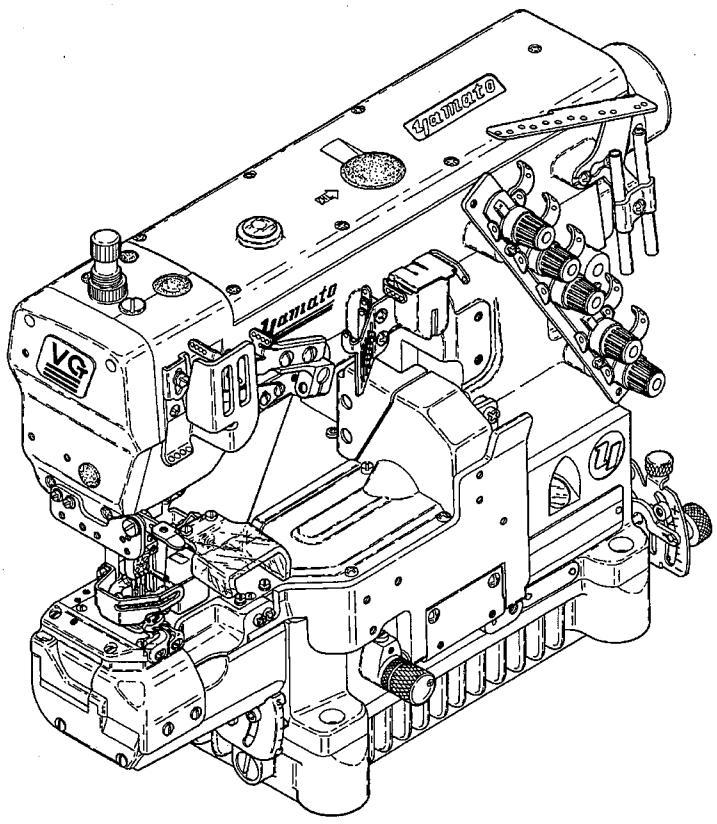
yamato®

Instruction Manual

HIGH SPEED UNIQUE CYLINDER BED CHAINSTITCH MACHINE

VG2790



Thank you for purchasing the VG2790. Before using your VG2790, 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.

CONTENTS

CONTENTS

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 ± 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.

(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.

4-2 Alert pictorial markings

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

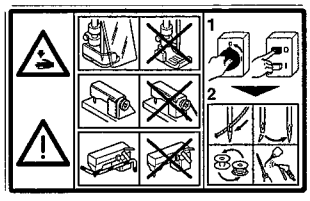
This mark indicates the caution for high temperature.

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

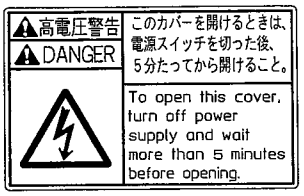
High-voltage applies in the control box. This label indicates that electric shock may be caused.

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

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.)

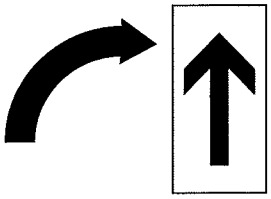


High-voltage applies in the control box. This label indicates that electric shock may be caused.

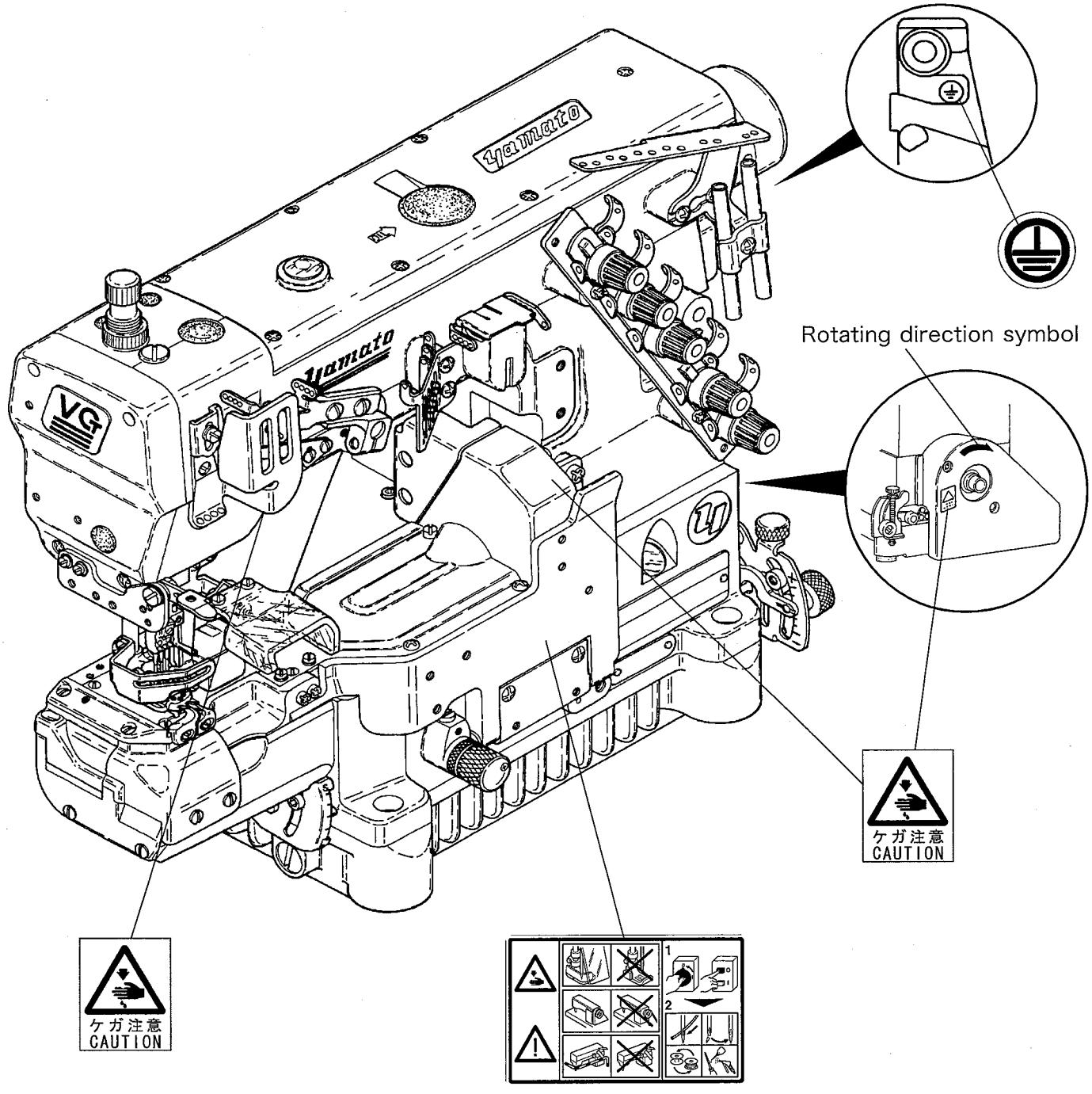
This label is affixed on the safeguards. Considering the operation, it is not affixed on the finger guard and eye guard. Be sure to

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



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


Rotating direction symbol
ケガ注意
CAUTION
ケガ注意
CAUTION

1. Name of each part

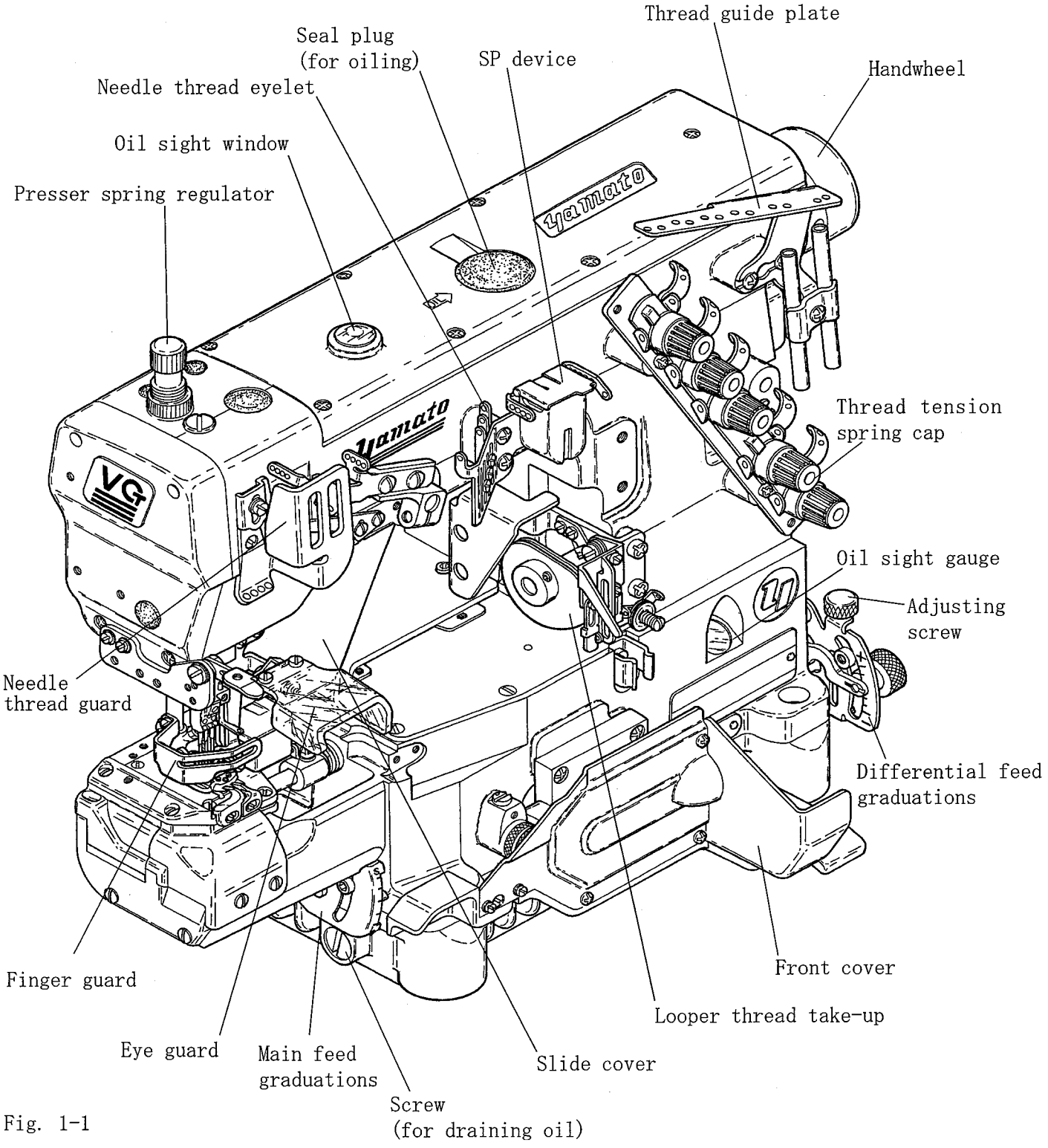
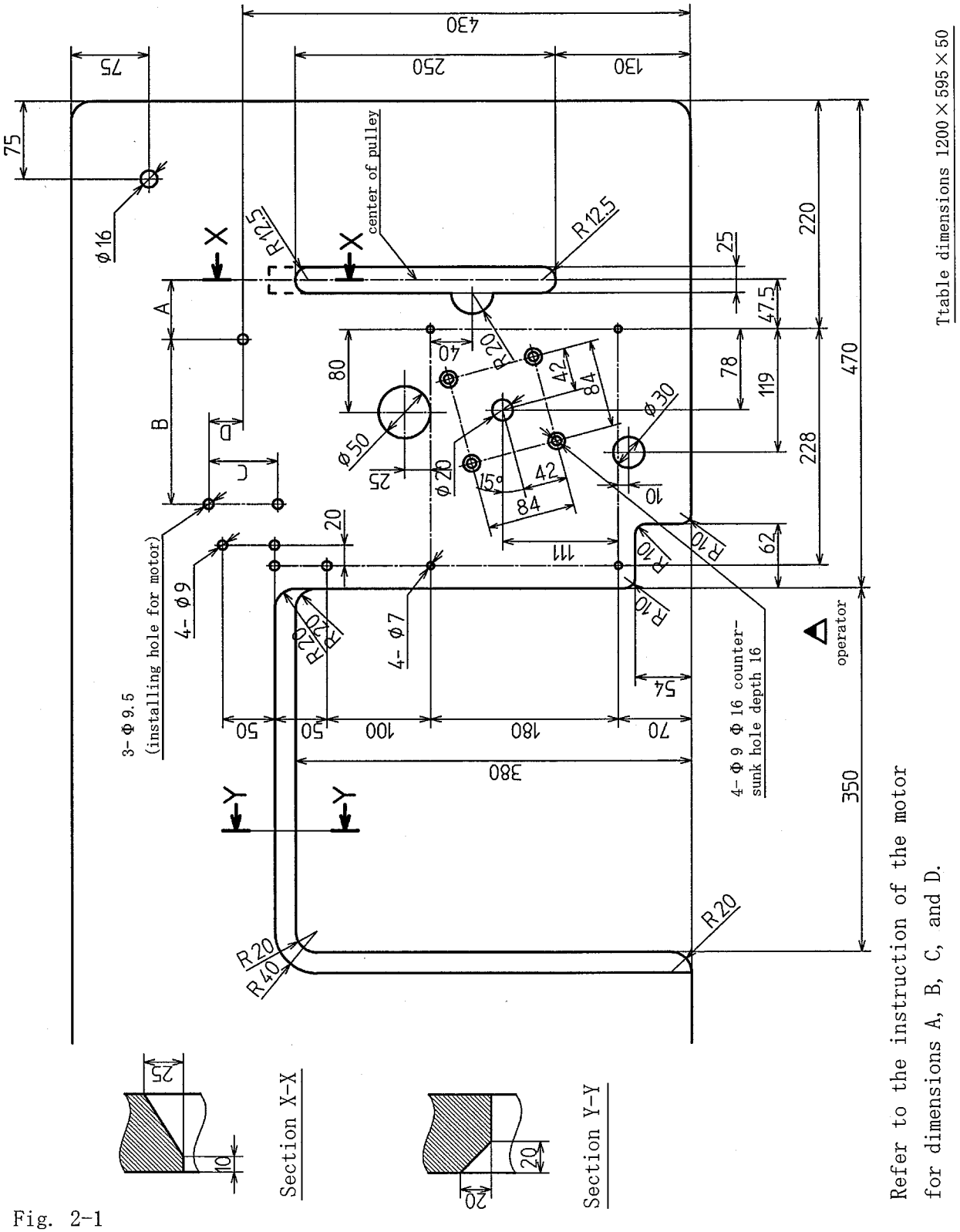


Fig. 1-1

2. Installation

2.1 Table cutting diagram

2.1.1 Table top type (Tyep A: standard)



Ttable dimensions 1200×595×50

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

Fig. 2-1

2.1.2 Table top type (Type B)

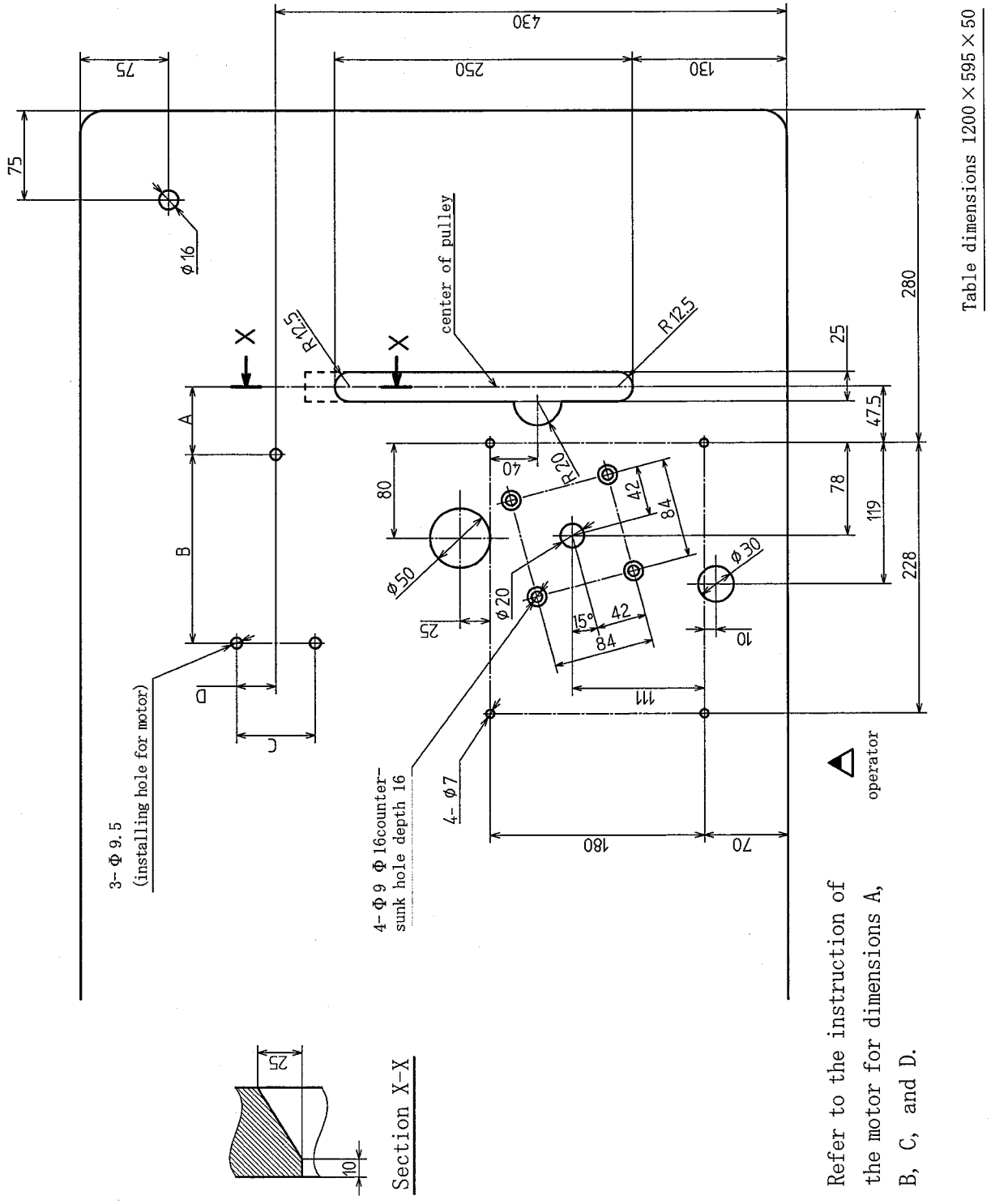


Fig. 2-2

2.1.3 Semi-submerged type

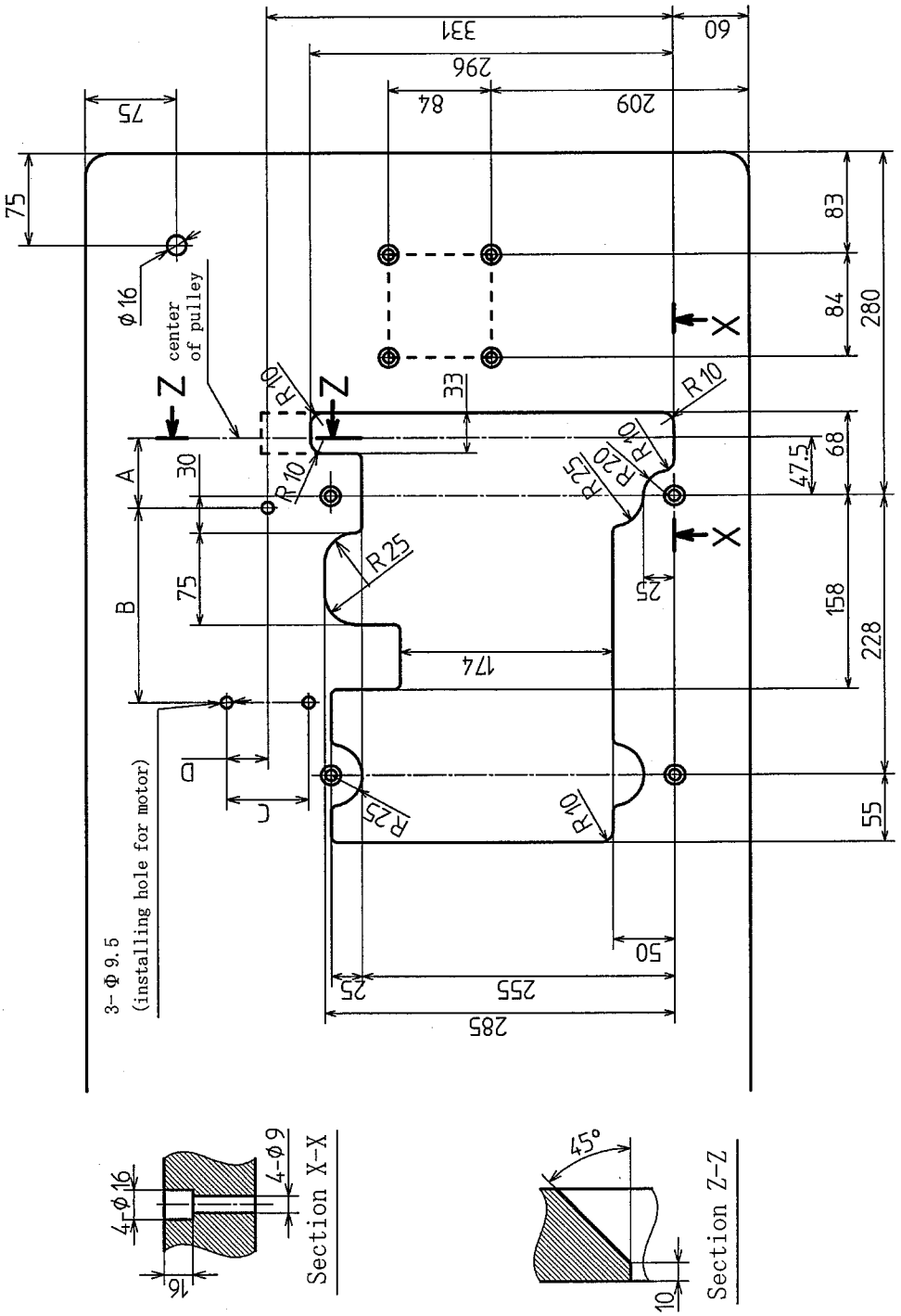


Table dimensions 1200 × 540 × 40

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

Fig. 2-3

2.1.4 Semi-submerged type with compact motor

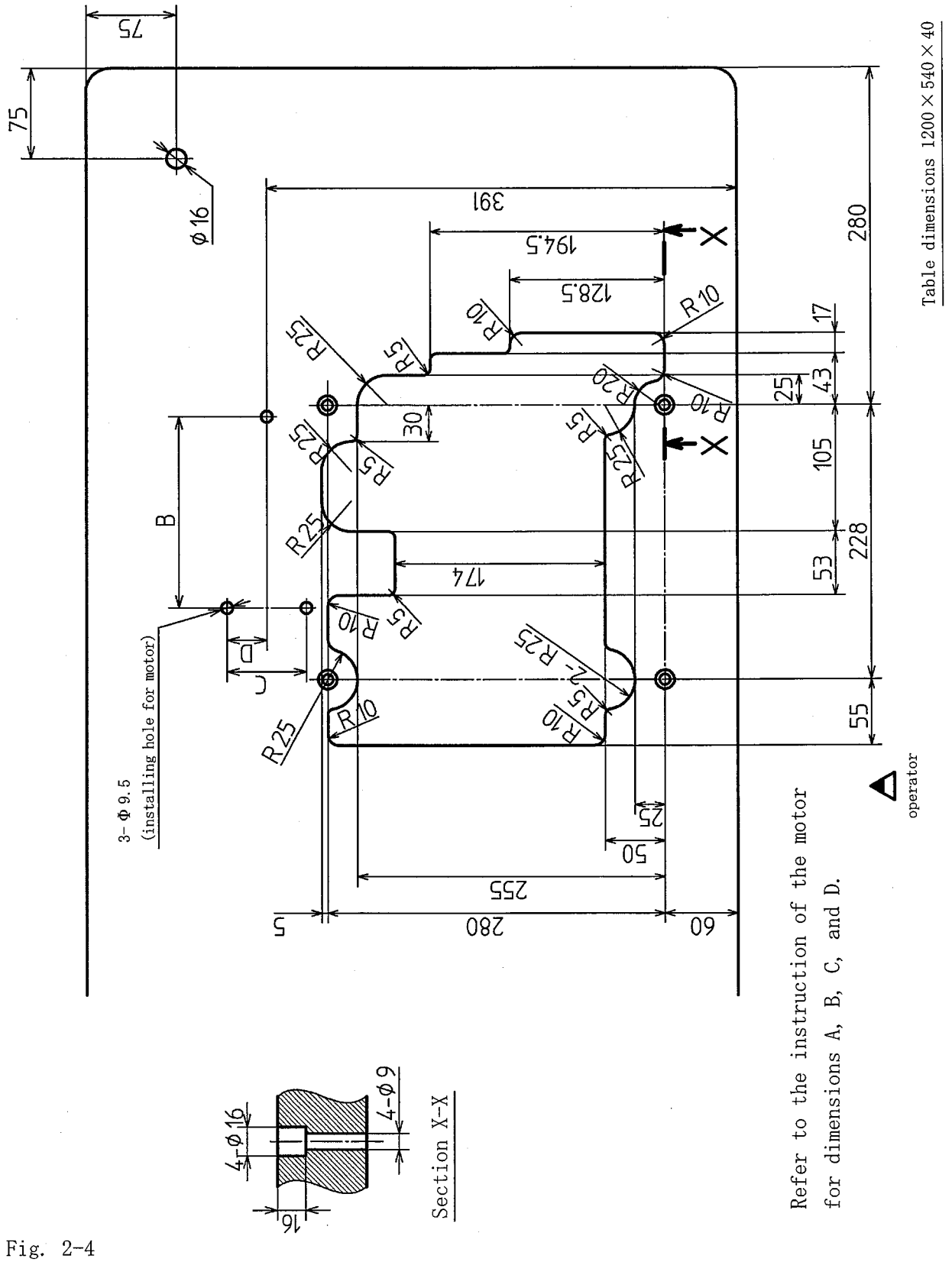


Fig. 2-4

2.2 Table top type

Install the machine correctly by referring to Fig. 2-5, 2-6.

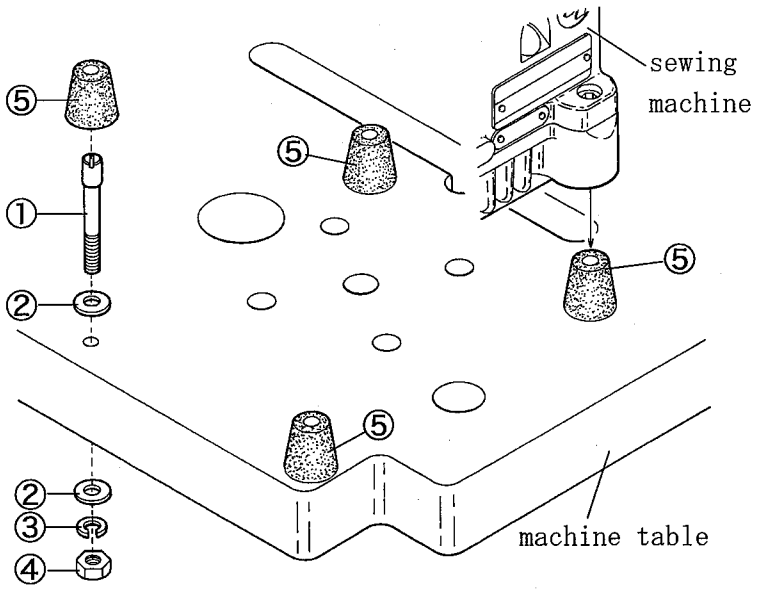


Fig. 2-5

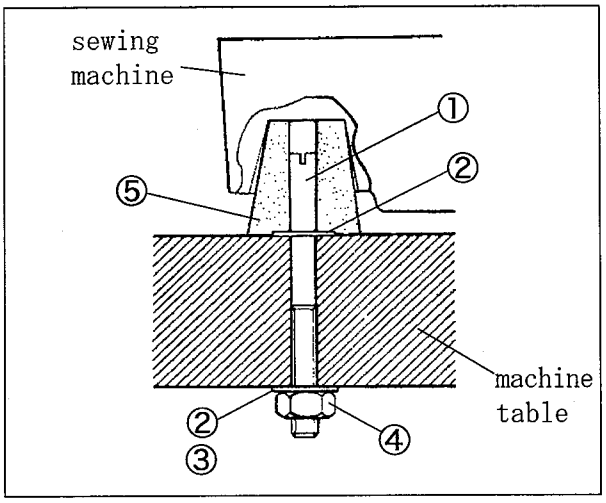


Fig. 2-6

2.3 Semi-submerged type

Install the machine correctly by referring to Fig. 2-7, 2-8.

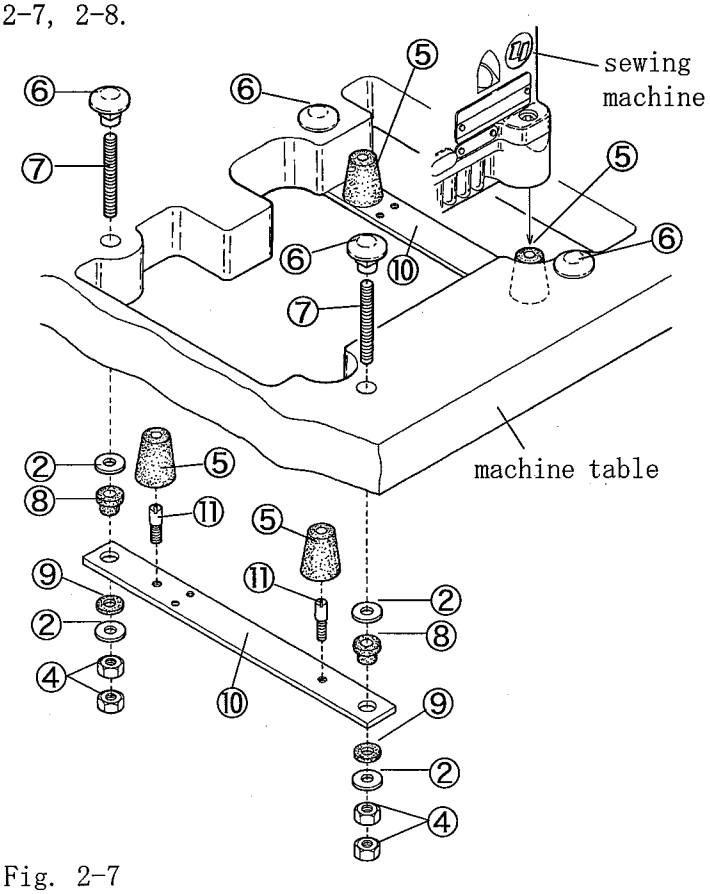


Fig. 2-7

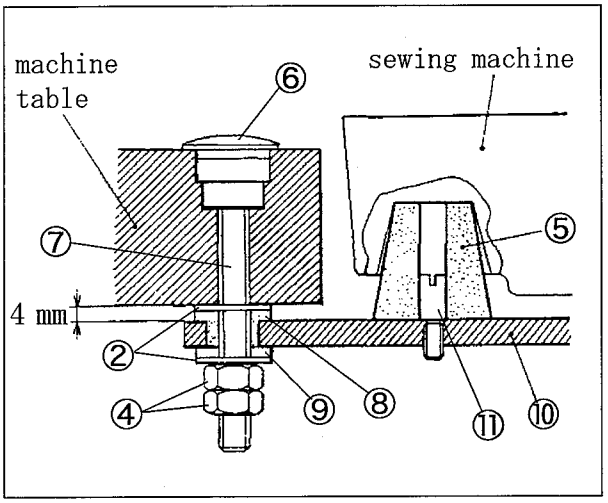


Fig. 2-8

2.4 Motor, belt and pulley

Follow 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 by toeing down the pedal.

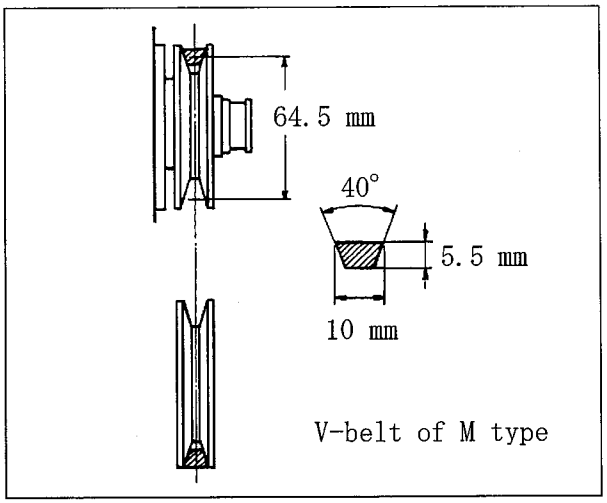


Fig. 2-9

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 which apply to the machine. If not, the sewing speed will be over maximum and it can cause the damage to the machine.

Outside diameter of pulley (mm)	rpm of machine		Size of belt	
	50Hz	60Hz	Table top	Semi-submerged
90		4600	40	33
95		4850	40	34
100		5100	41	34
105	4550	5350	41	34
110	4750	5600	41	35
115	5000	5850	42	35
120	5200	6150	42	35
125	5400	6400	42	36
130	5600		43	36
135	5800		43	36
140	6000		43	37
145	6300		44	37
150	6500		44	37

Table 1

Servomotor:

Calculate the outside diameter of a motor pulley from the following formula.
Or see Table 2 to select a proper motor pulley.

$$\text{Outside diameter of motor pulley} = \frac{\text{Usual sewing speed}}{\text{Servomoter speed}} \times 64.5 + 5 \text{ mm}$$

rpm of machine (rpm)	Outside diameter of motor pulley (mm)	
	rpm of servomotor	
	3000 rpm	3600 rpm
4200	95	80
4500	102	86
4700	106	89
5000	113	95
5200	117	98
5500	123	104
5800	130	109
6000	134	113
6200	138	116
6500	145	121

Table 2

Belt

Use a V-belt of M type.
For belt size, refer to Table 1.

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 10N(1.02kgf).
(3) Lock the pulley with the nut④.

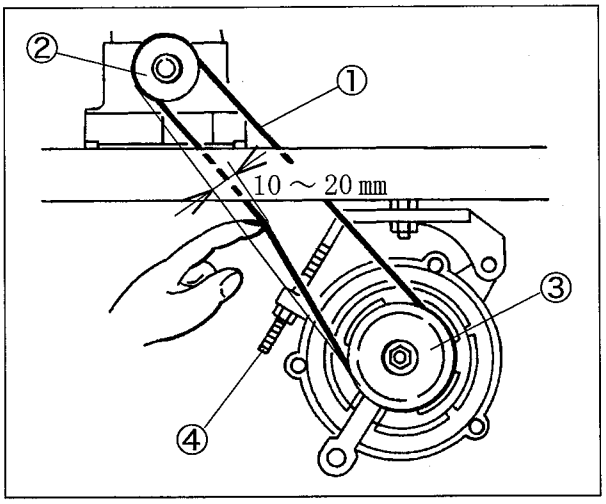


Fig. 2-10

2.6 Belt cover

⚠WARNING

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

(1) Install the belt cover①. (See Fig. 2-11)
(2) Install the belt cover support② and make it touch the belt cover① tightly. (See Fig. 2-12)
(3) Fix the belt cover(lower)③ onto the machine table only for table top type. (See Fig. 2-13)

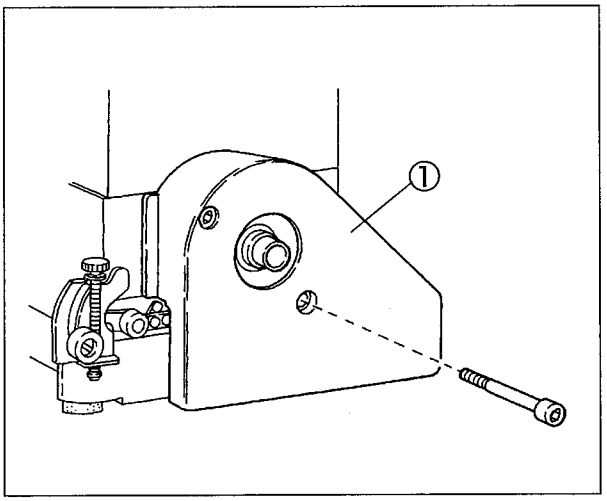


Fig. 2-11

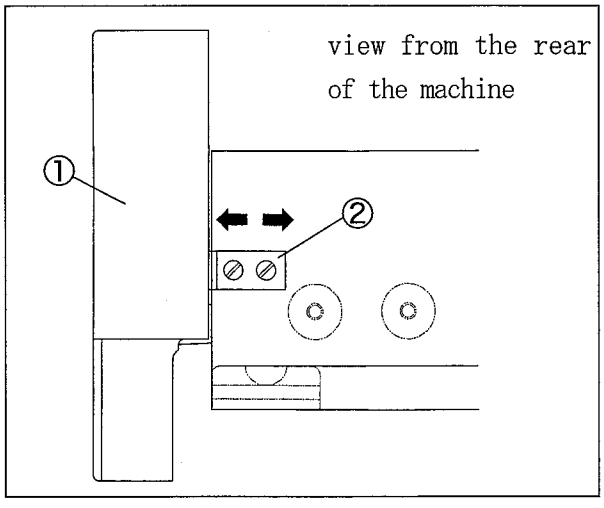


Fig. 2-12

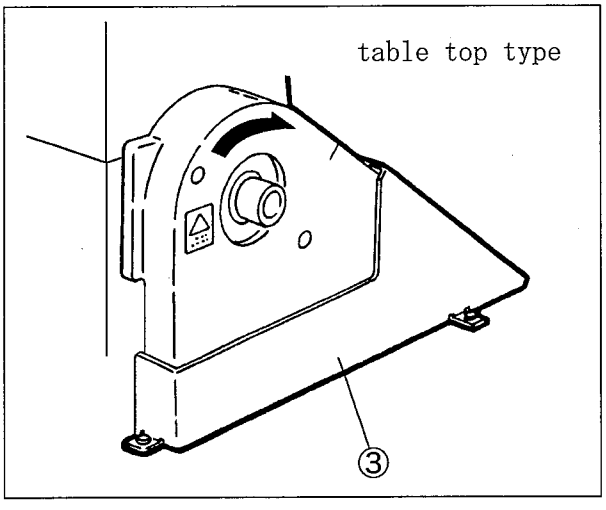


Fig. 2-13

2.7 Eye guard and finger guard

To ensure the safe use, always install the eye guard④ and the finger guard⑤ onto the prescribed position during operation.

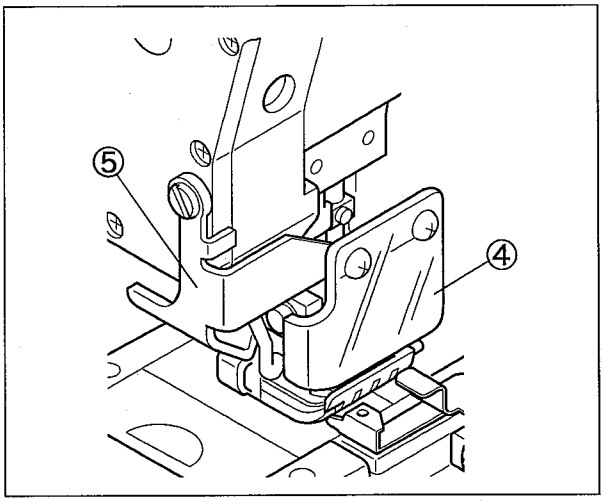


Fig. 2-14

3. Sewing speed and rotating direction of pulley

The maximum sewing speed is 6500 rpm (during intermittent operation) (the models with puller is 5000 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 pulley① and the handwheel② are clockwise as shown in the figure.

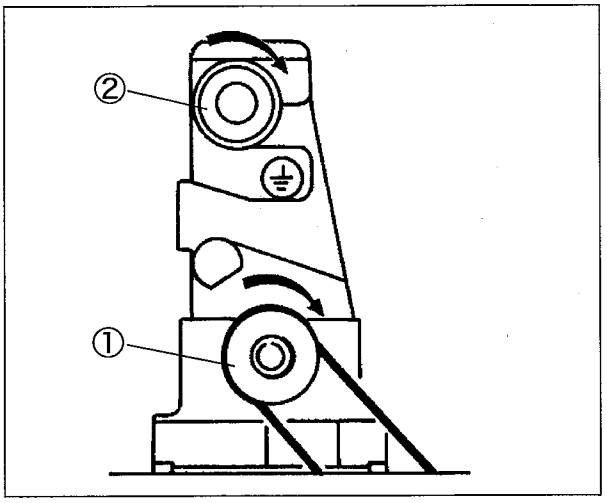


Fig. 3-1

⚠ CAUTION

If the machine pulley reverses, oil cannot be supplied properly. This may cause 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

Use YAMATO SF OIL No. 28.

⚠ CAUTION

Never add additives to the oil.
If added, it can cause the deterioration of the oil and troubles of 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.

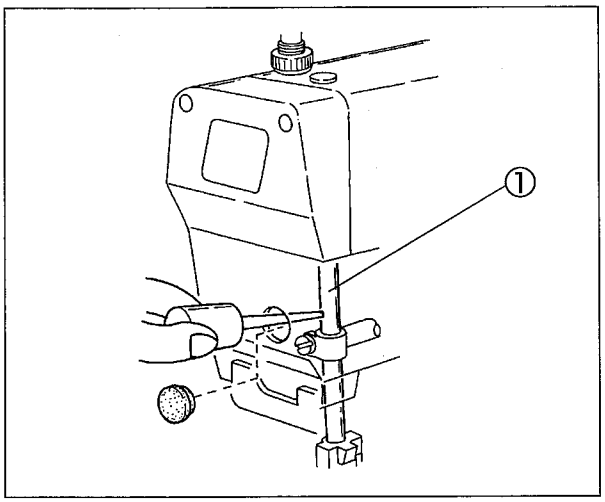


Fig. 4-1

Remove the seal plug③ indicated "OIL" and supply the oil to the upper line of the oil sight gauge④.

Make sure that the oil splashes from the nozzle inside the oil sight window⑤ when running the machine. If the oil does not splash from the nozzle, see **"4.4 Checking and replacing oil filter"** on page 12.

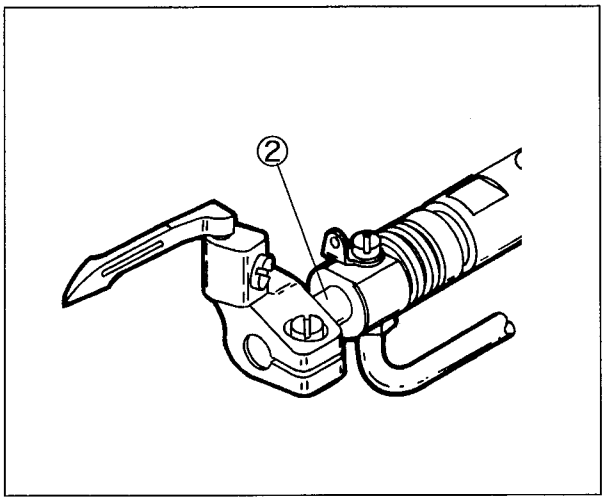


Fig. 4-2

⚠ 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 oil scatter and material stain.

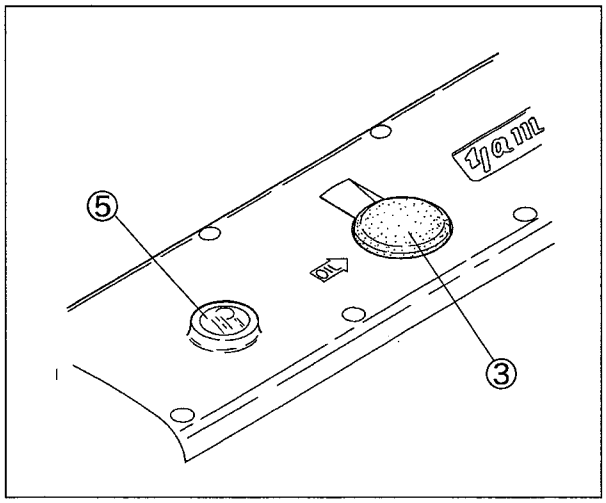


Fig. 4-3

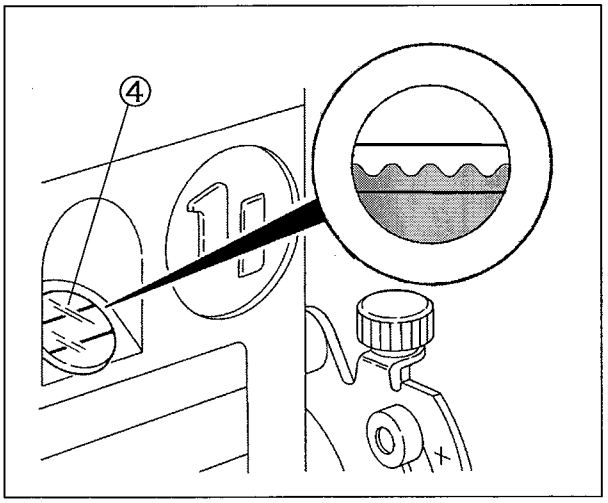


Fig. 4-4

⚠WARNING

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

4.3 Changing oil

Timing:

When using a new machine, change the lubricating oil after running the machine for 250 hours (for about one month). After that, change the oil once or twice a year.

Procedure:

(1) Remove the belt cover. (See page 8)
(2) Remove V-belt from the motor pulley. (See page 8)
(3) Remove the machine from the machine table.
(4) Set a container under the screw① to receive the oil.
(5) After removing screw①, the oil will drain out.

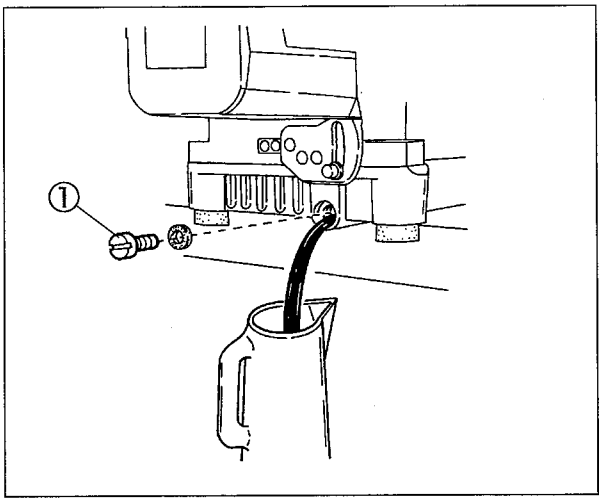


Fig. 4-5

NOTE

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

(6) Screw back the screw①.
(7) Change the oil. (See **"4.2 lubricating"** on page 11)
(8) Reinstall the machine on the machine table.
(9) Hang the V-belt back onto the motor pulley and reinstall the belt cover. (See page 8)

4.4 Checking and replacing oil filter

◆ If the oil filter② is clogged with dust, lubrication cannot be done properly.
◆ Remove the oil filter cap③ 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.

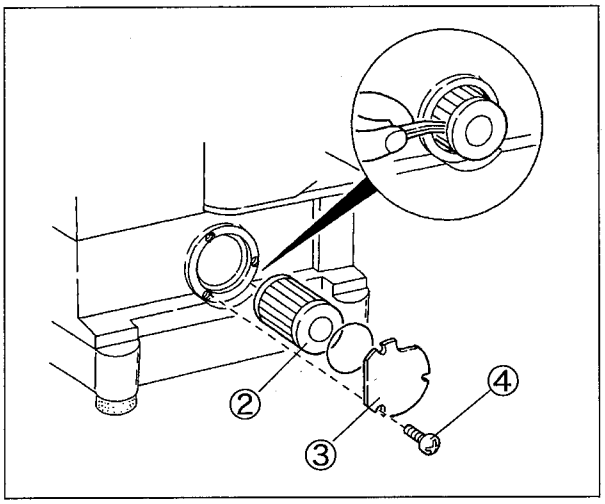


Fig. 4-6

NOTE

Be careful, the oil remaining in the oil filter ② may leak out, when loosening the screw ④.

5. Proper operation

5.1 Needle system

Proper needles for this machine are UY × 128GAS (UY128GAS).
Select proper needles in size according to the thickness and type of 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 installing, ALWAYS turn the power switch OFF and check that the machine has already stopped.

(1) Loosen the screws① with a screwdriver. (Fig. 5-1)
(2) Remove the old needle with a pair of tweezers.
(3) Insert a new needle deep into a hole of the needle clamp② so that the scarf of the needle is positioned to the right rear. (Fig. 5-2, 5-3)
(4) Tighten the screws① with the screwdriver.

NOTE

Tighten the screws① with a tightening torque of 0.6N·m(6kgf·cm).

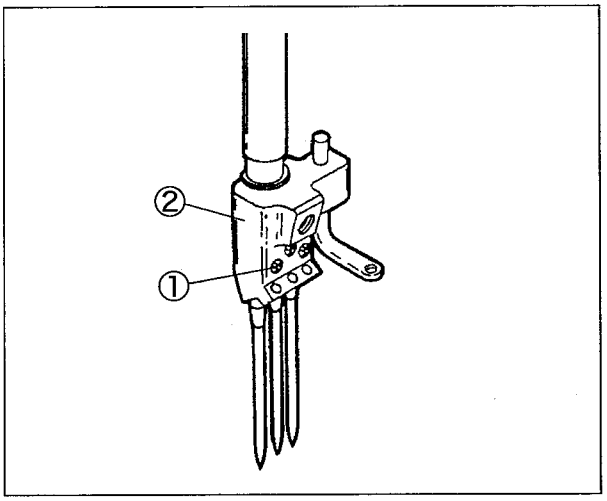


Fig. 5-1

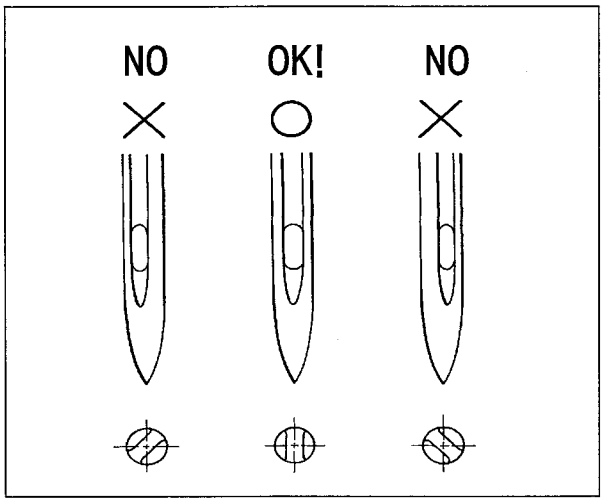


Fig. 5-2

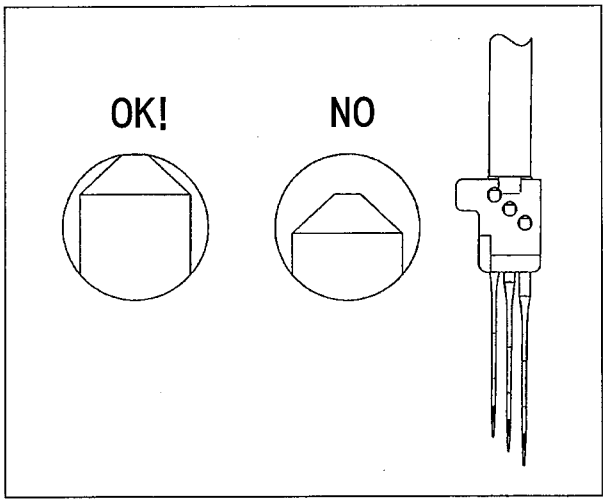


Fig. 5-3

5.3 Threading

☆ 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 of Fig. 5-4.

☆ When threaded, tie new threads with the preset threads for rethreading.
☆ When not threaded, thread correctly as shown in Fig. 5-4.

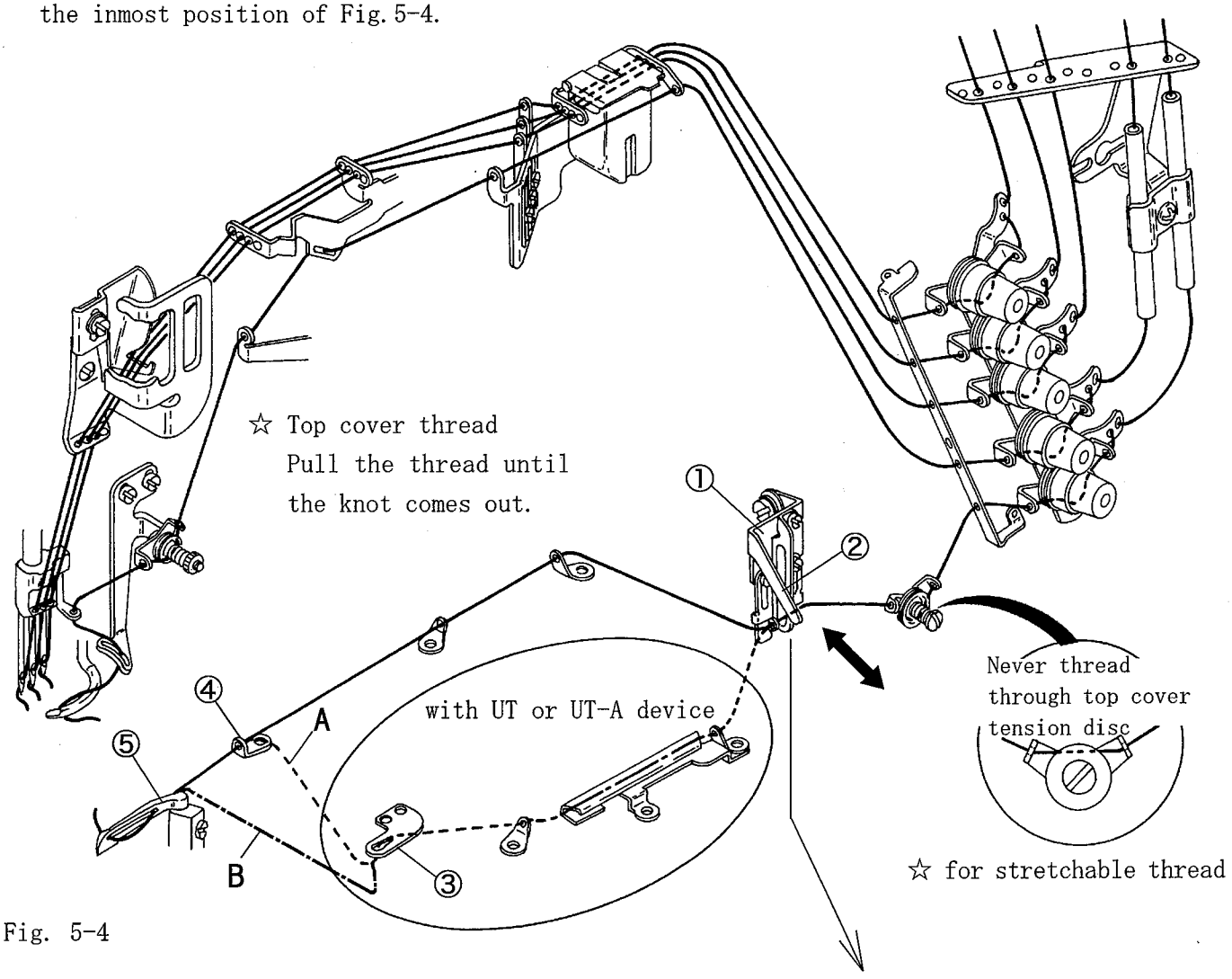


Fig. 5-4

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

Note: Threading for machines with UT or UT-A device
* For standard type thread, thread through the looper thread eyelet(left)④ via the looper thread pull-off③. (Thread A)
* For cotton thread or polyester thread, thread directly through the looper⑤ via the looper thread pull-off③. (Thread B)

Note: For easy threading, pull up the lever② of the thread take-up eyelet holder①.
After threading, press the lever② down to return the thread take-up eyelet holder① back to the original position.

5.4 Adjusting thread tension

Adjust the thread tension by the thread tension spring caps① 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 the thread tension, turn the caps counterclockwise.

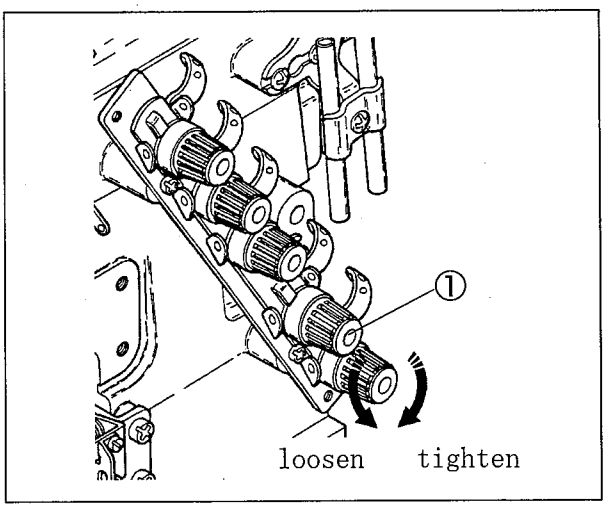


Fig. 5-5

5.5 Pressure of presser foot

Loosen the lock nut② and turn the presser spring regulator③ 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.

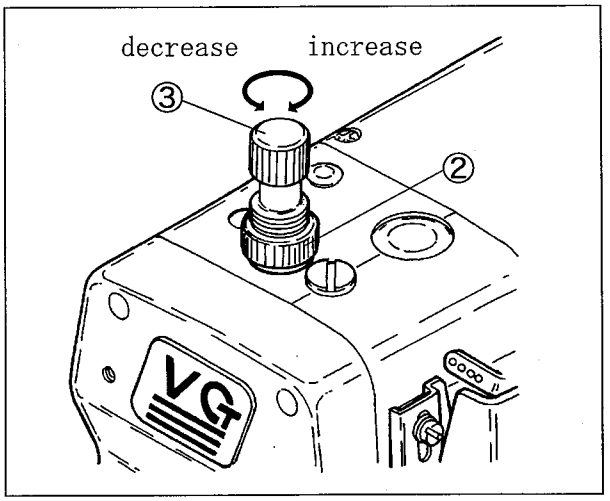


Fig. 5-6

5.6 Adjusting position of presser foot

⚠WARNING

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

Adjust left-and-right position of the needle holes of the presser foot.
Loosen the screw④. Move the front part of the presser foot right or left so that the needles can drop in the center of the needle drops respectively.
Then, tighten the screw④ securely.

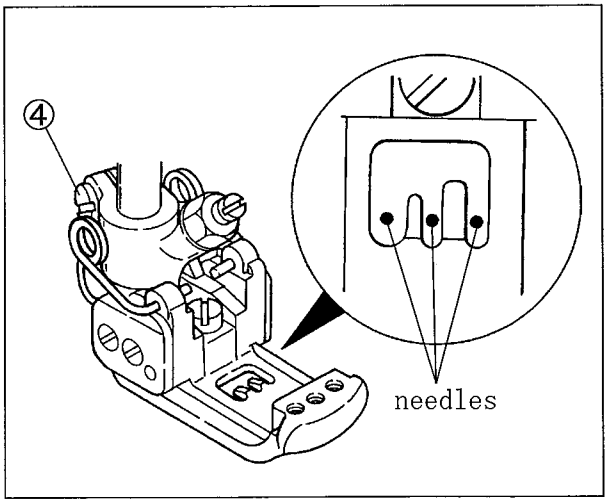


Fig. 5-7

⚠WARNING

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

5.7 Adjusting movement of differential feed dog

The differential ratio has been set from 1:1.1 to 1:1.5 at shipment. The ratio of 1:1.5 can be obtained when the stitch length is less than 3.6 mm.

(1) Loosen the lock nut③.
(2) Turn the adjusting screw④ to adjust the movement of the differential feed dog.

- To increase the movement for gathering sewing, turn it clockwise.
- To decrease the movement for stretching sewing, turn it counterclockwise.

(3) Tighten the lock nut③ securely.

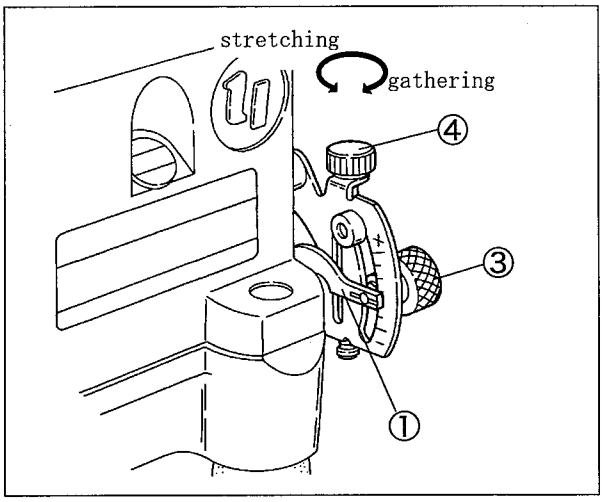


Fig. 5-8

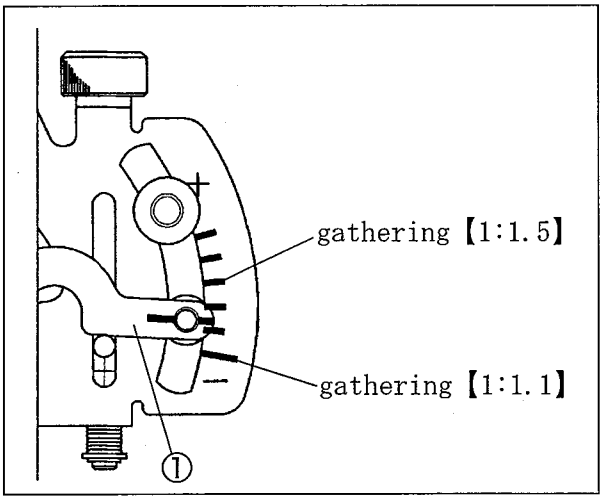


Fig. 5-9

5.8 Adjusting stitch length

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.

The main feed lever stopper⑤ has been set to stop at maximum 3.6 mm by the screw⑥ at shipment.

※In case of VG2791, the main feed lever stopper⑤ has been set to stop at maximum 4.0 mm.

Adjusting procedure:

(1) Loosen the lock nut①.

(2) Fit the end of the main feed lever④ to the desired position on the main feed graduations ③. Turn the main feed bar adjusting screw② for adjustment.

- To make the stitch length smaller, turn it clockwise.
- To make the stitch length larger, turn it counterclockwise.

Stitch length (mm)	Number of stitch (per 1 inch)	Number of stitch (per 30 mm)
1.4	18	21
2.0	13	15
3.0	8.5	10
3.6	7	8
4.0	6.3	7.5

Note: the stitch length 4.0 mm is only for VG2791

Table 4

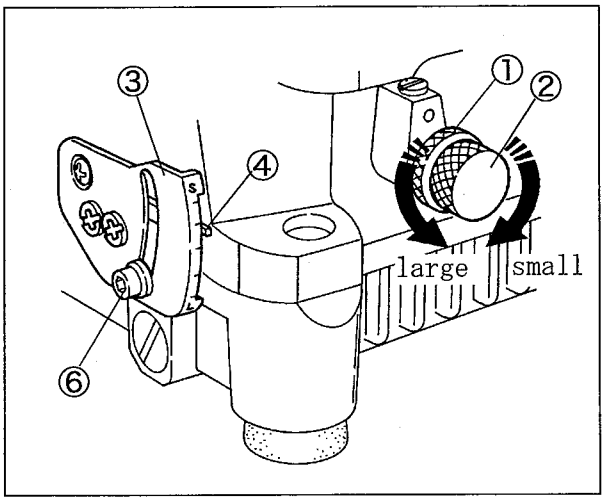


Fig. 5-10

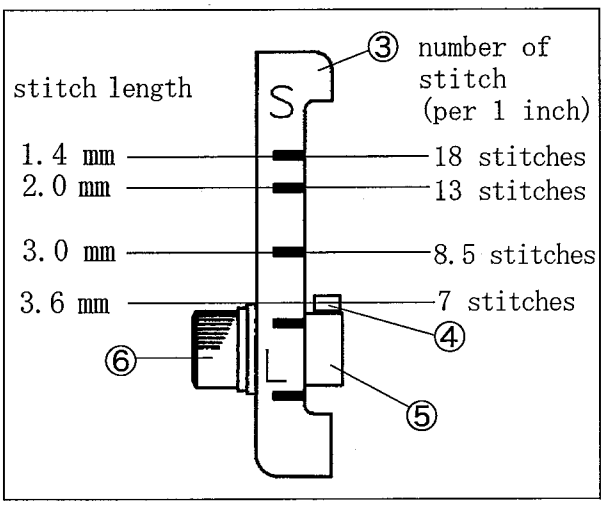


Fig. 5-11

⚠ WARNING

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

5.9 SP device

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

Oil to be used: dimethyl silicon oil.
Open the lid① of SP container to check the oil level sometimes.

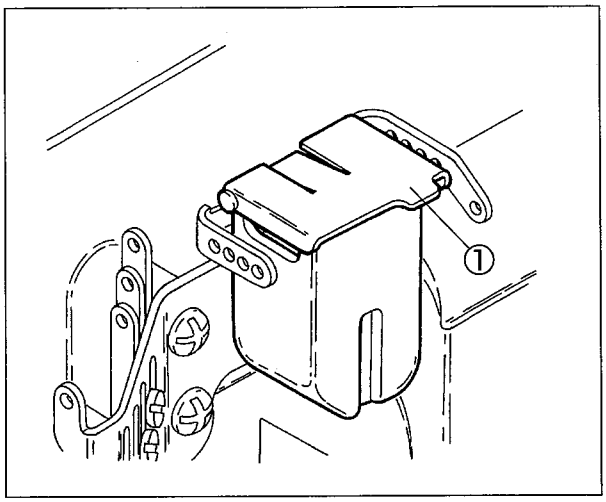


Fig. 5-12

⚠ CAUTION

1. **When not using SP device, remove the felt. If not, it may cause irregular conditions during sewing performance.**
2. **If silicone oil is sticked to the parts other than SP device, it can cause damage to the machine. Be sure to wipe it away.**

5.10 Cleaning the machine

Remove waste thread and dust from the machine at the end of work everyday.

Remove the seal plug② from the back of the machine and clean the slots in the stitch plate, feed dog area, and oil filter screen area once a week.

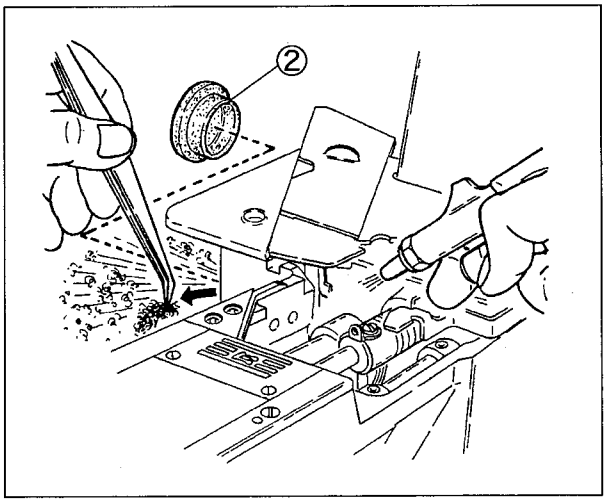


Fig. 5-13

NOTE

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

6. Adjustment

⚠WARNING

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

6.1 Needle thread tension

Needle thread eyelet:

Align the center of the screws with the lines on the needle thread eyelet bracket④ as below.

Right needle thread eyelet① : top line
Middle needle thread eyelet②: middle line
Left needle thread eyelet③ : bottom line

- To tighten the needle thread, raise the needle thread eyelet.
- To loosen the needle thread, lower it.

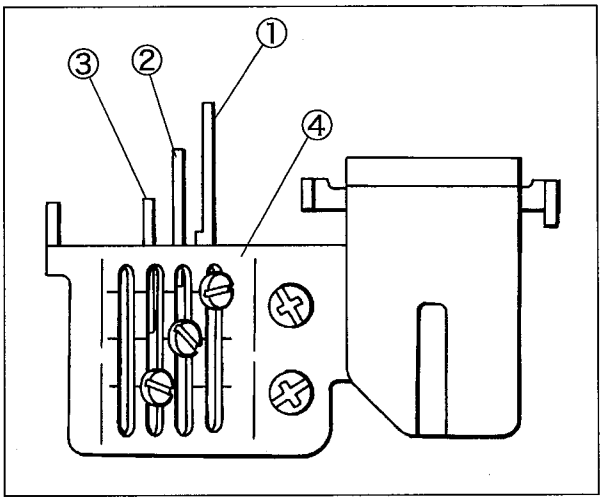


Fig. 6-1

Needle thread guide:

For standard position of needle thread guide, make the distance between the center of the eye in the needle thread take-up⑥ and the top of the needle thread guide⑤ to 2.0 mm when the needle thread take-up⑥ is at the lowest point.
Make adjustment by loosening the screw⑦.

- To make the needle thread loop larger or when using stretchable thread, raise the needle thread guide⑤.
- To make the loop smaller, lower it.

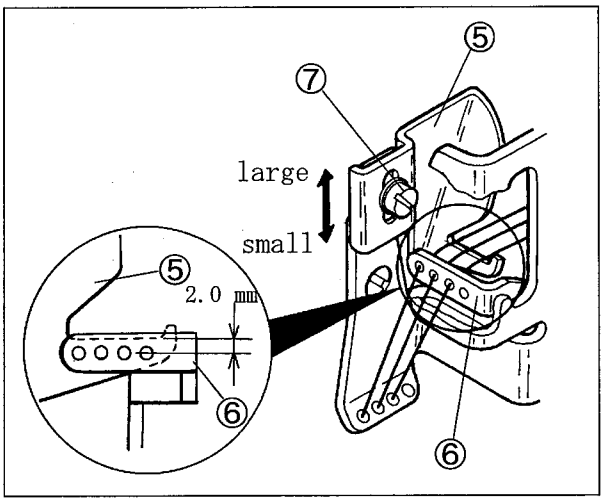


Fig. 6-2

6.2 Top cover thread tension

Align the center of the slot of the top cover thread eyelet(upper)① with the center of the screw ② as the standard position.
Make adjustment by loosening the screws② and ③.

- To increase the feeding amount of the top cover thread, raise the top cover thread eyelet(upper) ①.
- To decrease the feeding amount of the top cover thread, lower the top cover thread eyelet(upper) ①.

NOTE

When using stretchable thread like woolly, make the top cover thread eyelet(upper)① a little higher than the standard.

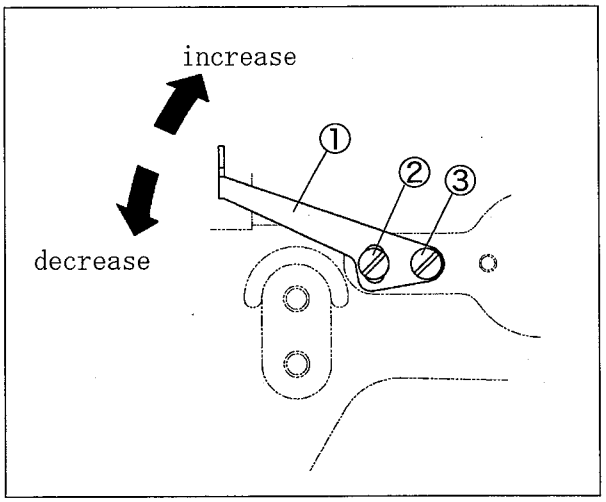


Fig. 6-3

6.3 Looper thread tension

Align the eyes of the thread take-up eyelets(left) ⑤ and (right)⑥ with the lines④ on the thread take-up eyelet holder as standard.
Loosen the screws of both thread take-up eyelets to adjust them.

- To tighten the looper thread, raise both eyelets.
- To loosen the looper thread, lower both eyelets.

NOTE

When using stretchable thread, move the thread take-up eyelets⑤ and ⑥ to the lowest points. Do not thread through the top cover tension disc⑦.

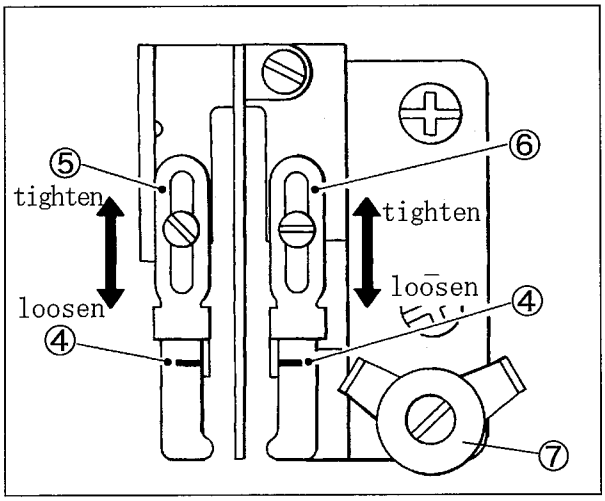


Fig. 6-4

6.4 Relation between needle and spreader

6.4.1 Spreader

(1) Loosen the screws ③ and ④ of the spreader holder. (Fig. 6-7)

(2) Make the clearance between the left needle and the hook② of the spreader① to 0.5 - 0.8 mm. (Fig. 6-5)

(3) Make the clearance between the center of the left needle and the hook② to 4.5 - 5.5 mm when the spreader① is at the extreme left. Then tighten the screw④ securely. (Fig. 6-5, 6-7)

(4) Make the height from the surface of the stitch plate to the bottom of the spreader to 8.5 - 9.5 mm. Then tighten the screw③ securely. (Fig. 6-6, 6-7)

NOTE

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

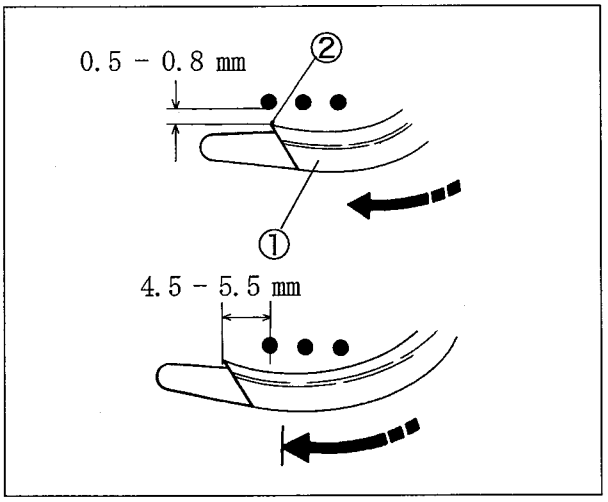


Fig. 6-5

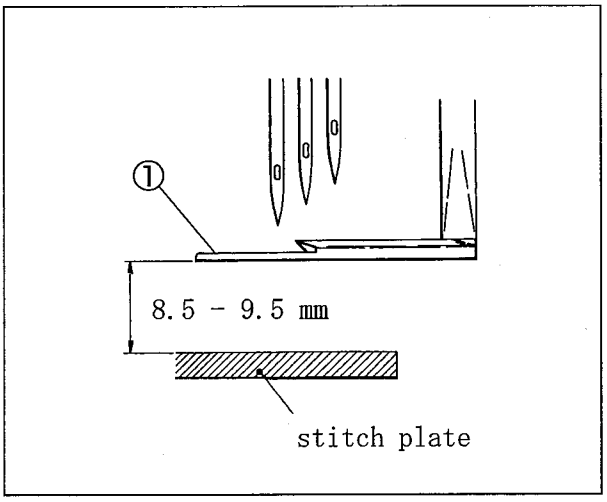


Fig. 6-6

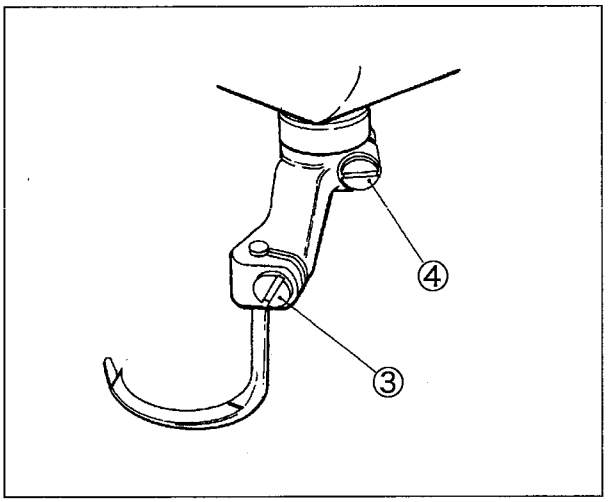


Fig. 6-7

6.4.2 Top cover thread guide

(1) Loosen the screws② of the top cover thread guide①. (Fig. 6-8)
(2) Make the clearance between the top surface of the spreader③ and the bottom of the top cover thread guide① to 0.5 mm. (Fig. 6-8)
(3) Let the center of the hook④ come to the center of slot on the top cover thread guide① when the spreader③ is at the extreme right. Then, tighten the screws② securely. (Fig. 6-8, 6-9)

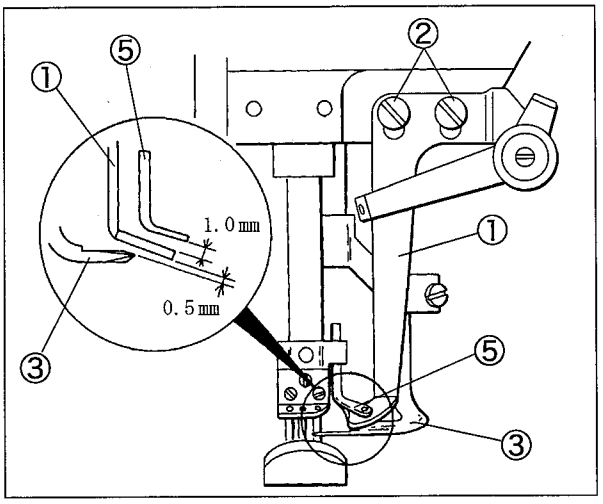


Fig. 6-8

6.4.3 Top cover thread eyelet

(1) Loosen the screw⑥ of the top cover thread eyelet⑤. (Fig. 6-9)
(2) Make the clearance between the top of the top cover thread guide① and the top cover thread eyelet⑤ to 1.0 mm when the needle bar is at the lowest point. (Fig. 6-8)
(3) Set the eye of the top cover thread eyelet⑤ on the extending line from the slot of the top cover thread guide①. (Fig. 6-9)
(4) Tighten the screw⑥ securely. (Fig. 6-9)

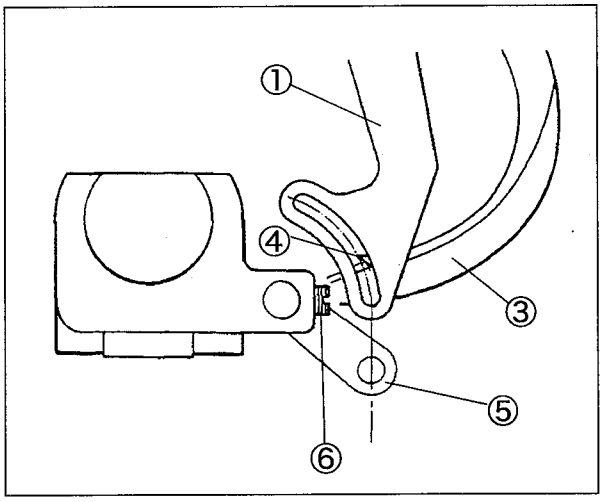


Fig. 6-9

6.5 Distance between needle and looper

The distance between the looper tip and the center of the right needle changes according to the needle distance when the needles are at the lowest points and the looper① is at the extreme right.

See Table 5 and loosen the screw② of the looper holder to make adjustment of the distance.

NOTE

The distance between the center of the needle bar and the looper① 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 5

The distance can be adjusted easily by using timing gauge (No. 95220).
The gauge is an extra part. Place an order with our agents or directly with us, if needed.

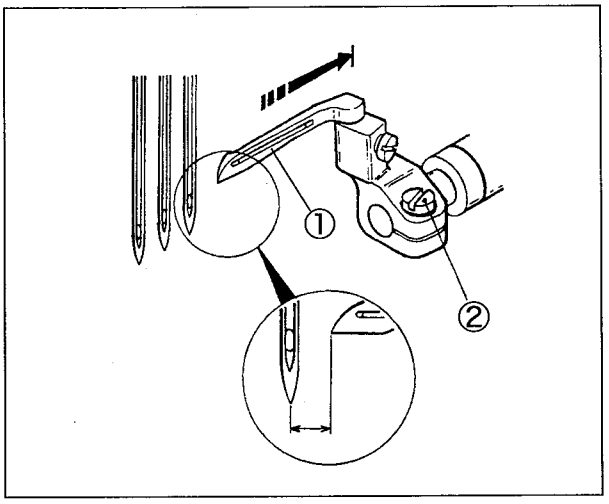


Fig. 6-10

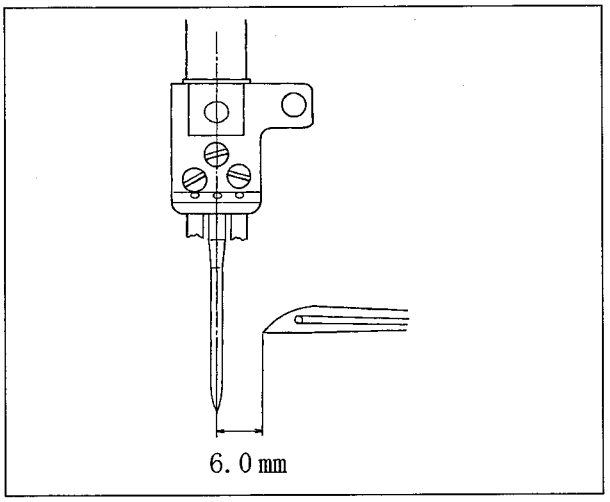


Fig. 6-11

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. Keep fitting the right needle into the groove "V" according to the needle distance, and fit the looper tip to the gauge. Then, tighten the screw② securely.

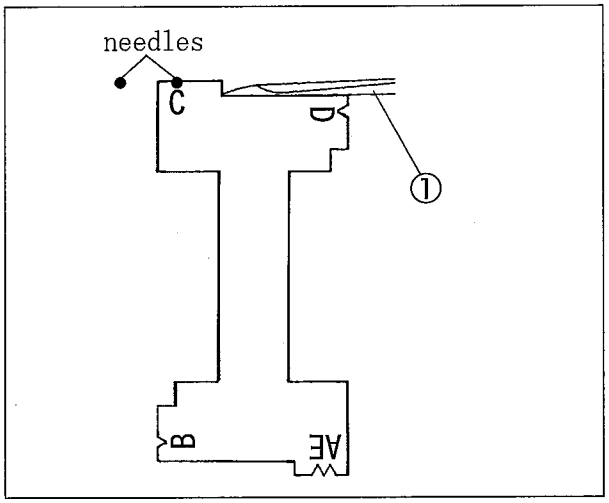


Fig. 6-12

6.7 Height of needle

(1) Install the needle into the left hole of the needle clamp.
(2) Make sure 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 screw① of the needle bar bracket and move the needle bar up and down. Make the looper tip pass the position that 0.8 - 1.3 mm above the top of the needle eye.
(5) Tighten the screw① securely. Make sure that the needle drops in the center of the needle hole on the stitch plate.

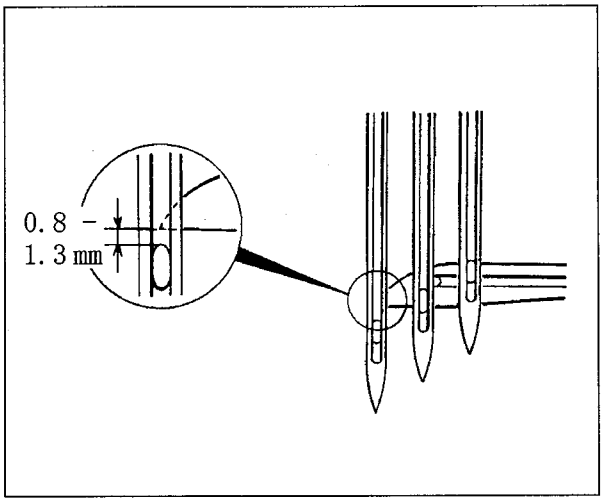


Fig. 6-13

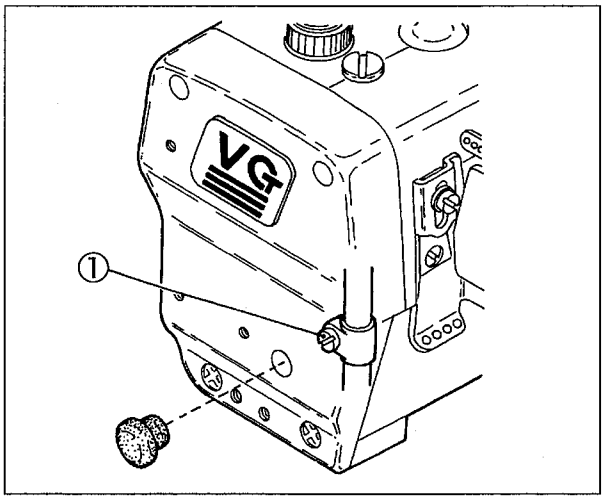


Fig. 6-14

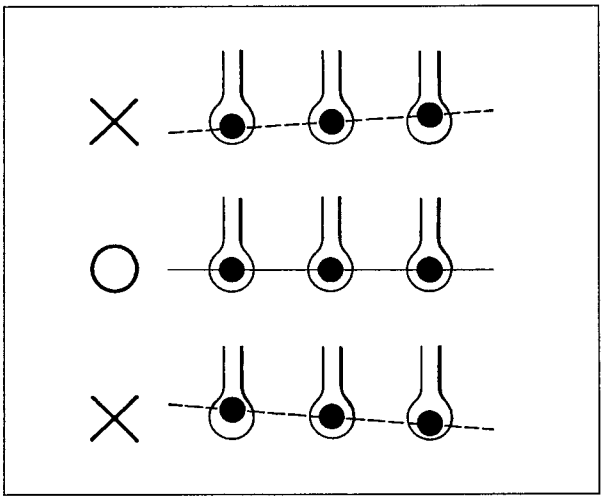


Fig. 6-15

6.8 Front-and-rear position of needle and looper

(1) Turn the handwheel until the looper tip④ meets the center of the left needle⑤.
(2) Loosen the screw③ and move the looper holder back or forth. Make the clearance between the back of the left needle⑤ and the looper tip to 0.2 - 0.3 mm. Then, tighten the screw③ securely.

NOTE

When tightening the screw③, front-and-rear position of the looper may be shifted. Recheck the position after tightening it.

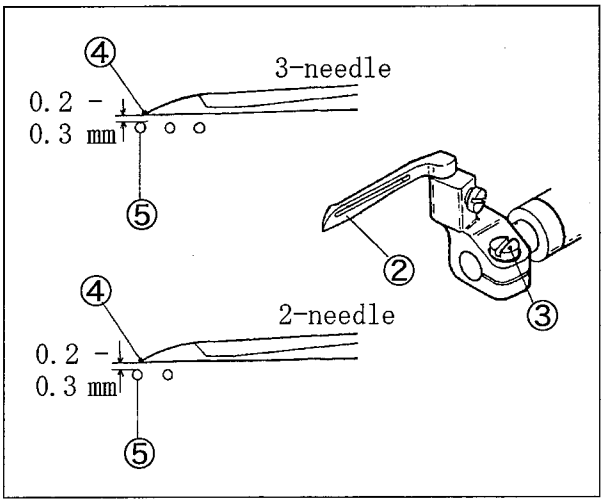


Fig. 16

6.9 Needle and needle guard (rear)

Height of needle guard(rear):

(1) Rotate the handwheel until the needle is raised up and the looper① tip comes to the center of the left needle⑤.

(2) Loosen the screw⑥.

(3) Adjust the needle guard(rear)⑦ so that the left needle⑤ tip is 0 - 0.3 mm below the ridge line⑧.

(4) Tighten the screw⑥ slightly.

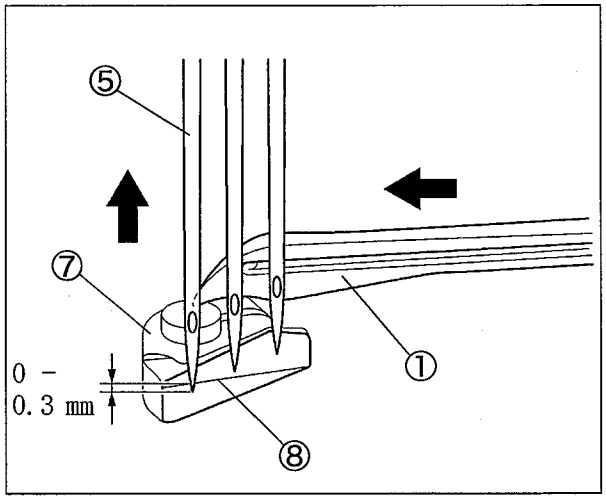


Fig. 6-17

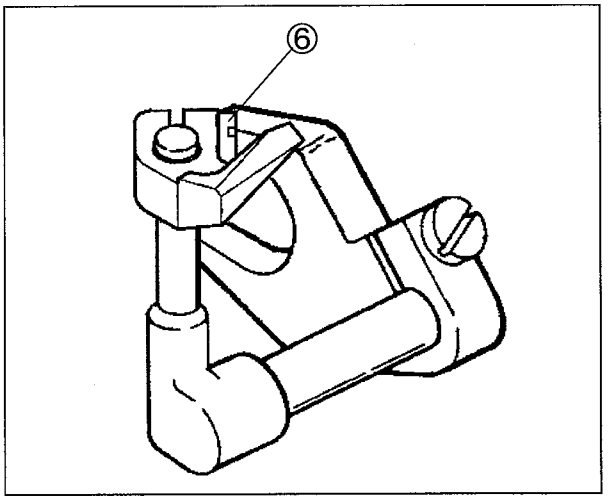


Fig. 6-18

⚠WARNING

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

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

Make adjustment by loosening the screws① and ②. At the same time, meet the following conditions.

(1) When the looper③ moves from the right to the left, and the looper③ tip meets the right needle, let the needle guard(rear)④ push the right needle to make the clearance between them to 0 - 0.05 mm. (Fig. 6-19)

(2) When raising the needles, and the upper needle eye of the left needle⑥ is aligned with the ridge line⑤ on the needle guard(rear)④, make the clearance between them to 0.2 - 0.5 mm. (Fig. 6-20)

(3) When the looper③ tip comes to the center of the left needle⑥, and the left needle⑥ is pushed onto the needle guard(rear)④, make the clearance between the looper③ and the left needle⑥ to about 0.1 mm. (Fig. 6-22)

After adjustment, tighten the screws① and ② securely.

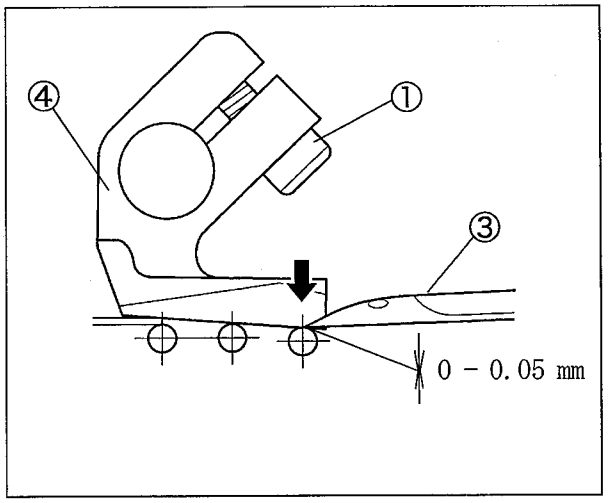


Fig. 6-19

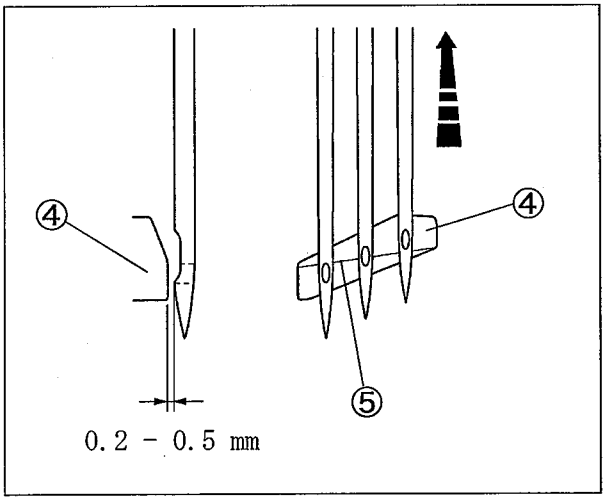


Fig. 6-20

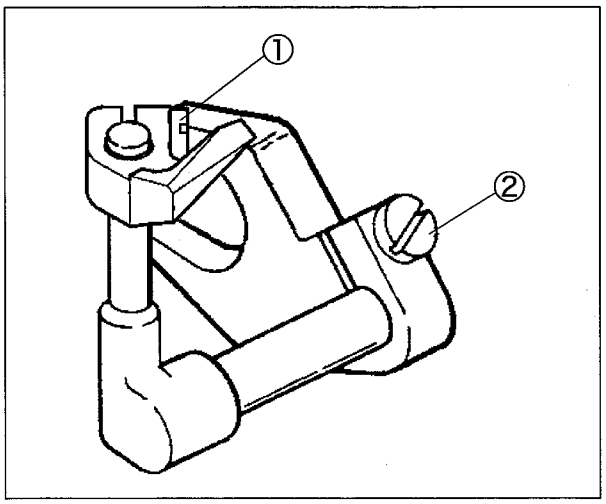


Fig. 6-21

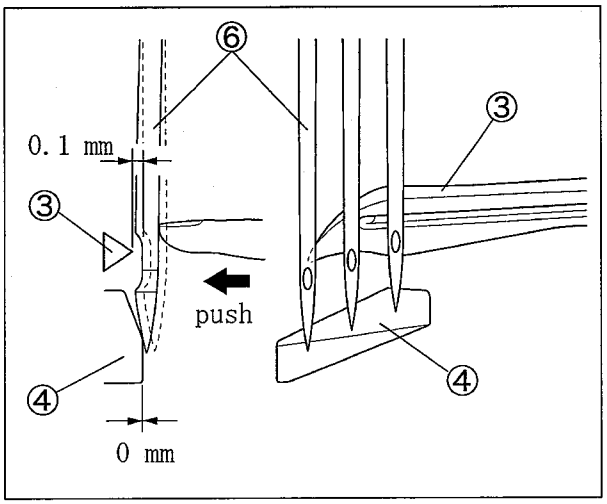


Fig. 6-22

6.10 Needle and needle guard (front)

(1) When the looper tip comes to the center of the right needle, loosen the screw②. Place the needle guard(front)① paralell to the line connecting the needles when viewing from the top. Tighten the screw②. (Fig. 6-23)

(2) Rotate the handwheel clockwise until the looper tip comes to the center of the left needle.

(3) Loosen the screw② to adjust the needle guard (front) ① so that each needle tip is 2.5 - 3.0 mm below the corner on the needle guard(front) ①. (Fig. 6-24)

(4) Tighten the screw②.

(5) Loosen the screws② and④. Make the clearance between the needle guard(front)① and the right needle or the left needle to 0.3 - 0.4 mm respectively. (Fig. 6-25)

(6) Tighten the screws② and ④ securely.

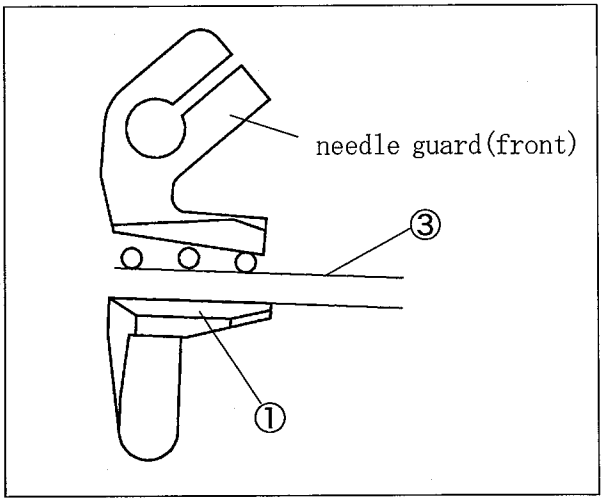


Fig. 6-23

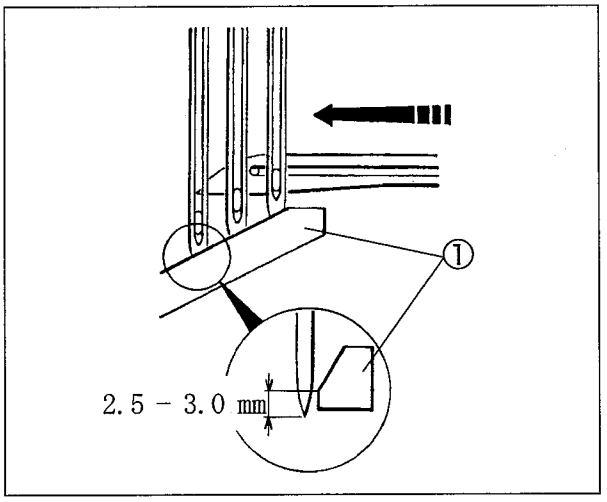


Fig. 6-24

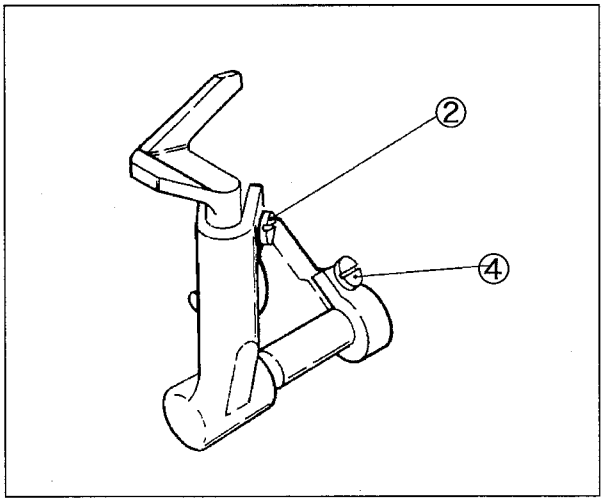


Fig. 6-25

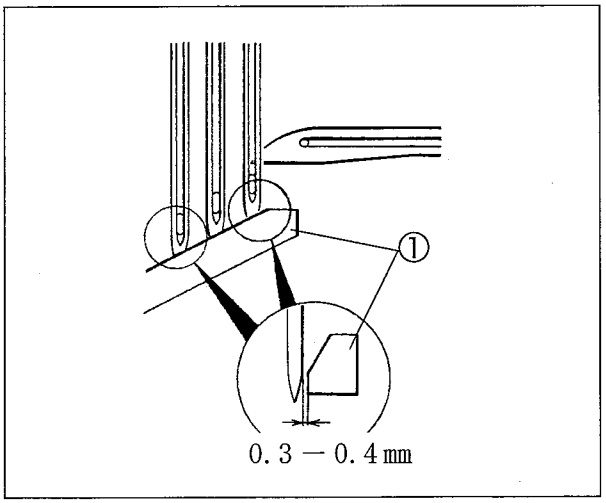


Fig. 6-26

⚠WARNING

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

6.11 Height of feed dog

Adjust the height from the top of the stitch plate to the tops of the differential feed dog① and the main feed dog② to 1.0 - 1.2 mm when the feed dogs are at the highest points. Also, make them parallel to the top of the stitch plate.
Loosen the screws③ and ④ to make adjustment.

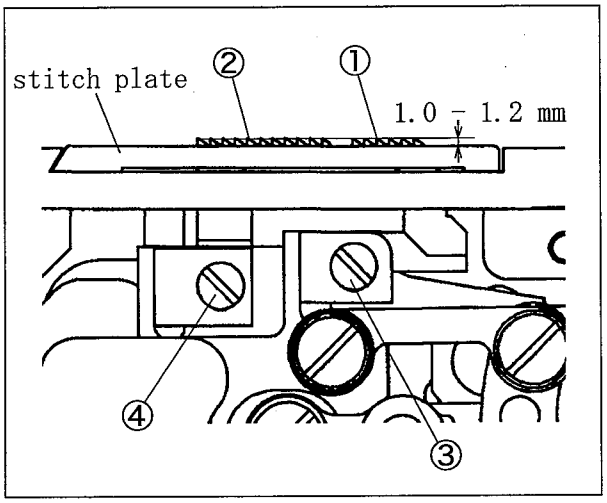


Fig. 6-27

6.12 Changing range of differential ratio

6.12.1 Differential ratio 1:1.1 - 1:2

(1) Adjust the stitch length to 2.3 mm or less.
(2) Loosen the screw of the differential feed lever stopper⑤ and set the stopper⑤ to the top.
(3) Loosen the lock nut⑥ and turn the adjusting screw⑦ clockwise. Raise the differential feed lever(right)⑧ until it touches the differential feed lever stopper⑤.
(4) Tighten the lock nut⑥ securely.

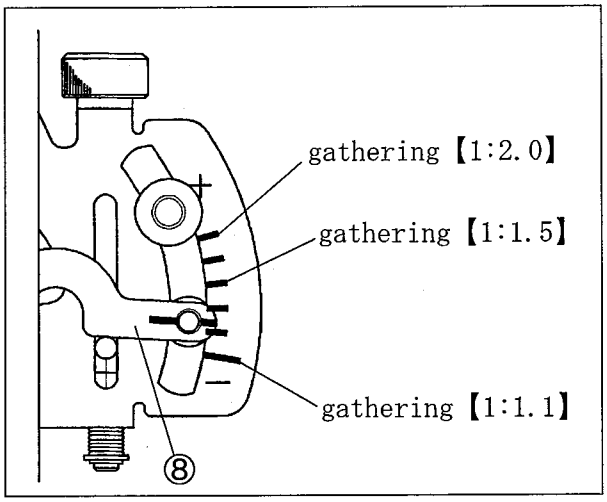


Fig. 6-28

NOTE

The following are the maximum stitch length of main feed dogs when using ration of 1:2.
VG2790 : 2.3 mm
VG2791 : 2.8 mm

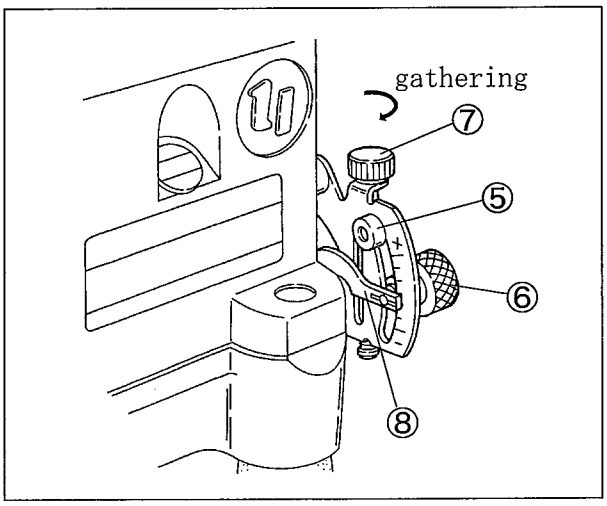


Fig. 6-29

⚠WARNING

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

6.12.2 Differential ratio 1:0.7 - 1:1.4

Removing covers:

(1) Remove the two screws, and then the stitch plate holder①.

(2) Remove the two screws, and then the front cover ②.

(3) Remove the two screws, and then the side cover ③.

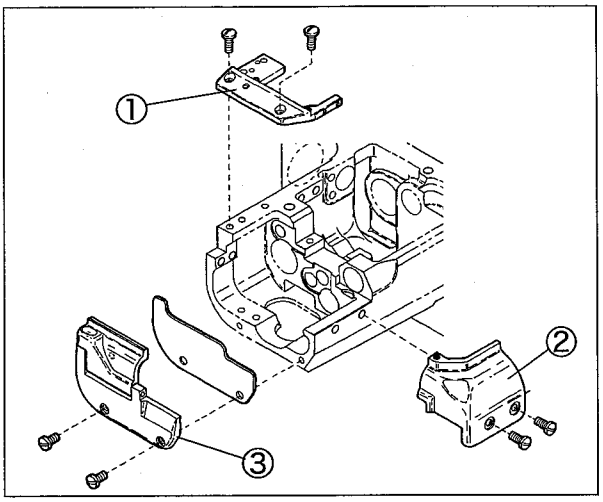


Fig. 6-30

Adjusting:

(1) Remove the screw⑤ of the differential feed bar connection④.

(2) Fix the differential feed bar connection④ to the hole⑥ with the screw⑤.

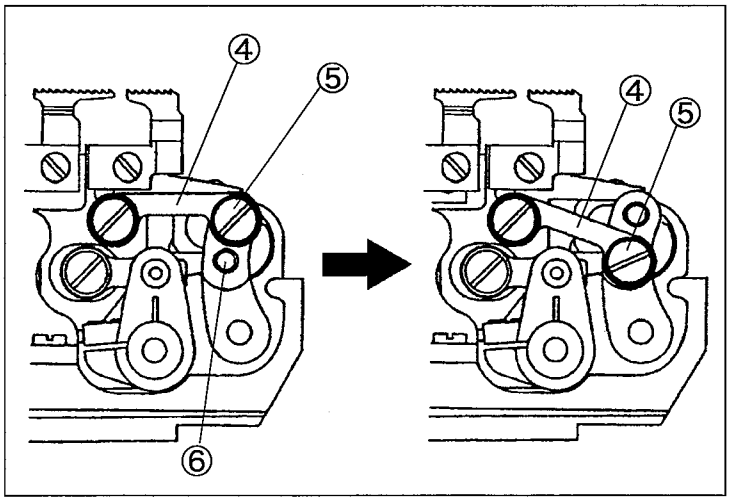


Fig. 6-31

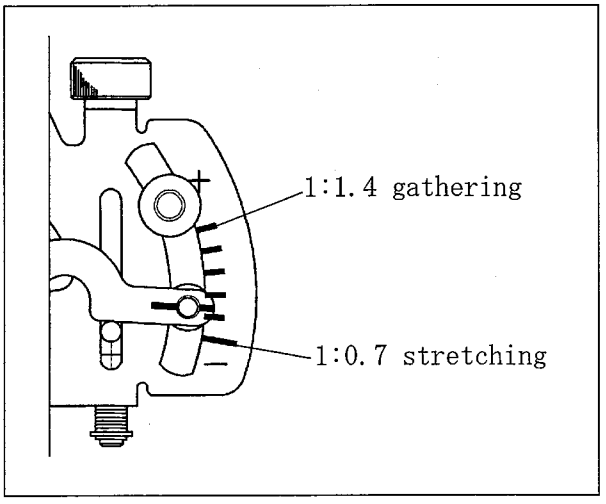


Fig. 6-32

⚠WARNING

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

Re-installing covers:

(1) Remove the liquid gasket attached to the machine frame and the front cover①.
(2) Apply the liquid gasket thinly on the shaded part on the machine frame.
(3) Reset the stitch plate holder② with the screw③.
(4) Reset the front cover① with the screws④ slightly.
(5) Tighten the screw⑤ of the stitch plate holder②.
(6) Tighten the screws④ of the front cover① securely.
Note: Make sure that the needles are in the center of the stitch plate, at the same time position the front cover.
(7) Re-install the side cover⑥ with the screws⑦.
(8) Wipe away the extra liquid gasket of the front cover①.

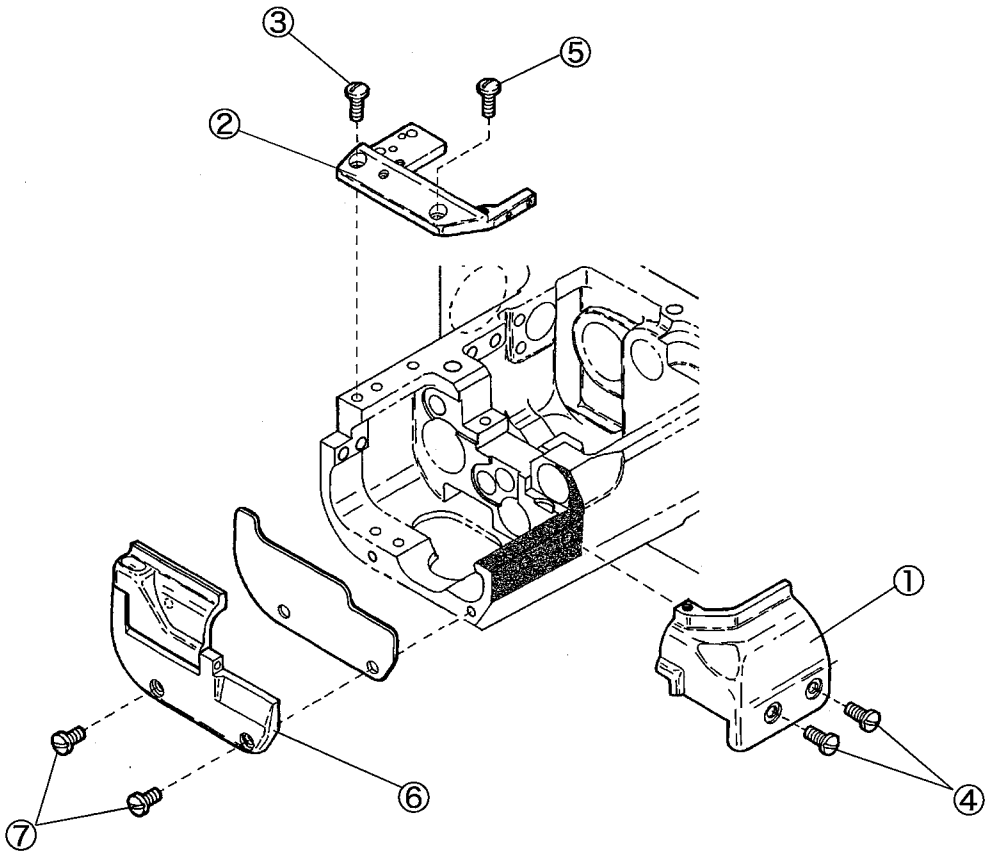


Fig. 6-33

6.13 Presser foot lift

The presser foot lift for the needle distance 5.6 mm is as follows:

- with spreader: 6.0 mm
- without spreader: 7.5 mm

(1) Loosen the lock nut①.
(2) Lower the lifter lever② to make the clearance between the top of the stitch plate and the bottom of the presser foot to 6.0 mm (7.0 mm).
(3) Adjust the screw③ to make it touch the lifter lever② when the presser foot is raised up 6.0 mm (7.5 mm).
(4) Tighten the lock nut① securely.
(5) Loosen the screws⑤ of the collar④.
(6) Make the clearance between the presser bar bushing⑥ and the collar④ to 0.2 mm when the presser foot is raised up 6.0 mm (7.5 mm).
(7) Tighten the screws⑤ securely.

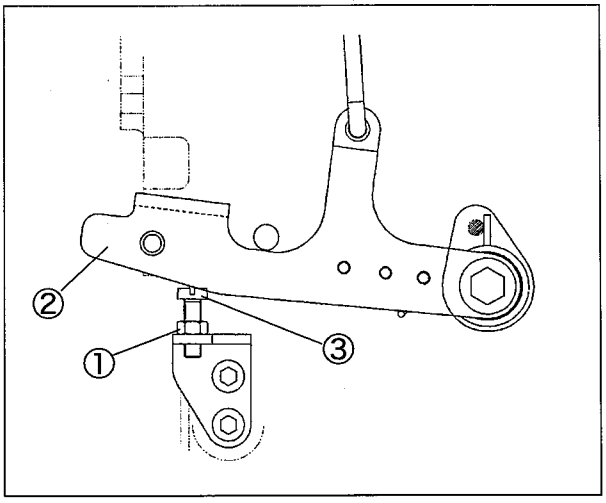


Fig. 6-34

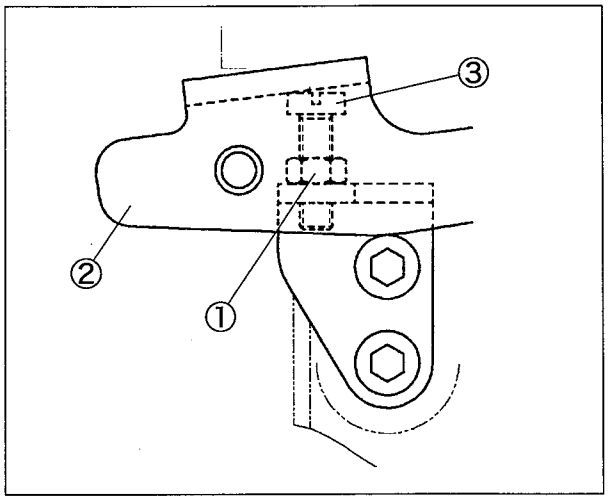


Fig. 6-35

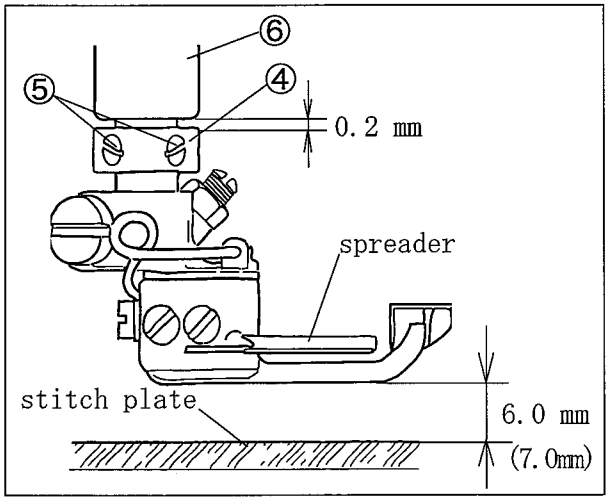


Fig. 6-36

7. Specifications

Model	VG2790 class
Description	High speed unique cylinder bed 3-needle chain stitch machine
Dimensions	442 mm (L) ×220 mm (W) ×405 mm (H)
Circumference of Cylinder	280 mm
Weight	40.5 kg
Stitch Type	ISO 406, 407, 602, 605
Application	Covering seam on knitted fabric
Sewing Speed	Maximum speed: 6500 rpm (during intermittent operation) (with puller: 5000 rpm)
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	UY×128GAS No. 65 - No. 90 (standard: No. 70)
Needle Distance	3-needle: 4.8 mm, 5.6 mm, 6.4 mm (2-neelde: 3.2 mm, 4.0 mm)
Needle Stroke	31 mm
Presser Foot Lift	For 5.6 mm of needle distance with spreader: 6.0 mm, without spreader: 7.5 mm
Feed Regulation	By adjusting screw (available for micro adjustment)
Differential Ratio	Standard: 1 : 1.1 - 1 : 1.5 1 : 1.1 - 1 : 2 (stitch length is 2.3 mm or less in max. normal differential) 1 : 0.7 - 1 : 1.4 (adjustable by changing position of feed bar connection)
Differential Feed Regulation	Micro adjustment by adjuster Adjustable by moving 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

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ヤマトミシン製造株式会社
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