



**PEGASUS®**

# FS700 Series

Thank you very much for purchasing Pegasus FS700 Series machine.

This instruction manual describes daily routine maintenance and safety precautions to keep the machine in the best possible conditions.

Please study this manual very carefully before operating the machine.

4-needle, feed-off-the-arm, interlock stitch machine

**INSTRUCTIONS**



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Be sure to study very carefully **for safety.**

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## Copyright

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- **Disclaimer**  
The contents described in this instruction manual are intended for giving information and subject to change without notice. We assume no responsibility for these information, and any errors and/or incorrect descriptions that may appear in this instruction manual.
- Pegasus Sewing Machine Mfg. Co., Ltd. has a policy that we always modify the performance and/or specifications of this product introducing the state-of-the-art technology. Accordingly we reserve the right to change the specifications and/or design without notice.
- This instruction manual is valid for all the models and subclasses listed in the chapter "Specifications."

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## Directives

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This machine is constructed in accordance with the European regulations contained in the conformity and manufacturer's declarations. In addition to this instruction manual, strictly observe all the generally accepted, statutory regulations, legal requirements and all the environmental protection regulations.

Also rigidly adhere to the regionally valid regulations of the social insurance society for occupational accidents or other supervisory organizations.

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## 1.Introduction

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- This is the instruction manual that describes how to use this product safely.
- Read this instruction manual and learn very carefully how to operate, adjust and service this sewing machine before beginning any of the procedures.
- You should realize first that there is always the risk of contacting moving parts, such as needles because you have to work at point-blank range to them when you are operating industrial sewing machines.  
For safety it is essential that we supply safe products and you use them correctly and safely.  
There may be some safety measures that you yourself must take.  
Therefore, you should read and understand very carefully this instruction manual together with that of the driving equipment and take necessary safety measures in order to use this machine efficiently and effectively.

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## 2.Indications of dangers, warnings and cautions

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To prevent accidents and ensure safety, warning indications which show the degree of danger are used on our products and in this manual.




Study the contents of these indications carefully and follow all warnings and instructions.

Indication labels should be found easily.

Attach new labels when they are stained or removed.

Contact our sales office when new labels are needed.

### **Symbols, signs and/or signal words which attract users' attention**

 <b>DANGER</b>	Indicates an immediate hazard to life or limb.
 <b>WARNING</b>	Indicates a potential hazard to life or limb.
 <b>CAUTION</b>	Indicates a possible mistake that could result in injury or damage.

## Symbols and messages

	Be sure to follow the instructions when you operate the machine and/or labor saving device.
	If you use the machine and/or labor saving device incorrectly, you may get an electrical shock.
	If you use the machine and/or labor saving device incorrectly, your hands and/or fingers may be injured.
	Indicates a danger of burn injury due to high temperature.
	Never do this.
	Unplug the machine or shut off the power when checking, adjusting and/or repairing the machine and/or labor saving device, or when lightning may strike.
	Be sure to ground the machine and labor saving device securely.
	Denotes the normal rotating direction of the machine pulley.

### 3.Safety precautions

#### ①Applications, purpose

Our industrial sewing machines have been developed in order to increase quality and/or production in the sewing industry. Accordingly never use our products for other than intended use described above.

#### ②Circumstances

The environment in which our industrial sewing machines are used may seriously affect their lives, functions, performance and/or safety.



For safety, do not use the machine under the circumstances below.

- 1.Do not use the machine near objects which make noise such as a high-frequency welder, etc.
- 2.Do not use or store the machine in the air which has vapor from chemicals, or do not expose the device to chemicals.
- 3.Do not leave the machine outside, in high temperatures or the direct sun.
- 4.Do not use the machine in the places of high ambient temperature and humidity that seriously affects sewing machines.

5.Do not use the machine on the condition that the voltage fluctuation range is more than  $\pm 10\%$  of the rated voltage.

6.Do not use the machine in the place where the supply voltage specified for the control motor cannot be properly obtained.

#### ③Safety measures



(1)Safety precautions when you perform maintenance on the machine.

- Always turn off the power, unplug the machine and then make sure that the machine does not run by pressing the treadle before performing any maintenance, such as checking, repairing, cleaning, etc. However, if you need to perform these procedures with the power on, to prevent accidents due to the unexpected start of the machine and users' misoperation, establish your own procedures for safety and follow them.



●Always turn off the power and unplug the machine before performing the procedures shown below.

- Lubrication
- Threading
- Cleaning
- Replacing the needle
- Checking/replacing the oil element
- Replacing the oil

- Always turn off the power before performing the procedures shown below.

- Adjusting the stitch length
- Adjusting the differential feed ratio

- Only well-trained people should perform routine daily maintenance and/or repair the machine.



- Do not modify the machine yourself.

※ Consult your local Pegasus' sales office or representative for modification.



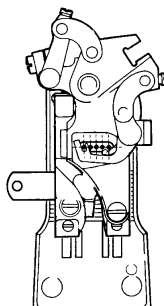
#### (2) Before operating the machine

- Check the machine head and unit for any damage and/or faulty function at the start of each day.

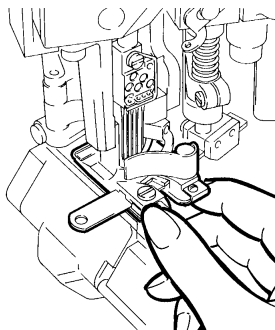
If there should be something wrong with the machine, immediately perform repairs and/or other necessary procedures.

- Check by hand to see if the needle holder is secured.  
※ Be careful of the needle point.

- Before starting the machine, make sure that the presser foot is positioned correctly (turn the machine pulley slowly by hand to see if the needle point is centered in the needle drop hole on the presser foot).



- Check to see if the presser foot is secured (raise the presser foot by the foot lifter and press it by hand front to back and left to right).



#### (3) Training

- To prevent accidents, operators and service/maintenance personnel should have proper knowledge and skills for safe operation.  
To ensure so, managers must design and conduct training for these people.

## 4. Notes for each procedure

### ⚠ CAUTION

#### ① Unpacking

1. The machine is packaged in a cardboard box before shipping.  
Unpack your machine in orderly sequence while checking them right-side up by referring to the indications, such as logo, etc. printed on the boxes.
2. Never hold the area near the needle and/or thread guide related parts when taking out the machine from the cushion.  
Otherwise it may cause injury and/or damage to the machine.
3. Take out the machine very carefully while checking the position of the center of the gravity.
4. Keep the cardboard box and packing carefully in case secondary transport is needed in the future.

#### Disposal of the packaging

- The packaging material of the machine consists of wood, paper, cardboard and VCE fiber. The proper disposal of the packaging is the responsibility of the customer.

#### Disposal of machine waste

1. The proper disposal of machine waste is the responsibility of the customer.
  2. The materials used on the machines are steel, aluminum, brass and various plastics.
  3. The machine waste is to be disposed of in accordance with the locally valid environmental protection regulations. A specialist should be commissioned if necessary.
- ※ The parts contaminated with lubricants should be disposed off separately according to the locally valid environmental protection regulations.

#### Transport within the customer's premises

- The manufacturer assumes no liability for transport within the customer's premises. Care should be taken to transport the machine in an upright position avoiding it from dropping or falling down to the ground when it is moved.

Be sure to study very carefully for safety.

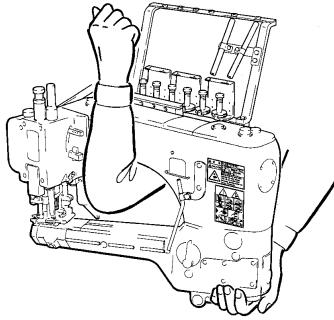
## WARNING

### ②Transportation

1. The machine should be carried by at least more than two people when it is mounted on the table and/or a hand truck.

Be sure to use a hand truck for other transportation.

2. To move the machine head  
Hold the underside of the oil reservoir with your left hand (Be careful not to pin your left hand under the machine head when putting it down). Hook and hold the left side of the arm with your right hand. To prevent accidents, wipe oil off the surface of the machine head and your hands.



3. Care should be taken to avoid excessive shock and shake when the machine is mounted on the table and/or transferred using a hand truck. Otherwise the machine may fall down.

4. Wipe off the oil from the machine before packaging it again for secondary transport. Otherwise the machine may easily slip out of your hands or the bottom of the box may come off while in transit.

## CAUTION



### ③Installation, preparation

#### Machine table

1. Use the machine table (table board, metal legs) that completely carries the machine and is fully resistant to warping while the machine is running.
2. Arrange the working environment for easy operation by considering where to place the machine and the brightness around the working area. If the illumination is insufficient, control or change lighting as required.
3. Attach a non-slip pad to the treadle (foot switch). Otherwise the operator may slip off the treadle while running the machine, causing trouble.
4. Adjust the height of the table according to a working posture of the operator.

## WARNING

#### Cables

1. When connecting the cables between the machine and the motor, be sure to turn off the power and connect each cable connectors securely.
2. Do not strain the cables in use.
3.  Do not bend the cables excessively.
4. When connecting the cables that are close to the moving parts, such as pulley or V belt, keep a distance of 25mm at least between them.
5. Protect each cable using a cover or adjusting its position if necessary.
6.  Never use staples to fasten the cables. Otherwise it causes a short circuit and/or a fire.


## CAUTION

#### Motor

1. Install the machine motor correctly by referring to the instruction manual supplied by the manufacturer.
2. Select the machine motor equipped with the pulley cover so that any part of your body etc. is not caught in the belt.

## CAUTION


#### Ground

1. Connect each of the ground wires in the sewing machine system to the ground terminal. Do not connect to another devices'.
2.  Connect the ground wires securely to the indicated ground points on the machine head.

## WARNING

### ④Handling machine oil

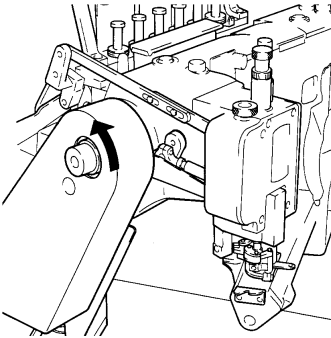
1. Before running the machine, check to see if the oil reservoir is filled with oil. Use Pegasus recommended oil (P-68 made by Yanase). (ISO Viscosity Grade 68)
  2. If machine oil gets in your eyes, it may cause eye irritation. To prevent the machine oil from getting in your eyes, wear a pair of protective glasses.
- ※Should machine oil gets in your eyes, wash them with fresh water for 15 minutes and then go to see a doctor.

3. Avoid skin contact. Immediately wash contacted areas completely with water and soap.
4.  Never swallow machine oil.
5. Keep machine oil out of the reach of children.  
※ If swallowed, do not induce vomiting.  
Immediately go to see a doctor.
6. Dispose of the waste oil and/or containers properly as demanded by law. If you have further questions on its disposal, consult the store or shop at which you purchased it.
7. After opening the oil container, be sure to seal it to prevent dust and water from getting into the oil and keep it in the dark to avoid direct sunlight.

## WARNING



### ⑤ Before starting the machine



#### Machine table

- Before turning the power on, visually check the cables and connectors for defective conditions, such as damage, disconnection and/or loosening.
  - Never bring your hands close to the needle and/or pulley when turning on the power.
  - When the machine is used for the first time, check to make sure the machine pulley rotates counterclockwise as seen from the pulley (operating direction).
- 
- Well trained operators should use the machine after studying these precautions and the instruction manual carefully.
  - Regarding symbols that indicate a danger or a warning, read and study "2. Warning indications" carefully and give training on safety to the operators as required.
  - Run the machine at the speed less than 3/4 of its maximum for the first one month.

## WARNING



### ⑥ Precautions while you are running the machine

-  Do not run the machine with the safety devices removed, such as eye guard, finger guard, pulley cover, etc.
-  Never bring your hands under the needle while running the machine.

- A clutch motor keeps on running for a while after the power is turned off. Therefore, be careful even after the power is turned off as the machine could start running by pressing the machine treadle.
-  To prevent accidents, never bring any part of your fingers, hair and clothes near the machine pulley, V belt, motor pulley, thread take-up and needle bar. Also never leave scissors, tweezers, tools, etc. around these areas.
- Always turn off the power while the machine is not used or before leaving the machine table.
- In the event of a power failure, be sure to turn off the power.
- While operating the machine, wear clothes that cannot be caught in the machine.
-  Do not put any tools or other unnecessary objects on the machine table while running the machine.

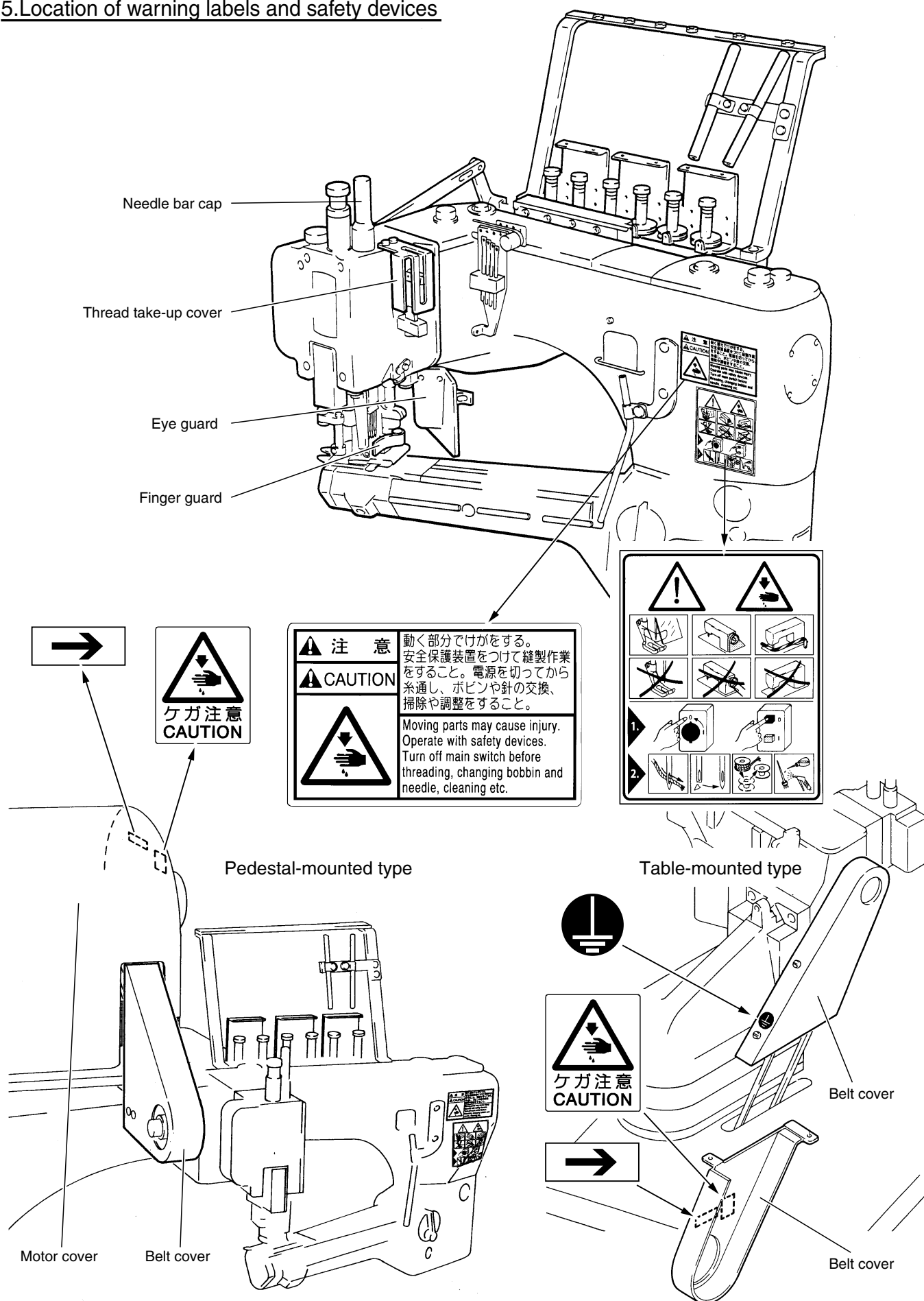
## CAUTION

### ⑦ Maintenance, Check, Repair

- Well trained people should perform maintenance, check and repair of the machine after studying these precautions and the instruction manual carefully.
-  If it is necessary to lay the machine backward for maintenance, check and repair, always turn off the power, unplug the machine and press the treadle to make sure that the machine does not operate before beginning any of the procedures.
-  Before installing/removing the V belt, always turn off the power, unplug the machine and press the treadle to make sure the machine does not operate.
- Carry out daily maintenance work and periodical inspections properly by following these precautions and the instruction manual.
- Employ Pegasus' genuine parts when repairing the machine and/or replacing the parts. We are not responsible for accidents caused by any improper repair/adjustment and substituting other parts for those manufactured by Pegasus.
- Do not attempt to modify the machine at your own discretion. We are not responsible for accidents caused by the modification.
- Be sure to replace the safety devices and/or safety covers that are temporarily removed for maintenance and/or adjustment.
- After performing maintenance, check and repair, make sure that turning on the power does not pose any danger to you.

Be sure to study very carefully **for safety.**

## 5. Location of warning labels and safety devices



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## 6. Protectors for safety

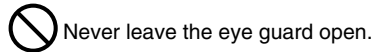
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This chapter describes each protector for safety. Therefore, read and study the following carefully.



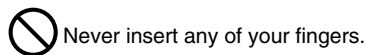
### Protectors for safety

#### (1) Eye guard



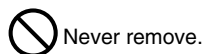
For the safety of eyes, do not operate the machine with the eye guard open. The eye guard will prevent any pieces of the broken needle from getting into your eyes if the needle should break during sewing.

#### (2) Finger guard



To prevent the needle that moves up and down from contacting any of your body, the finger guard is installed close to the needle. However, there is clearance above the finger guard for easy threading. Be careful that the needle may penetrate any of your fingers if you insert it into this clearance.

#### (3) Belt cover

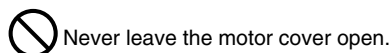


The machine pulley and the V belt are covered with the belt cover. To prevent accidents, never remove the belt cover during sewing because the machine pulley and the V belt run very fast.

#### (4) Pulley

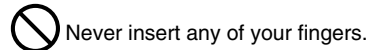
Check to make sure the machine pulley rotates counterclockwise as seen from the pulley (operating direction).

#### (5) Motor cover



The motor is covered with the motor cover. To prevent accidents, never remove the motor cover during sewing because the motor pulley rotates very fast.

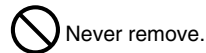
#### (6) Presser foot



There is a clearance of more than 5mm between the top surface of the needle plate and the presser foot.

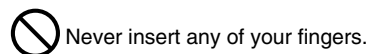
Be careful that none of your fingers are caught in this clearance. Never insert any of your fingers under the presser foot when raising the presser foot with the knee switch or automatically raising it with the treadle.

#### (7) Needle bar cap



The needle bar cap is installed on the top surface of the machine arm. To prevent accidents, never remove the needle bar cap during sewing because the needle bar moves up and down very fast.


#### (8) Thread take-up cover



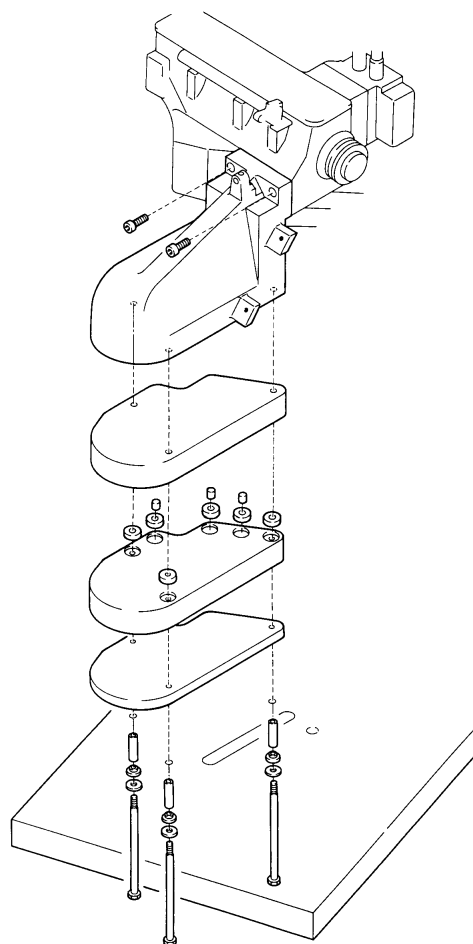
The thread take-up moves up and down in order to supply the required amount of needle thread during sewing. To prevent accidents, the thread take-up is covered with the thread take-up cover. However, this thread take-up cover has a clearance through which the thread can easily go in order to thread the thread guide on the thread take-up. Any of your fingers may be caught in the thread take-up when you put it into this clearance. Be careful.

## Installing the machine head (table-mounted type)

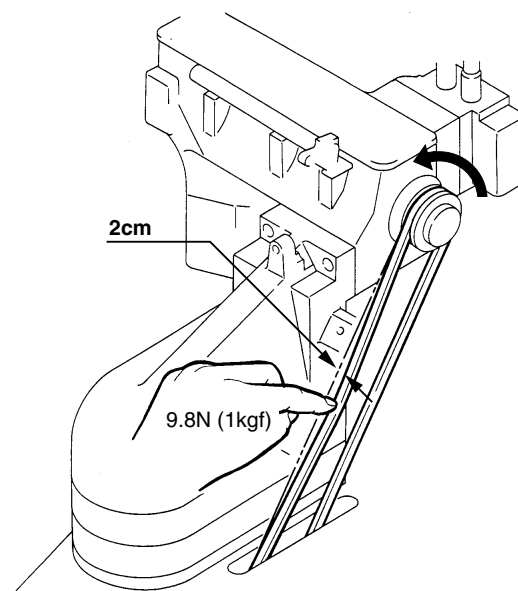
### CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should install the machine.

1. Firmly Install the machine head onto the machine rest bracket by referring to the illustration. Check there is no play and/or clearance after this installation.




2. Place the V belt. Approximately 2cm deflection should be obtained by pressing the middle of the V belt with 9.8N (1kgf). To achieve this deflection adjust the position of the machine motor.

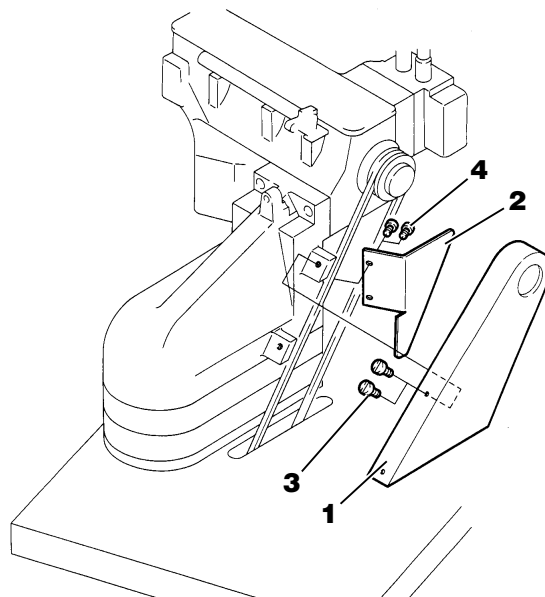


## Installing the belt cover

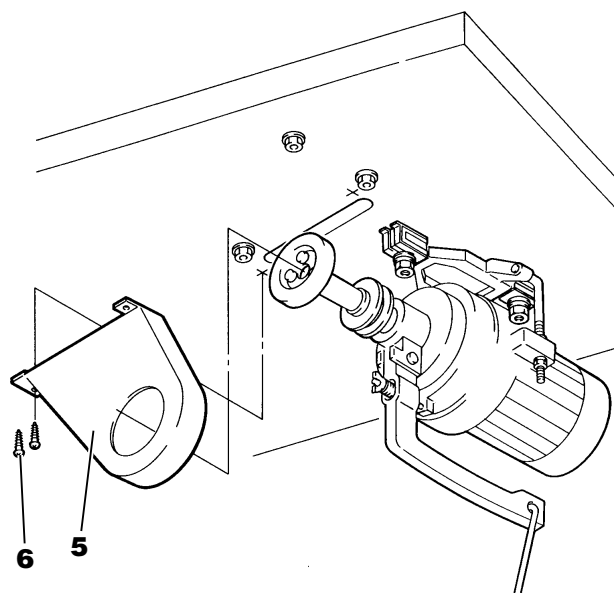
### ⚠ CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should install the belt cover.

1. Attach upper belt cover **1** and auxiliary cover **2** to the machine rest bracket with screws **3** and **4** (see the illustration on the right).

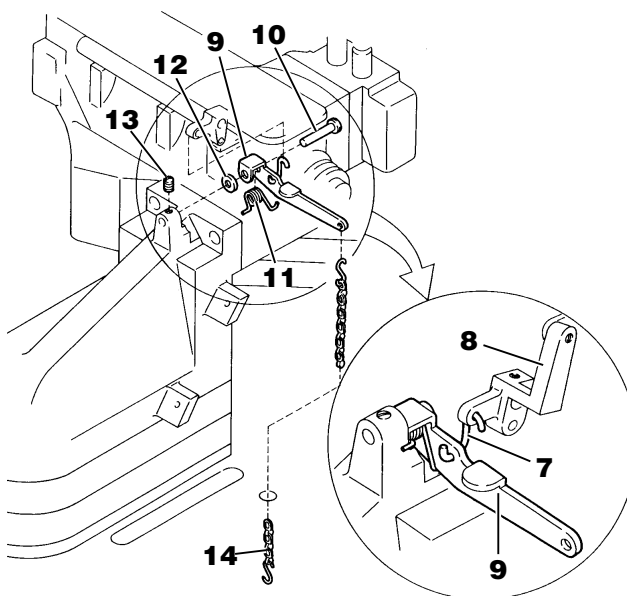


2. Install lower belt cover **5** onto the underside of the table with wood screws **6**.



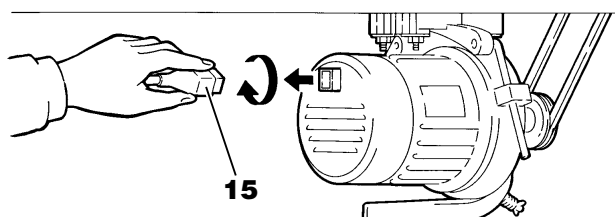
## Installing the presser foot lift lever

Join lever **8** attached to the machine and presser foot lift lever **9** with link **7** (see the illustration on the right). Attach presser foot lift lever **9**, spring **11** and washer **12** to the machine rest bracket with pin **10**. Tighten screw **13**. Link presser foot lift lever **9** and the treadle with chain **14**.




## Direction in which the machine pulley rotates

The machine pulley rotates counterclockwise as seen from the machine pulley. If the machine pulley rotates in the reverse direction, turn motor connector **15** 180° in direction of the arrow before establishing a connection.



## Installing the machine (Pedestal-mounted type)

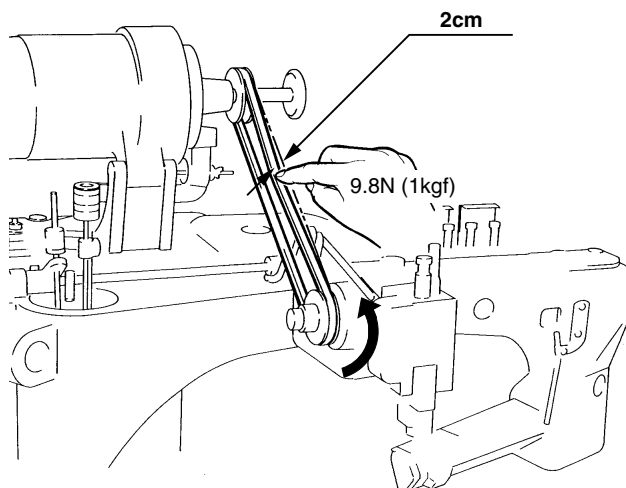
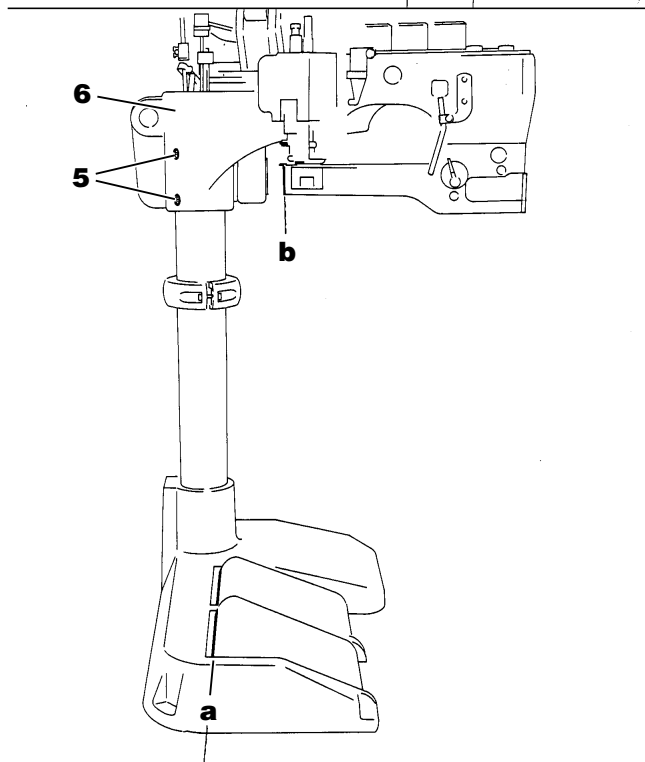
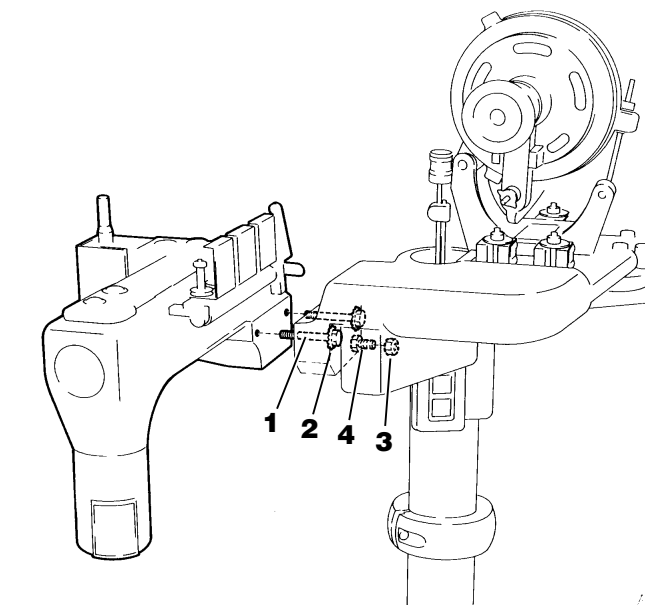
### CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should install the machine.

1. Install the machine onto the pedestal with screws **1** and washers **2**. Loosen nut **3**. Turn bolt **4** until it reaches the pedestal. Tighten nut **3**.

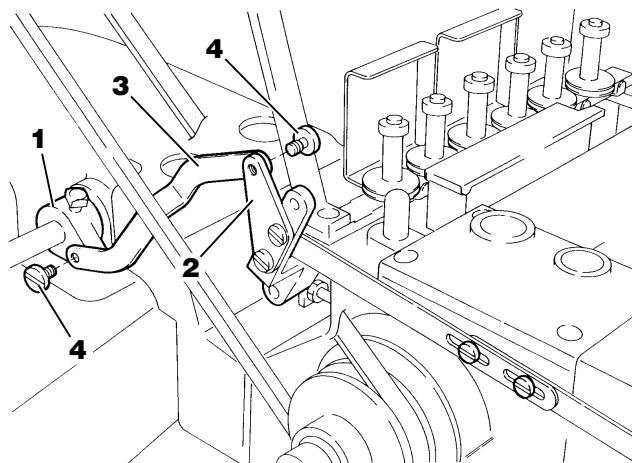
2. Line **a** should be parallel with surface **b**. To make this adjustment loosen screws **5** and turn machine rest board **6** as required.

3. Place the V belt. Approximately 2cm deflection should be obtained by pressing the middle of the V belt with 9.8N (1kgf). To achieve this deflection adjust the position of the motor.



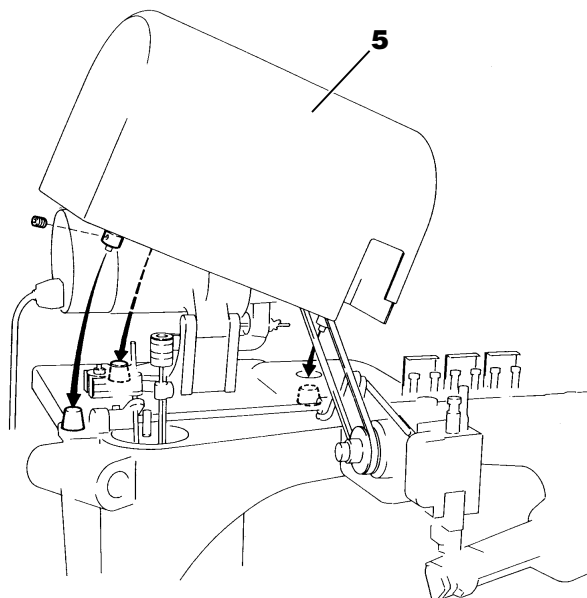
## Joining the presser foot lift

Join lever **1** on the pedestal to lever **2** on the machine with link **3** and screws **4** (see the illustration on the right).




## Installing the motor cover

Install motor cover **5** (see the illustration on the right).

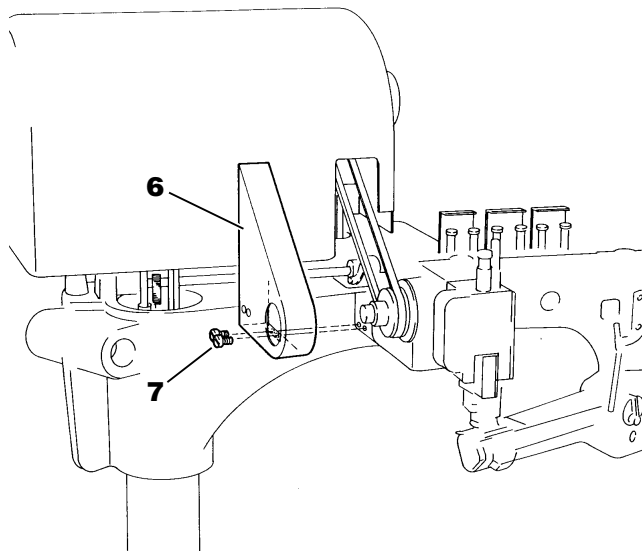


## Installing the belt cover

### CAUTION

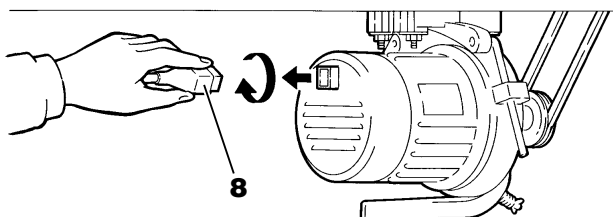
 Always turn off the power, unplug the machine and then well-qualified technicians should install the belt cover.

Install belt cover **6** with screws **7** (see the illustration on the right).




## Direction in which the machine pulley rotates

The machine pulley rotates counterclockwise as seen from the machine pulley. If the machine pulley rotates in the reverse direction, turn motor connector **8** 180° in direction of the arrow before establishing a connection.



## Lubrication

### CAUTION

 When lubricating the machine and/or replacing the oil, use Pegasus recommended oil. Using other oils may damage the machine.

#### 1. Oil

Use Pegasus recommended oil (P-68 made by Yanase).  
(ISO Viscosity Grade 68).

#### 2. To fill the machine with oil

Remove plug screws **1** and **2**.

Fill the machine with oil until the oil level reaches between **H** and **L**. After filling the machine replace plug screws **1** and **2**.

#### 3. Required amount of oil


(H) on oil gauge **3, 4** : Upper limit

(L) on oil gauge **3, 4** : Lower limit

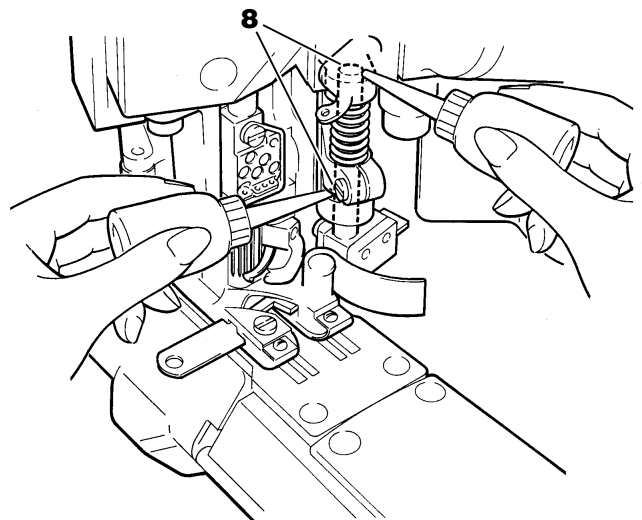
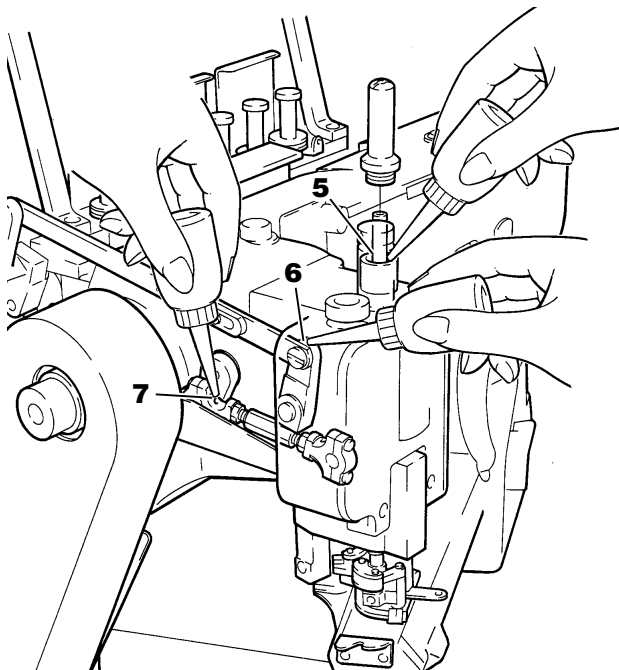
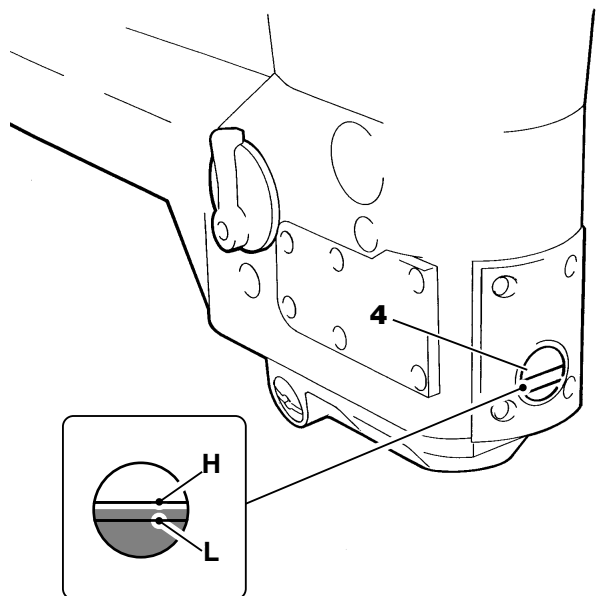
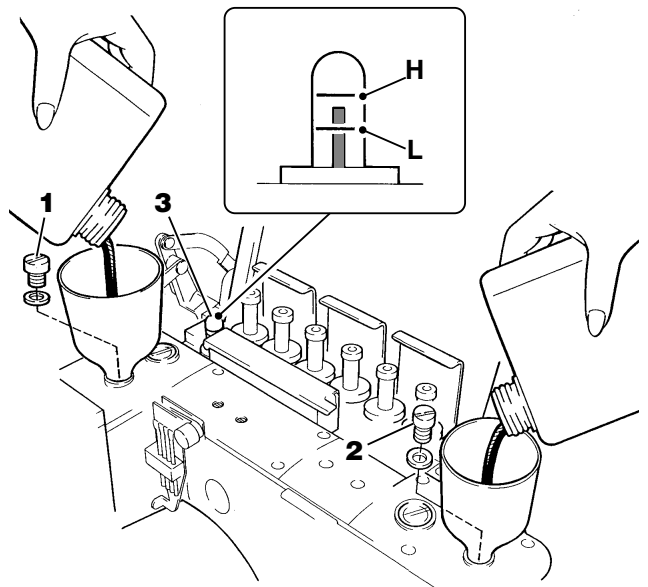
The oil level should always lie between (H) and (L).

#### 4. Manual lubrication

### CAUTION

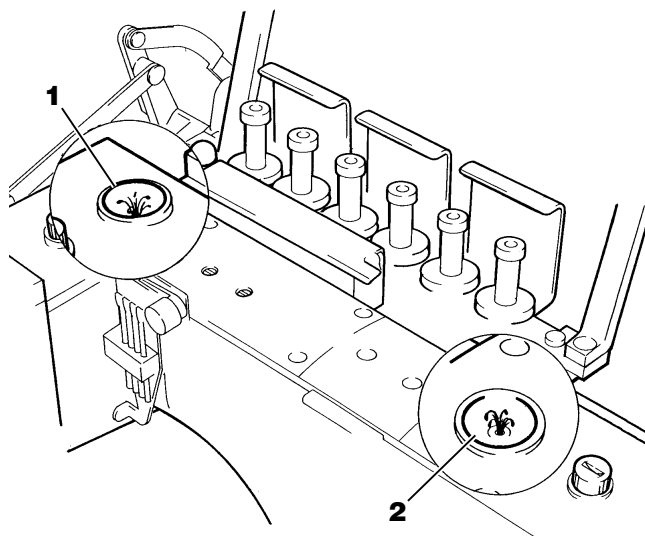
 Always turn off the power and unplug the machine when you apply oil by hand.

Apply 2 or 3 drops of oil to needle bar **5**, presser foot lift link **6**, rod **7** and crank **8** by hand when the machine is used for the first time or has been left unused for some time.



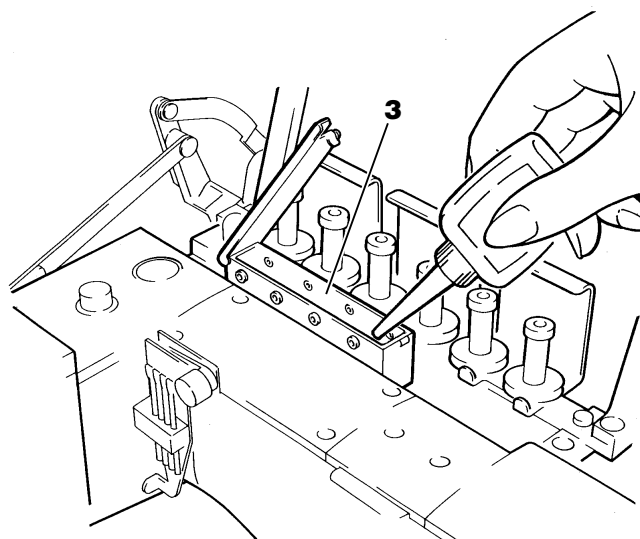
## 5. Checking oil circulation

Run the machine and check for the proper oil flow after filling the machine with oil. This can be seen on the oil flow sight windows **1** and **2**.




### Silicone oil for H.R. device

If the threads do not move smoothly, fill silicone oil reservoir **3** with silicon oil.

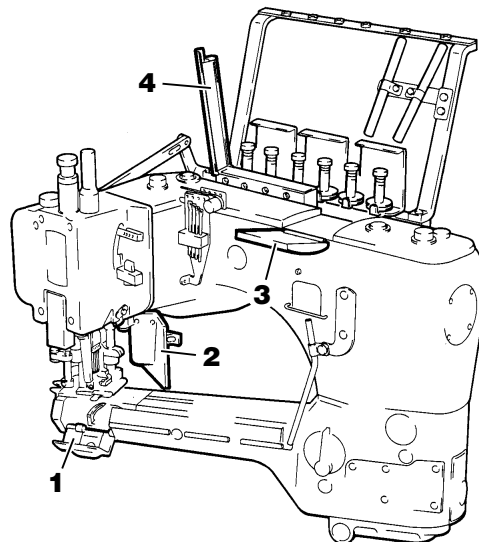


## Threading

### ⚠ CAUTION

 Always turn off the power and unplug the machine when you thread the machine.

1. Open covers 1, 2, 3 and 4.



### 2. In case the machine is threaded previously

**A :** Knot the preset thread and the thread being used together to thread the machine.

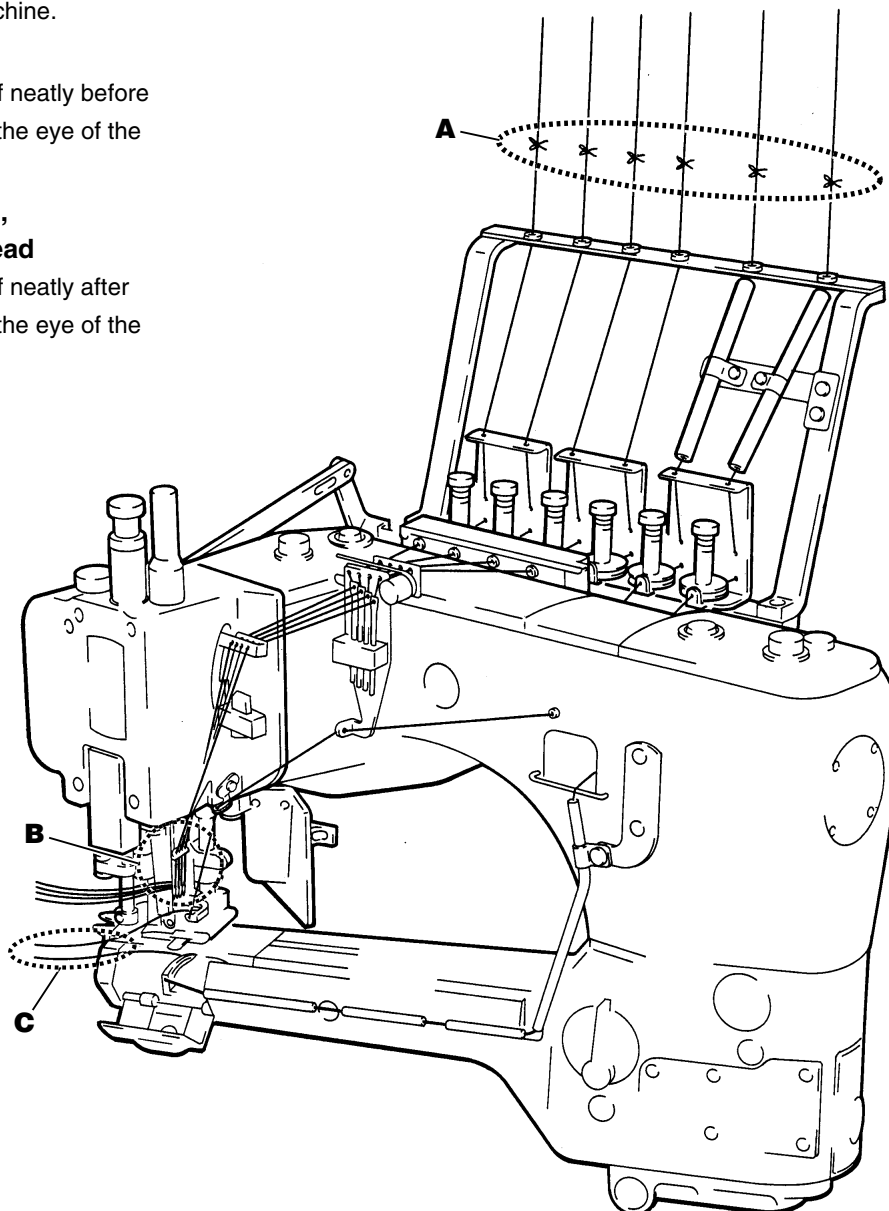
Be sure to thread the machine correctly by referring to the threading diagram. (See page 16)

#### **B : Needle thread**

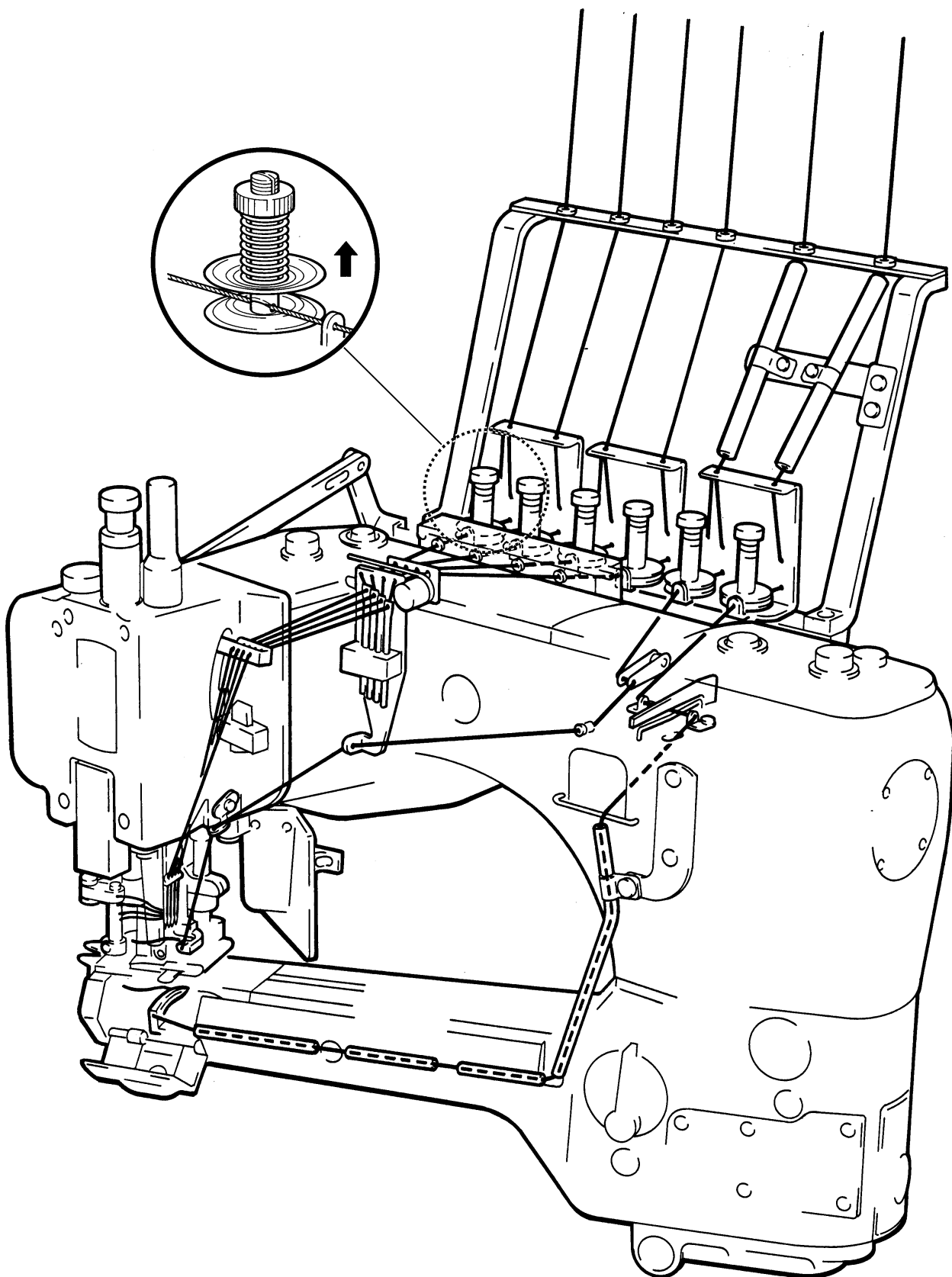
Trim the knots off neatly before passing through the eye of the needle to thread.

#### **C : Looper thread, Top cover thread**

Trim the knots off neatly after passing through the eye of the looper.

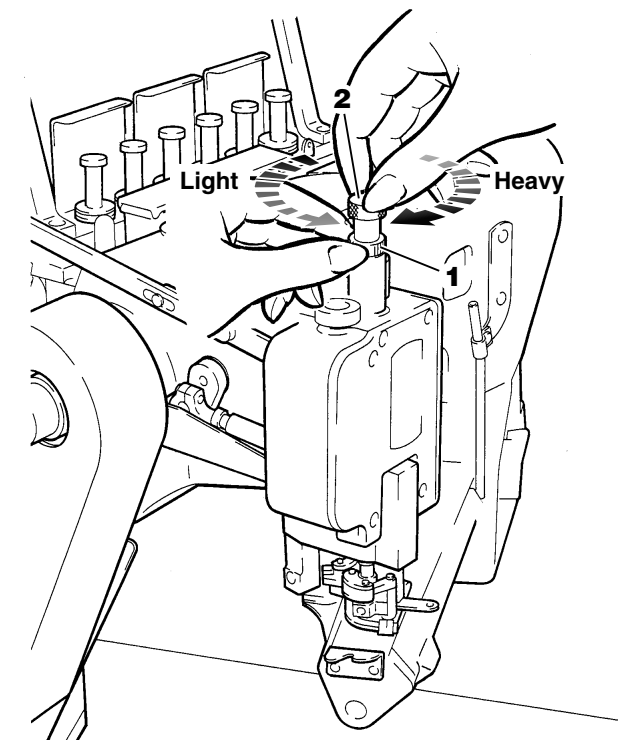


## Threading diagram



## Adjusting presser foot pressure

The presser foot pressure should be as light as possible, yet be sufficient to feed the fabric and obtain the proper stitch formation. Adjustment is made by loosening nut **1** and turning screw **2** as required. After this adjustment tighten nut **1**.



## Adjusting the up-and-down position of the presser foot

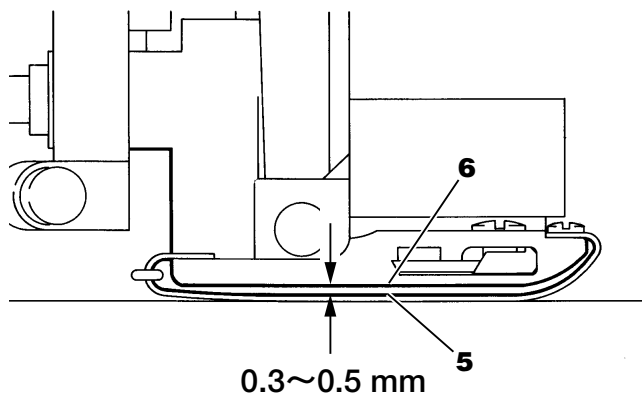
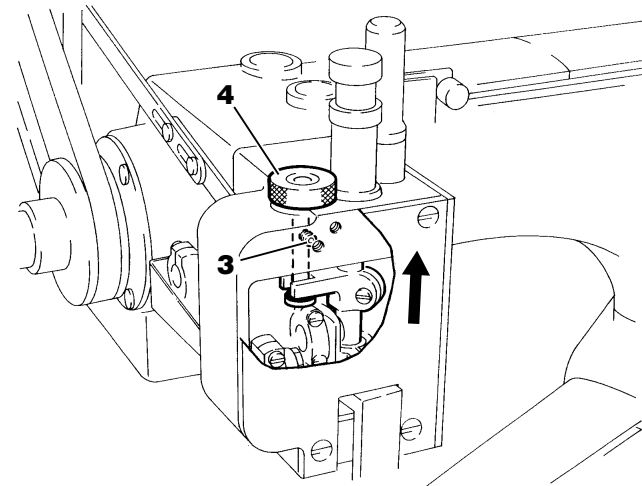
Moving up the presser foot slightly will have the following effects.

- Prevents seam jamming.
- Prevents fabric damage.
- Increases durability of the presser foot shoe.
- Decreases vibration and noise.
- Can make a fine adjustment to overlap of the fabric.

Bring the needles to the bottom of their stroke. Loosen screw **3**.

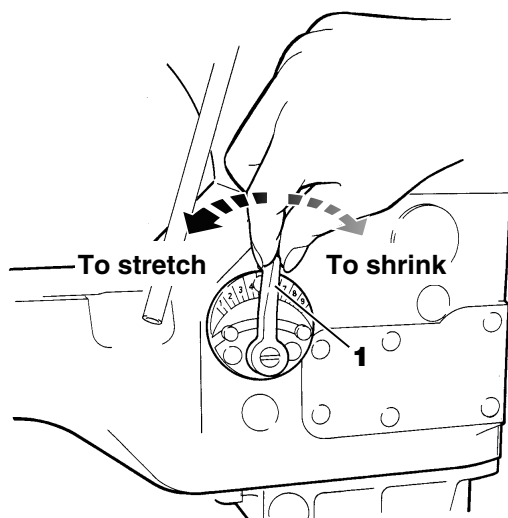
Raise the presser foot by turning adjustment screw **4** clockwise.

Create a clearance of 0.3 ~ 0.5mm between presser foot shoe **5** and bottom surface **6** of the presser foot. After this adjustment is made, tighten screw **3**.




## Adjusting the differential feed ratio

To increase the differential feed ratio, turn lever **1** clockwise. This will shrink the finished fabric. To decrease the differential feed ratio, turn lever **1** counterclockwise. This will stretch the finished fabric.



## Adjusting stitch length

### CAUTION

 Always turn off the power and unplug the machine when adjusting the stitch length.

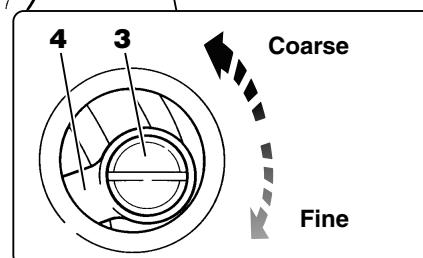
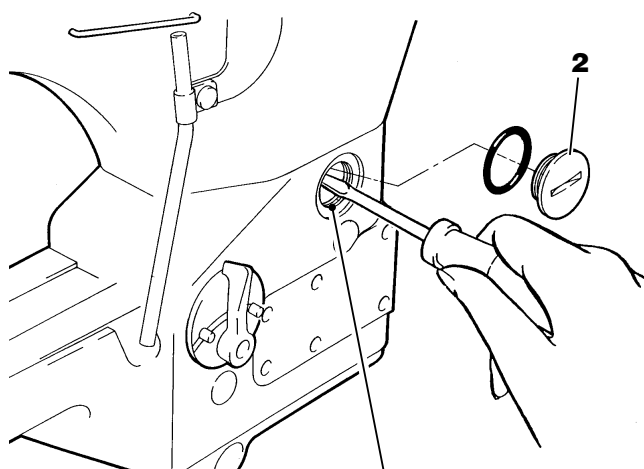
Remove screw **2**. Loosen screw **3**.

To produce coarse stitches, move up link **4**.

To produce fine stitches, move down link **4**.

#### Note

Stitch length adjustment must only be made after the differential feed ratio has been changed.



## Adjusting the thread tension

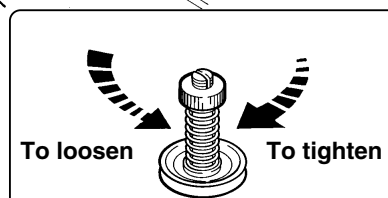
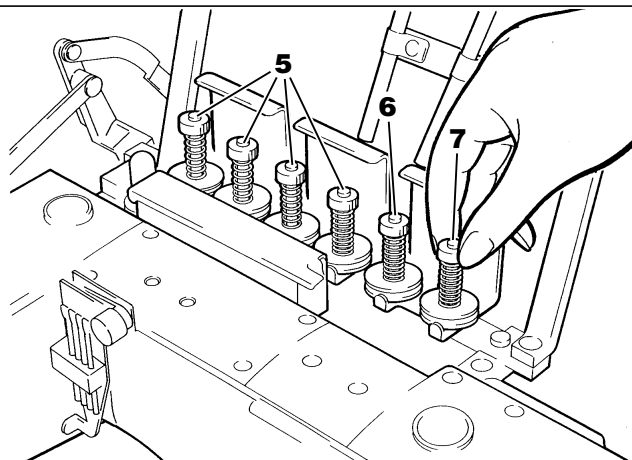
To obtain the proper thread tension, adjust needle thread tension knobs **5**, top cover thread tension knobs **6** and looper thread tension knob **7**.

To tighten the thread, turn each knob clockwise.

To loosen the thread, turn each knob counterclockwise.


Each thread tension should be as light as possible, yet be sufficient

to produce balanced and beautiful stitches.

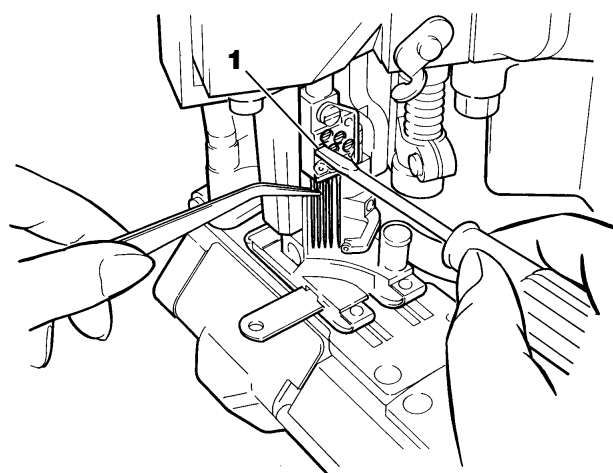
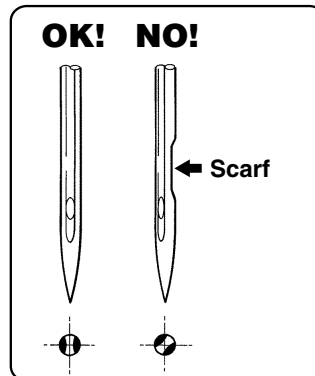
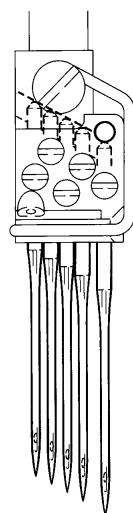


## Replacing the needle

### ⚠ CAUTION


 Always turn off the power and unplug the machine when you replace the needle(s).

1. Loosen screw **1** with the small slotted screwdriver supplied with the machine.
2. Remove the old needle(s) by using a pincette (provided as accessories).
3. Fix the needle so that its scarf faces the rear side of machine.
4. Insert a new needle into the needle hole as far it will go by using a pincette.
5. Tighten screw **1** with the small slotted screwdriver supplied with the machine.



## Replacing the fabric guide (FS703, 713)

### ⚠ CAUTION

 When replacing the fabric guide, always turn off the power and unplug the machine.

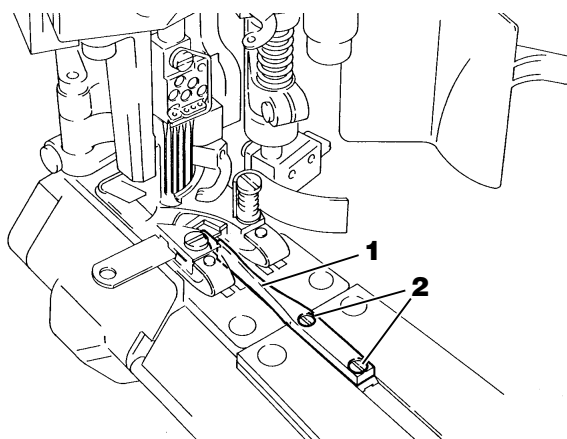
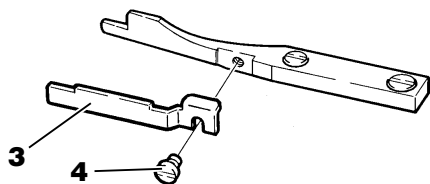
Fabric guides

Fabric guide for FS703: Two types of fabric guides are available.

**A** : for light to medium weight fabrics **B** : for heavy weight fabric Fabric guide designed for FS713. Select one according to the fabric to be used.

Remove screws **2** and then replace fabric guide **1**.

- If the fabric is sewn unevenly, attach flat spring **3** to fabric guide **1** with screw **4**.



#### Fabric guide for FS703

**A** type for light to medium weight fabrics



**B** type for heavy weight fabrics



#### Fabric guide designed for FS713

for light to heavy weight fabrics



## Replacing the knives

### CAUTION

Always turn off the power and shut down the air compressor first, and then well-qualified technicians should replace the knives.

Pay close attention to the knife edges not to injure your hands and/or finger.

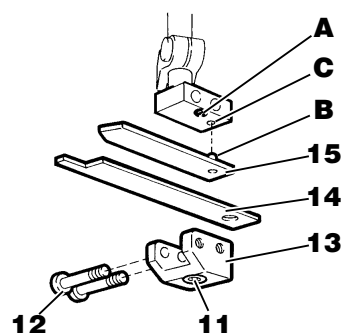
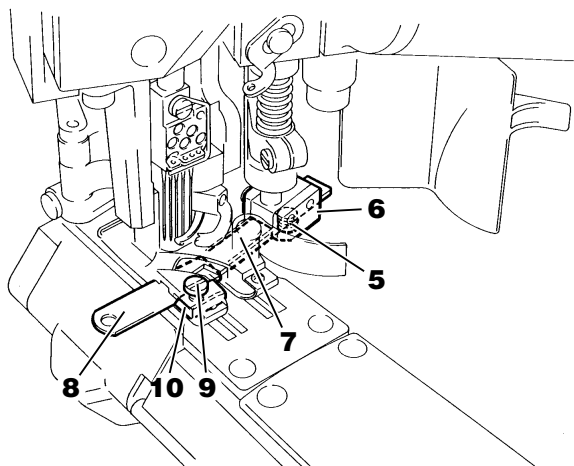
#### Replacing the upper knife

Loosen screw 5. Raise upper knife clamp 6. Then replace the upper knife.

There should be a overlap of 0.5 ~ 1.0mm of upper knife 7 and lower knife 8 with the upper knife at the extreme left end of its travel. Adjustment is made by moving upper knife 7. After this adjustment tighten screw 5.

To adjust the angle in the horizontal direction when the upper and lower knives overlap. Remove parts 11 to 15 in sequence.

Turn screw A as required. When replacing the parts, check to make sure screw B does not protrude from the bottom surface of upper knife presser 15, and then fit screw B into hole C.



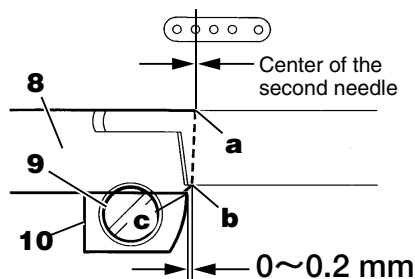
#### Replacing the lower knife

Loosen screw 9. Raise upper knife clamp 6.

Align point a of the lower knife with the center of the second needle by adjusting the position of the lower knife (standard).

A fine adjustment should be made according to the fabric to be use.

Adjust the position of lower knife clamp 10 so that the distance from point b of lower knife 8 to corner c of lower knife clamp 10 is 0.2mm. After this adjustment tighten screw 9.

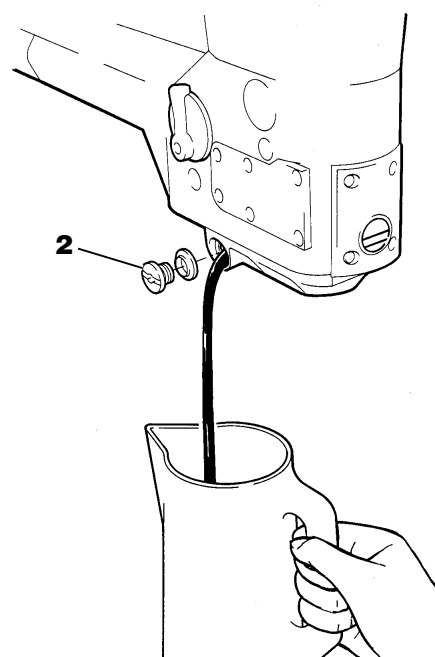
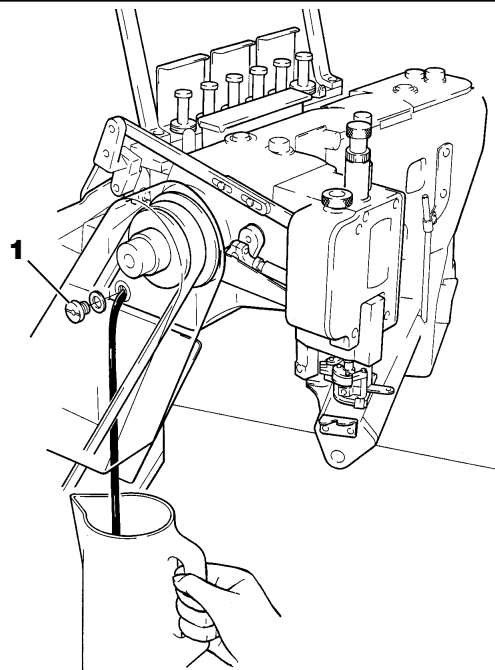


## Oil replacement

Replace the oil one month after the first use and thereafter every six months. If you keep using the old oil, it may cause the damage to the machine.

### To drain the oil

1. Remove plug screws **1** and **2**. Drain the oil.
2. After draining the oil replace plug screws **1** and **2**.



## Adjusting the needle guard

### ⚠ CAUTION

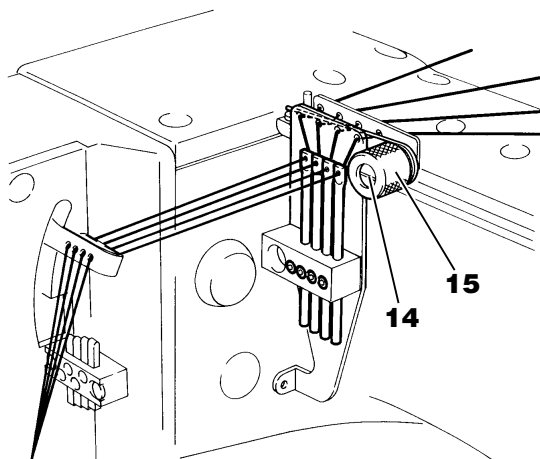
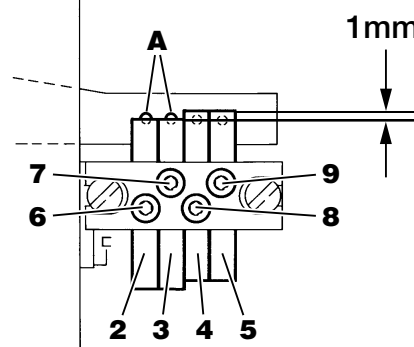
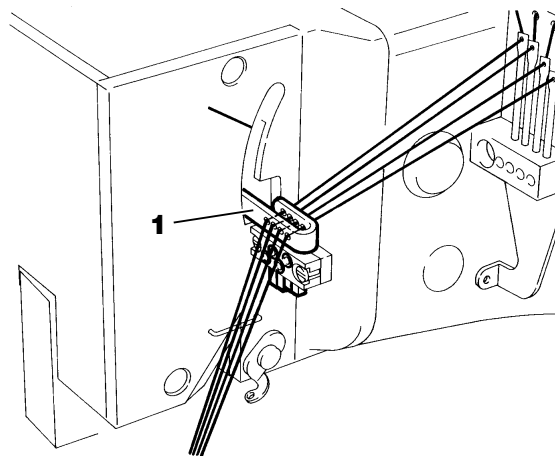
When adjusting the needle guard, always turn off the power and unplug the machine.

Bring needle thread take-up **1** to the bottom of its travel. Loosen screws **6** and **7**. Align the top ends of needle guards **2** and **3** with the centers of eyelets **A** on needle thread take-up **1** (standard). Tighten screws **6** and **7** temporarily.

Loosen screws **8** and **9**. Achieve a distance of 1mm from the top ends of needle thread guards **2** and **3** to those of needle thread guards **4** and **5** by adjusting needle thread guards **4** and **5** (standard). Tighten screws **8** and **9** temporarily.

- To increase the size of the needle thread loop, move up needle guards **2**, **3**, **4** and **5**.
- To decrease the size of the needle thread loop, move down needle guards **2**, **3**, **4** and **5**.

Obtain the proper needle thread loop by moving up or down needle thread guards **2**, **3**, **4** and **5**. After this adjustment tighten screws **6**, **7**, **8** and **9**.



## Adjusting the needle thread guides

There should be a distance of 10mm from the centers of the eyelets on needle thread guides **10** to those on bracket **11**. Adjustment is made by loosening screws **12** and moving up or down needle thread guides **10** (standard). After this adjustment is made, tighten screws **12** temporarily.

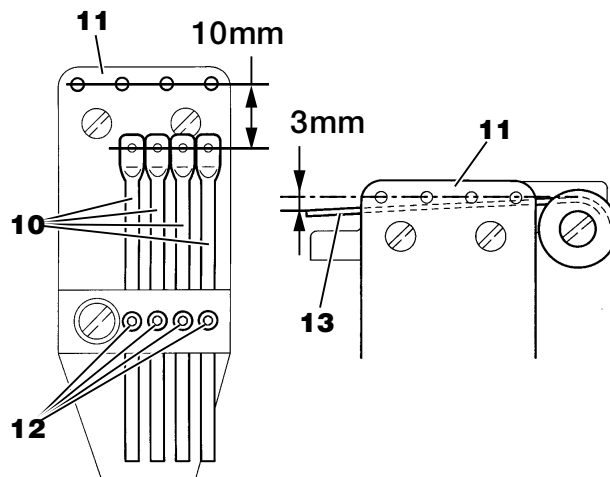
- To loosen the needle thread, move up needle thread guides **10**.
- To tighten the needle thread, move down needle thread guides **10**.

After this adjustment is made, tighten screws **12**.

### Adjusting the needle thread presser spring.

The end of needle thread presser spring **13** should be 3mm lowered from that in the horizontal position.

To make this adjustment, loosen screw **14** and turn knob **15**. After this adjustment is made, tighten screw **14**.



※ If you want to remove the fabric from the presser foot during sewing, rotate the machine pulley in the reverse direction.

Thanks to needle thread presser spring **13**, the needle thread loops are not produced on the front of the needles.

## Adjusting the looper thread take-up

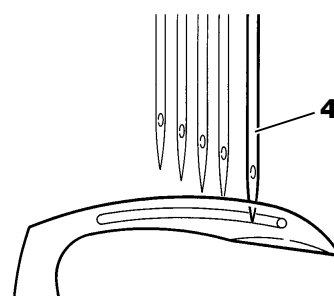
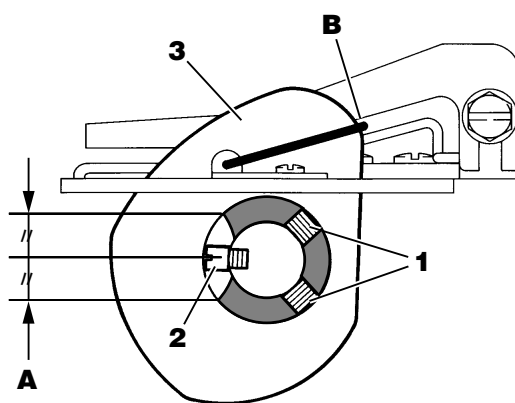
### CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should adjust the looper thread take-up.

Loosen screws **1**. Center screw **2** in slot **A**. Tighten screw **1** temporarily.

When retainer **4** descends to the position illustrated on the right while the looper is moving to the left from the extreme right end of its travel, the looper thread should cast off from the looper thread take-up at point **B**.

To make this adjustment, loosen screws **1** and turn looper thread take-up **3** as required. After this adjustment is made, tighten screws **1**.



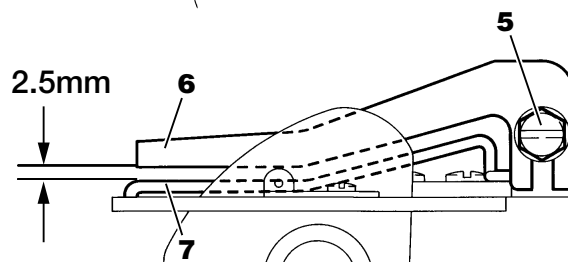
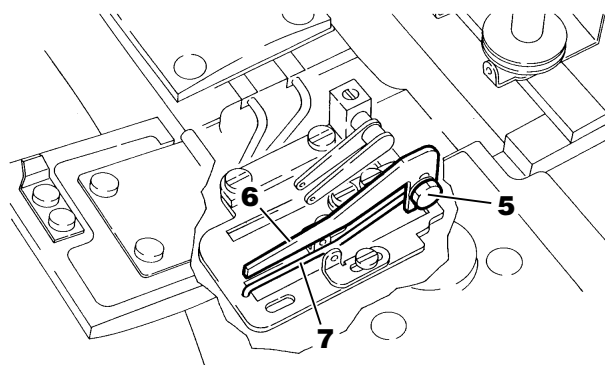
## Adjusting the looper thread guide

### CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should adjust the looper thread guide.

There should be a 2.5 mm clearance between looper thread guide **6** and looper thread guard **7** (see the illustration on the right).

Adjustment is made by loosening screw **5** and moving looper thread guide **6** up or down. After this adjustment is made, tighten screw **5**.



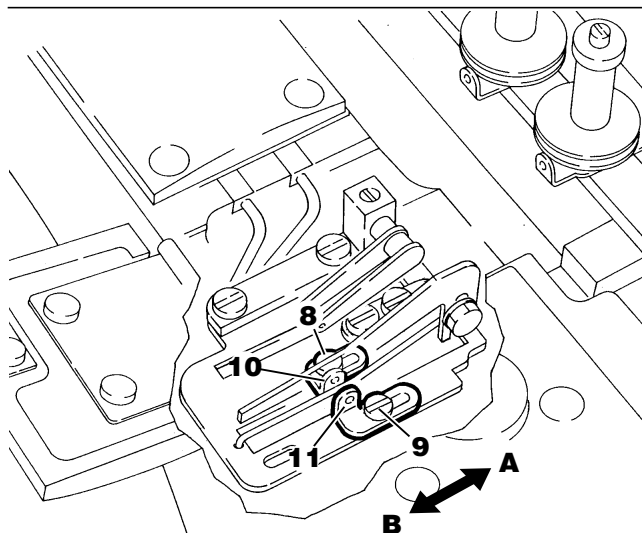
## Adjusting the looper thread guides

### CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should adjust the looper thread guides.


Loosen screws **8** and **9**. Move looper thread guides **10** and **11** all the way in the direction of **A** by referring to the illustration on the right (standard). Tighten screws **8** and **9** temporarily.

- To increase the amount of looper thread to be supplied, move looper thread guides **10** and **11** in the direction of **B**.
  - To decrease the amount of looper thread to be supplied, move looper thread guides **10** and **11** in the direction of **A**.
- After this adjustment is made, tighten screws **8** and **9**.



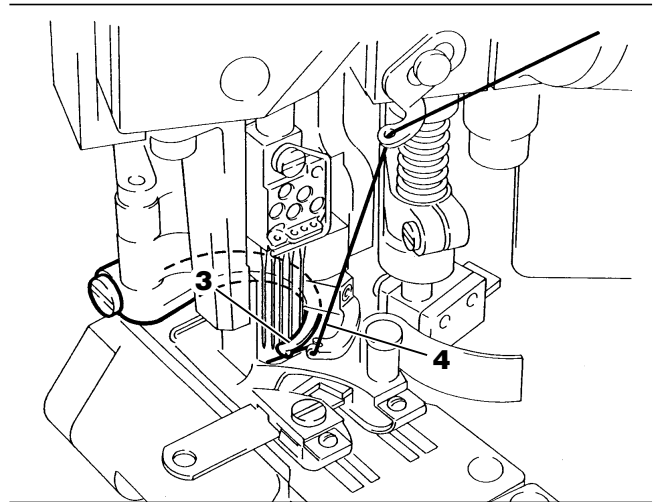
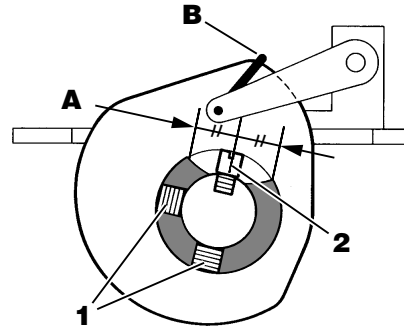
## Adjusting the top cover thread take-up

### ⚠ CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should adjust the top cover thread take-up.


Loosen screws **1**. Center screw **2** in slot **A**. Tighten screws **1** temporarily.

The top cover thread should cast off from the top cover thread take-up at point **B** after hook **3** passes over top cover thread **4** while hook **3** travels to the left from the right. After this adjustment is made, tighten screws **1**.



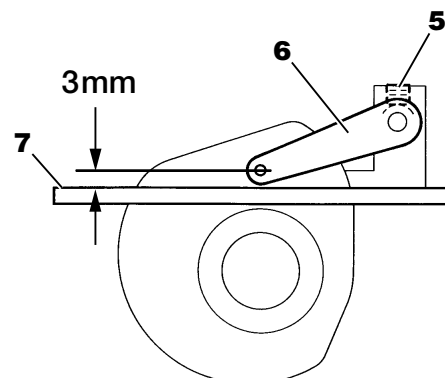
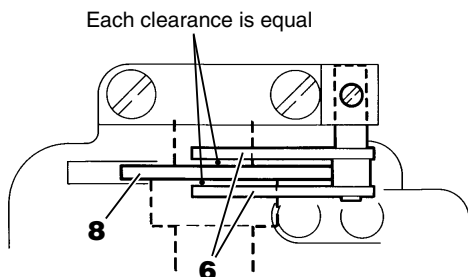
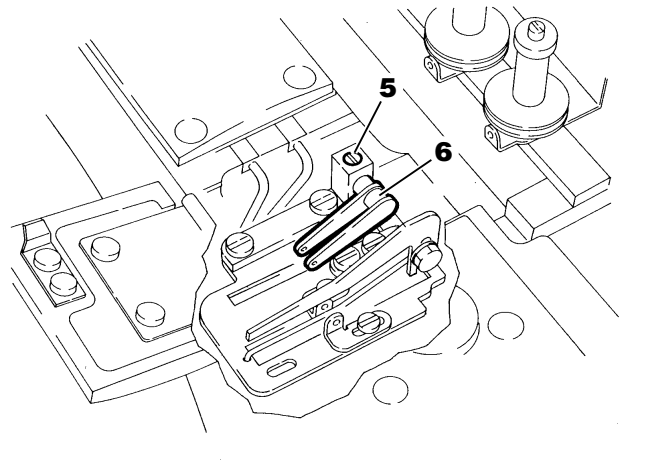
## Adjusting the top cover thread guide

### ⚠ CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should adjust the top cover thread guide.

There should be a distance of 3.0mm (standard) from the center of the eyelet on thread guide **6** to the top surface of installation bracket **7**. Adjustment is made by loosening screw **5** and moving thread guide **6**. To increase the amount of top cover thread to be supplied, move up thread guide **6**. After the adjustment tighten screw **5**.

※After the above adjustment is made, check to see if each clearance between top cover thread take-up **8** and thread guide **6** is equal.



## Adjusting the hook

### CAUTION

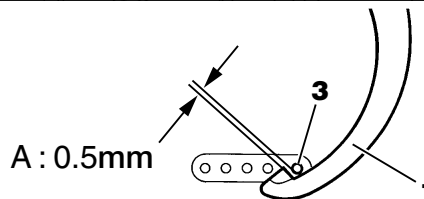
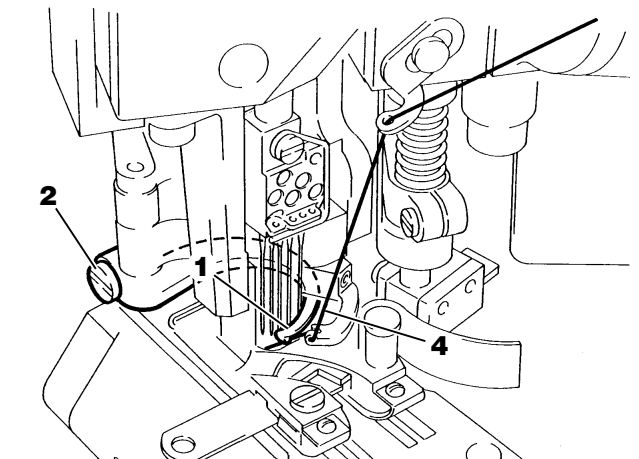
Always turn off the power, unplug the machine and then well-qualified technicians should adjust the hook.

Bring hook **1** to the extreme right end of its travel. Loosen screw **2**.

Achieve a distance of 0.5mm (standard) from hook **1** to retainer **3** (see A in the illustration on the right). After this adjustment is made, tighten screw **2**.

Check to see during test sewing if top cover thread **4** goes under the hook when the hook moves to the left. If it does not, loosen screw **2** and increase distance **A**.

After this adjustment is made, slightly press up hook **1**. Tighten screw **2**.



## Adjusting the carrier

### CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should adjust the carrier.

1. There should be a distance of 1mm **C** from point **B** of the carrier to the center of the first needle when carrier **5** comes closest to the first needle. Adjustment is made by loosening screw **6** and moving carrier **5**.

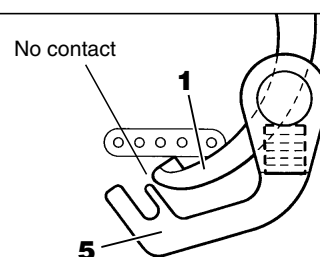
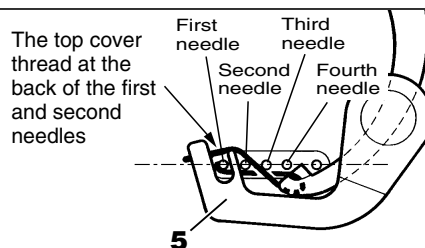
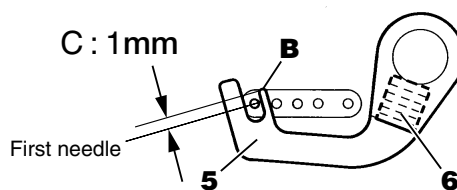
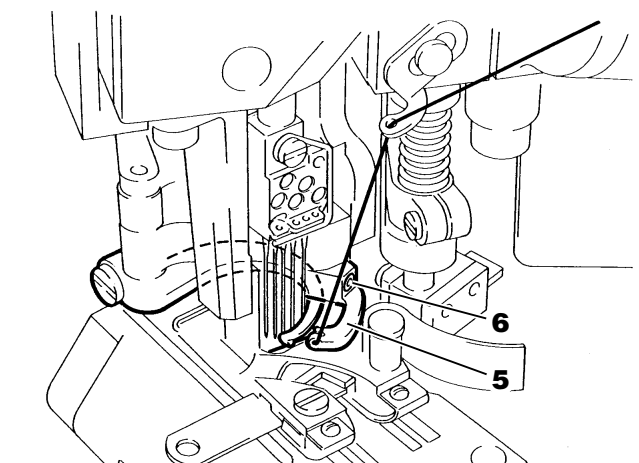
After this adjustment is made, tighten screw **6**.

Check to see during test sewing if the top cover thread is at the back of the first and second needles with the carrier closest to the first needle.

If it is not, increase **C** (be careful that carrier **5** does not contact the first needle).

If the top cover thread reaches the point of the third needle at its back, decrease **C**.

2. Check to make sure that hook **1** does not contact carrier **5** when they come closest to each other.



## Replacing the presser foot

### ⚠ CAUTION

⚠ Always turn off the power, shut down the compressor and then well-qualified technicians should replace the presser foot.

⚠ Pay close attention to the knife edges not to injure your hands and/or finger.

### Removing the presser foot

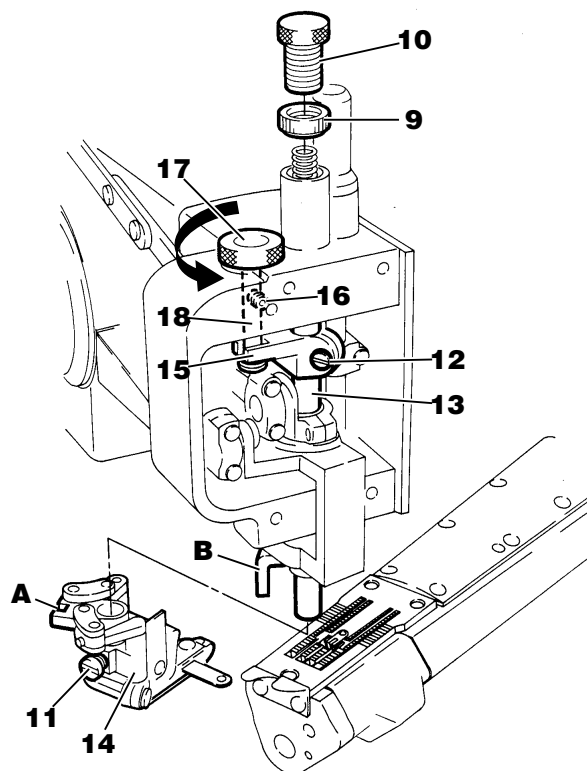
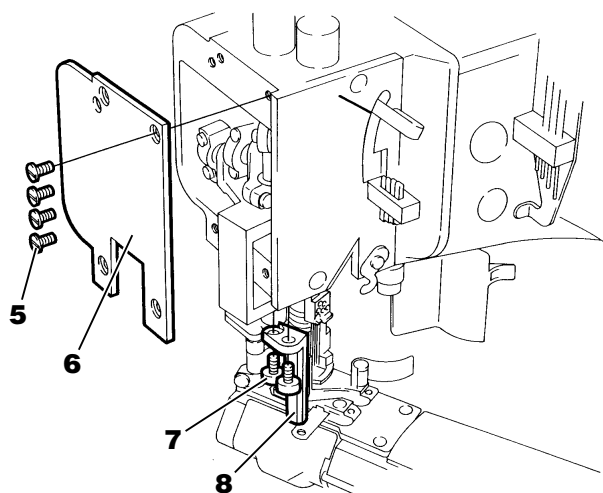
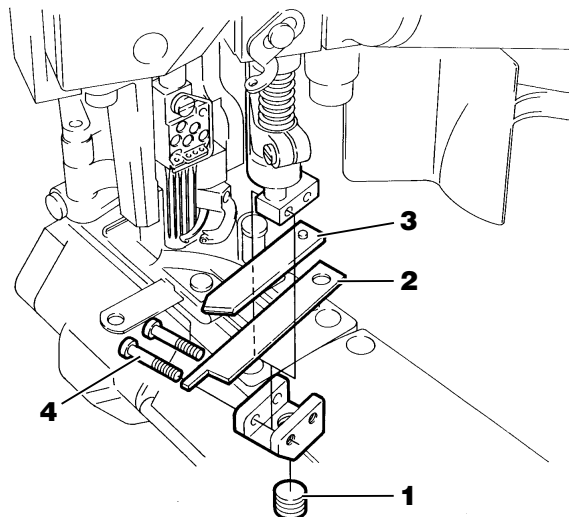
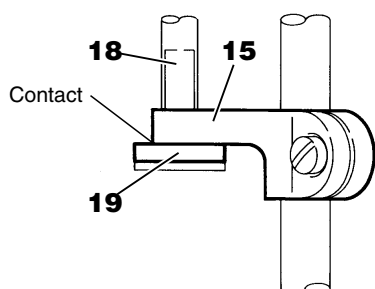
- 1 Bring the needles to the top of their stroke. Loosen screw 1. Remove upper knife 2 and auxiliary plate 3 (if it is difficult to remove auxiliary plate 3, loosen screws 4).
- 2 Remove screws 5, side cover 6, screws 7 and presser foot guide (left) 8.
- 3 Loosen nut 9 and remove adjustment screw 10. Loosen screws 11 and 12. Raise presser bar 13 until it is removed from the presser foot.
- 4 Remove the presser foot.

### Reinstalling the presser foot

Reinstall the presser foot by following the removal steps in reverse.

- When reinstalling the presser foot, fit crank shaft B into segment A. Check to see if the presser foot is parallel with the feed dogs.
- Presser foot guide (left) 8 should not move left to right, but slightly move up and down after it is installed.
- To reinstall presser bar guide 15, reinstall adjustment screw 10 and bring the presser foot to its lowest position first. Bring guide pin 18 to its lowest position by loosening screw 16 and turning adjustment screw 17 counterclockwise. Check to see if presser bar guide 15 contacts cushion rubber 19 on the guide pin.

Adjust the knives by referring to "Replacing the knives" (see page 20).



## Adjusting the needle height

### ⚠ CAUTION

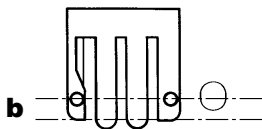
Always turn off the power, unplug the machine and then well-qualified technicians should adjust the needle height.

Adjust distance **(A)** from the point of the fourth needle to the top surface of the needle plate according to the machine to be used (see the table of adjustment dimensions on page 29).

Adjust the needle height by loosening screw **1** and moving needle holder **2** up or down.

After adjusting the needle height, check for the relationship between the slots on the needle plate and the needles (see the illustration below). Clearance **b** should be equal.

**OK!**



**NO!**

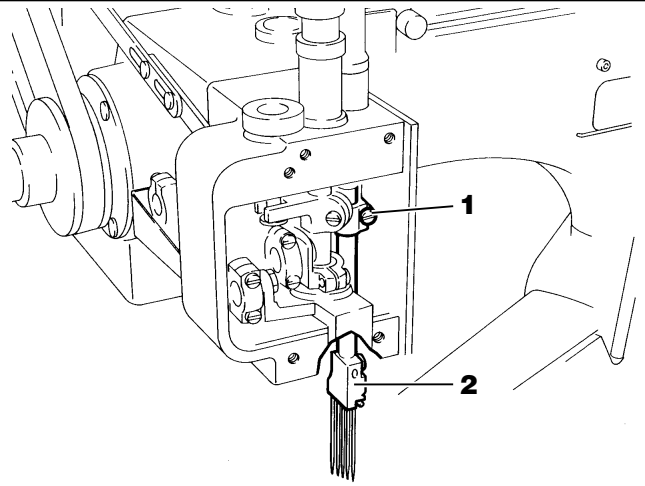
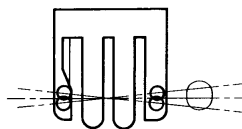


Table of adjustment dimensions **(A)**

Top surface of the needle plate

Fourth needle

## Adjusting the looper

### ⚠ CAUTION

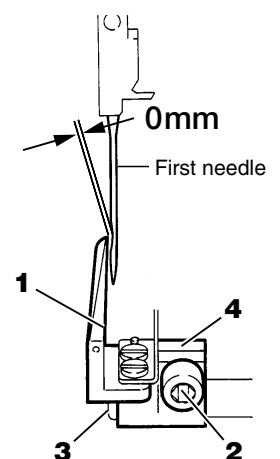
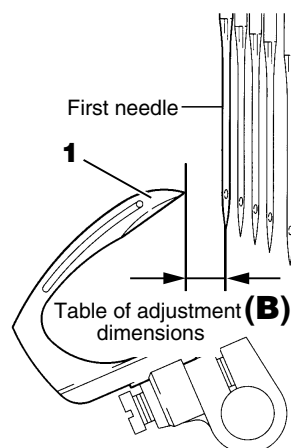
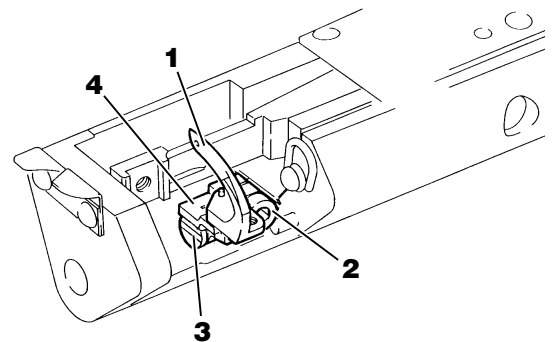
Always turn off the power, unplug the machine and then well-qualified technicians should adjust the looper.

#### 1 To adjust the looper-needle setting distance

When looper **1** is at the extreme left end of its travel, adjust looper-needle setting distance **B** from the center of the first needle to the point of the looper according to the machine to be used (see the table of adjustment dimensions on page 29). Adjustment is made by loosening screw **2** and moving looper holder **4** to the left or right. After this adjustment is made, tighten screw **2** temporarily.


#### 2 To adjust the looper front to back

When the point of the looper reaches the center of the first needle from the extreme left end of its travel, there should be a front-to-back distance of 0mm from the first needle to the point of the looper. Adjustment is made by turning screw **3** and moving the looper holder front to back. After this adjustment is made, tighten screw **2**.

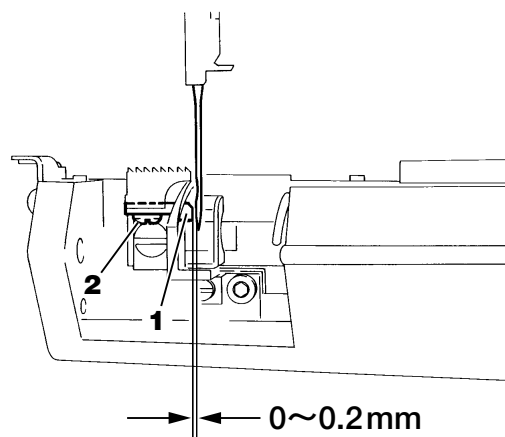


## Adjusting the needle guard (rear)

### ⚠ CAUTION


 Always turn off the power, unplug the machine and then well-qualified technicians should adjust the needle guard (rear).

When rear needle guard **1** comes closest to the first needle, there should be a clearance of 0 ~ 0.2mm between rear needle guard **1** and the first needle. Adjustment is made by loosening screw **2** and moving the rear needle guard front to back. After this adjustment is made, tighten screw **2**.

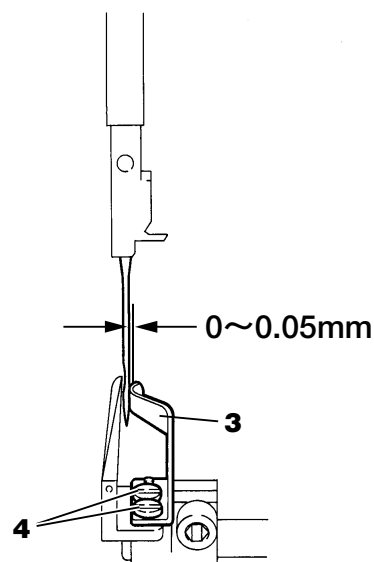


## Adjusting the looper guard

### ⚠ CAUTION


 Always turn off the power, unplug the machine and then well-qualified technicians should adjust the looper guard.

When looper guard **3** comes closest to the first needle, there should be a clearance of 0 ~ 0.05mm between looper guard **3** and the first needle. Adjustment is made by loosening screws **4** and moving the looper guard front to back. After this adjustment is made, tighten screws **4**.



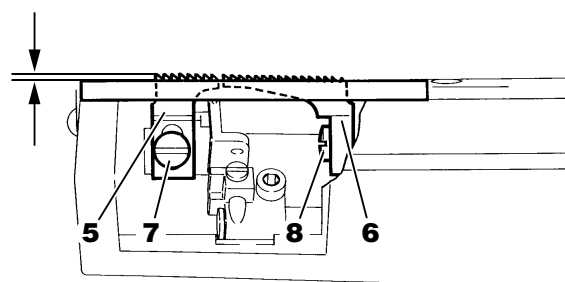
## Adjusting the feed dog height

### ⚠ CAUTION

 Always turn off the power, unplug the machine and then well-qualified technicians should adjust the feed dog height.

When the feed dogs are at their highest point of travel, there should be a distance of 1.2~1.5mm from the top surface of the needle plate to extended line **A** from the tips of main **5** and differential **6** feed dogs. Adjustment is made by loosening screws **7** and **8**, and moving feed dogs **5** and **6** up or down. After the above adjustment, tighten screws **7** and **8**.

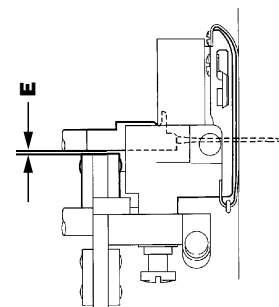
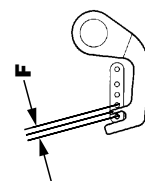
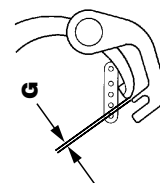
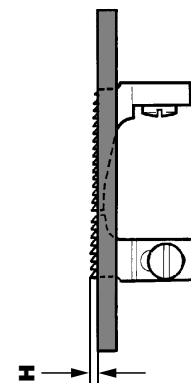
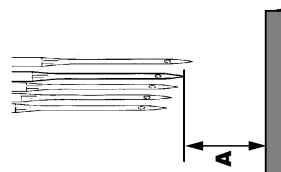
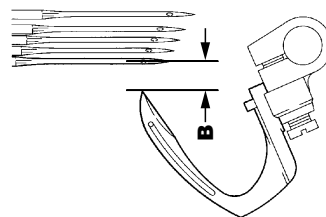
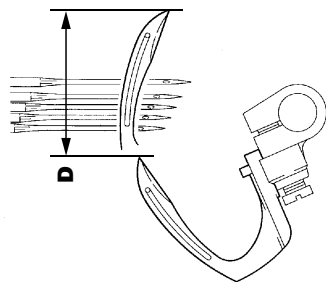
A : 1.2~1.5 mm



# Adjustment dimentions

(mm)

subclass	x □ □ □	Needle heightg (Fourth needle) (A)	Looper			Carrier			Main feed dog height (H)
			Looper-needle setting distance (B)	Front-to-back movement (C)	Travel (D)	Distance to the needle holder (E)	Position (F)	Distance to the hook (G)	
FS701 -G0	452	13.6mm	4.3 ~ 4.5mm	2.3 ~ 2.4mm	24.9mm	0.4mm	Middle of the first and second needles	0.4 ~ 0.7mm	1.2 ~ 1.5mm
FS701 -G1	460	13.3mm	4.1 ~ 4.3mm	〃	〃	〃	〃	〃	〃
FS703 -G3									
FS703 -G4									
FS703A -G4									
FS703B -G4									
FS713 -G0									
FS713A -G0									



## FS700 Series subclass specifications

### FS700 Series



Application	Fabric weight	Subclass	Number of needles	Number of threads	Needle space (mm)	Max. stitch length	Diff. feed ratio	Presser foot lift (mm)	Max. speed (rpm)	Remarks
Flatseaming	light-heavy	<b>FS701-G0</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Single edge trimming, without a groove on the back of the presser foot
	light-medium	<b>FS701-G1</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Single edge trimming, with a groove 1.5mm deep on the back of the presser foot
	light-medium	<b>FS703-G3</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Double edge trimming, with a groove 3.3mm deep on the back of the presser foot
	light-medium	<b>FS703-G4</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Double edge trimming, with a groove 4.0mm deep on the back of the presser foot
	light-medium	<b>FS703A-G4</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Double edge trimming, with a groove 4.0mm deep on the back of the presser foot, 1mm stepped gauge parts
	light-medium	<b>FS703B-G4</b>	4	6	5.2・6.0	2.5	0.7~1.5	5.5	4,200	Double edge trimming, with a groove 4.0mm deep on the back of the presser foot, 1.5mm stepped gauge parts
	medium-heavy	<b>FS713-G0</b>	4	6	5.2	2.5	0.7~1.5	5.5	4,200	Knives located toward the operator, double edge trimming
	medium-heavy	<b>FS713A-G0</b>	4	6	5.2	2.5	0.7~1.5	5.5	4,200	Knives located toward the operator, double edge trimming, 1mm stepped gauge parts

Stitch type	607
Needle size	UY118GAS Nm65
Machine size (WxDxH)	W : 435mm D : 270mm H : 410mm

Net weight (head only)	29Kg
Gross weight (with accessories)	33Kg
Working noise level	n=3,800rpm : LpA≤76.0dB Noise measurement according to DIN 45635 48A-1

## Comparison table of equivalent sizes

Metric size (Schmetz)	Nm	65	70	75	90	100	110	130
Japanese size	#	9	10	11	14	16	18	21

## Standard needle

<b>FS701</b> <b>FS703</b> <b>FS703A</b> <b>FS703B</b> <b>FS713</b> <b>FS713A</b>	Schmetz UY118GAS
	Nm 65





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The description in this INSTRUCTIONS is subject to change without prior notice for improvement.