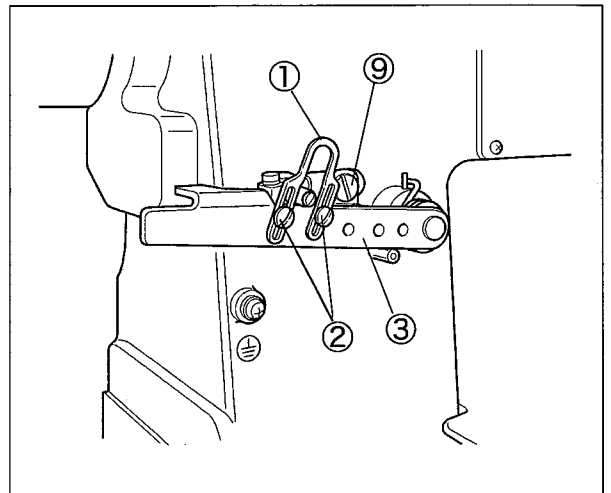


Fig. 63

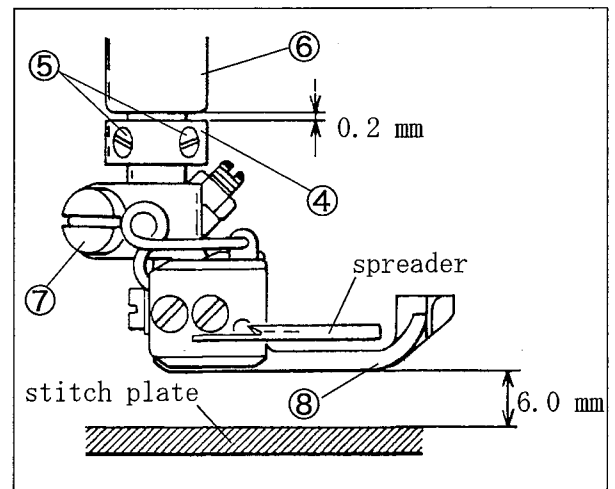


Fig. 64

6.13 Pressure of upper feed roller (for machines with puller mechanism)

Keep the pressure as low as possible, at the same time make sure that the upper feed roller and the lower feed roller can feed the fabric.

Turn the presser spring regulator ① to make adjustment.

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

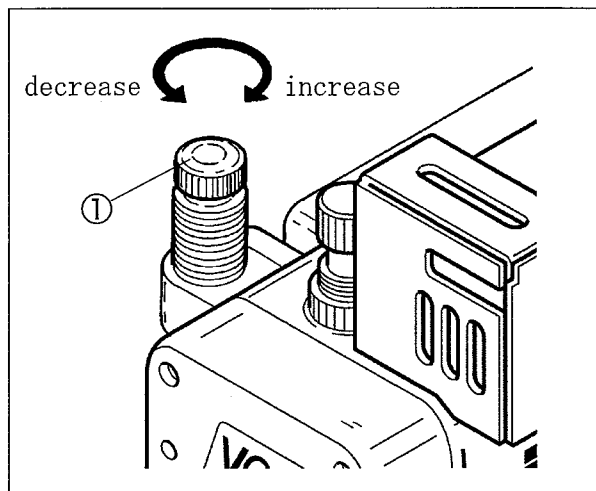


Fig. 65

6.14 Feed amount of puller (for machines with puller mechanism)

- (1) Remove the seal plug ② of the top cover.
- (2) Turn the handwheel until the screw ③ of the upper feed roller regulator comes to the top. Then loosen the screw ③ with a screwdriver with hexagon head.
- (3) Turn the handwheel until the adjusting screw ④ comes to the top.
- (4) Turn the adjusting screw ④ to adjust the feed amount of the puller.
 - To decrease the amount, turn it clockwise.
 - To increase the amount, turn it counterclockwise.
- (5) Tighten the screw ③ with a tightening torque of 2.5 N·m.
- (6) Reinstall the seal plug ②.

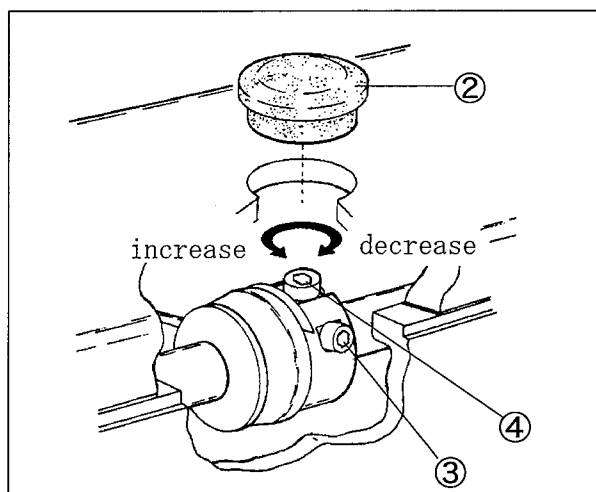


Fig. 66

6.15 Pressure of clutch tension spring (for machines with puller mechanism)

- (1) Loosen the screw② (two pcs.) of the adjusting collar① and tighten the adjusting collar① slightly.
- (2) Turn the adjusting screw③ to adjust the pressure of the clutch tension spring④.
 - To increase the pressure, turn it clockwise.
 - To decrease the pressure, turn it counter-clockwise.Keep the pressure to the level that the clutch tension spring④ can be turned smoothly by a finger.
- (3) Tighten the screw② (two pcs.) securely.

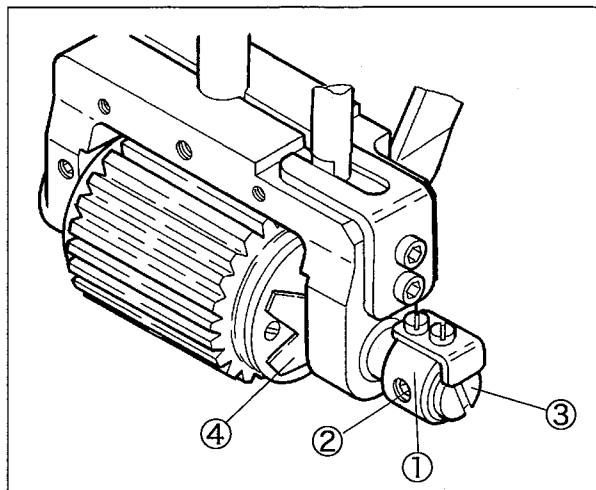


Fig. 67

7. Specifications

Model	VC2700M class
Description	Super high speed cylinder bed 3-needle (2-needle) interlock stitch machine
Dimensions	475 mm (L) × 220 mm (W) × 405 mm (H)
Circumference of Cylinder	280 mm
Weight	39 kg
Stitch Type	ISO 406, 407, 602, 605
Application	Plain seams, joint seams, and hemming operation for knitted or woven fabric
Sewing Speed	Up to 6000 rpm (during intermittent operation) (with puller: 4500 rpm)
Stitch Length	1.4 - 3.6 mm Number of stitches per inch(25.4 mm) 7 - 18 stitches per 30 mm 8 - 21 stitches
Needle System	UY×128GAS #9 - #14 (standard: #10) (65 -90)
Needle Distance	3-needle: 4.8 mm, 5.6 mm, 6.4 mm (2-needle: 3.2 mm, 4.0 mm)
Needle Stroke	31 mm
Presser Foot Lift	Without puller: 6.0 mm With puller: 5.0mm
Feed Regulation	Push button system
Differential Ratio	Max. normal differential: 1:2.9 Max. reverse differential: 1:0.3
Differential Feed Regulation	Adjustable by adjusting knob or external lever even during operation
Lubrication	Lubrication automatically by trochoid-shaped pump
Lubricating Oil	YAMATO SF OIL No. 28
Capacity of Oil Reservoir	800 cc
Installation	Table top type or semi-submerged type

Yamato

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