

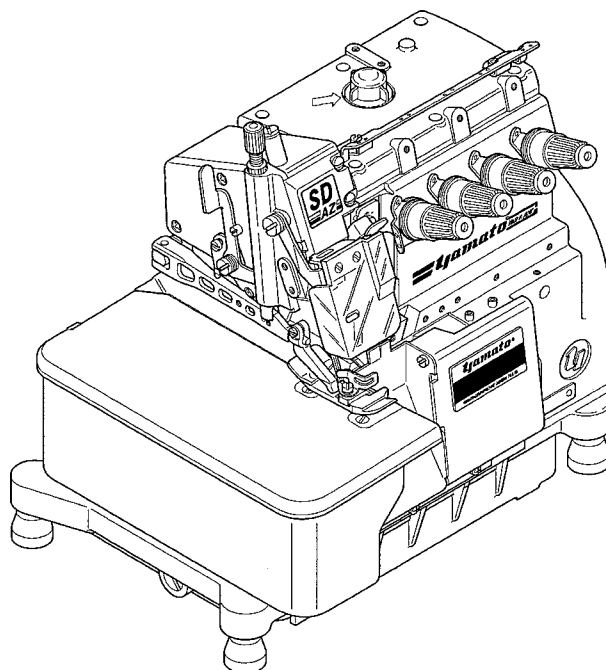


# Instruction Manual

SUPER HIGH SPEED OVERLOCK & SAFETY STITCH MACHINE

**AZ8000SD-8 class**  
(including AZ8120SD-8, AZ8125SD-8)

**AZ8500SD-8 class**  
(including AZ8500SD-31, AZ8520SD-31)



Thank you for purchasing the Model AZ8000SD-8/8500SD-8 class.











Before using your machine, 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.  
Keep them away from children.



# Safety instructions



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

## 4. Caution signs and alert pictorial markings

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

Please follow the instructions.

### 4-1 Meanings of caution signs

#### **WARNING**

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

#### **CAUTION**

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

**NOTE** is used to emphasize essential information.



# Safety instructions



## 4-2 Alert pictorial markings



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



This mark indicates the caution for high temperature.



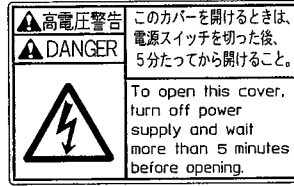
This mark indicates the warning which, if not heeded, could result in death or Serious injury.



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



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



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



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

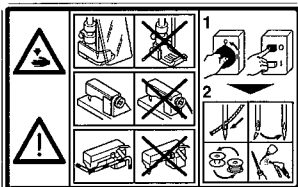


Stepping motor and solenoid may overheat if used continuously. To prevent a burn, take care not to touch.

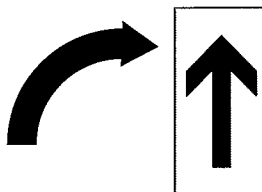


If not connected earth line, static electricity may be generated and inflict injury on person. In addition, the malfunction of electric system may cause injury to person.

## 5. Warning labels on sewing machines



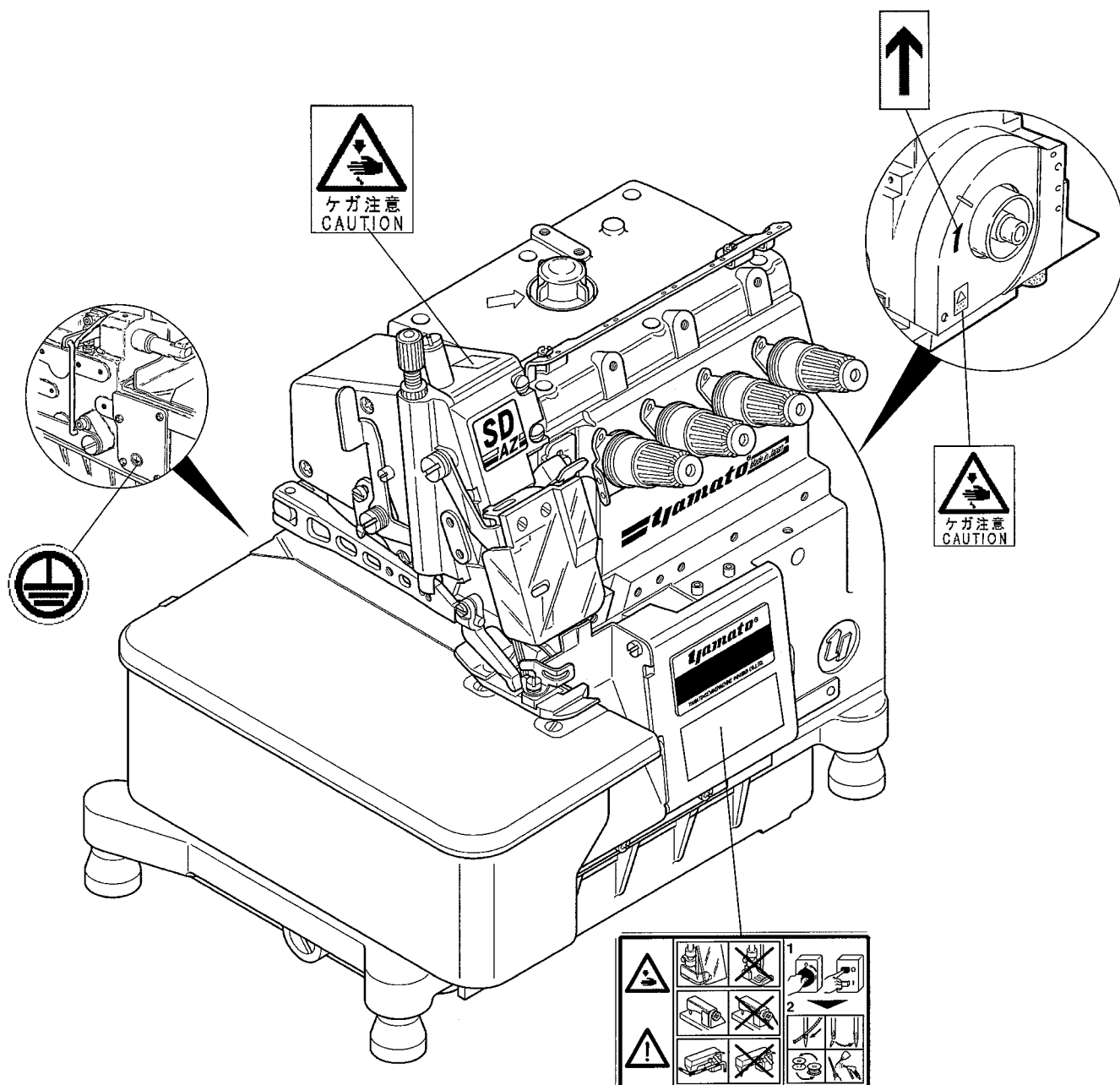
This label indicates that removal of the safeguards and works except for sewing performance while the power supply switch is on are prohibited. (For details, see the next page.)



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

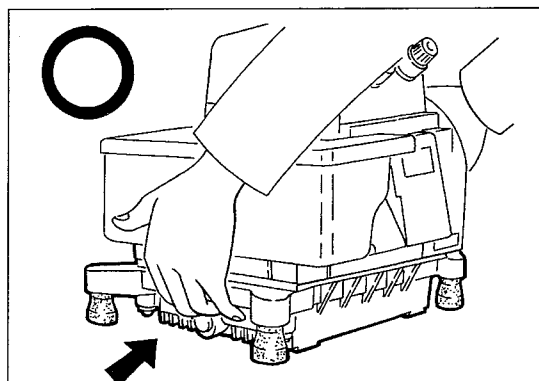
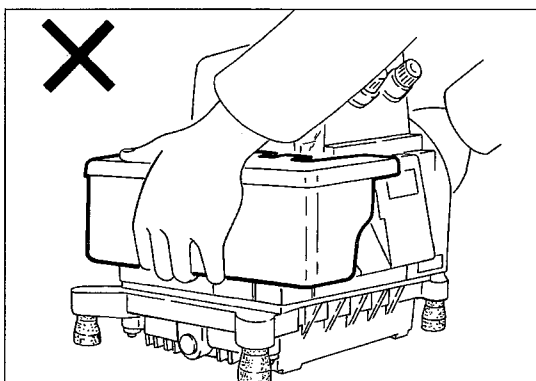


# Safety instructions



## 6 . Handling the machine

When handling the machine, do not carry the cloth plate cover.



# 1. Name of each part

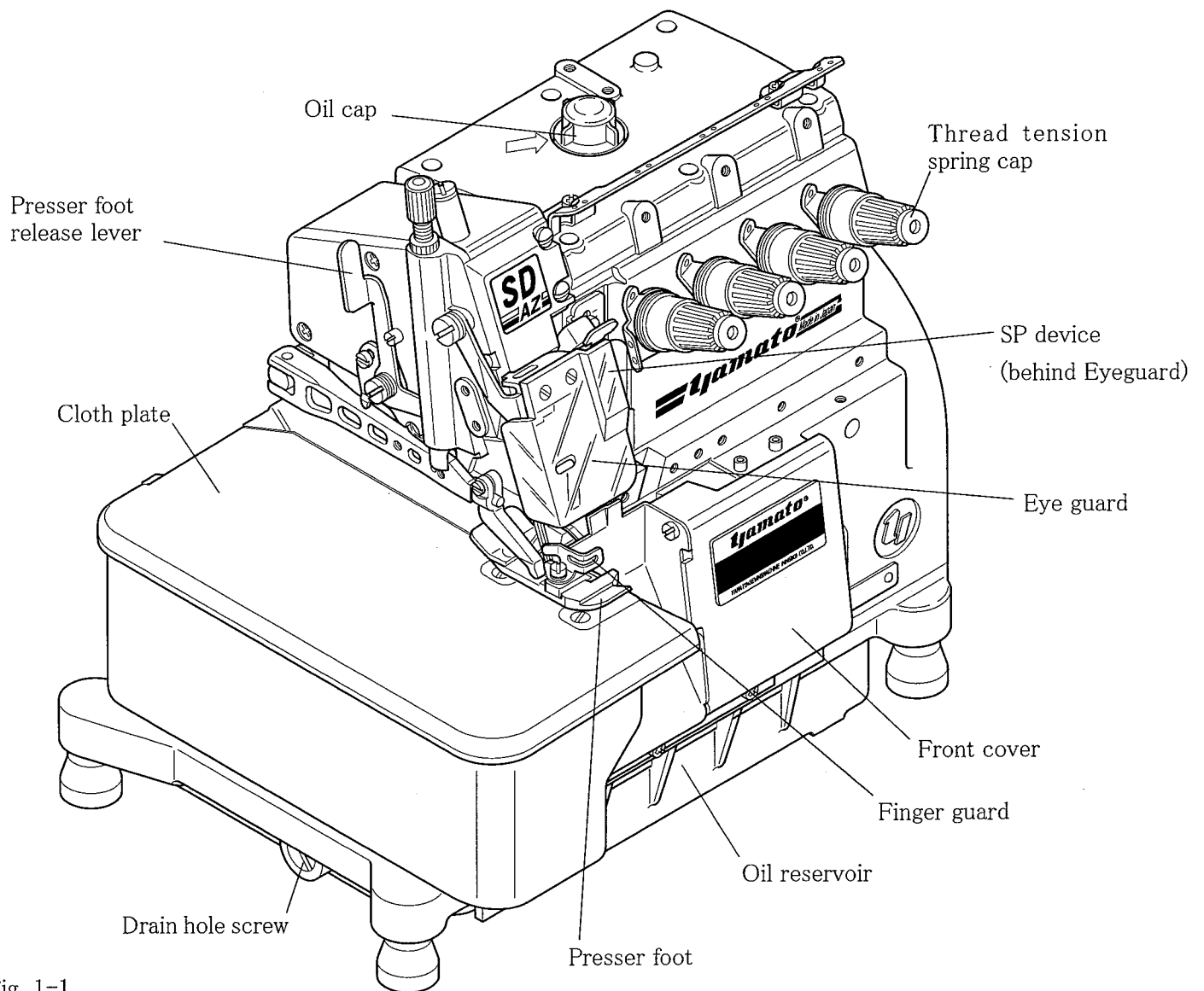


Fig. 1-1



# 2. Installation

## 2.1 Semi-submerged type

### 2.1.1 Table cutting diagram

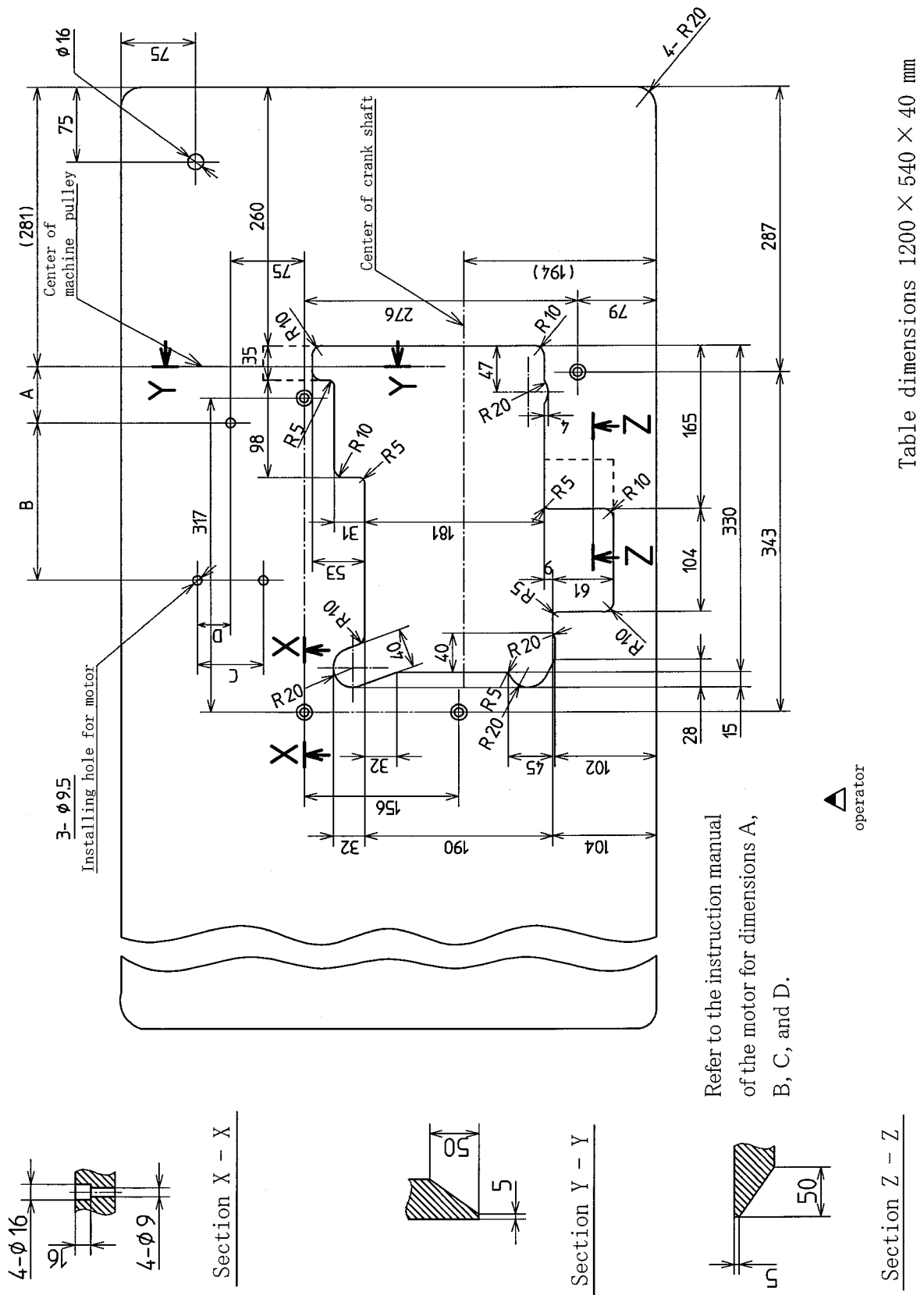


Fig. 2-1

## 2.1.2 Installation

Install the machine correctly referring to Fig. 2-2 and 2-3.

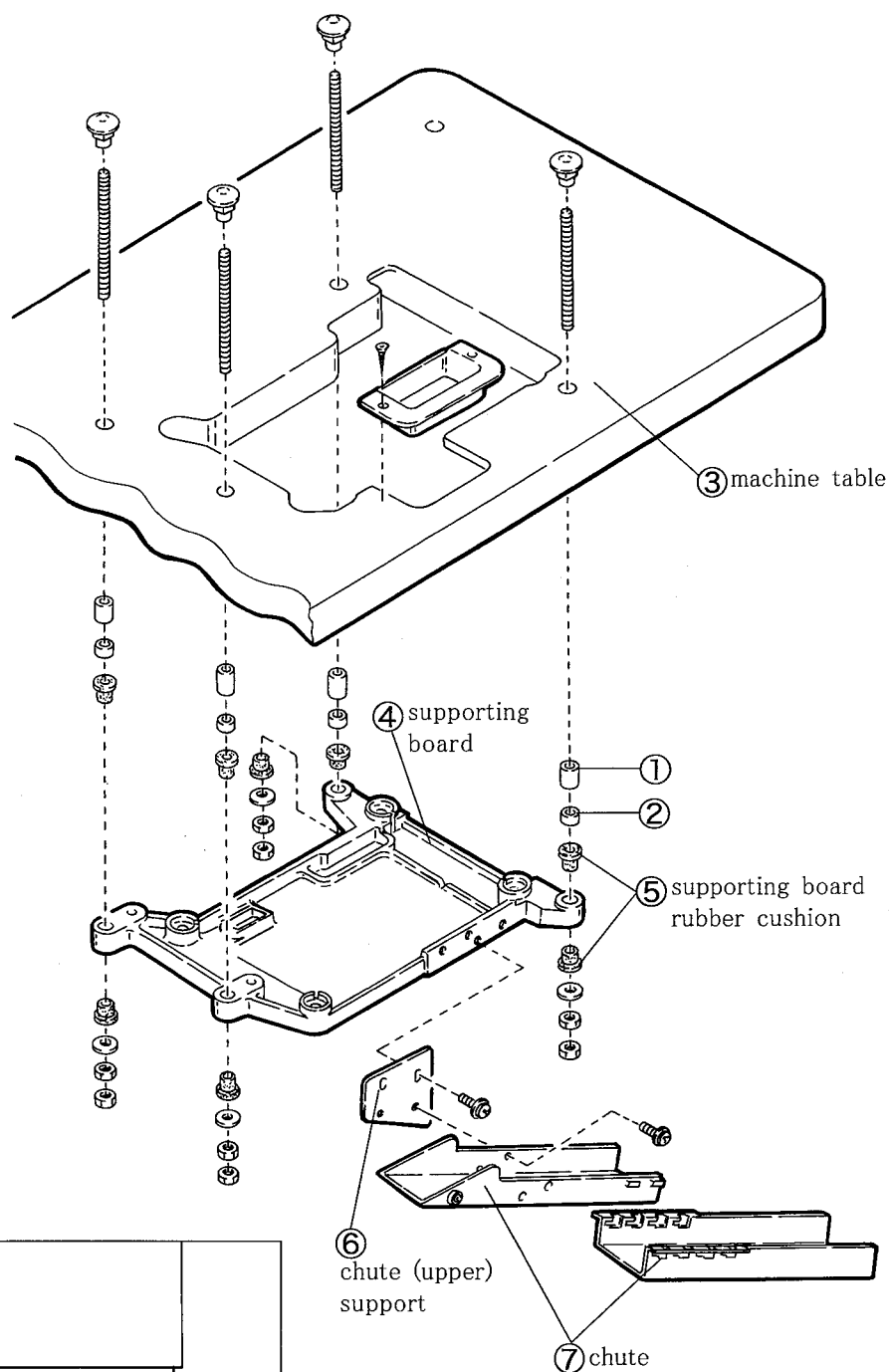


Fig. 2-2

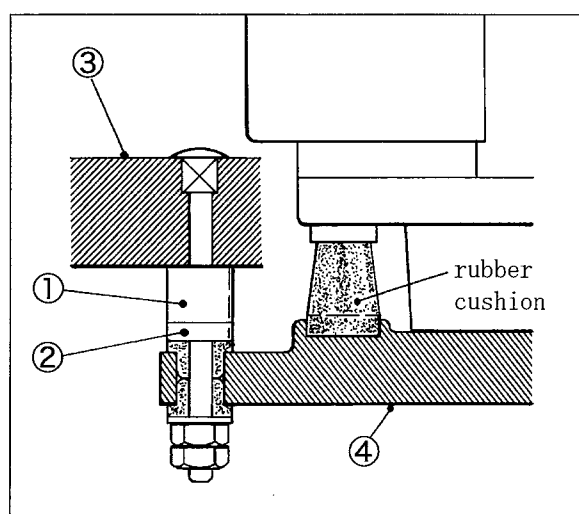


Fig. 2-3

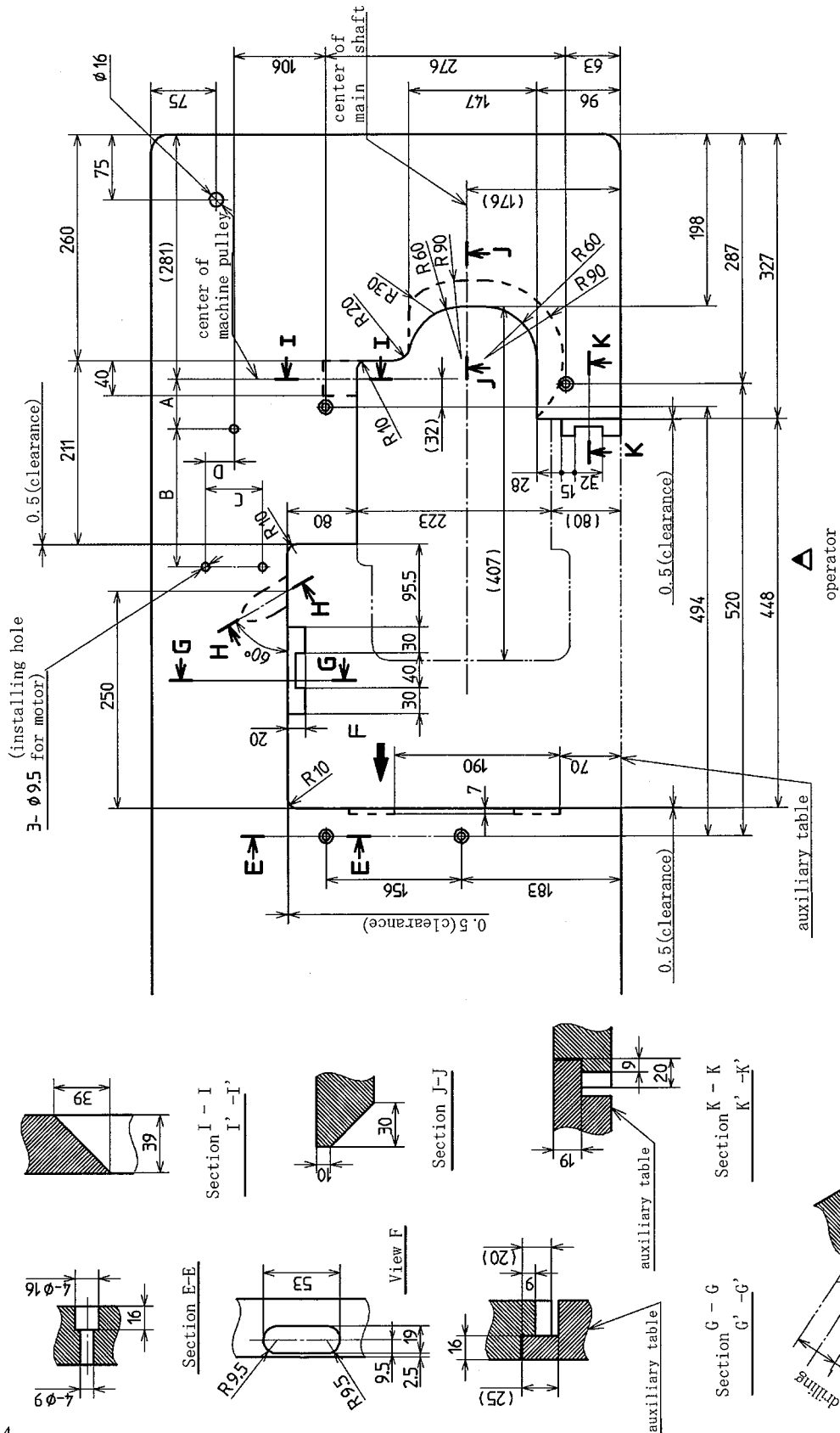
Table 1 The number of spacers ① and ②

Thickness of table	pcs. of ①	pcs. of ②
40mm	4	4
45mm	4	not necessary

Size of spacers : ① = 15 mm ② = 5 mm

## 2.2 Fully-submerged type

### 2.2.1 Table cutting diagram

Table dimensions  $1200 \times 540 \times 40$  mm

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

Fig. 2-4

Cutting diagram of auxiliary table

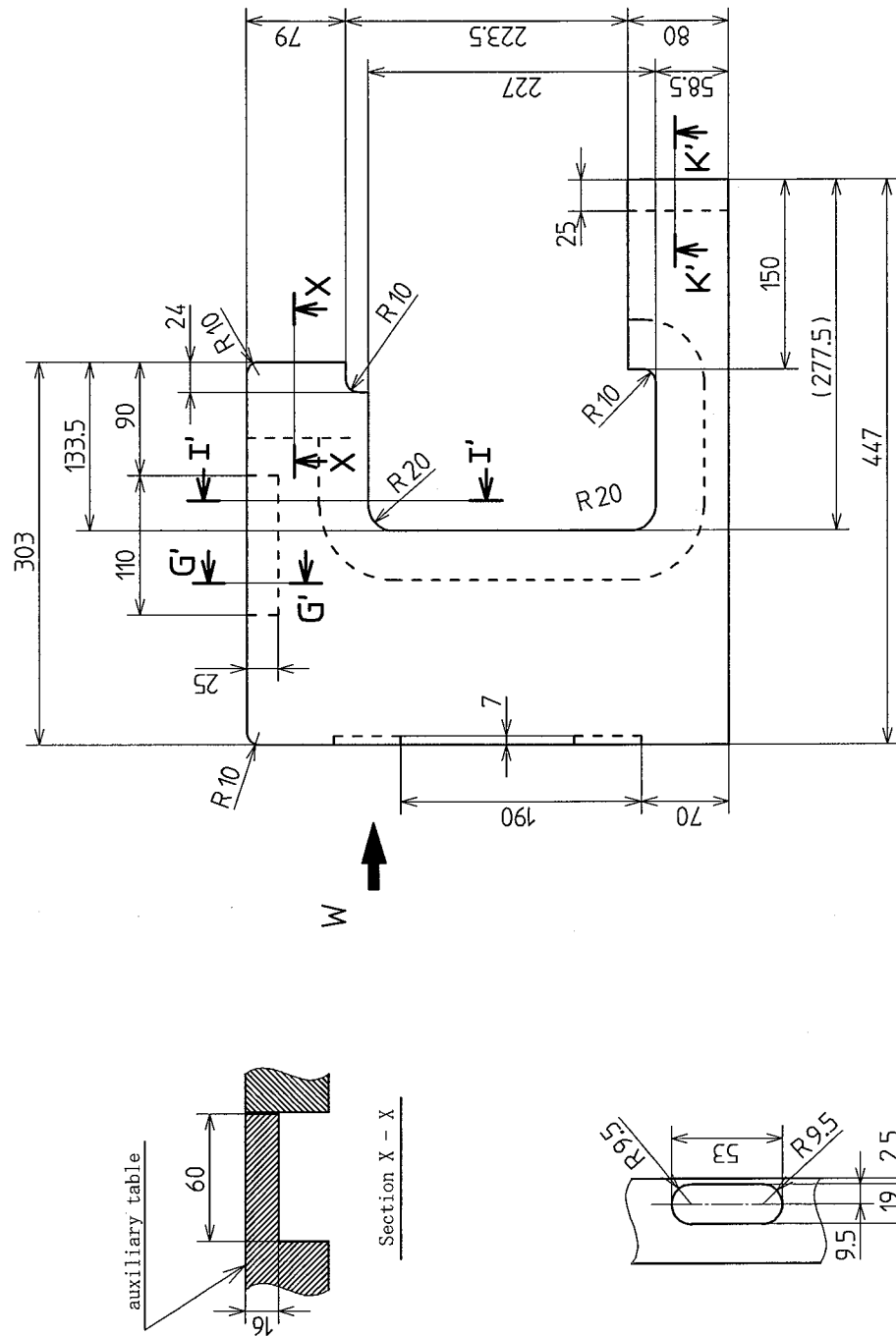
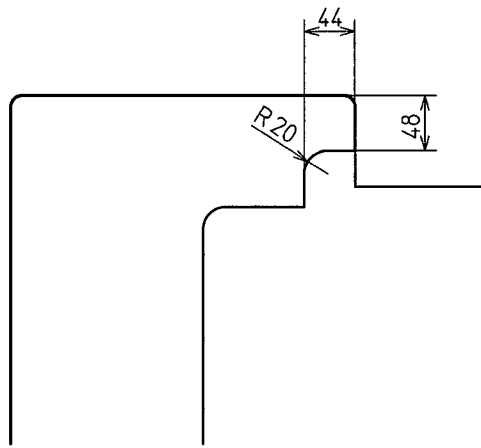


Fig. 2-5

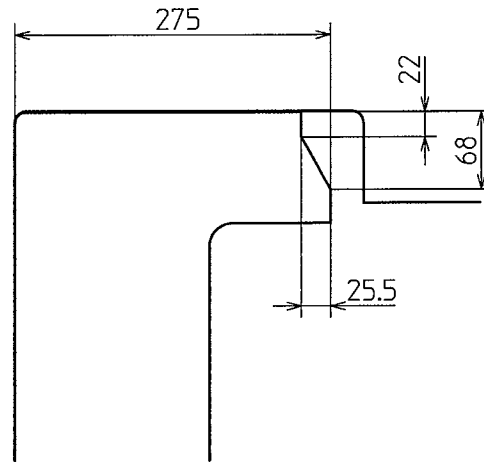
## 2. Installation

### 2.2.2 Table cutting diagram for fully-submerged type with device

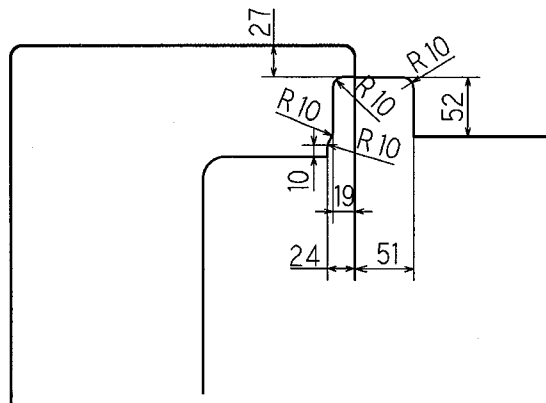
To set up a machine with device, install the device with below dimensions and refer to “2.2.1 Table cutting diagram” (Fig. 2-4, 2-5).



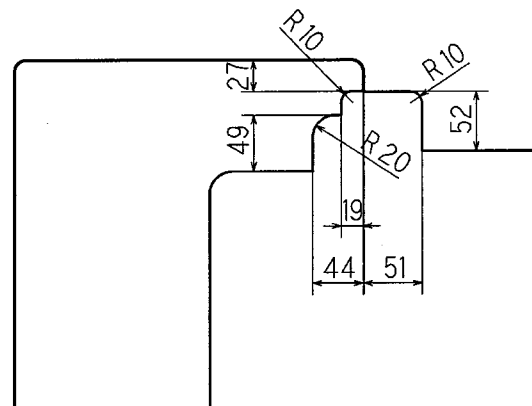
AZ8500SD-8 class with K1 device



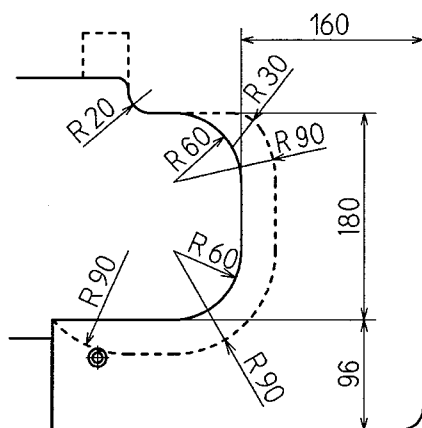
AZ8000SD-8 class with K2 device



AZ8000SD-8, AZ8500SD-8 classes  
with MT22 device



AZ8000SD-8, AZ8500SD-8 classes  
with MU44, 45 device



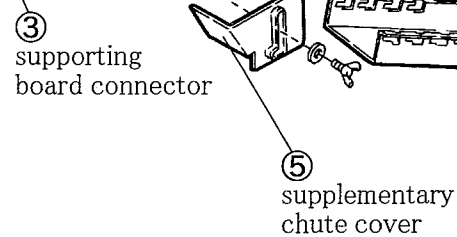
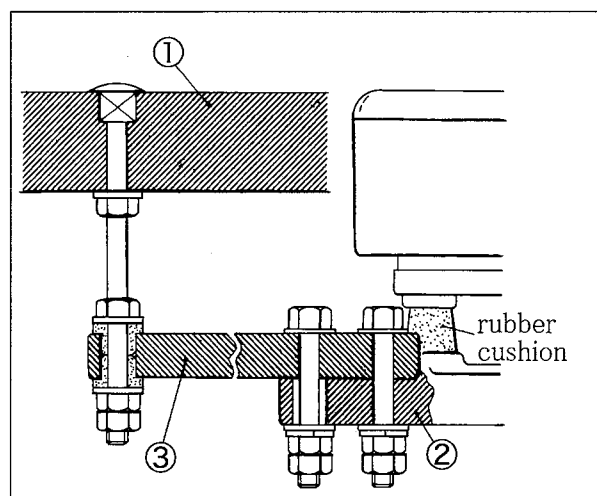
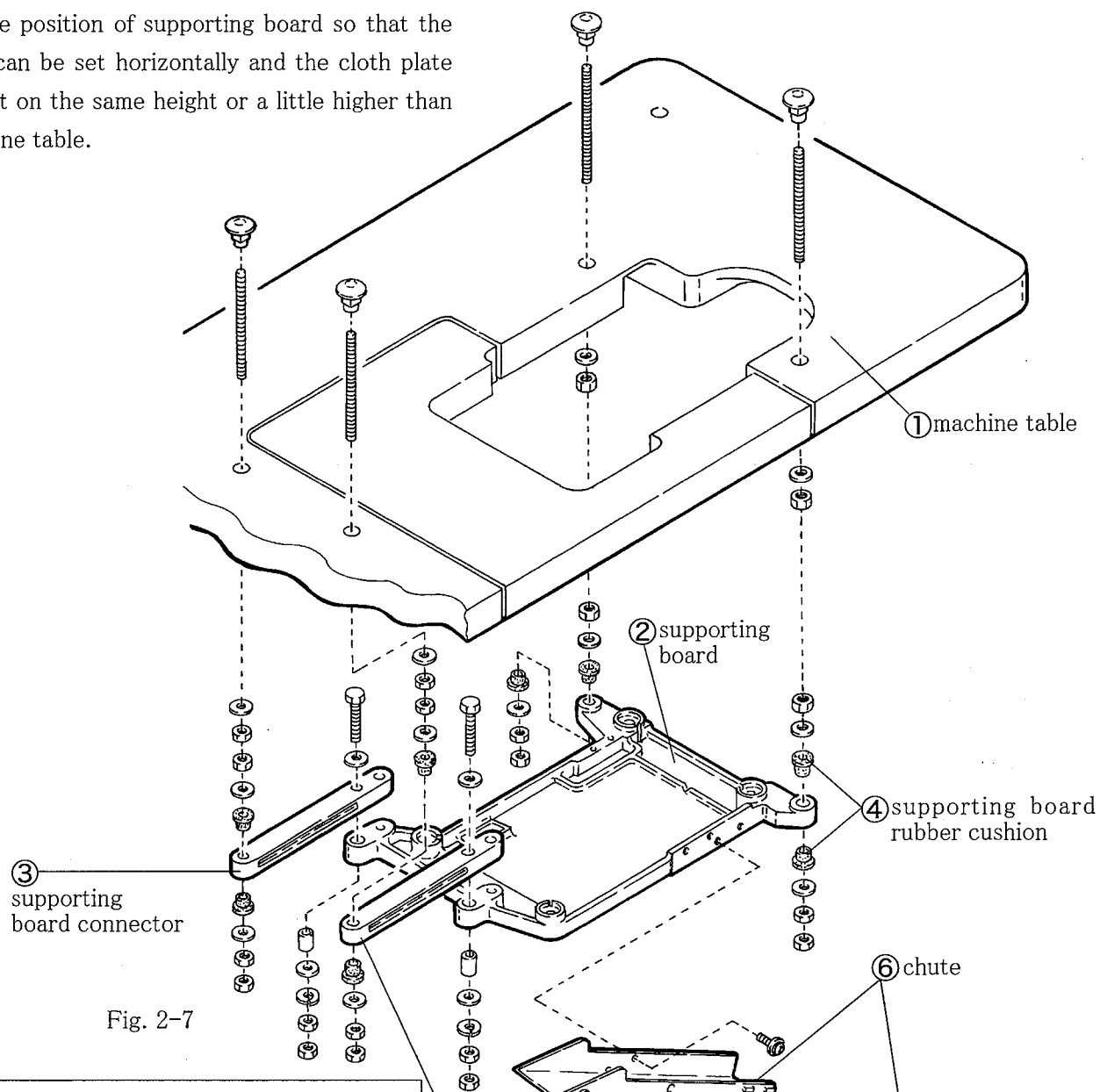
### Using servomotor

Fig. 2-6

### 2.2.3 Installation

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

Adjust the position of supporting board so that the machine can be set horizontally and the cloth plate can be set on the same height or a little higher than the machine table.



### 2.3 Motor, pulley and belt

See 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.

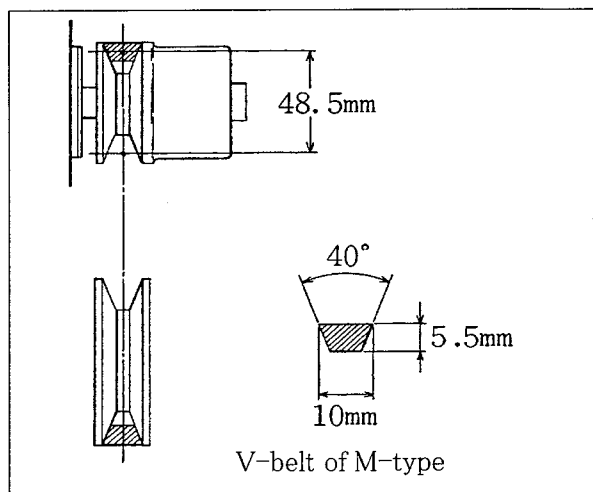


Fig. 2-9

NOTE: Table 2 shows the outside diameter of the motor pulley, sewing speed of the machine, and size of the belt when using the clutch motor of 3-phase, 2-pole, 400W(1/2HP).

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

#### ⚠ CAUTION

Use only those motor pulleys applicable to the machine. If not, the sewing speed will be over maximum and the machine will be damaged.

Outside diameter of pulley (mm)	Sewing speed of machine (sti/min)		Size of belt	
	50H z	60H z	Semi-submerged	Fully-submerged
100		6700	M35	M30
105		7000	M35	M30
110		7200	M35	M31
115		7500	M36	M31
120	6700	7700	M36	M32
125	6850	8000	M37	M32
130	7000		M37	M32
135	7300		M37	M33
140	7500		M38	M33
145	7800		M38	M34
150	8000		M38	M34

Table 2

#### Servomotor:

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

Or see Table 3 to select a proper motor pulley diameter.

$$\text{Outside diameter of motor pulley} = \frac{\text{Usual sewing speed}}{\text{Servomotor speed}} \times 48.5 + 5 \text{ mm}$$

#### Belt

Use a V-belt of M type.

For belt size, refer to Table 2.

Sewing speed of machine (sti/min)	Outside diameter of motor pulley(mm)	
	rpm of servomotor	
	3000rpm	3600rpm
6000	102	86
6200	105	89
6500	110	93
6700	113	95
7000	118	99
7200	121	102
7500	126	106
7700	129	109
8000	134	113

Table 3

## 2.4 Hanging belt

### ⚠ CAUTION

Before hanging belt, Always turn the motor switch OFF and check that the motor has already stopped.

Use the V-belt of M-type.

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

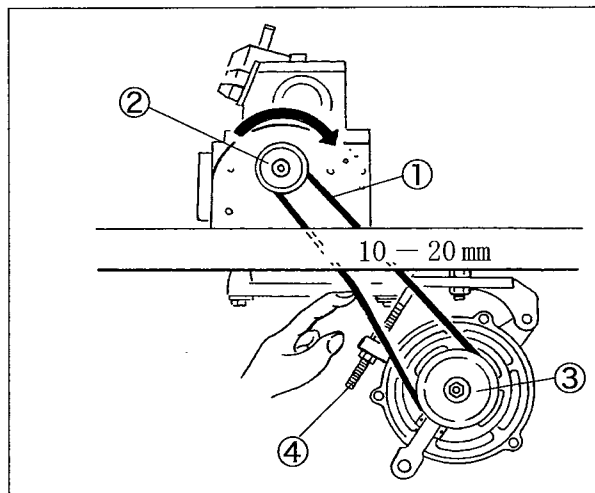


Fig. 2-10

## 2.5 Belt cover

### ⚠ CAUTION

To prevent you from getting injured and a material from being caught by the belt, be sure to install the

- (1) Install the auxiliary belt cover ⑤ as shown in the figure.
- (2) Install the belt cover ⑥ as shown in the figure.

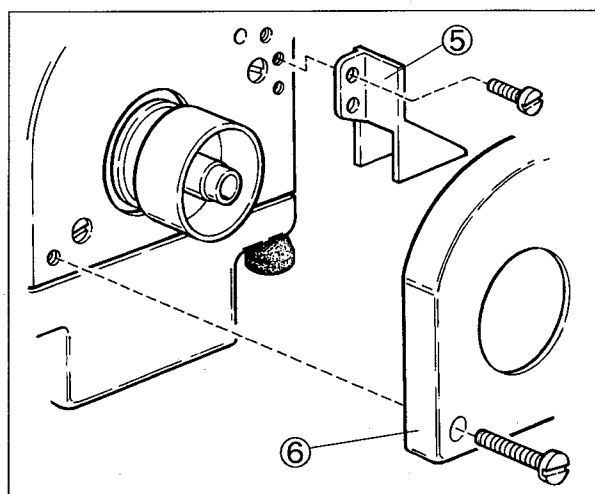


Fig. 2-11

## 2.6 Eye guard and finger guard

To ensure safe use, ALWAYS install the eye guard ⑦ and the finger guard ⑧ on the prescribed position during operation.

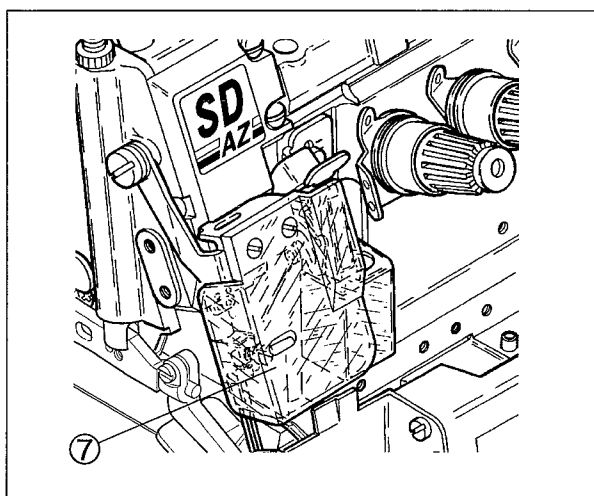


Fig. 2-12

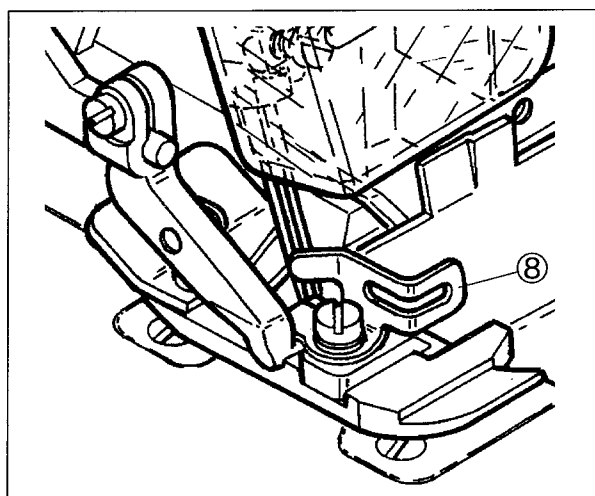


Fig. 2-13



# 3. Sewing speed and rotating direction of pulley

Table 4 shows the maximum sewing speed of each model.

Run a new machine at 15 – 20% lower sewing 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 direction of the motor pulley ① and the machine pulley ② is clockwise as shown in the figure.

## ⚠ CAUTION

If rotating in reverse direction, oil can not be supplied properly, and the machine can be damaged.

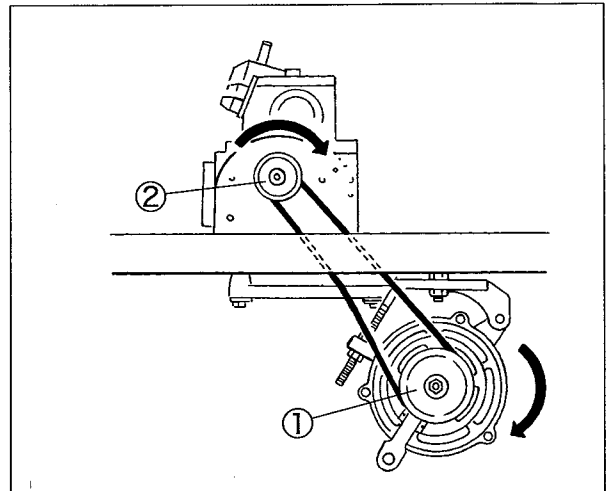


Fig. 3-1

Model	Max. sewing speed (sti/min)
AZ8000SD-8 class	8000
AZ8120SD-8, AZ8125SD-8 class	7000
AZ8500SD-8 class	7500
AZ8500SD-31, AZ8520SD-31 class	7000

Table 4

# 4. Lubrication

## 4.1 Lubricating oil

Use YAMATO SF OIL No. 28.

### ⚠ CAUTION

NEVER add additives to the oil.

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

## 4.2 Lubricating

When using a new machine or a machine which has not been run for a while, supply few drops of oil to the needle bar ① and the looper bar ②.

Remove the oil cap ③ indicated “OIL-IN” and supply oil to the upper line of the oil sight gauge ④.

Make sure that the oil splashes from the nozzle inside the oil cap ③ when running the machine.

If oil does not splash from the nozzle, see “4.4 Checking and replacing oil filter” on page 12.

### ⚠ 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 oil scatter and material stain.

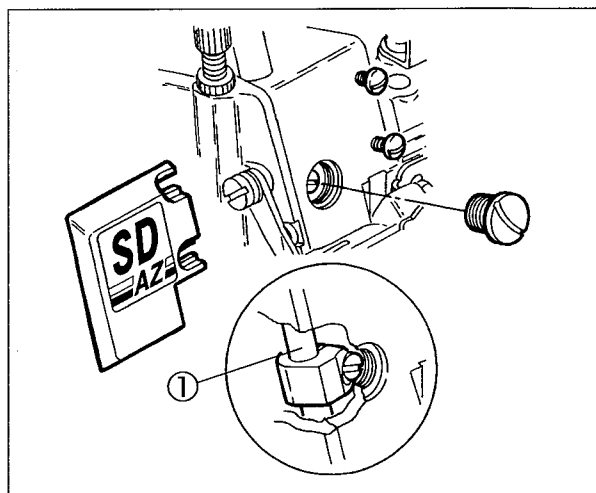


Fig. 4-1

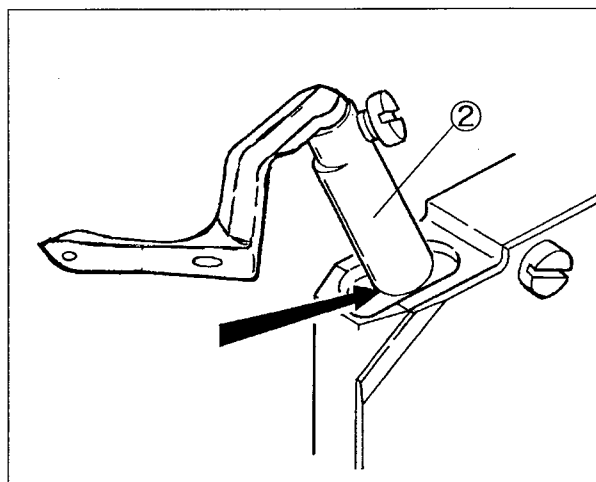


Fig. 4-2

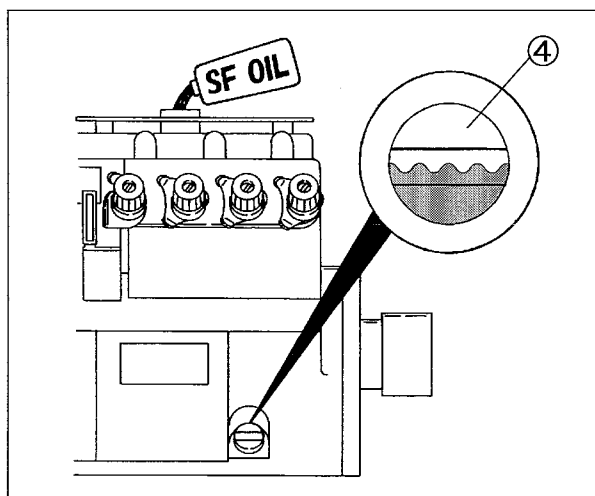


Fig. 4-3

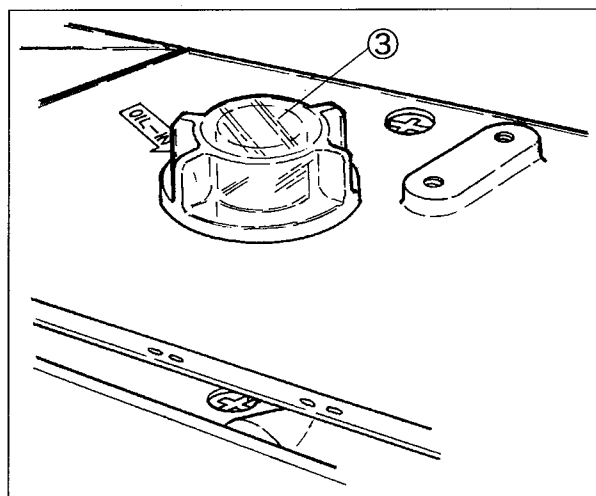


Fig. 4-4

### 4.3 Changing oil

#### Period :

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

#### Procedure :

- (1) Remove the belt cover. (See page 9)
- (2) Remove V-belt from the motor pulley. (See page 9)
- (3) Remove the machine from the machine table.
- (4) Set a container under the screw ① to receive the oil.
- (5) After removing screw ①, the oil will drain out.



#### ATTENTION

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

- (6) Reset the screw ①.
- (7) Change the oil. (See “4.2 Lubricating” on page 11)
- (8) Reinstall the machine on the machine table.
- (9) Hang the V-belt on the motor pulley and reinstall the belt cover. (See page 9)

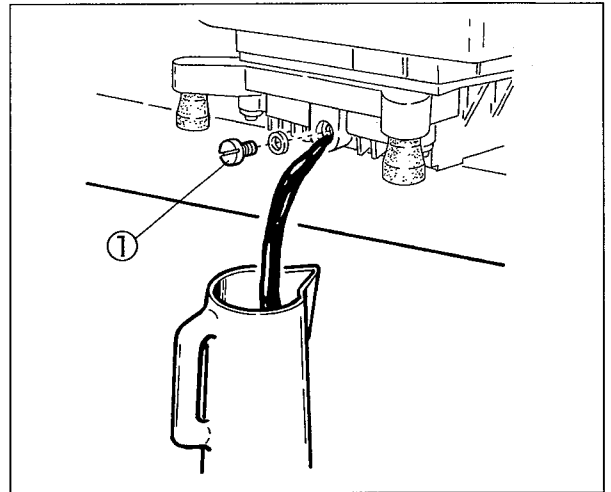


Fig. 4-5

### 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 even though oil is sufficiently kept, check or replace the oil filter.



#### NOTICE

Be careful the oil may spill out from the oil filter ②, when loosening the screw ④.

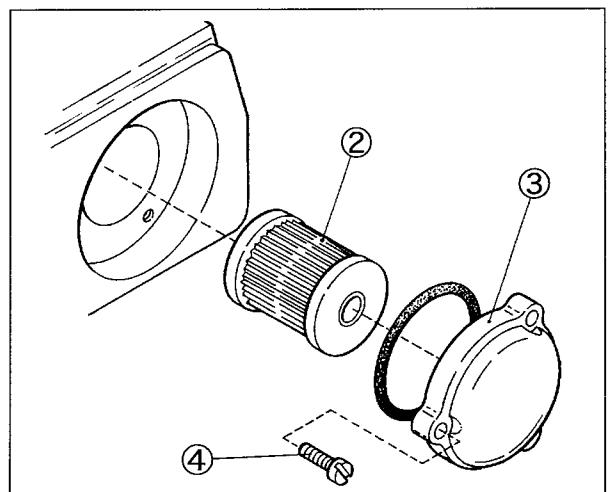


Fig. 4-6

# 5. Proper operation

## 5.1 Needle system

AZ8000SD-8 class : DC × 27(or B27, 1886)

AZ8500SD-8 class : DC × 27(or B27, 1886)

Select proper needles in size according to the thickness and the type of the material.

Japanese standard	8	9	10	11	12	13	14
Metric standard	60	65	70	75	80	85	90

Table 5

## 5.2 Installing needles



### ⚠ CAUTION

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

- (1) Loosen the screw① with a minus screw driver. (Fig. 5-1)
- (2) Remove the old needle with a pair of tweezers.
- (3) Insert a new needle into the needle clamp ② as far as it goes with facing its scarf to the right back. (Fig. 5-2 and 5-3)
- (4) Tighten the screw① with the minus screw driver.

● Accessories include the minus screw driver.

### ! ATTENTION

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

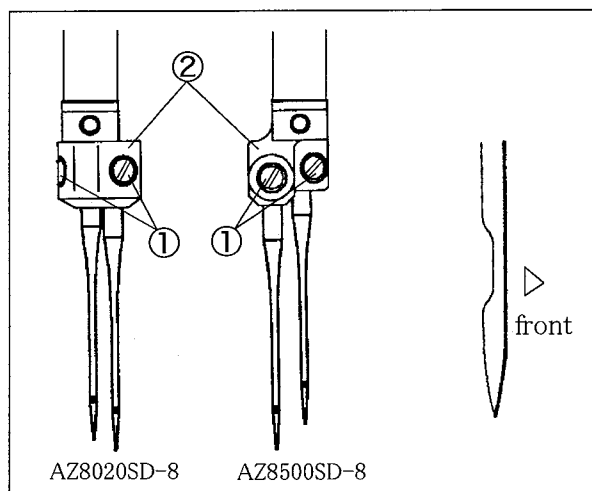


Fig. 5-1

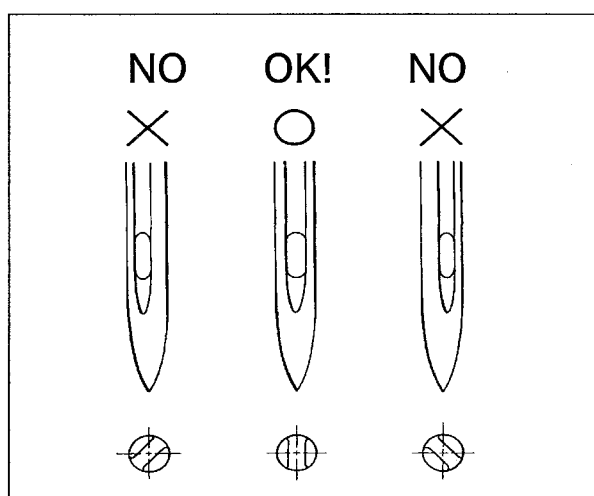


Fig. 5-2

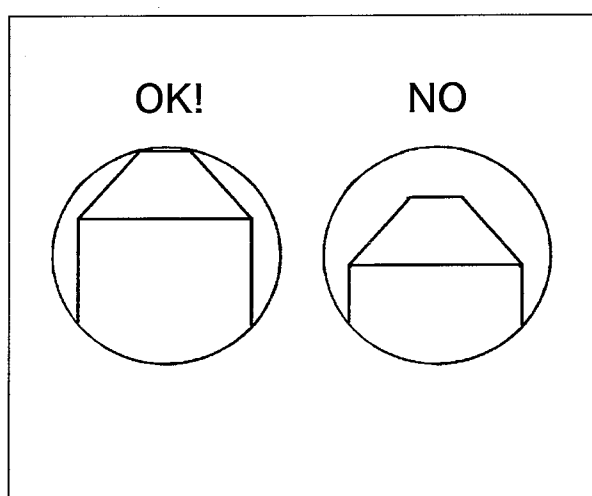


Fig. 5-3

### 5.3 Adjusting thread tension



Adjust the thread tension with the thread tension spring caps ① – ⑥ according to the type of fabric, the type of thread, seam width, stitch length, and other sewing conditions.

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

Model \ Thread	AZ8000SD-8 single needle overlock	AZ8020SD-8 2-needle overlock	AZ8500SD-8 2-needle safety stitch	AZ8520SD-8 3-needle safety stitch
Left needle	①	①	①	①
Right needle		②		②
Double chain needle thread			②	③
Upper looper thread	③	③	③	④
Lower looper thread	④	④	④	⑤
Double chain looper thread			⑥	⑥

Table 6

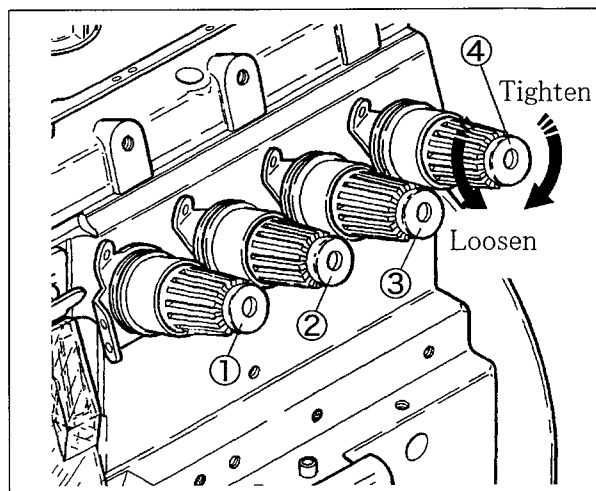


Fig. 5-4 AZ8020SD-8, AZ8500SD-8

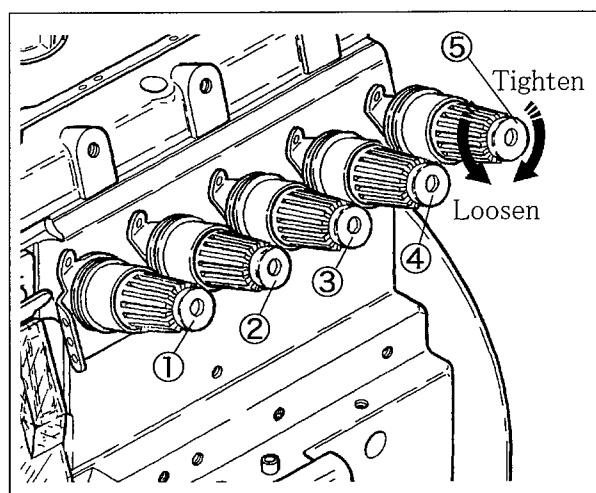


Fig. 5-5 AZ8520SD-8

### Threading

#### ⚠ CAUTION

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

Threading correctly by referring to the threading figure which is attached on the back of the front cover.

#### ! ATTENTION

Improper threading can cause thread breakage, skip stitch, and uneven stitch.

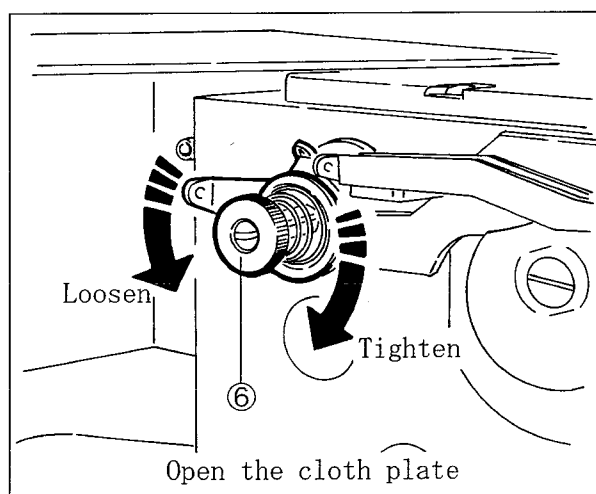


Fig. 5-6 AZ8500SD-8, AZ8520G-8

## 5.4 Pressure of presser foot



Loosen the lock nut ① and adjust the pressure of the presser foot by turning the adjusting screw ②.

- To increase the pressure, turn the adjusting screw clockwise.
- To decrease the pressure, turn the adjusting screw counterclockwise.

Keep the pressure as low as possible for stable stitch.

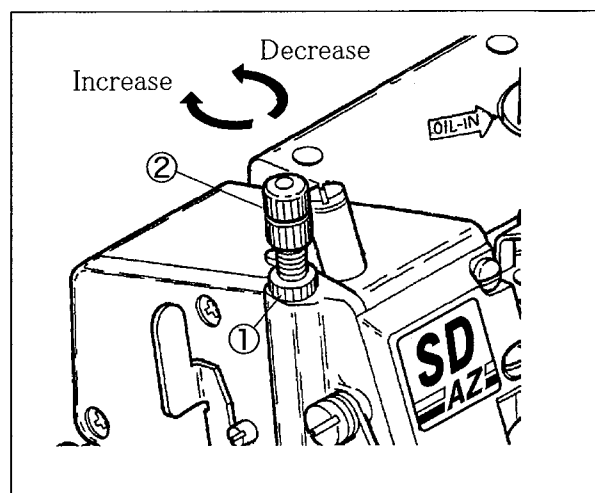


Fig. 5-7

## 5.5 Releasing presser foot



### ⚠ CAUTION

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

Rotate the machine pulley and position the needle at the highest point. Release the presser foot to the left while pressing the presser foot release lever ③.

To set the presser foot, slide and press the presser foot to the right while pressing the presser foot release lever ③. Then, release the lever.

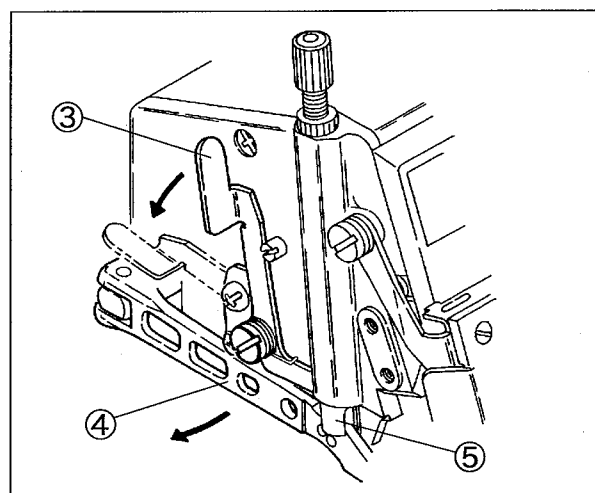


Fig. 5-8

### ⚠ CAUTION

Make sure that the presser arm ④ gets into the groove of the presser bar ⑤.

If not, it can cause breakage to parts and injury to person.

### 5.6 Opening cover



#### Front cover ①

To open the front cover ①, slide it to the right and tilt toward you.

For closing, stand the cover. The spring tension makes it slide to the left.

#### Cloth plate ②

To open the cloth plate ②, shift it to the left while pressing the lever ③.

For closing, shift it to the right. Make sure that it has been locked securely.

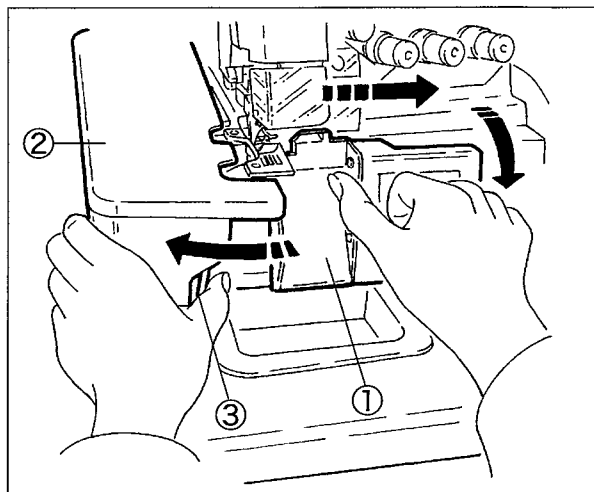


Fig. 5-9

### 5.7 Adjusting differential feed dog



Loosen the lock nut ④ and adjust the differential feed lever ⑤.

Moving up will make stretching and moving down will make gathering.

Adjust differential feed lever ⑤ securely with turning the screw ⑥.

- To lower the lever ⑤, turn the screw ⑥ clockwise.
- To raise the lever ⑤, turn the screw ⑥ counterclockwise.

Differential ratio up to 1:0.6 – 1:2 or 1:1 – 1:3 is available by internal adjusting mechanism respectively.

Adjust the graduation, differential ratio, and max. stitch length according to Table 7.

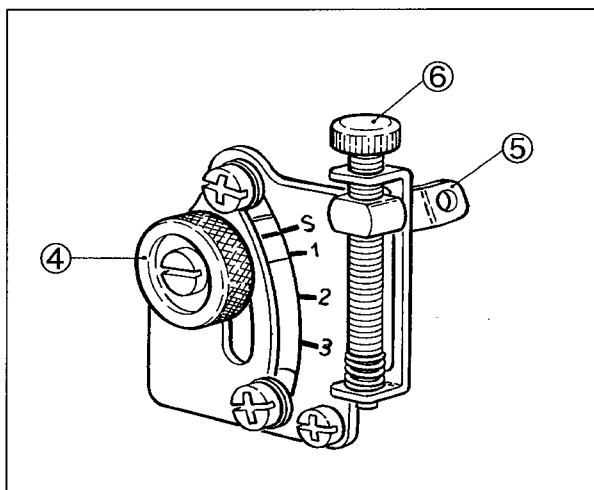


Fig. 5-10

Model Graduation	AZ8000SD-8 AZ8500SD-8 class	
	Differential ratio	Max. stitch length (mm)
S	1:0.7	4
1	1:1	4
2	1:1.6	4
3	1:2.3	3

Table 7

## 5.8 Adjusting stitch length



### ⚠ CAUTION

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

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

Actual stitch length may different from the length on graduations. It may changes depending on the application, type, weight of material or the differential ratio.

- (1) Rotate the pulley while pressing the push button ①. At the point that the push button can go in, press it again strongly.
- (2) Then align the desired graduation of the pulley with the mark ② on the belt cover.
- (3) Release the push button ①.

- To make stitch length smaller, turn the pulley in the direction “S”.
- To make stitch length greater, turn it in the direction “L”.

### ⚠ CAUTION

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

The adjustable range of the stitch length is shown in Table 8.

Table 9 shows the number of stitches per inch (25.4 mm) and 30 mm.

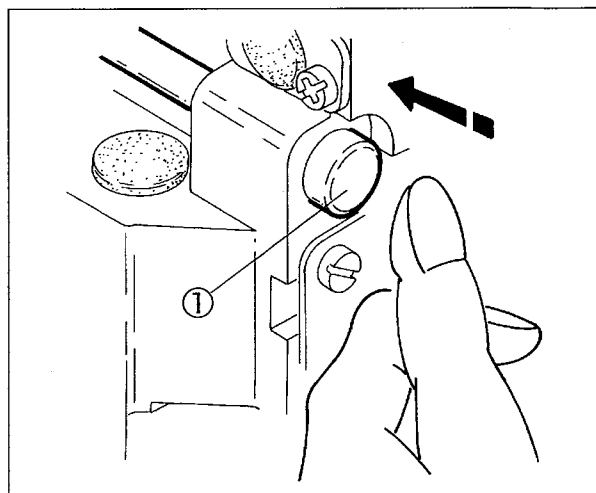


Fig. 5-11

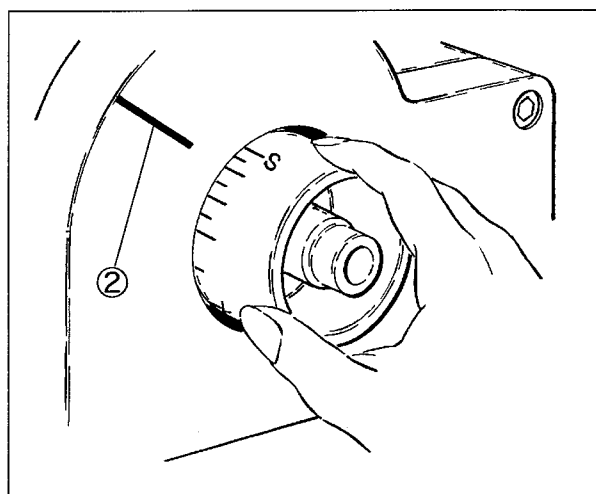


Fig. 5-12

Model	Stitch length (mm)
AZ8000SD-8, AZ8500SD-8 classes (except for below)	1-4
AZ8016SD-8	0.6-2

Table 8

Stitch length (mm)	Number of stitch (per 1 inch) (25.4 mm)	Number of stitch (per 30 mm)
1	25	30
2	12	15
3	8	10
4	6	7.5

Table 9



### 5.9 Passing tape



Pass a tape① by referring to Fig. 5-13 for the models of the tape attaching.

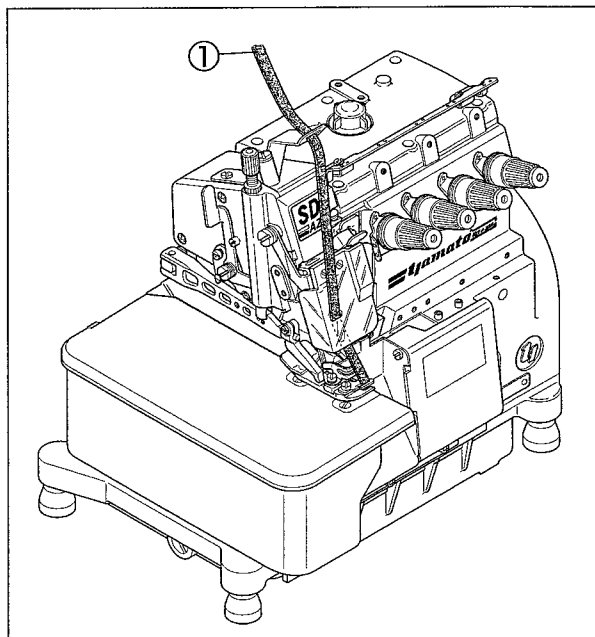


Fig. 5-13

### 5.10 SP device and HR device



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

#### CAUTION

1. When not using SP device and HR device, remove the felts ④ and ⑥. If not removed, the sewing condition may be adversely affected.
2. If the silicone oil is stuck to the parts other than SP and HR devices, it can cause the machine trouble. Be sure to wipe it away.

Use dimethyl silicone oil.

Check the oil amount in SP tank②. If not enough, supply the oil into the hole③.

Open the oil container plug⑤ of HR device and check the oil amount. If not enough, supply the oil.

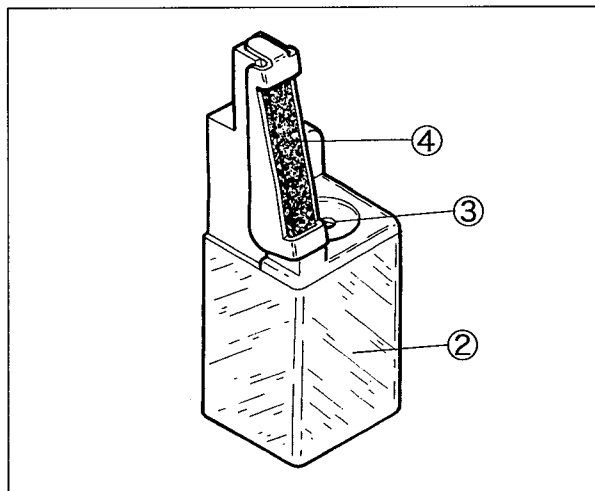


Fig. 5-14 SP device

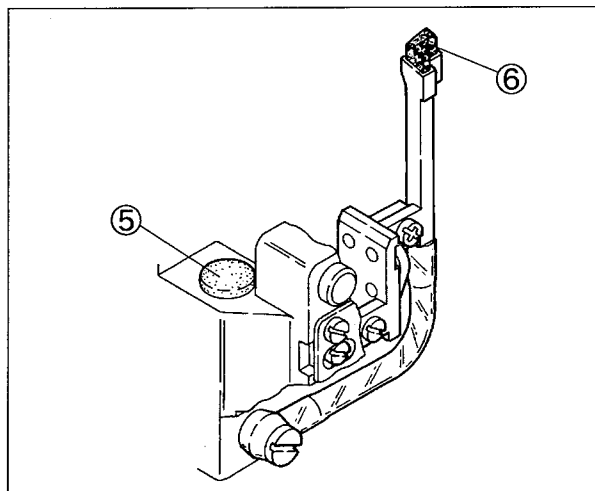


Fig. 5-15 HR device

## 5.11 Cleaning the machine



### ⚠ CAUTION

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

The sewing machine should be cleaned at the end of every working day.

Grooves of stitch plate and the area around feed dogs should be cleaned once a week.

### ⚠ CAUTION

Clogged dust can cause breakage to parts and oil leakage.

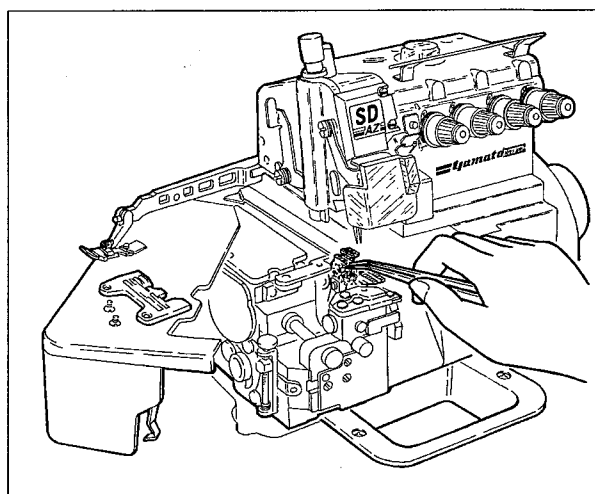


Fig. 5-16

### Checking at sewing factory (maintenance by technician)

#### Daily maintenance:

- (1) Before operation, remove the machine cover and re-thread correctly. Make sure there is no slack. Check that the thread hanger is right above the spool seat discs of the thread stands (the thread stands should be fixed securely).
- (2) Check the lubricating and silicone oil amount. Supply them if necessary.
- (3) Check the order of threads.
- (4) Check bend of needles, damage to tips, and the setting positions respectively.
- (5) Check the sharpness of knives.
- (6) Check the stitches by sewing a test fabric.
  - ◆ stitch length, differential feeding
  - ◆ adjusting knives and thread tension

#### Weekly maintenance:

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

# 6. Adjustment of sewing machine

## ⚠ CAUTION

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

### 6.1 Needle thread tension for overlock stitch



To set the standard position of needle thread eyelet①, position the center of the screw② with the marks③.

To set the standard position of the needle thread pull-off④, align the portion⑤ with the eye⑥ of the needle thread eyelet(right) when the needle thread pull-off④ comes to the extreme front.

Loosen the screw⑦ to adjust it.

- To loosen the needle thread tension, move the needle thread eyelet and the needle thread pull-off in the direction “L” .
- To tighten the needle thread tension, move them in the direction “T” .

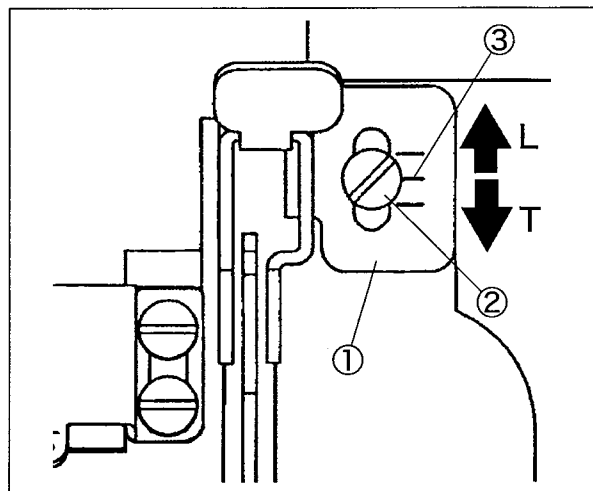


Fig. 6-1

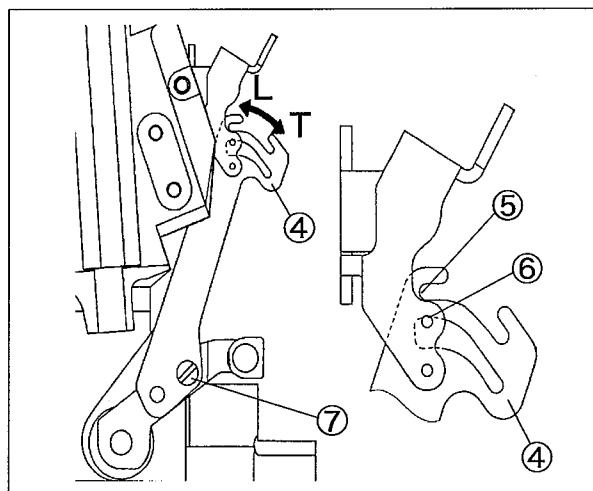


Fig. 6-2

## 6.2 Looper thread tension for overlock stitch

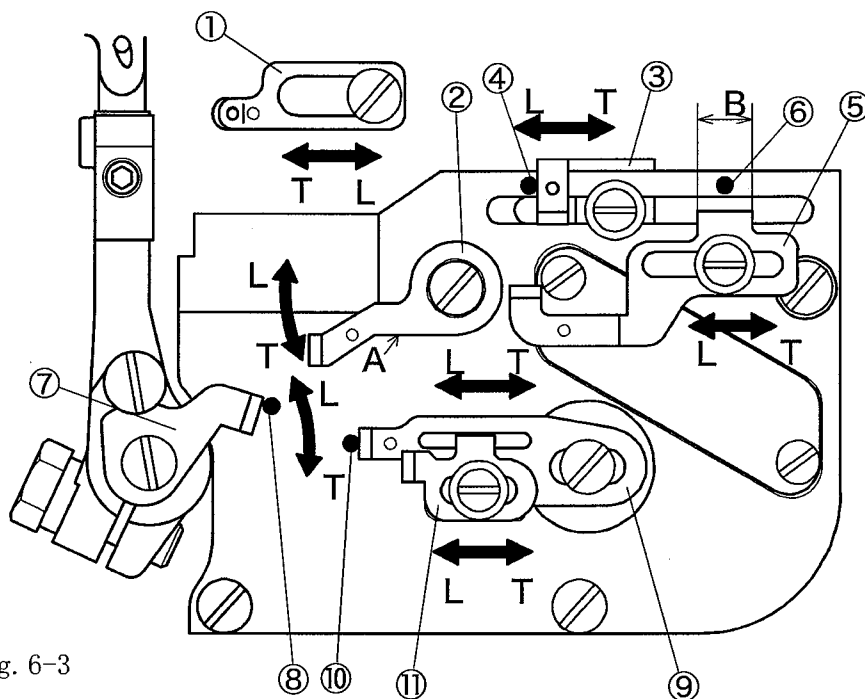


Fig. 6-3

The standard position of each looper thread eyelet:

**Upper looper supplementary thread eyelet ①**

Move it to the extreme left.

**Looper thread eyelet(left)②**

Position the part A horizontally.

**Upper looper thread eyelet ③**

Move its left end to mark ④.

**Lower looper thread eyelet ⑤**

Position the center of the width B with mark ⑥.

**Looper thread pull-off ⑦**

Move its right end to mark ⑧.

**Upper looper thread pull-off ⑨**

Align the eye of the thread pull-off with the mark ⑩ when the lower looper moves to the extreme right.

**Lower looper thread pull-off ⑪**

Tighten it with the screw at the center of the slot.

- To tighten the thread tension, move each thread eyelet or thread pull-off in the direction "T".
- To loosen the thread tension, move them in the direction "L".

### 6.3 Needle thread tension for double chainstitch



- ◆ To set the standard position of the needle thread eyelet(left) (double chain) ③, adjust the needle thread of double chain on a level with the eyelet(left) ③ when the needle bar is at the highest point.  
Loosen the screw ④ to adjust it.
- ◆ To set the standard position of the needle thread eyelet holder (double chain) ①, position the center of the slot in the center of the screw ②.
- ◆ To set the standard position of the needle thread eyelet(right) (double chain) ⑦, align the portion ⑥ with the eye ⑧ at the most front position of the needle thread pull-off ⑤ when the needle thread eyelet holder (double chain) and the needle thread pull-off are at the standard position.  
Loosen the screw ⑨ to make adjustment.
- To loosen the needle thread tension, move the needle thread eyelet and the needle thread pull-off in the direction “L” .
- To tighten the needle thread tension, move them in the direction “T” .

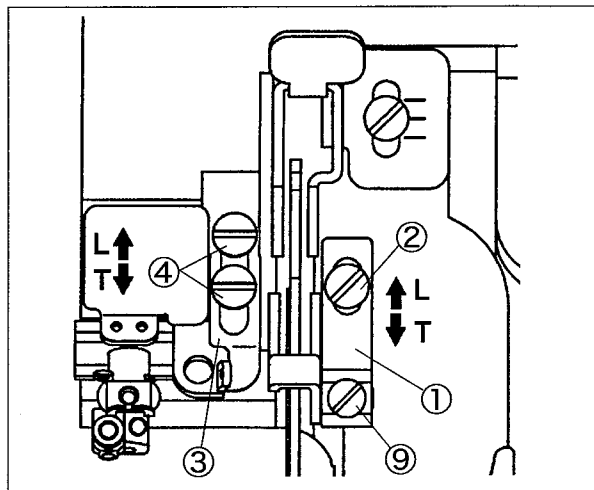


Fig. 6-4

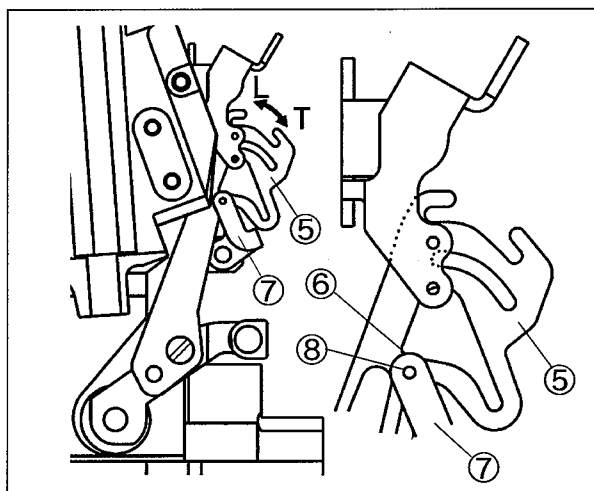


Fig. 6-5

## 6.4 Looper thread tension for double chainstitch



- ◆ Align the eye of the double chain looper thread eyelet ③ with the surface ② of the double chain looper thread take-up ① when being a level with the straight line A. Position the thread retaining finger ④ 1 mm above the eye of the looper thread eyelet ③.
- ◆ To set the standard position of the double chain looper thread eyelet ③, position the center of the slot in the center of the screw ⑤.
- To loosen looper the thread tension, move the looper thread eyelet in the direction “L”.
- To tighten the looper thread tension, move it in the direction “T”.
- ◆ At the standard timing of the looper thread take-up, the looper thread take-up starts taking up the looper thread when the needle starts lowering from the highest point.

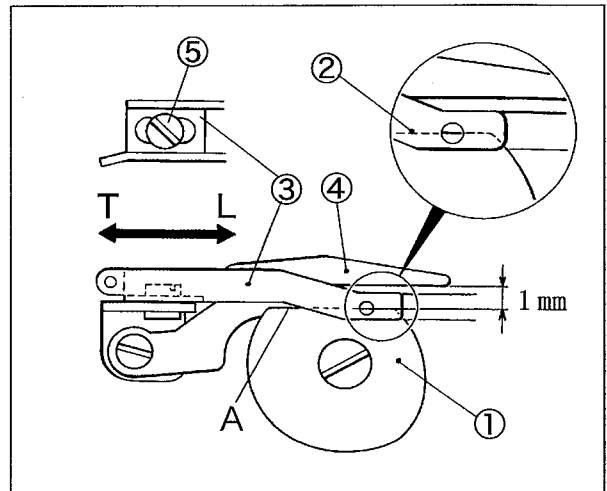


Fig. 6-6

### ! ATTENTION

Set the thread retaining finger in the center of double looper thread take-ups when tightening the screw of it.

### 6.5 Width of overedge seam



Before adjustment, set the edge of the upper knife ① 0 – 0.5 mm above the lower knife ②.

#### To make wide overedge seam:

- (1) Loosen the screw ③ on the upper knife holder ⑤.
- (2) Tighten the screw ③ securely after moving the holder ⑤ as desired in the direction “W”.
- (3) Loosen the screw ④ on the lower knife holder ⑥.
- (4) The lower knife ② touches the upper knife ① closely with its spring.
- (5) Tighten the screw ④ securely.

#### To make narrow overedge seam:

- (1) Loosen the screw ④.
- (2) Tighten the screw ④ slightly after moving the holder ⑥ as desired in the direction “N”.
- (3) Loosen the screw ③.
- (4) Tighten the screw ③ with applying the upper knife ① to the lower knife ②.
- (5) Loosen the screw ④.
- (6) The lower knife ② touches the upper knife ① closely with its spring.
- (7) Tighten the screw ④ securely.

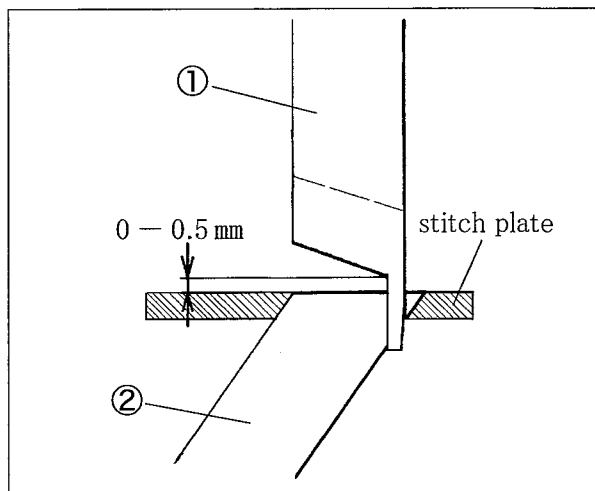


Fig. 6-7

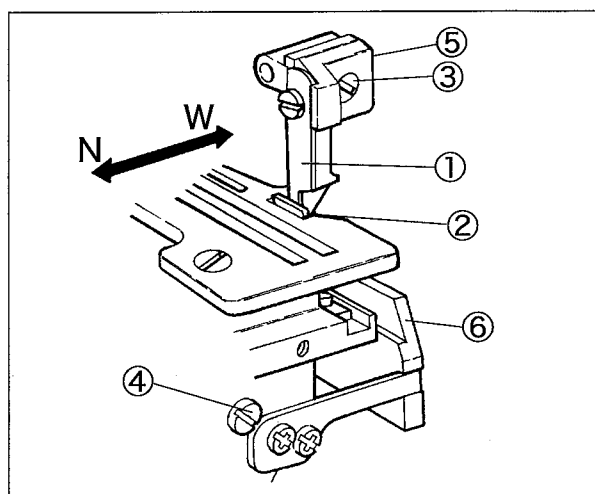


Fig. 6-8

#### ! ATTENTION

1. After changing the width of overedge seam, check the sharpness of the blades. (See “6.6.4 Sharpness of knives” )
2. Use a stitch plate applicable to the width of overedge seam.  
Adjustable range of overedge seam is within  $\pm 0.5$  mm based on the value indicated the gauge respectively.  
However, adjustable range of stitch plate of AZ8120SD-Y5-8 is 5 - 5.5mm.
3. Dust clogged at the connecting part of the upper knife holder changes the installing angle of the knives. It will make them cut badly. Be sure to clean the parts by loosening the screw ③.

## 6.6 Upper and lower knives

### 6.6.1 Height of lower knife

Loosen the screw ② to install the edge of the lower knife ① on a level with the top surface of the stitch plate or 0—0.3 mm lower than it.

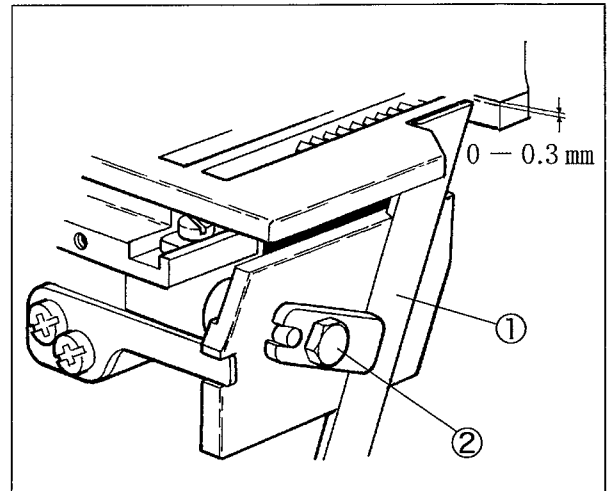


Fig. 6-9

### 6.6.2 Height of upper knife (flat type)

Loosen the screw ④ to make the engagement between the upper knife ③ and the lower knife ① to 0.5 — 1.0 mm when the upper knife is at the lowest point.

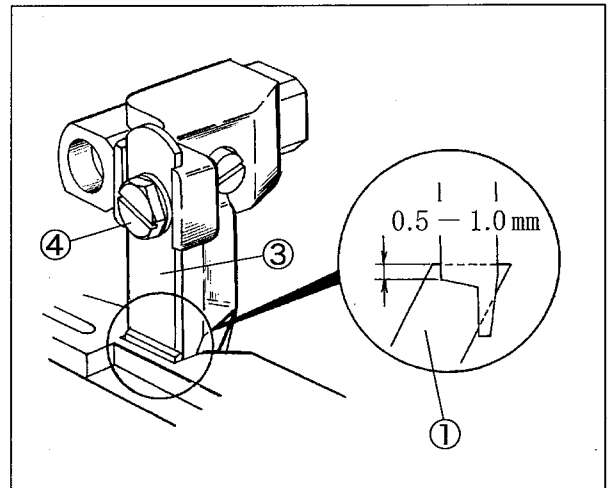


Fig. 6-10

### 6.6.3 Height of upper knife (angled type)

Loosen the screw ⑦ and apply the upper knife ⑤ to the stopper ⑥ fully. It makes the height automatically. Then tighten the screw ⑦ securely.

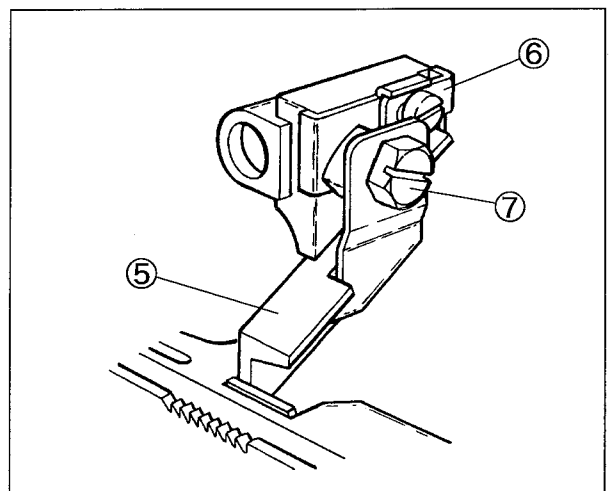


Fig. 6-11



### 6.6.4 Sharpness of knives

After adjusting the knives and the width of overedge seam, check the sharpness of the blades by setting a thread between the upper and the lower knives while rotating the machine pulley by hand.

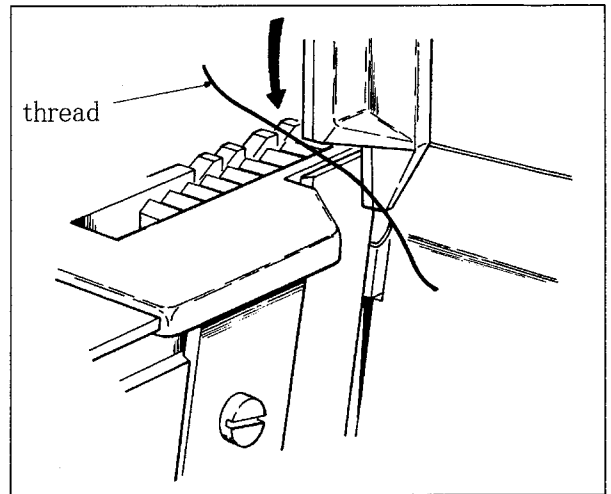


Fig. 6-12

### 6.6.5 Sharpening knives

If the lower knife cuts badly, re-sharpen it. (See Fig. 6-13)

The upper knife made of super hard alloy is unnecessary to re-sharpen for about one year and normal grinder is not useful for re-sharpening it.

Keep another upper knife for spare.

If needed, contact us directly or a dealer for re-sharpening.

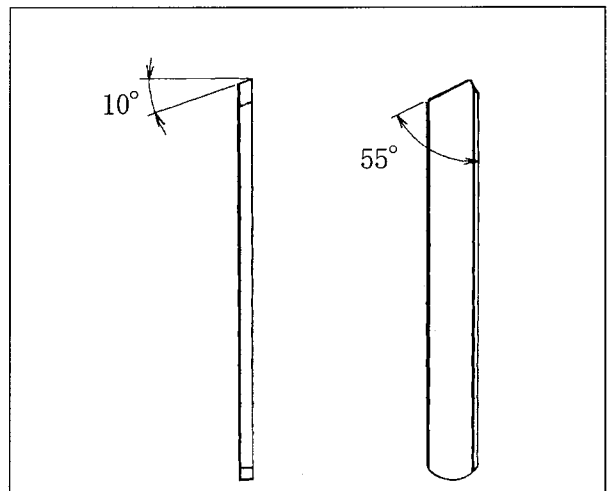


Fig. 6-13

## 6.7 Height of feed dogs

To set the standard position, set the tops of the main① and differential feed dogs ③ parallel to that of the stitch plate when the tops of the feed dogs are raised and even with that of the stitch plate.

Make the height between the top of the stitch plate and the rear side of the main feed dog ③ to 0.8 mm when the feed dog is at the highest point.

Install the auxiliary feed dog ⑤ depending on the machine class as below.

**AZ8000SD-8 class** (Refer to Table 10)

Install the auxiliary feed dog ⑤ 0.5 mm lower than the main feed dog ③ as standard.

**AZ8500SD-8 class** (Refer to Table 10)

Install the auxiliary feed dog ⑤ even with the main feed dog ③.

Loosen the screws ②, ④, and ⑥ to adjust the differential feed dog ①, the main feed dog ③, and the auxiliary feed dog ⑤ respectively.

### ! ATTENTION

1. Be sure to make no difference of installing height between the main feed dog ③ and the differential feed dog ①. If different, it can cause the unstable feeding and feed scratch mark.
2. For sewing heavy weight knitted fabric or the material having uneven thickness parts, adjust differential feed dog ① and main feed dog ③ 1.0 mm higher than standard position respectively.

Difference between main feed dog and auxiliary feed dog

Model	Difference (mm)
AZ8000SD-8 class (excluded below)	0.5 (lower than the main feed dog)
AZ8016SD-8	0
AZ8500SD-8 class	0

Table 10

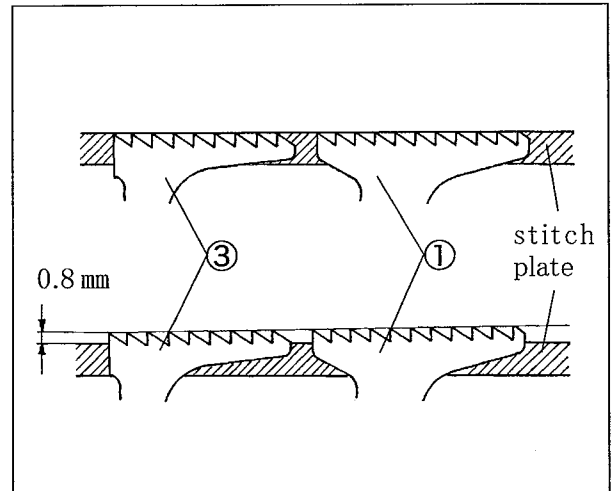


Fig. 6-14

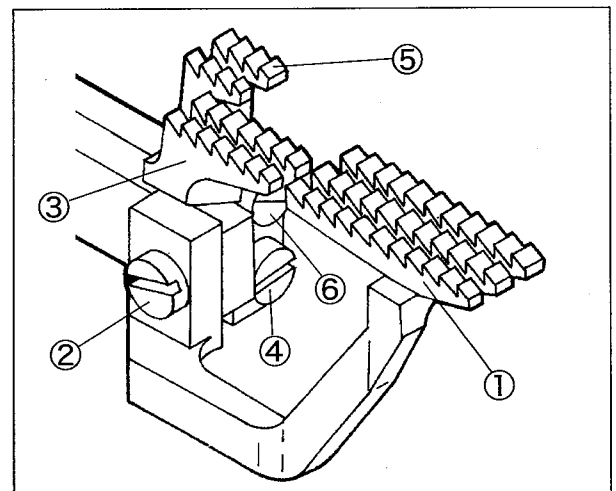


Fig. 6-15 AZ8000SD-8 class

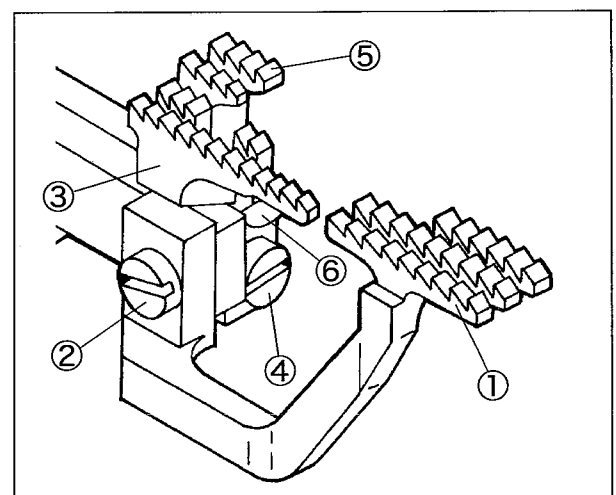


Fig. 6-16 AZ8500SD-8 class

### 6.8 Tilt of feed dog

Remove the tail cover ① to loosen the screw ② .  
Move the feed bar block(rear) lid ③ to make adjustment.

- To tilt the feed dog forward down , move it up.
- To tilt the feed dog forward up, move it down.

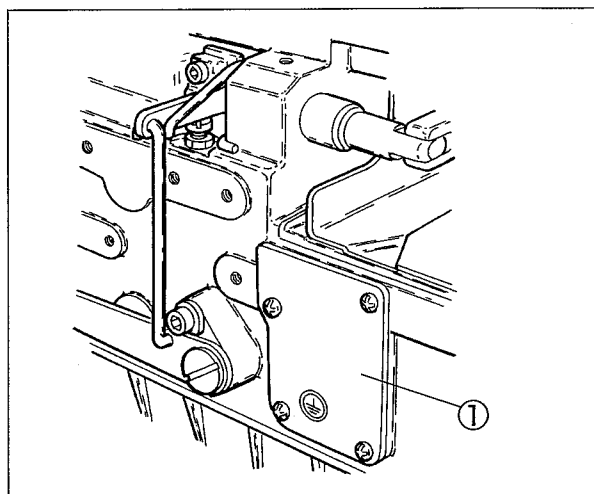


Fig. 6-17

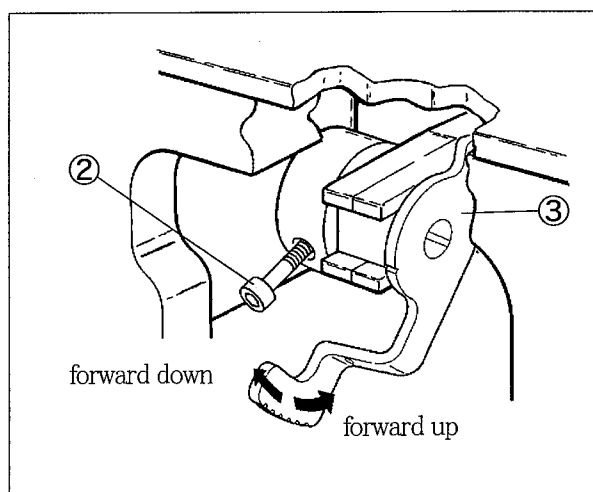


Fig. 6-18

## 6.9 Needles and loopers

Make adjustment by following the steps below:

### In case of 2-needle overlock machines and 3-needle safety stitch machines

- (1) Height of needle
- (2) Installation angle of lower looper
- (3) Fix the distance between needle and lower looper, the front-and-rear position of lower looper temporarily
- (4) Parallel of needles
- (5) Front-and-rear position of upper looper
- (6) Distance between needle and upper looper
- (7) Front-and-rear position of lower looper
- (8) Distance between needle and lower looper
- (9) Timing relation between lower looper and upper looper

### In case of 1-needle overlock machines and 2-needle safety stitch machines

- (1) Height of needle
- (2) Front-and-rear position of upper looper
- (3) Distance between needle and upper looper
- (4) Installation angle of lower looper
- (5) Front-and-rear position of lower looper
- (6) Distance between needle and lower looper
- (7) Timing relation between upper looper and lower looper

#### 6.9.1 Height of needle

- (1) Loosen the screws ① to remove the logo plate ②. (Fig. 6-19)
- (2) Remove the screw ③.
- (3) Rotate the machine pulley to raise the needle bar to the highest point.
- (4) Loosen the screw ④ and adjust the needle bar while moving it up and down.

When the needle bar is at the highest point, make the height "N" from the top of the stitch plate to the needle tip in Table 11.

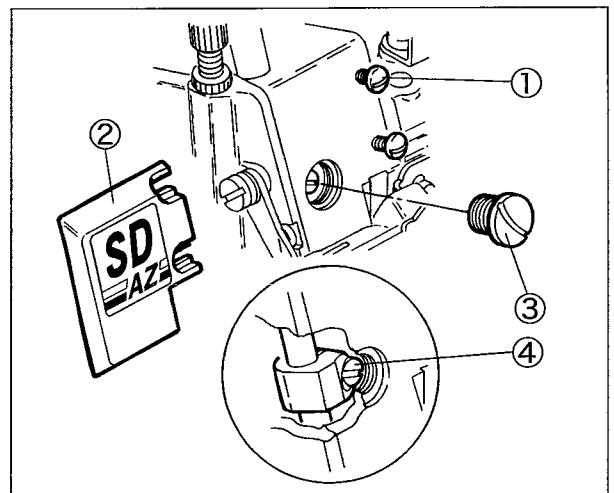


Fig. 6-19

## 6. Adjustment of sewing machine

Model	Height of Needle "N" (mm)	Fig. No.
AZ8000SD-8 class 1-needle	10.0 - 10.3	6-20-1
AZ8020SD-8 class 2-needle	10.0 - 10.3	6-20-2
AZ8120SD-8 class	10.7 - 11.0	
AZ8500SD-8 class	10.0 - 10.3	6-20-3
AZ8520SD-8 class	10.0 - 10.3	6-20-4
AZ8500SD-31	10.7 - 11.0	6-20-3
AZ8520SD-31	10.7 - 11.0	6-20-4

Table 11

### ! ATTENTION

1. Tighten the screw ④ with a tightening torque of 1.5 N·m.
2. Check the parallel setting of the needles for 2-needle machine and 3-needle machine. (See "6.9.4 Parallel of needles" )
3. Apply the liquid packing to the thread of the screw when tightening it.

### 6.9.2 Installing angle of lower looper

The standard installation angle of lower looper① is value A in Table 12 .

Make adjustment by loosening the screw② to make the height difference between the rear and the tip of the lower looper to value B in Table 12. (Fig. 6-21)

Model	A	B
2-needle overlock machines (AZ8020SD-8, AZ8120SD-8 class)	2-4 °	0.5-1.5mm
3-needle safty stitch machines (AZ8520SD-8/-31 class)		
1-needle overlock machines (AZ8003SD-8 class)	2-3 °	0.5-1.0mm
2-needle safe stitch machines (AZ8500SD-8/-31 class)		

Table 12

### 6.9.3 Distance between needle and lower looper

Rotate the machine pulley clockwise and move the lower looper ① to the extreme left. Make the distance between the lower looper tip and the center of the needle to 3.3 - 3.8 mm.

Loosen the screw③ on the lower looper holder to adjust it.

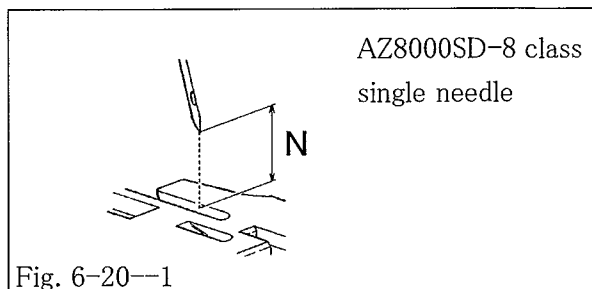


Fig. 6-20-1

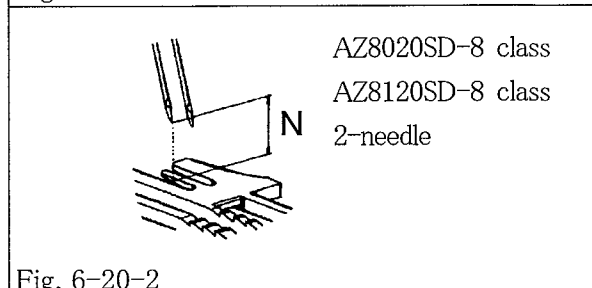


Fig. 6-20-2

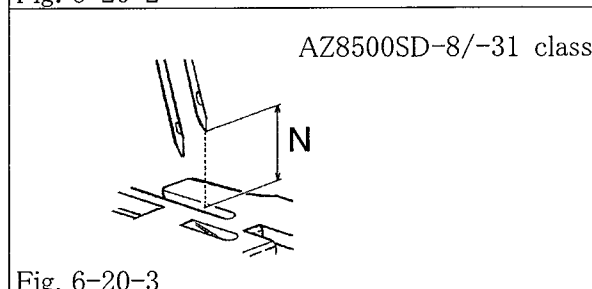


Fig. 6-20-3

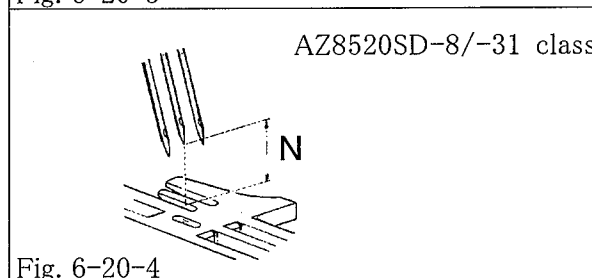


Fig. 6-20-4

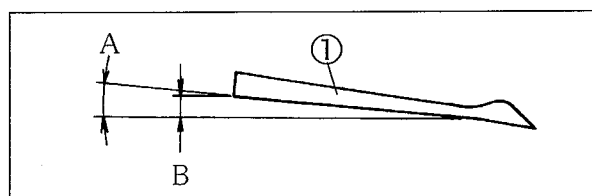


Fig. 6-21

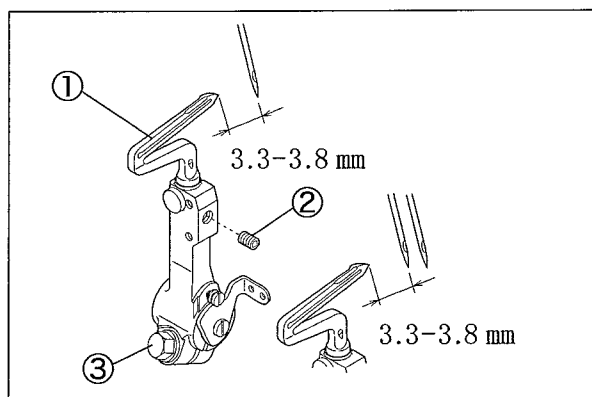


Fig. 6-22

### 6.9.4 Parallel of needles

In the case of 2-needle machines, loosen the screw ④ of the lower looper holder arm and turn the adjusting screw ⑤ clockwise or counterclockwise to adjust the front-and-rear position of the lower looper so that the clearance between the left needle and lower looper is set to between 0 – 0.05 mm when the lower looper has arrived at the center of the left needle. Then, tighten screw ④ slightly.

Loosen screw ①, turn the needle clamp slightly, and adjust it so that the clearances between the right and the needle on the left are the same. As with the left needle, adjust the clearance to between 0 – 0.05 mm when the right needle and lower looper meet.

Refer to “6.9.1 Height of needle” on page 29.

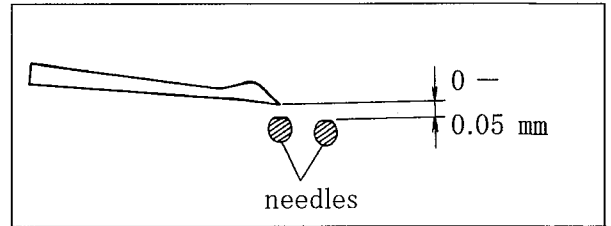


Fig. 6-23

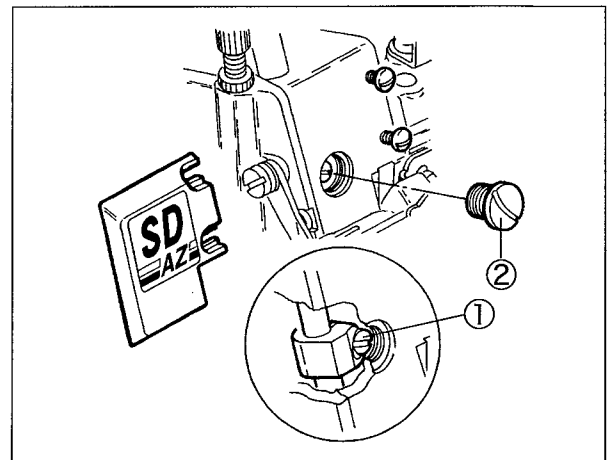


Fig. 6-24

### ! ATTENTION

1. After checking the needle heights, tighten screw ① of the needle bar bracket.
2. Once the parallelism adjustment has been conducted for the needles, be sure to adjust the front-and-rear position of the looper.
3. Once the front-and-rear position of the lower looper has been adjusted, check the distance between the needle and the lower looper, then tighten screw ④ in Fig. 6-25.
4. Apply the liquid packing to the thread of the screw ② when tightening it.

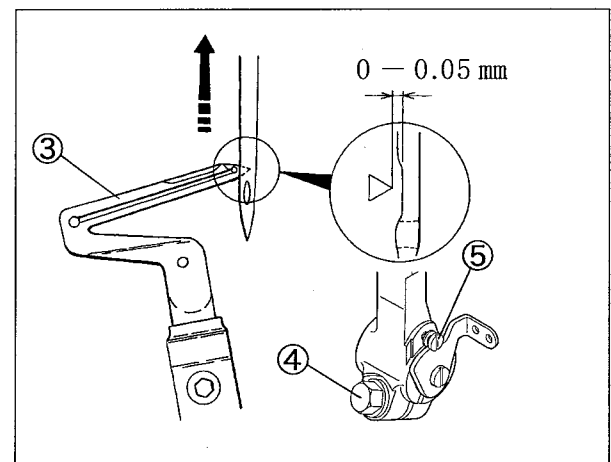


Fig. 6-25

### 6.9.5 Front-and-rear position of lower looper

#### 1-needle overlock stitch on AZ8000SD-8 and AZ8500SD-8 classes:

Adjust so that the lower looper① tip touches the needle and bends it by no more than 0.03 mm when the lower looper ① meet the center of the needle.

#### 2-needle overlock stitch on AZ8020SD-8 and AZ8520SD-8 classes:

- (1) Adjust so that the lower looper① tip touches the needle and bends it by no more than 0.03mm, using the left needle as a reference, when the lower looper① meet the center of the left needle.
- (2) Make sure that the lower looper③ tip touches the right needle and bends it by no more than 0.03 mm as with the left needle when the lower looper③ reaches the right needle.

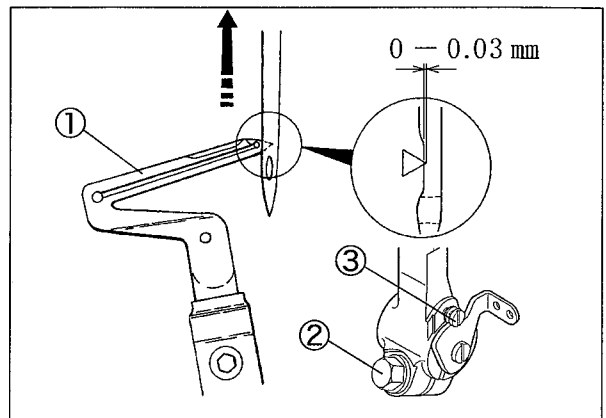


Fig. 6-26

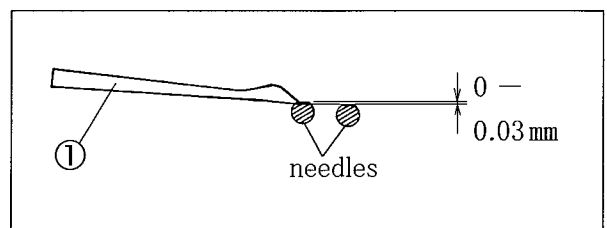


Fig. 6-27

#### Procedure

Loosen the screw ② of lower looper holder arm, and turn the adjusting screw ③ to adjust the position of the lower looper.

- When turn it to the right, the lower looper comes to the front.
- When turn it to the left, the lower looper goes to the rear.

Be sure to tighten the screw② after adjustment.

### 6.9.6 Distance between needle and upper looper

Rotate the machine pulley clockwise and move the upper looper ① to the extreme left. Make the distance between the upper looper ① tip and the center of the needle to 5.0–5.5 mm.

- (1) Loosen the screw ②.
- (2) Make the looper thread eyelet ③ away from auxiliary looper holder cover ④.
- (3) Remove the screw ⑤.
- (4) Remove the cover ④.
- (5) Loosen the screw ⑥ to make adjustment.

#### ! ATTENTION

Tighten the screw ⑥ while pressing it against to the machine, after adjustment.

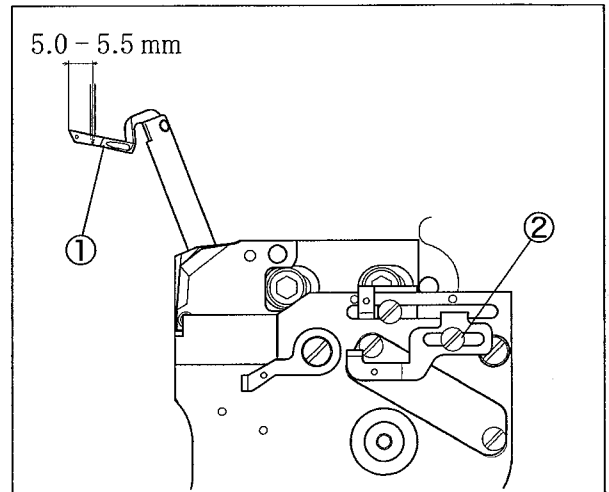


Fig. 6-28

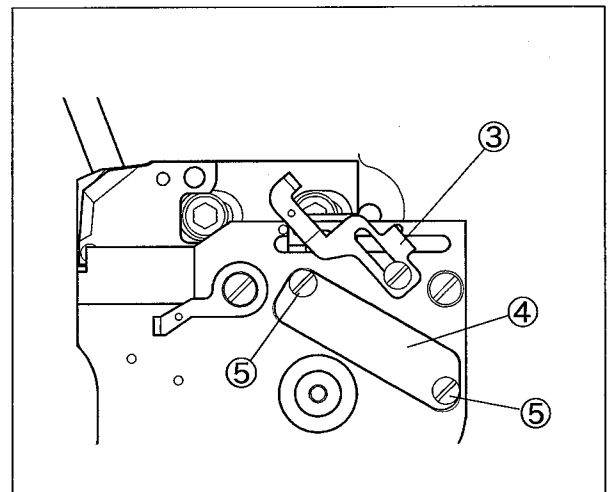


Fig. 6-29

### 6.9.7 Front-and-rear position of upper looper

The thick portion (around the needle eye) of the upper looper will be very close to the needle when the upper looper moves from the extreme left to the right while rotating the machine pulley clockwise. (In case of 2-needle machine, it will be close to the right needle.)

Loosen the screw ⑦ to make the clearance between the back side of the upper looper ① and the needle to 0.05–0.1 mm.

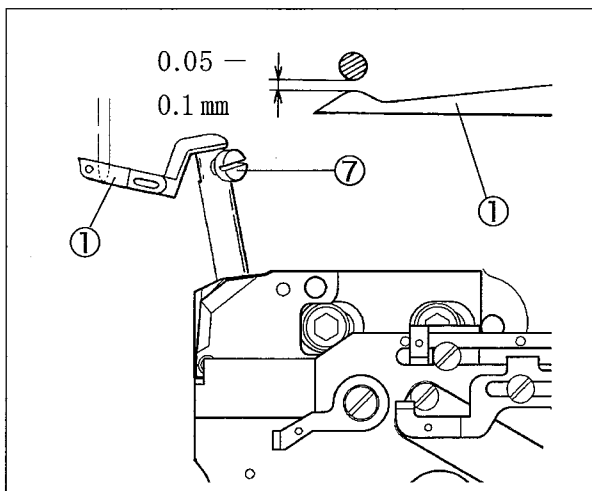


Fig. 6-30

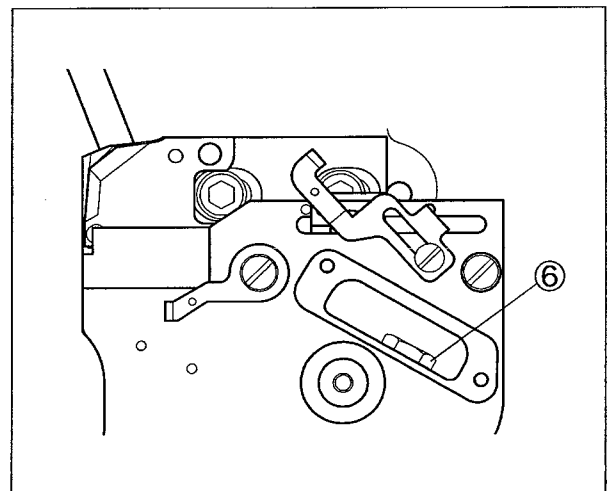


Fig. 6-31



### 6.9.8 Timing relation between lower looper and upper looper

Make sure that the clearance between the front and rear is  $0.05 - 0.1 \text{ mm}$  and between the right and left is  $0.05 - 0.3 \text{ mm}$  when the lower looper ① meets the upper looper ② while rotating the machine pulley clockwise.

Be sure to let clearances in the above mentioned ranges.

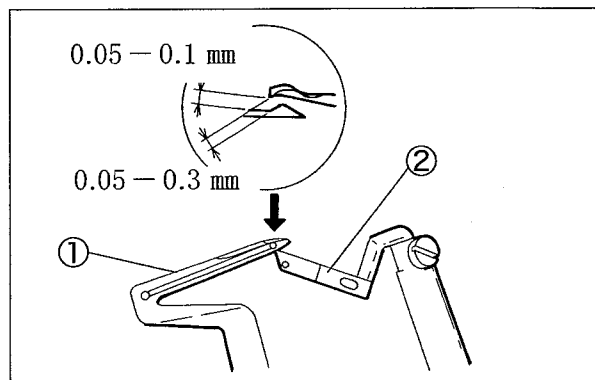


Fig. 6-32

## 6.10 Needle and double chain looper

### Timing relation:

To set the height, insert the double chain looper ③ into the looper holder until it touches the bottom of the holder.

Make the distance between the center of the double chain needle ④ and the double chain looper tip to  $2.0 - 2.2 \text{ mm}$  when the double chain looper ③ is at the extreme left. Loosen the screw ⑤ to make adjustment.

Tighten the screw ⑥ temporarily, and make it have an approximately  $6^\circ$  angle to the looper. Adjust the distance so that the looper tip can touch the double chain needle ④ slightly.

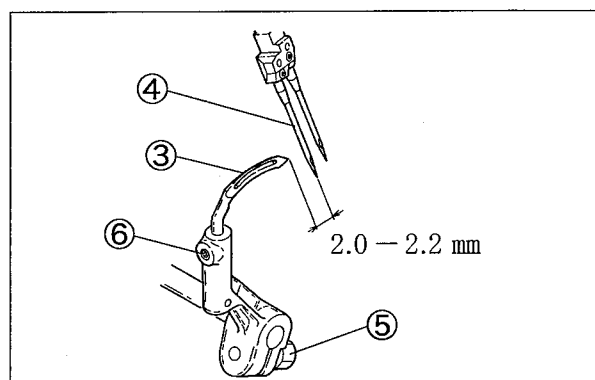


Fig. 6-33

### Front-and-rear position:

Make the looper ③ tip pass the back of the needle and keep them as close as possible without touching each other.

Make the needle pass the back of the curved portion of the looper and let them touch each other slightly when the looper moves from the right to the left (the needle goes down at the back of looper).

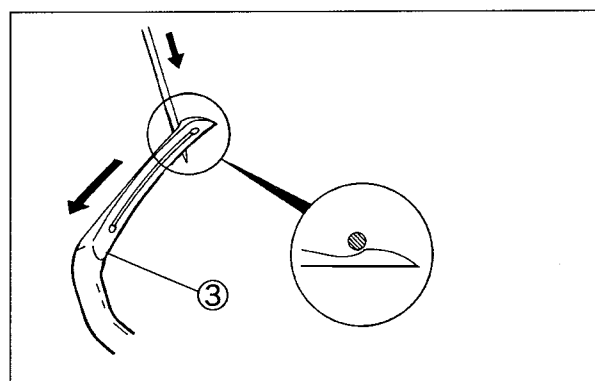


Fig. 6-34

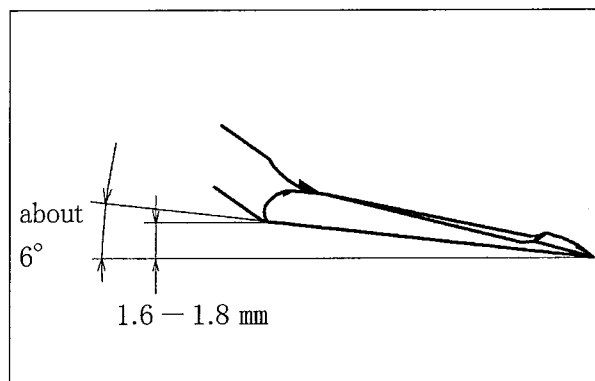


Fig. 6-35

## 6.11 Needle and needle guards for AZ800SD-8 class

### 6.11.1 Needle and needle guard(rear)

This machine is equipped with a movable needle guard (rear) ① that is interlocked with the lower looper.

The needle guard (rear) ① holds the needle from the rear to protect the lower looper tip when the needle meets the lower looper tip during the upward movement process from the lowest point.

- (1) Move the lower looper from the left to the right, and align the needle with ridge line "a" of the needle guard (rear).
- (2) Loosen screw ②, and adjust so that the clearance between the needle and needle guard (rear) ① is reduced to zero.
- (3) In the case of the 2-needle machine, use the left needle as a reference and perform the same adjustment as with the 1-needle machine.

Check that the clearance between the lower looper tip and needle is 0 – 0.03mm when the lower looper tip has meet the respective centers of the left and right needles.

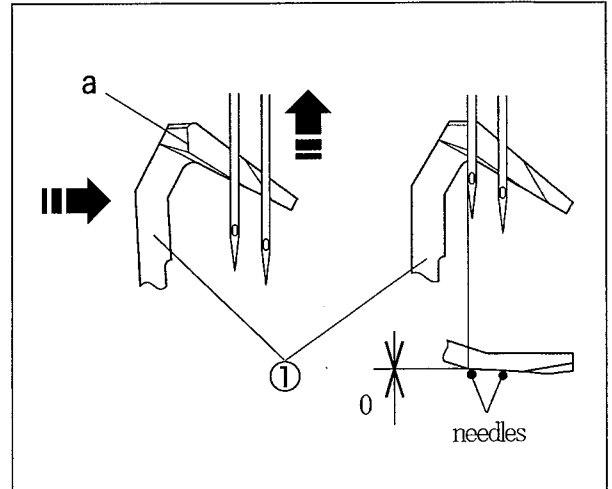


Fig. 6-36

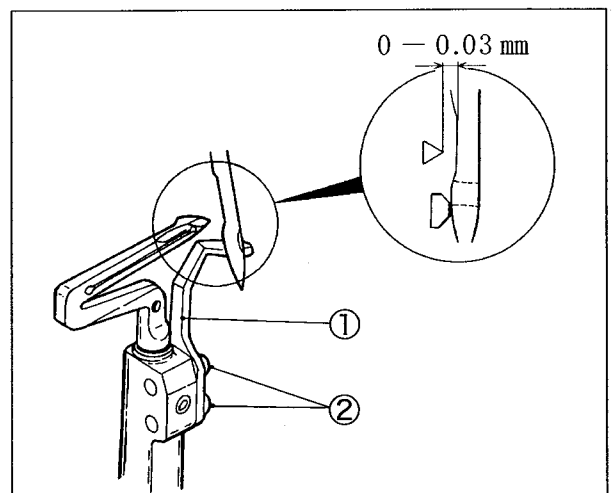


Fig. 6-37

### 6.11.2 Needle and needle guard(front)

Loosen screw ④, and adjust so that the clearance between the needle and needle guard (front) ③ is reduced to zero when the needle is at its lowest point.

In the case of a 2-needle machine, the clearance between the right needle and needle guard (front) ③ is 0.05 – 0.1 mm.

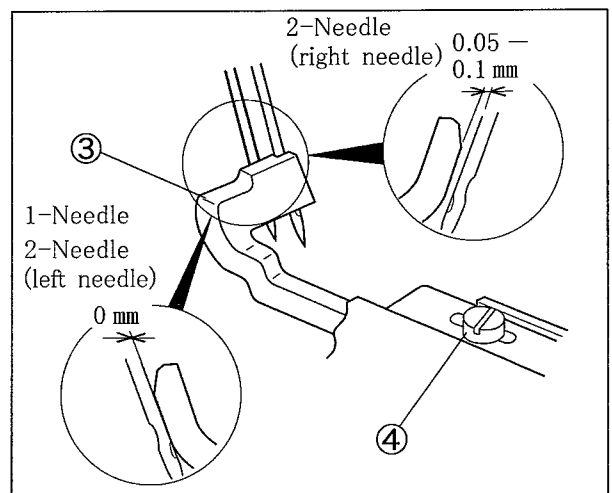


Fig. 6-38

### 6.12 Needle and needle guards for AZ8500SD-8 class

#### 6.12.1 Needle and needle guard(rear)

This machine is equipped with a movable needle guard (rear) ① that is interlocked with the lower looper.

The needle guard (rear) ① holds the needle from the rear to protect the lower looper tip when the needle meets the lower looper tip during the upward movement process from the lowest point.

- (1) Move the lower looper from the left to the right, and align the needle with ridge line "a" of the needle guard (rear).
- (2) Loosen screw ②, and adjust so that the clearance between the needle and needle guard (rear) ① is reduced to zero.
- (3) In the case of the 2-needle machine, use the left needle as a reference and perform the same adjustment as with the 1-needle machine.

Check that the clearance between the lower looper tip and needle is 0 – 0.03mm when the lower looper tip has met the respective centers of the left and right needles.

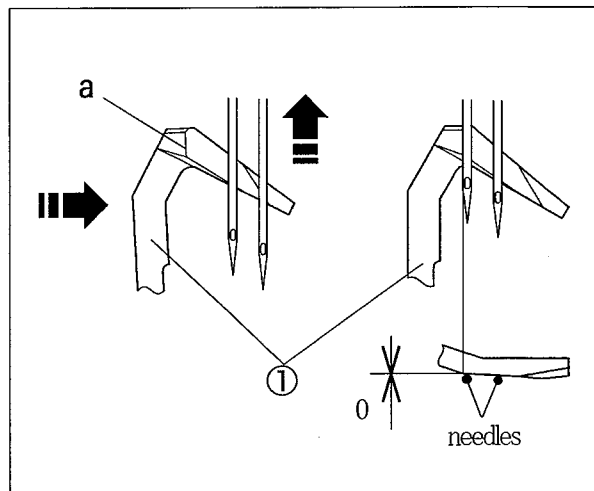


Fig. 6-39

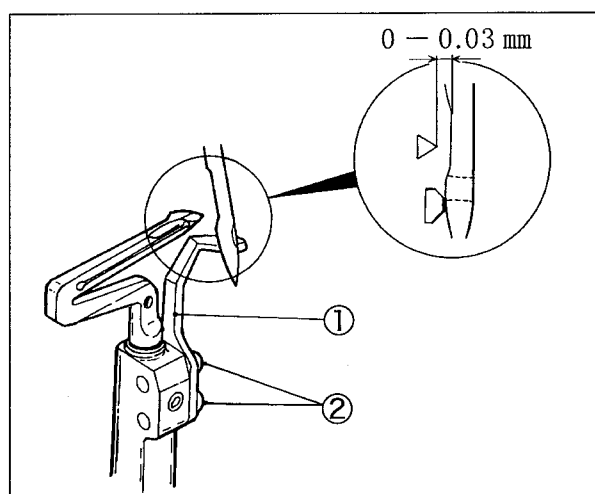


Fig. 6-40

#### 6.12.2 Needle and needle guard(front)

Loosen screw ④, and adjust so that the clearance between the needle and needle guard (front) ③ is reduced to zero when the needle is at its lowest point.

In the case of a 2-needle machine, the clearance between the right needle and needle guard (front) ③ is 0.05 – 0.1 mm.

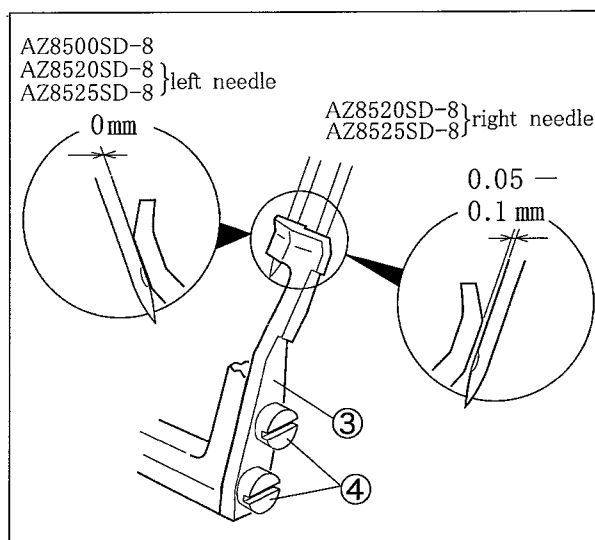


Fig. 6-41

### 6.12.3 Needle and needle guards for double chainstitch

#### Needle guard(rear) (double chain stitch):

Loosen the screw ⑥ to make the clearance between the needle and the needle guard(rear) ⑤ to 0 – 0.05 mm at the lowest point of the needle.

#### Needle guard(front) (double chain stitch):

Loosen the screw ⑧ to make the clearance between the needle and the needle guard(front) ⑦ to 0.1 – 0.2 mm.

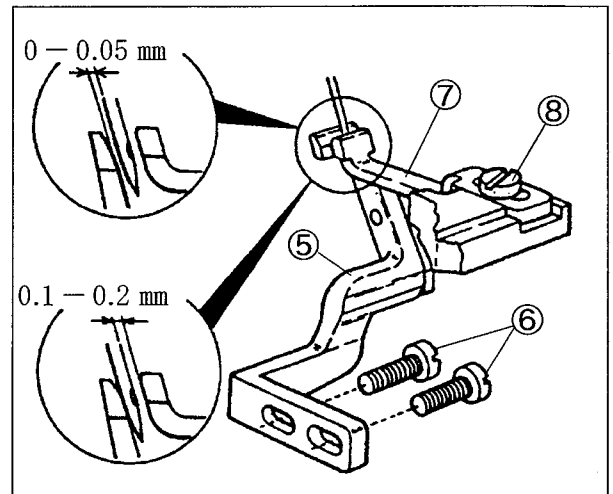


Fig. 6-42

### 6.13 Position of presser foot

Install the bottom surface of the presser foot parallel to the stitch plate when looking from the front.

Slanted presser foot can cause feed scratch mark.

To set front-and-rear position, adjust the clearance between needle drop of the presser foot and that of the stitch plate to 0.2–0.3 mm as shown in Fig. 6-43.

Loosen the screw ① to make adjustment.

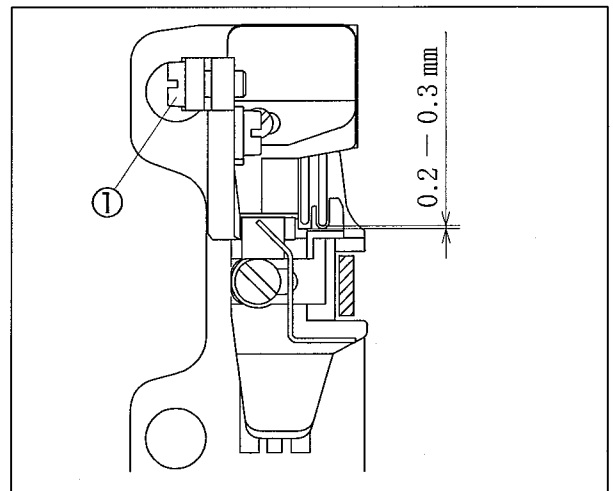


Fig. 6-43

# 7. SC10 device

## 7.1 Outline

SC10 is a self-cleaning system that can keep a clean and comfortable environment for operators.

It eliminates clogged dust around the lower knife holder and under the stitch plate by cutting material during the sewing. And also makes maintenance easily and prevents troubles caused by the lint.

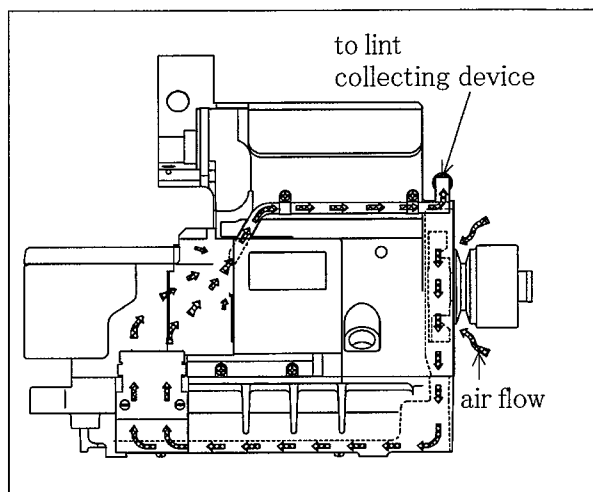


Fig. 7-1

## 7.2 Adjusting ventilating amount

Select the setting type by changing the position of the air deflector ① according to the sewing speed and sewing condition.

To set the standard position, insert the air deflector ① into the guides ② and ③. (See Fig. 7-2)

For high speed and less dust during sewing, insert the air deflector ① into the guides ② and ④. (See Fig. 7-3)

When not using SC10 device, remove the air deflector ①.

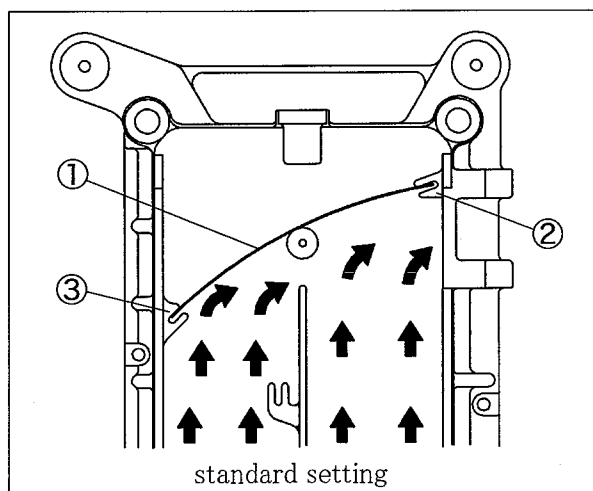


Fig. 7-2

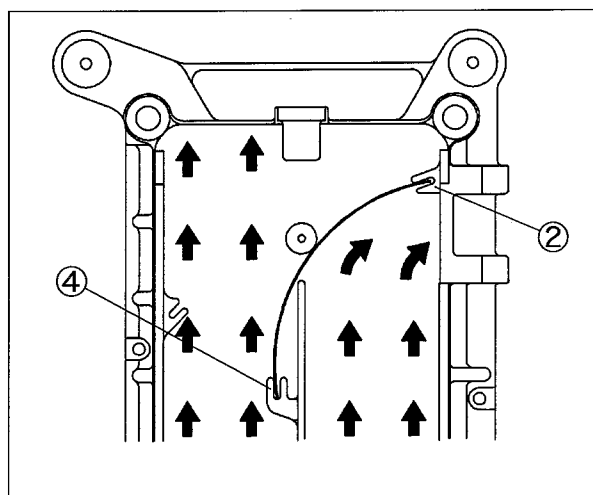


Fig. 7-3

## 7.3 Installation

### 7.3.1 Installing air deflector

- (1) Drain the oil from the machine.
- (2) Tilt the machine backward.
- (3) Loosen two screws ④ and remove the wind guide plate ②.
- (4) Install the air deflector ③ into the guides ⑤ of the oil reservoir ① securely.
- (5) Reinstall the wind guide plate ②.
- (6) Raise the machine upright and supply the oil.

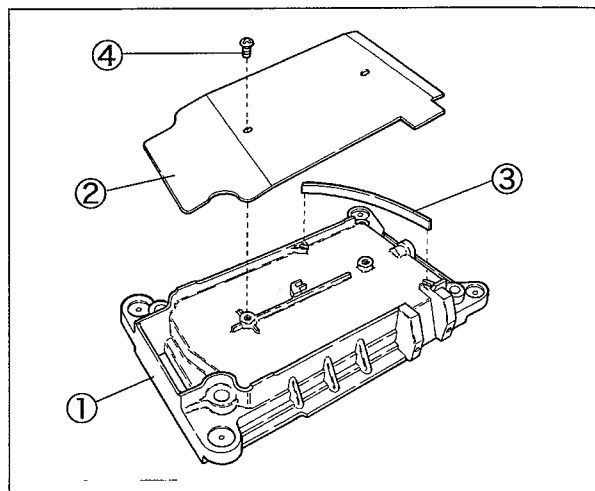


Fig. 7-4

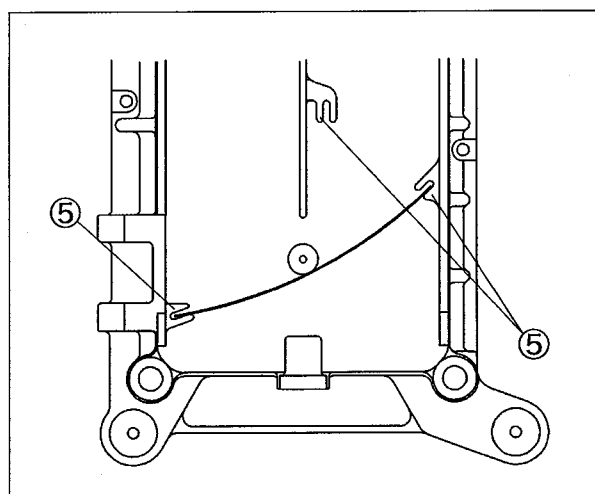


Fig. 7-5

### 7.3.2 Installing blowing hole screen

- (1) Install the blowing hole screen ⑥ on the oil reservoir ①.
- (2) Install the wind guide plate(front) ⑦ on the oil reservoir ① while pressing the blowing hole screen ⑥ with two screws ⑧.

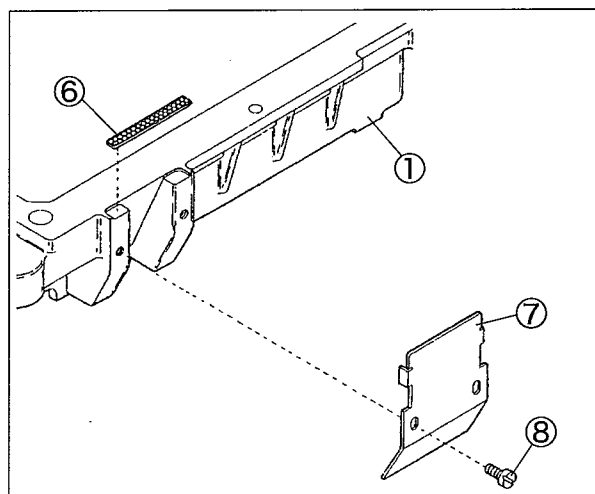


Fig. 7-6

### 7.3.3 Installing lint removal pipe

- (1) Put two pipe clamps ② to the lint removal pipe ①.
- (2) Install the lint removal pipe ① and the pipe clamps ② on the machine frame with two screws ③.
- (3) Connect the lint removal pipe ① to the pipe from the lint collecting device.

#### **① SUPPLEMENT**

Suction will be insufficient if connecting another device to one lint collecting device for SC10.  
When using ventilation, air pressure should be 0.2 Mpa or more.

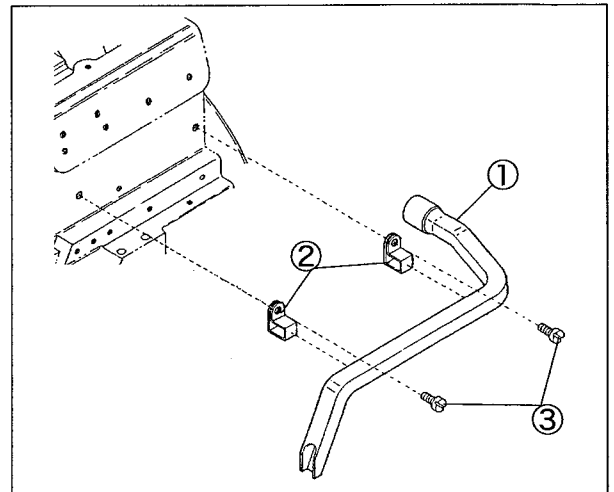


Fig. 7-7

# 8. Specifications

## 8.1 AZ8000SD-8 class

Model	AZ8000SD-8 class AZ8020SD-8 class	AZ8016SD-8 class	AZ8120SD-8 class AZ8125SD-8 class
Dimensions	380 (L) × 245 (W) × 310 (H) mm		
Weight	27.0kg		
Construction	Dust-proof, Oil-tight and completely sealed		
Stitch Type	ISO: 504, 505, 514	504	514
Application	Overlock chain stitch for knitted or woven farics		
Sewing Speed	up to 8000sti/min		up to 7000sti/min
Stitch length Stitch number 1 inch (24.5 mm) 30mm	1.0—4.0 mm 6.5-25 stitches 7.5-30 stitches	0.6—2.0 mm 12-42 stitches 15-50 stitches	1.0—4.0 mm 6.5-25 stitches 7.5-30 stitches
Needle System	DC×27 Size#8~#14(60~90)		
Needle Stroke	23.7 mm		24.7 mm
Presser Foot Lift	6.0 mm	5.0mm	6.0mm
Feed Regulation	Push button system		
Differential Ratio	Max. Normal Differential (Gathering) 1:2.3 Max. Reverse Differential (Stretching) 1:0.7 (Available up to 1:0.6 by adjusting the position of the lever pin.)		
Differential Feed Regulation	Adjustable by moving external lever during operation		
Knives for Fabric Cutting	Lower Knife : flat type, made of special steel Upper Knife : flat or angled type, made of super hard alloy		
Lubricating Oil	YAMATO SF OIL No.28		
Capacity of Oil Reservoir	900ml		
Lubrication	Forcedly by trochoid shaped pump		
Installation	Semi-submerged type or fully-submerged type		
Compliance with Regulator	CE Marking		
Noise declaration	L <sub>PA</sub> =84.8dB(8000sti/min)	L <sub>PA</sub> =84.8dB(8000sti/min)	L <sub>PA</sub> =81.0dB(7000sti/min)
	according to ISO 10821-C6.2-ISO 11204 GR2		



## 8. Specifications

### 8.2 AZ8500SD-8 class

Model	AZ8500SD-8 class	AZ8520SD-8 class	AZ8500SD-31 class	AZ8520SD-31 class
Dimensions	380 (L) ×245 (W) ×310 (H) mm			
Weight	27.5 kg			
Construction	Dust-proof, Oil-tight and completely sealed			
Stitch Type	ISO: (504・401)	ISO: (514・401)	ISO: (504・401)	ISO: (514・401)
Application	Safety stitch for knitted or woven farics			
Sewing Speed	up to 7500 sti/min		up to 7000 sti/min	
Stitch length Stitch number 1 inch (24.5 mm) 30mm	1.0—4.0 mm 6.5-25 stitches 7.5-30 stitches			
Needle System	DC×27 (overlock side and double chain stitch side) Size#8~#14(60~90)			
Needle Stroke	23.7 mm		24.7 mm	
Presser Foot Lift	Up to 6.0 mm	Up to 5.5mm	Up to 6.0mm	Up to 5.5mm
Feed Regulation	Push button system			
Differential Ratio	Max. Normal Differential (Gathering) 1:2.3 Max. Reverse Differential (Stretching) 1:0.7 (Available up to 1:0.6 by adjusting the position of the lever pin.)			
Differential Feed Regulation	Adjustable by moving external lever during operation			
Knives for Fabric Cutting	Lower Knife : flat type, made of special steel Upper Knife : flat or angled type, made of super hard alloy			
Lubricating Oil	YAMATO SF OIL No.28			
Capacity of Oil Reservoir	900ml			
Lubrication	Forcedly by trochoid shaped pump			
Installation	Semi-submerged type or fully-submerged type			
Compliance with Regulator	CE Marking			
Noise declaration	L <sub>pA</sub> =84dB (7500sti/min)	L <sub>pA</sub> =84dB (7500sti/min)	L <sub>pA</sub> =82.2dB (7000sti/min)	L <sub>pA</sub> =82.2dB (7000sti/min)
	according to ISO 10821-C6.2-ISO 11204 GR2			



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