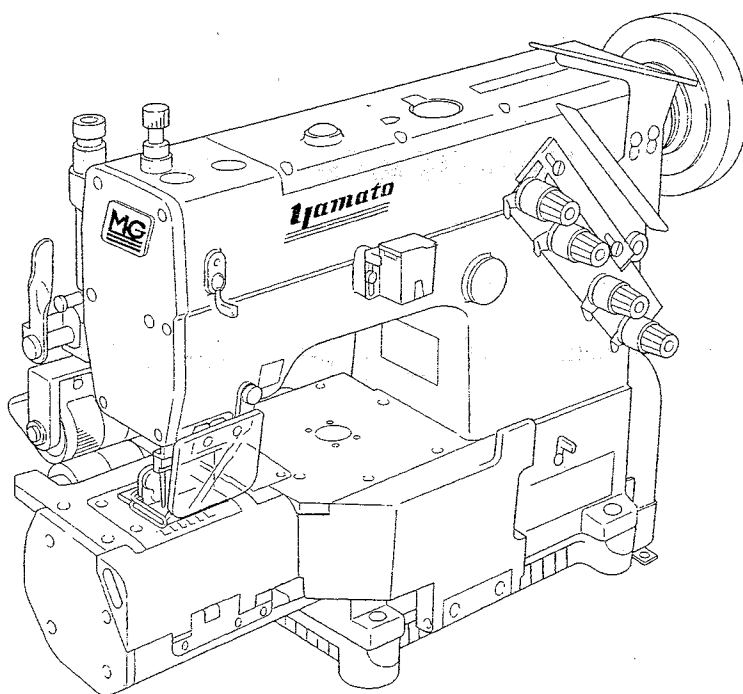


Yamato[®]

Instruction Manual

DOUBLE CHAINSTICHMACHINE WITH NEEDLE FEEDING

MG2000 class



Thank you for having purchased the Model MG2000 class.
Before using your MG2000 class, please read this instruction manual and understand the contents well.
After reading this instruction manual, please keep it in a location where it is easy to access for operators.



YAMATO SEWING MACHINE MFG. CO., LTD.

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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 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

Always follow the instructions below for safety when using our industrial machines and devices.

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.



Safety instructions



2-3 Wiring

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

2-4 Before operation

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

2-5 During operation

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

- (6) If the sewing machine malfunctions, abnormal sound or smell something unusual while operating, be sure to turn off the power supply switch.

2-6 Removal

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

3. Maintenance, inspection, and repair

- (1) Follow the instruction manuals for maintenance, inspection, and repair.
- (2) Entrust the maintenance, inspection, and repair to specially trained personnel.
- (3) Be sure to turn off the power supply switch and make sure the sewing machine and motor completely stop before the maintenance, inspection, and repair. (If using a clutch motor, take care that the motor keeps turning for a while even after turning off the power supply switch.)
- (4) Do not modify the sewing machine by the customer's judgment.
- (5) Be sure to use original replacement parts for repairs or maintenance.



Safety instructions



4. Caution signs and alert pictorial markings

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

Please follow the instructions.

4-1 Meanings of caution signs

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

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

4-2 Alert pictorial markings



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



This mark indicates the caution for high temperature.



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



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

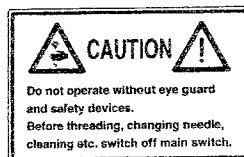


This mark indicates the caution which, if not grounded, the machine or device could malfunction and could result in personal injury.

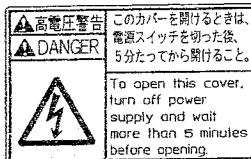
5. Warning labels on sewing machines

This 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.



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



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



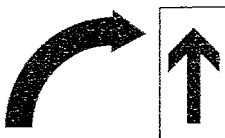
This label is affixed on the safeguards. Considering the operation, it is not affixed on the finger guard and eye guard. Be sure to operate with the finger guard and eye guard in position.



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.



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

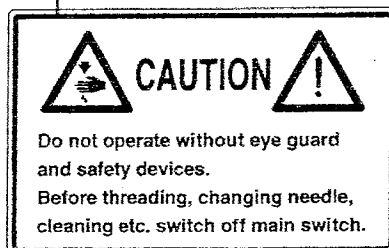
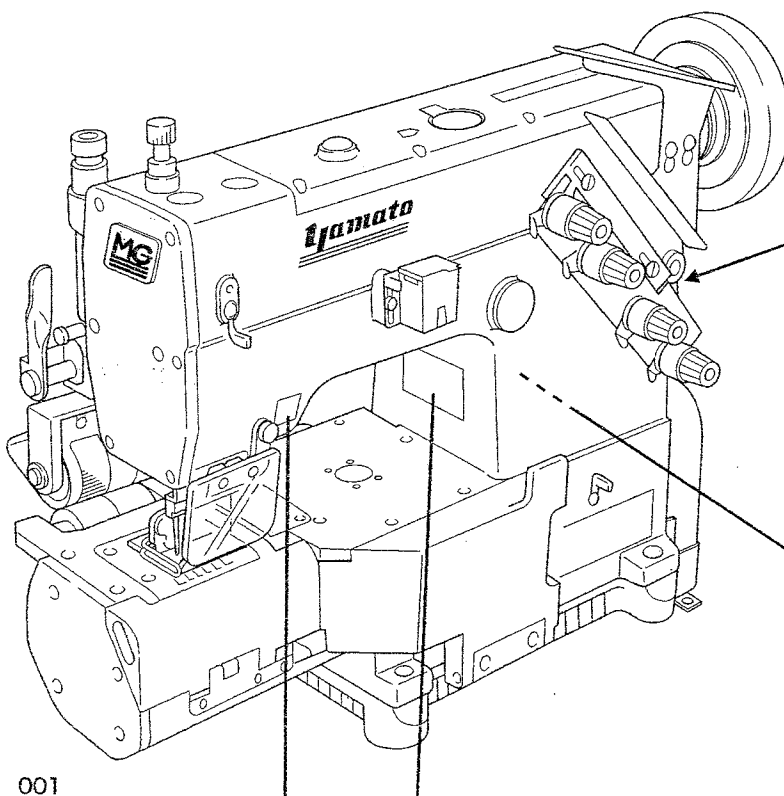
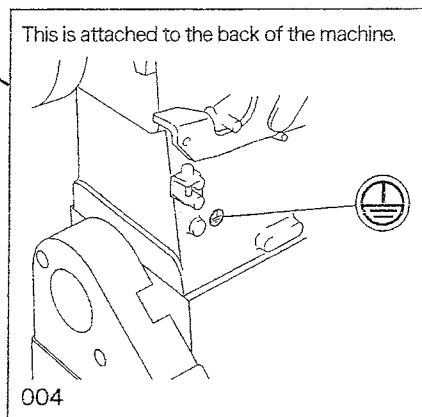
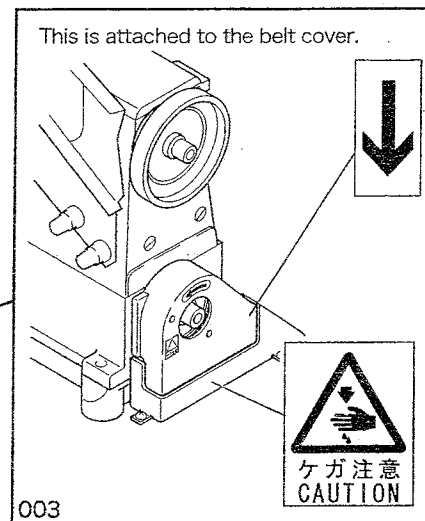
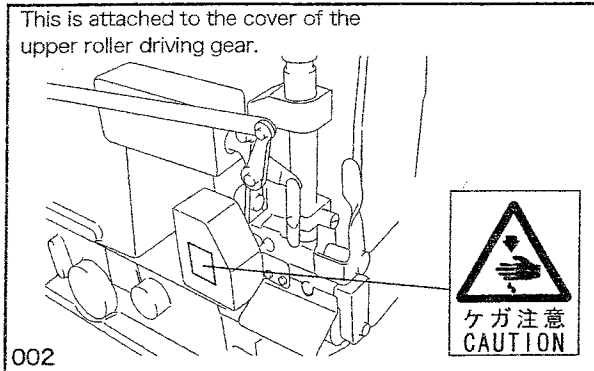


Safety instructions

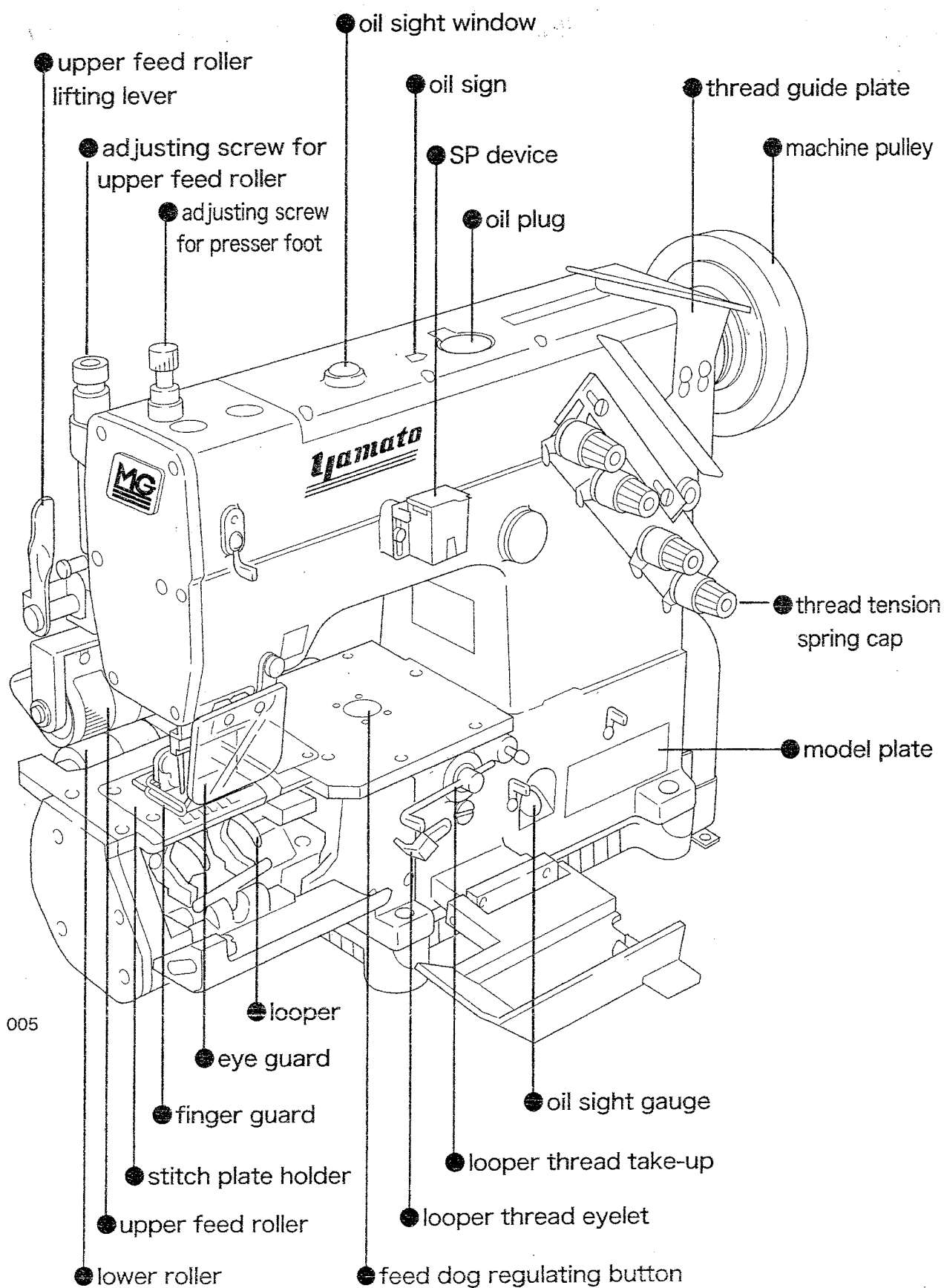


6. Where to attach pictorial markings

The drawings below show where the pictorial markings should be attached for safe operation. Keep the markings clean, and change them to new ones when they become damaged or lost.



1. Name of each part



2. Installation



WARNING

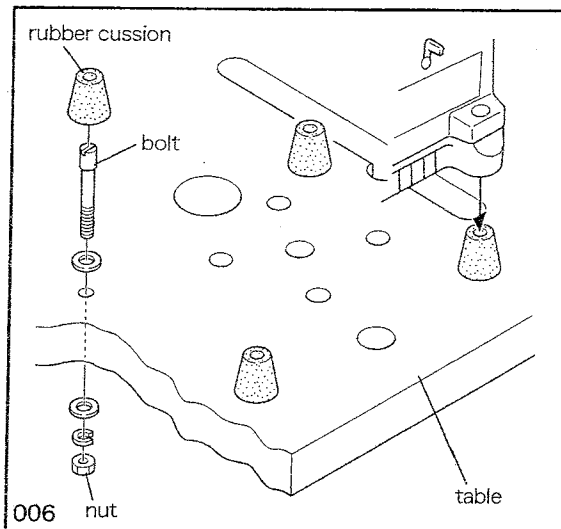
Don't connect the plug before preparation of the machine is completed. If not, the machine can function unexpectedly and cause injury.

1. Installing to table



WARNING

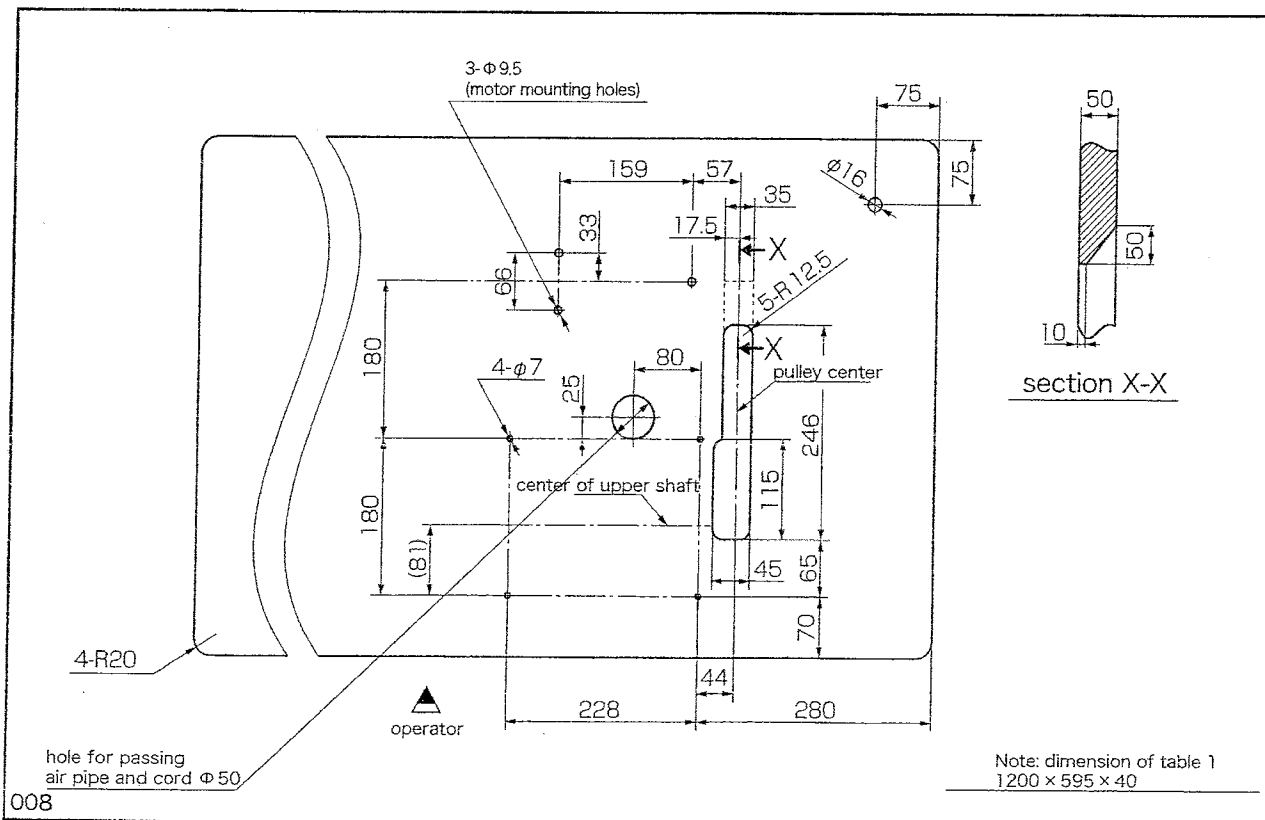
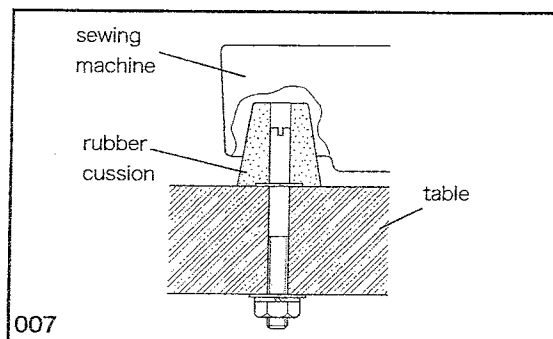
The machine weights more than 46 kg. Don't unpack, ship, and install the machine when there is only one worker. The machine weights



〈Top installation (the standard type)〉

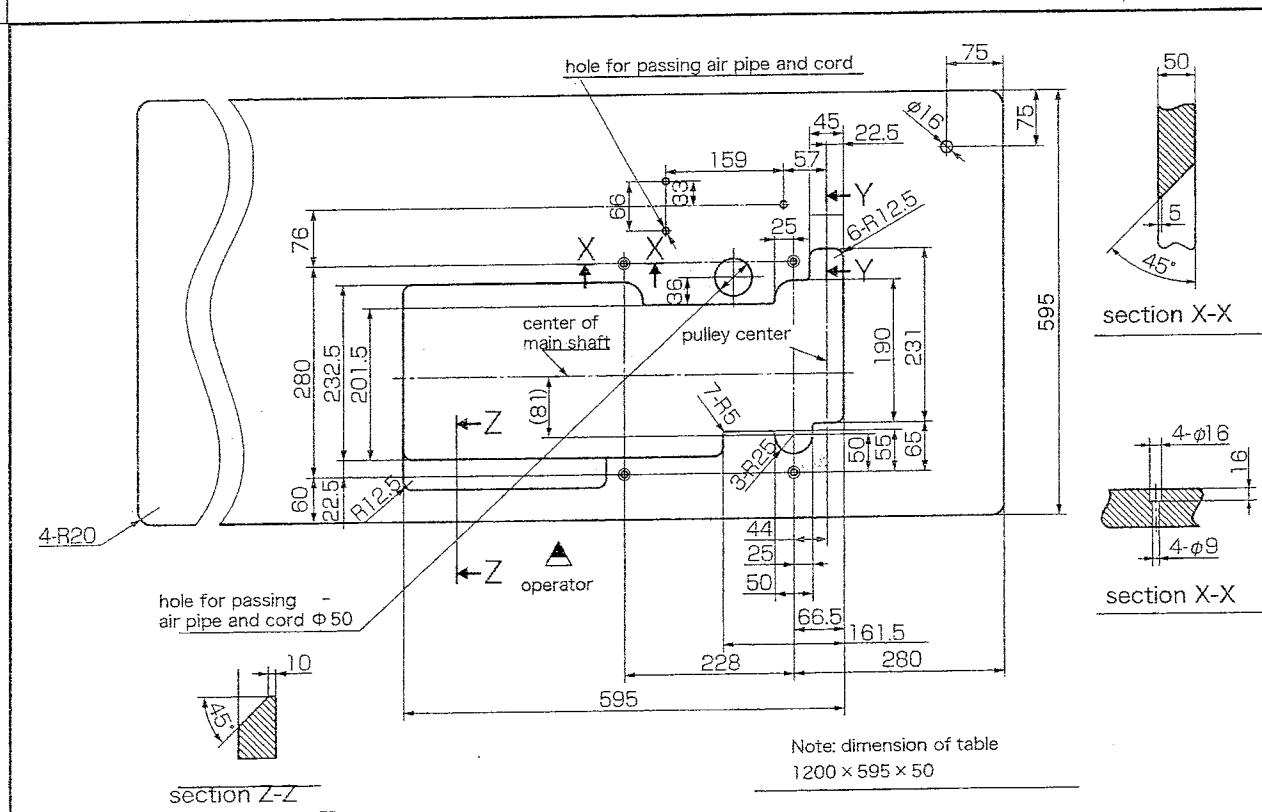
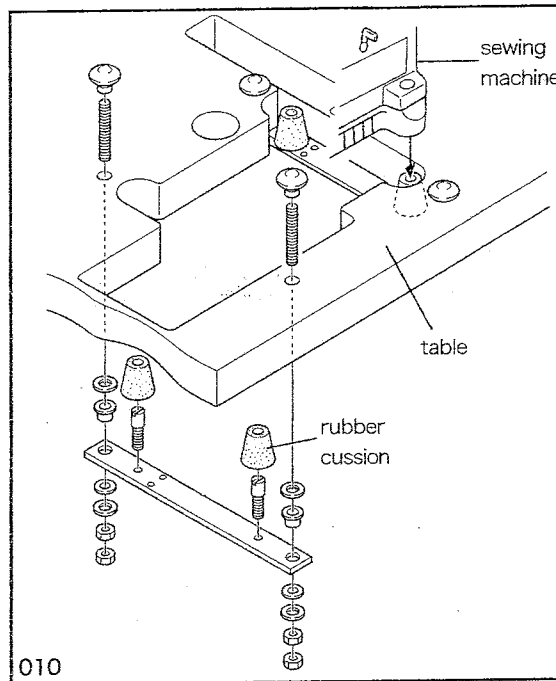
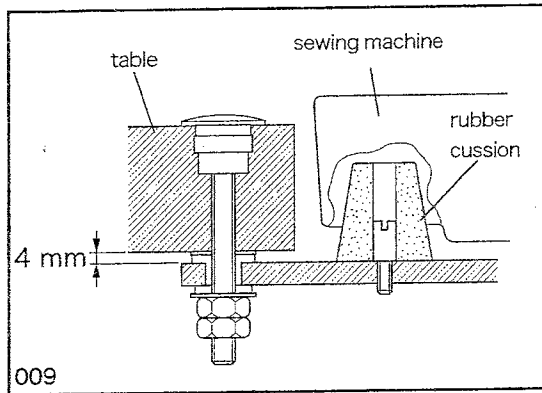
Install the machine correctly referring to the figures (006, 007, and 008).

1. Set the bolts and the nuts to the table.
2. Set the oil reservoir rubber cushions on the bolts.
3. Set the machine on the rubber cushions stably.



(Semi-submerged installation)

Install the machine correctly referring to the figures (009, 010, and 011).



Choosing proper motor pulley and belt

1. Choosing proper motor pulley

The maximum sewing speed of this machine is 5000 s.p.m. For common use, run it with 4500 s.p.m. However, when the stitch length is more than 4.5 mm, the maximum sewing speed is 4000 s.p.m., and for common use, run it with 3500 s.p.m. When the machine has a puller, the maximum sewing speed is 4000 s.p.m., and for common use, run it with 3500 s.p.m. See the right diagram and choose a proper motor pulley.

⟨Helpful hint⟩

Run a new machine with 15 - 20 % lower rotating speed of its s.p.m. during the first 200 hours (about one month) so that it will offer a long service life in good condition.

⚠ CAUTION

Use only those motor pulleys which apply to this machine. If not, the machine can over the speed limit and be damaged.

2. Regarding belt

Use a V belt of M type.

Motor pulleys and machine's rotating speed

outsidediameter of motor pulley (mm)	rotating speed (rpm)		size of belt	
	50Hz	60Hz	top	semi
65		3400	M-39	M-37
70		3700	M-40	M-37
80	3500	4200	M-40	M-38
90	4000	4700	M-41	M-38
100	4300		M-42	M-39
110	4800		M-42	M-40

Note : The table shows the rough relations between motor pulleys' outside diameter and machine's rotating speed when it uses 3-phase, 2-pole, 400W (1/2 HP) clutch motor.

2. Installation of motor

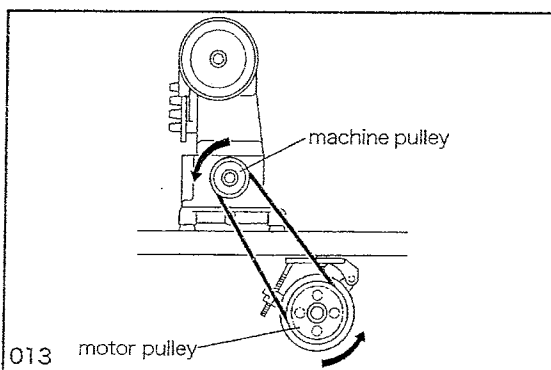
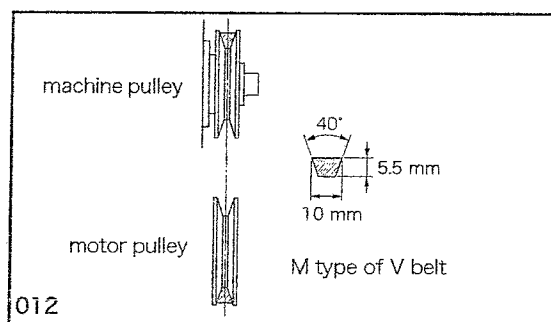
- When the pedal is treaded, the motor pulley moves to the left. Here, the center of the motor pulley and that of the machine pulley must be on the same line.

Note: Regarding how to install a motor pulley, see the instruction manual for the motor.

- Install the motor so that the machine pulley rotates counterclockwise.

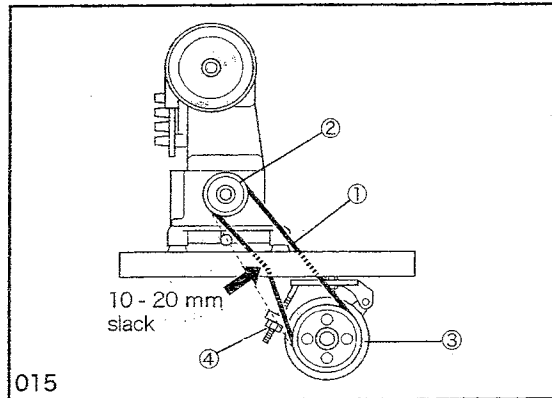
⚠ CAUTION

If the machine pulley reverses, oil cannot be supplied properly and the machine can be damaged.



3. Hanging belt

1. Hang the belt① on the machine pulley②.
2. While rotating the pulley②, hang the other end of the belt on the motor pulley③
3. Adjust the belt so that it has 10 - 20 mm slack when its center is pushed with 10 N (1.02 kgf).
(After installing the idlers)
4. After finishing hanging, fix the belt with the rock nut④.



WARNING

Before changing a belt, ALWAYS turn off the power switch and check if the motor has already stopped.

If not, the belt can entangle in hands and clothes and cause injury.

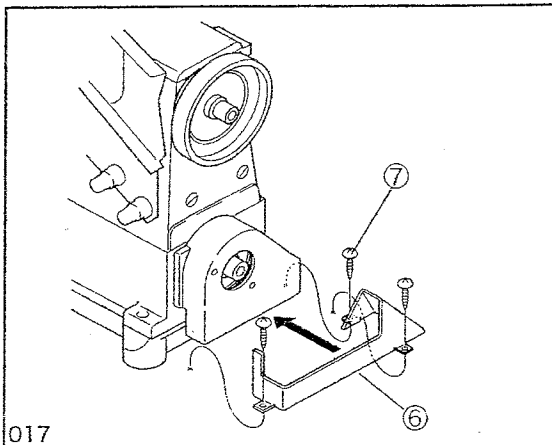
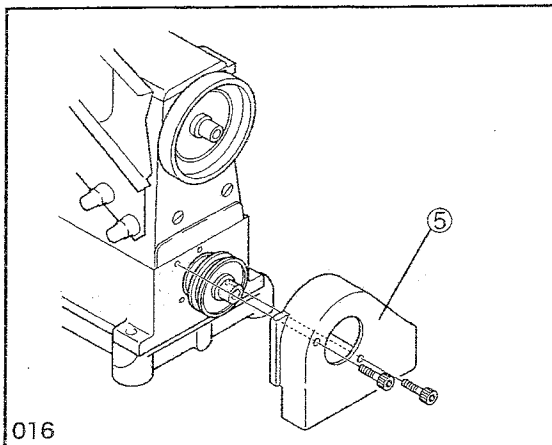
4. Setting belt cover

1. Mount the belt cover⑤ to the machine as shown in Fig.016.
2. Fasten the belt cover (lower)⑥ to the table with the wood screws⑦ as shown in Fig.017.
(Only for table top type)

WARNING

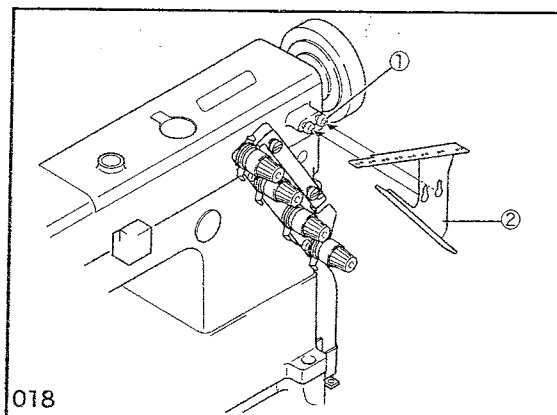
Never forget to set the belt covers.

If not, the belt can entangle hands, clothes, or sewing materials and cause injury or damage.



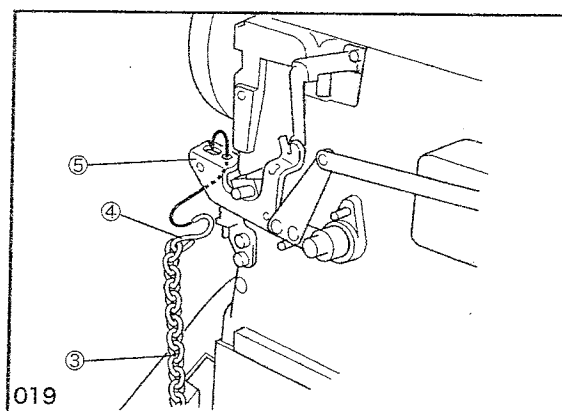
5. Setting thread guide plate

1. Set two $\emptyset$ holes of the thread guide plate② to two screws①. Then press the plate② down.
2. Tighten the screws① and fix the plate②.



6. Setting chain

1. Hang the hook④ of the chain③ on the lifter lever⑤.
2. Fix the other hook of the chain to the pedal.

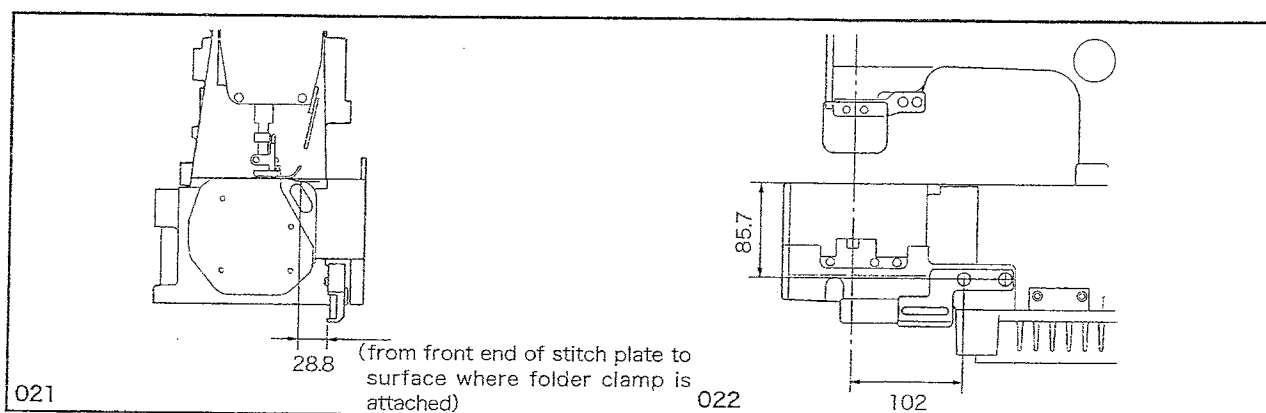
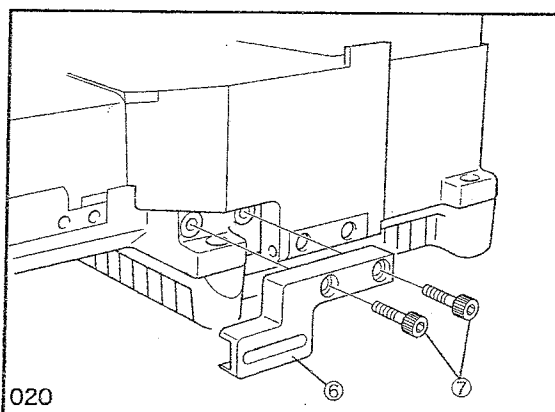


7. Setting thread stand

Set the thread stand to the table.

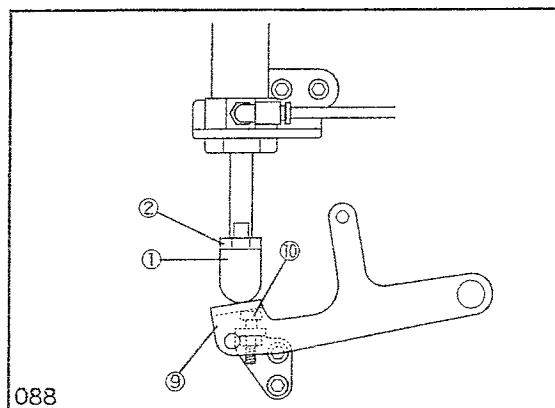
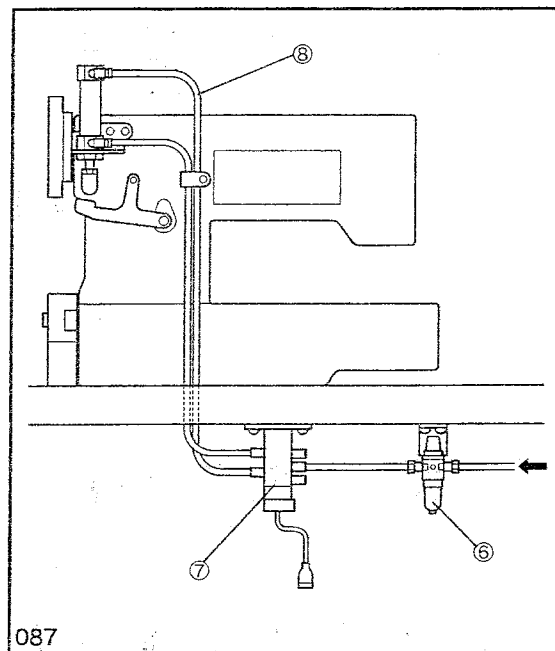
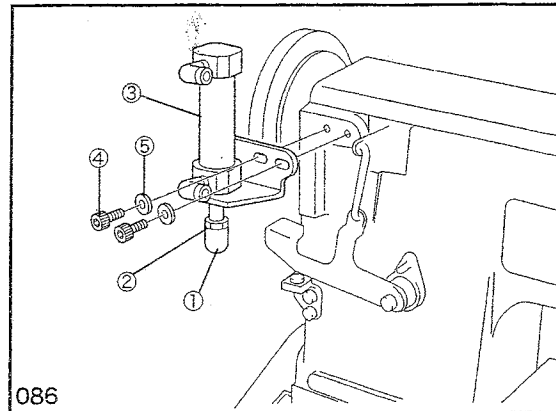
8. Setting folder clamp

Set the folder clamp⑥ with two screws⑦ as shown in Fig. 020, 021, and 022.



9. Setting optional presser foot lifter

1. Loosen the nut② on the cylinder rod chip① to the limit. Then, tighten the chip① to the limit.
2. Install the air cylinder C. set to the back of the machine with two screws④ and two washers⑤ as shown in Fig.086.
3. Install the air regulator⑥ and the solenoid valve⑦ under the table.
4. Connect the air pipe⑧ as shown in Fig.087.
5. Set the air regulator⑥ to 0.4 MPa.
6. Connect the connecting plug of the solenoid valve⑦ to the connecting plug for air cylinder on the motor control box.
7. Turn on the power switch of motor.
8. Tread the pedal and lift up the presser foot.
9. Adjust the cylinder rod chip① by taking the following steps.
 - 1) While pressing slowly down the lifter lever⑨, turn the chip① and lower the lever⑨ to where it touch the lifter lever stopper⑩.
 - 2) Tighten the nut② and fix the chip①.
10. Lower the presser foot and check if there is a clearance between the lever⑨ and the chip①. If there is no clearance, loosen the nut② and the chip① a little and make a clearance.



3. Lubrication

1. Lubricating oil

〈When starting to use the machine〉

At shipment, oil is drained. Before starting to use the machine, put the oil into the machine.

- Fitting oil : Yamato SF 28 Oil
- Oil amount : 1000 cc

⚠ CAUTION

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

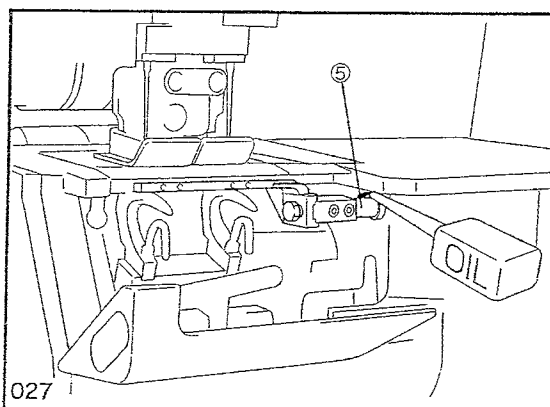
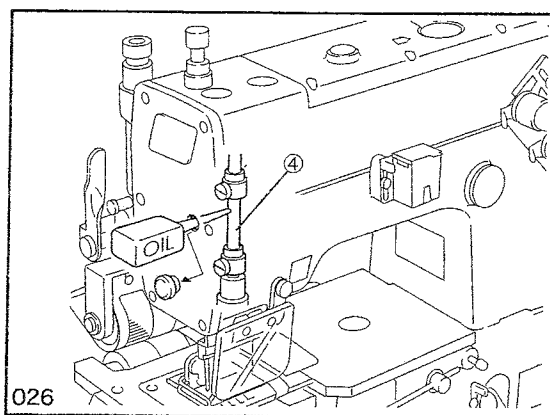
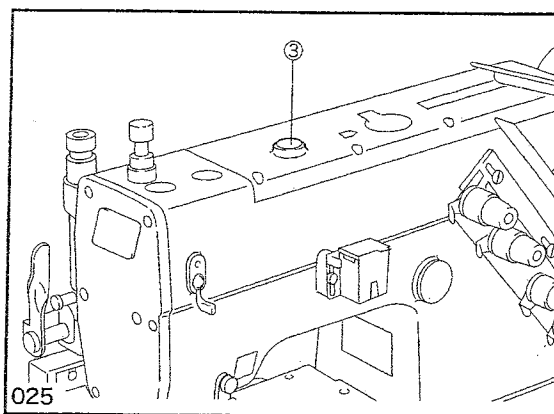
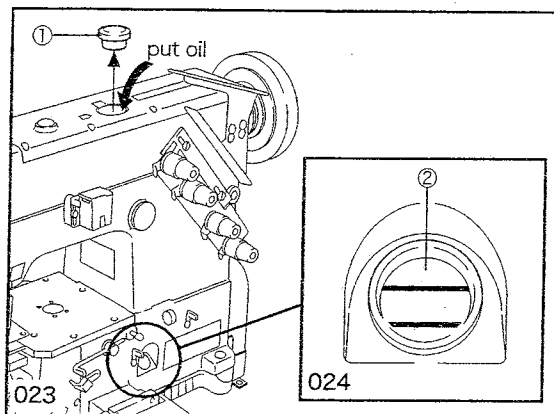
To supply oil, remove the rubber seal plug① which has the letters of "OIL" and put oil. Make sure that the oil surface is at the same level as the upper line on the oil sight gauge②.

〈Checking before using the machine〉

1. Check if the oil surface is between two red lines on the oil sight gauge. If the surface is under the lower line, supply the oil. (See page 25.)
2. Check through the oil sight window③ if the oil is splashing from the nozzle when the machine starts to rotating. If not, check the oil filter, and if needed, change the filter. (See "Checking and changing oil filter" on page 26.)

2. Oiling

When starting to use the machine or after the machine hasn't operated long time, supply the oil to the needle bar④ and the retainer⑤ with a few drops.



4. Proper operation

1. Proper needle

Use DV × 57 (62 × 57, SY3260, 5640) #18~25 (the standard needle is #21) as the needle for this machine.

Japanese standard	18	19	20	21	22	22 1/2	23	24	25
metric standard	110	120	125	130	140	150	160	180	200

2. Setting needle



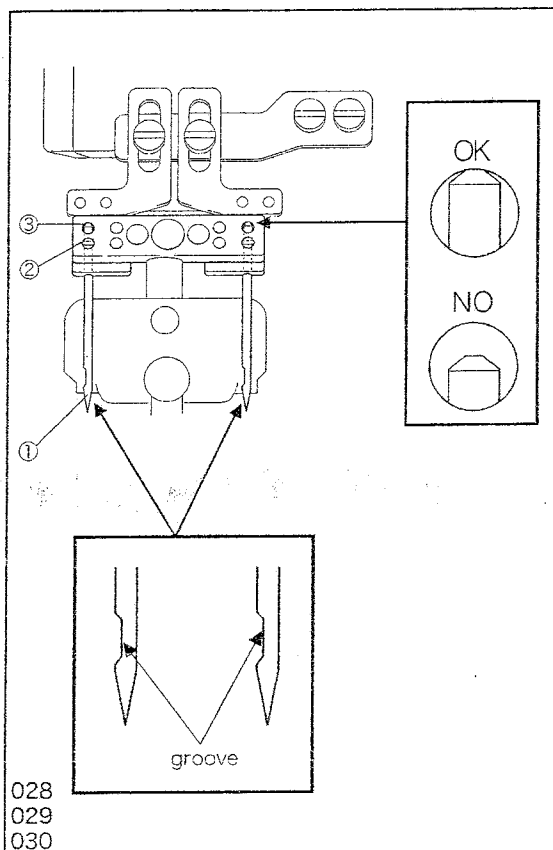
⚠ WARNING

Before setting a needle, ALWAYS turn off the power switch and check if the motor had already stopped. If not, the machine can run unexpectedly and cause injury.

1. Loosen the screw② for the needle① with a screw driver.
When changing a needle, pull out the old one with tweezers.
2. Insert a new needle into the hole in the needle clamp③ with tweezers as high as possible. Here, make sure that the needle's long groove faces the left.
3. Tighten the screw② for the needle.

Attention

After changing needles, check if the clearances between loopers and needles and between the needles and the needle holders are proper. (See page 19.)



3. Threading



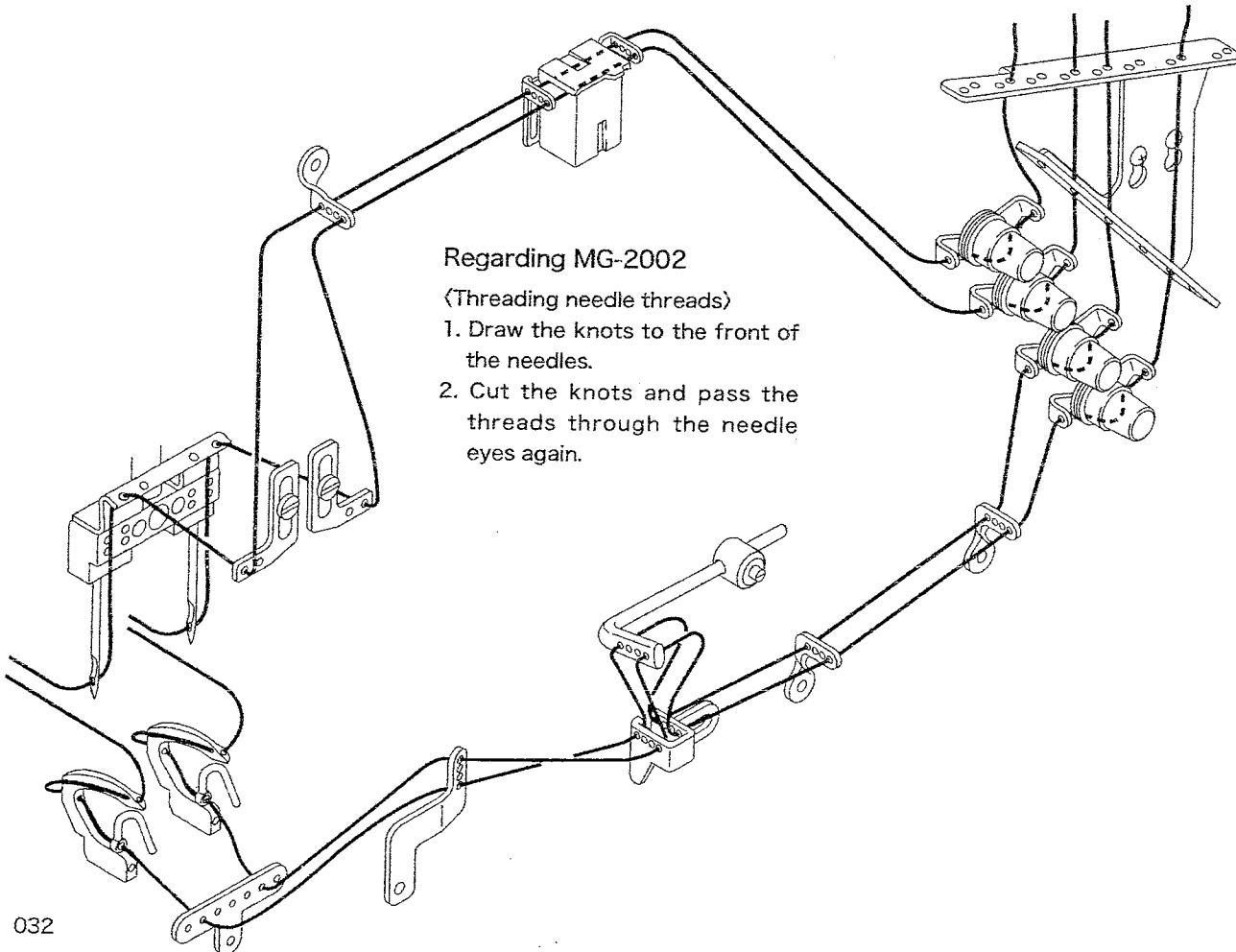
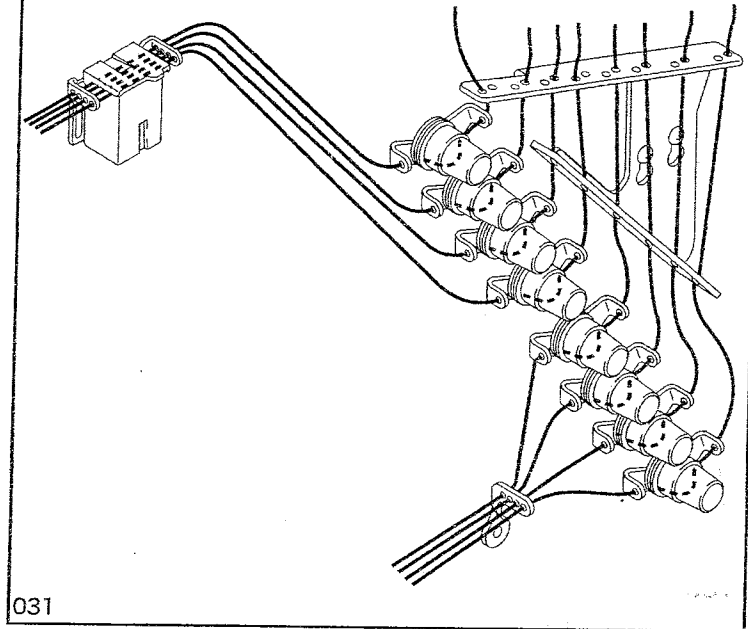
WARNING

- Before threading the machine, ALWAYS turn off the power switch and check if the motor had already stopped. If not, it can cause injury.
- If the thread is wrong, skip stitches, thread break, and irregular stitches can happen.

Thread the machine as shown in Fig. 031 and 032.

Note: When the machine is already threaded, tie to these threads other threads which will be used for sewing.

for MG-2004



Regarding MG-2002

〈Threading needle threads〉

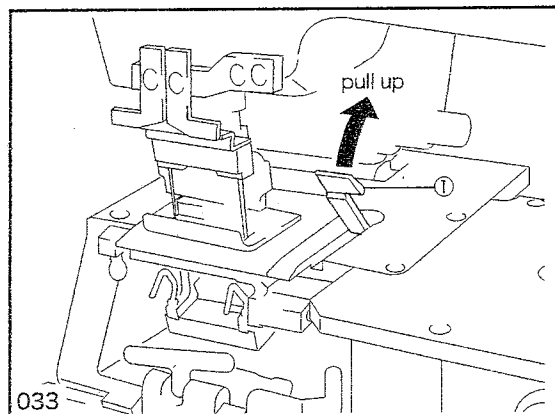
1. Draw the knots to the front of the needles.
2. Cut the knots and pass the threads through the needle eyes again.

〈Threading looper threads〉

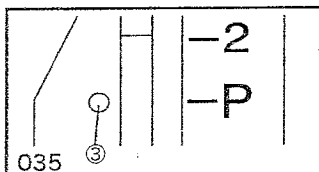
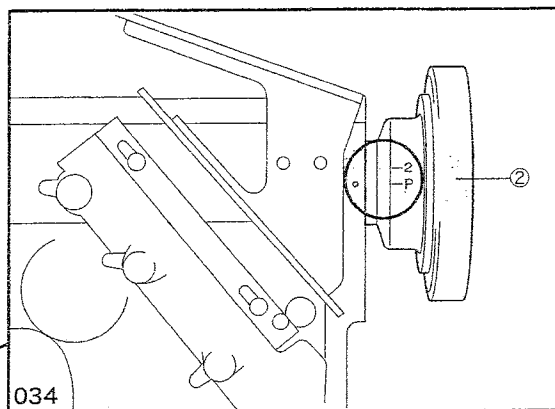
1. Pull up the looper throw-out lever① to the limit.

WARNING

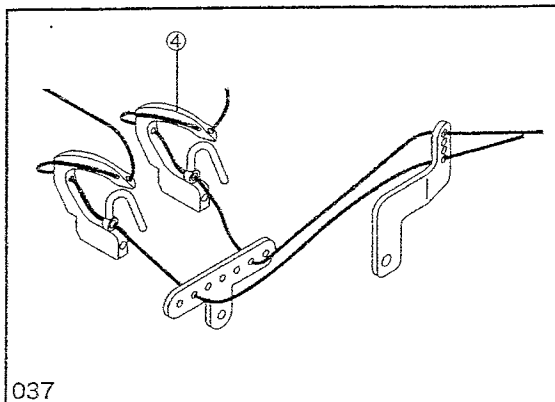
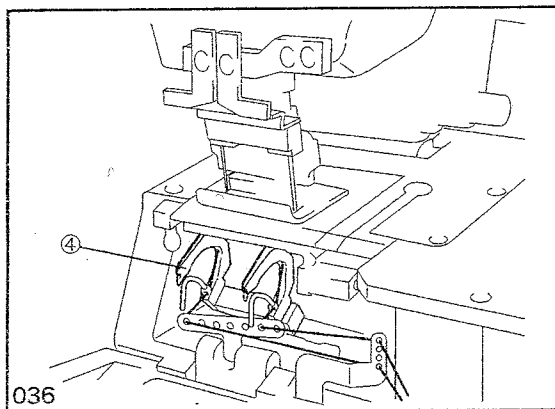
Never pull up the looper throw-out lever① while the machine is rotating. If not, it can cause injury. Before pulling up the lever, turn off the power switch and check if the motor had already stopped.



2. Rotate the pulley② counterclockwise.
As the P mark on the pulley is approaching the indication mark③, the pulley② and the lever① become heavier to rotate or to push.
3. While keeping the lever① on the same position, rotate the pulley② counterclockwise further. Then, the loopers④ fall to the front.



4. Thread the loopers④.
5. Rotate the pulley counterclockwise. Then, the loopers④ click into place.



4. Adjusting stitch length



⚠ WARNING

Before adjusting stitch length, ALWAYS turn off the power switch and check if the motor had already stopped. If not, it can cause injury.

⚠ CAUTION

After adjusting stitch length, check the timing between the loopers and the retainers. (See page 21.)

The stitch length can be adjusted from 2.1 mm to 6.4 mm.

Note: Real stitch length on a material can change according to the kind and thickness of materials.

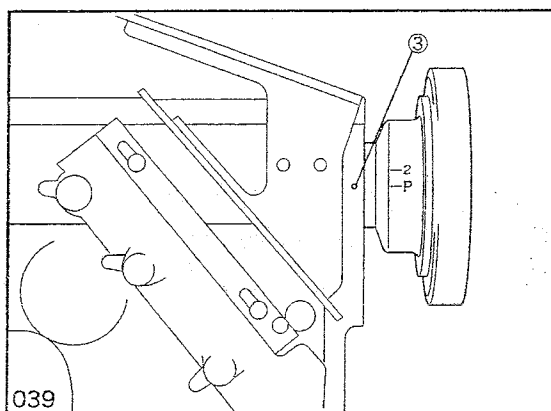
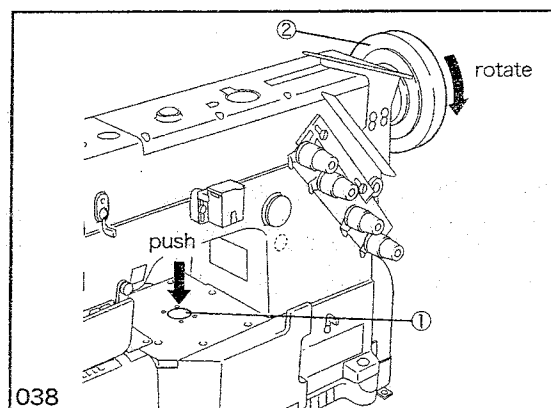
⟨Changing stitch length⟩

1. Push the feed dog regulating button① softly by the left hand. Here, you feel that the tip of the button touches an inner part of the machine.
2. While keeping pushing the button① softly, rotate the pulley② counterclockwise by the right hand. Here, the button① goes into further, so push it hard.
3. While keeping pushing the button①, set the mark on the pulley to the indication mark③.
4. Then, stop pushing the button①.

Attention

At shipment, the machine is adjusted under the condition that the indication mark on the machine pulley is set to 3.

When stitches become irregular after stitch length is changed greatly, readjust the timing between the needles and loopers (see pages 17 and 18) and between the loopers and the retainer (see page 21).

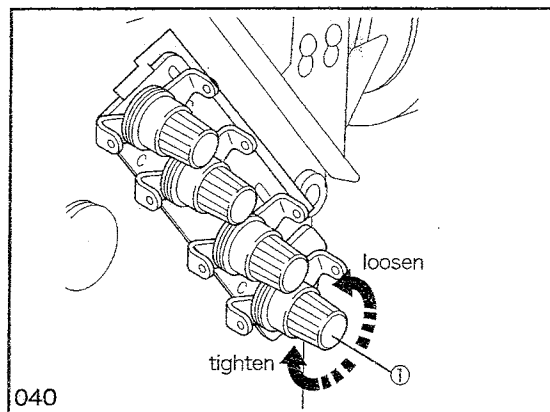


5. Adjusting thread tension



Thread tension changes according to kinds of materials, threads, stitch width and length, and using conditions.

Adjust the thread tension by turning the thread tension spring cap ①.



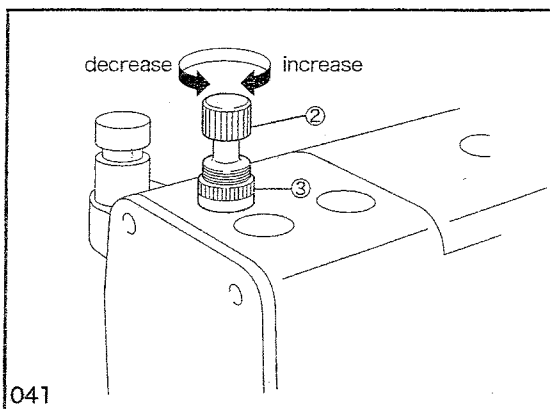
6. Adjusting presser foot pressure



Adjust the presser foot pressure as low as possible within the limits that irregular stitches aren't made.

To adjust the pressure, loosen the rock nut ③ on the adjusting screw ② and turn the screw ②. After making adjustment, tighten the nut ③.

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

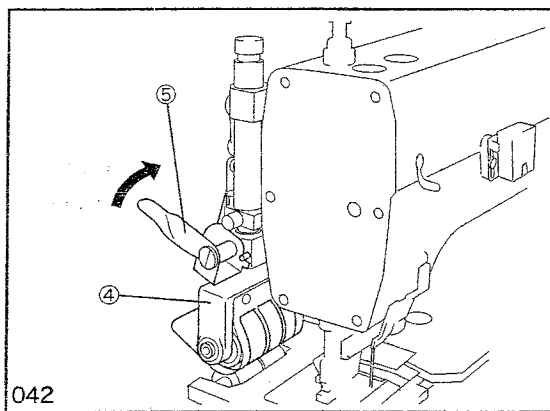


7. Raising upper feed roller (for machine with puller)



When a material jams, press the upper feed roller lifting lever ⑤ and raise the upper feed roller ④.

To keep the roller up, push down the lever ⑤.

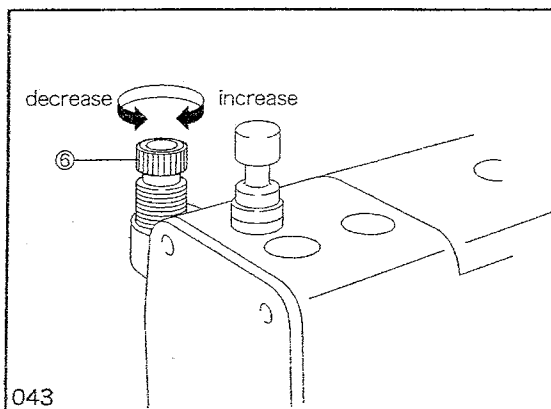


8. Adjusting upper feed roller pressure (for machine with puller)



Adjust the upper feed roller pressure as low as possible within the limits that the upper feed roller ④ and the lower can feed a material.

- To increase the pressure, turn the adjusting screw ⑥ clockwise.
- To decrease the pressure, turn the adjusting screw ⑥ counterclockwise.



9. Eye guard and finger guard



⚠ WARNING

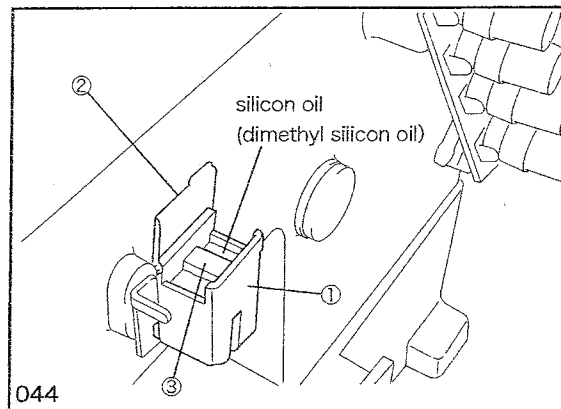
Never remove the eye guard and the finger guard when operating the machine. Also, bring down the eye guard to the set position.



This machine has a SP device. When rotating the machine at high speed, sewing with synthetic fibers, or sewing a synthetic material, use the SP device to prevent thread breaks and skip stitches. Use silicon oil (dimethyl silicon oil) for the device.

〈Checking before operation〉

Open the lid② of the SP container① and check if there is proper amount of silicone oil. If not, supply the oil.



⚠ CAUTION

- When not using the SP device, remove the felt③ from the container. If not, it can make sewing condition worse.
- Make sure that silicon oil never remain sticking to other parts than the SP device. Wipe out that oil. If not, the machine can be damaged.

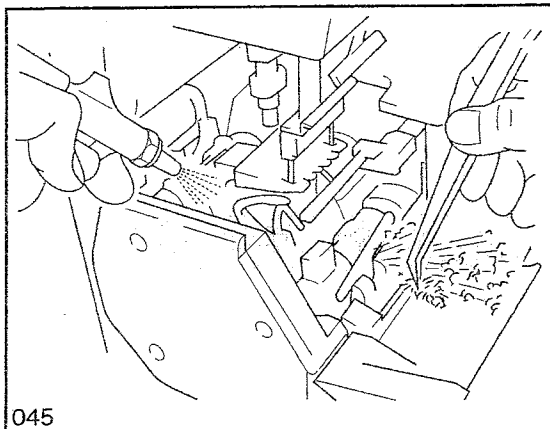
5. After operation

WARNING

Before cleaning the machine, ALWAYS turn off the power switch and check if the motor had already stopped. If not, the machine can function unexpectedly and cause injury.



- After a day's operation, remove lint and dust from the machine.
- At least once a week, remove the presser foot and the stitch plate holder, and clean the slot of the stitch plate and the area around the feed dog.



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6. Maintenance

⚠ CAUTION

Before maintenance, ALWAYS turn off the power switch and check if the motor has already stopped.

1. Adjusting looper thread tension

〈Basic adjustment〉

1. Move the looper thread take-up② into the horizontal position. Then tighten the screw③ securely in the middle of the take-up's slot.
2. Loosen the screw④ on the take-up①, and adjust the take-up's position so that it pulls threads in the middle of the looper thread eyelet②. Then, tighten the screw④.

Note: This is the standard position.

〈Changing looper thread tension〉

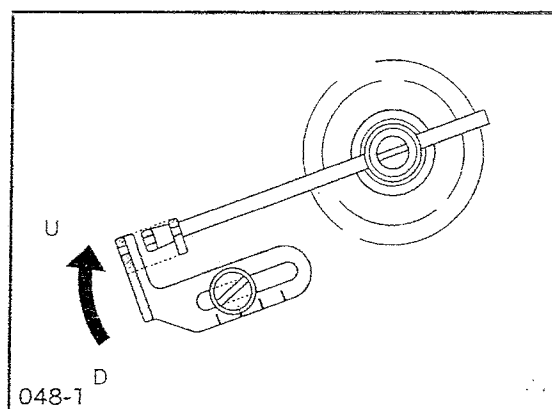
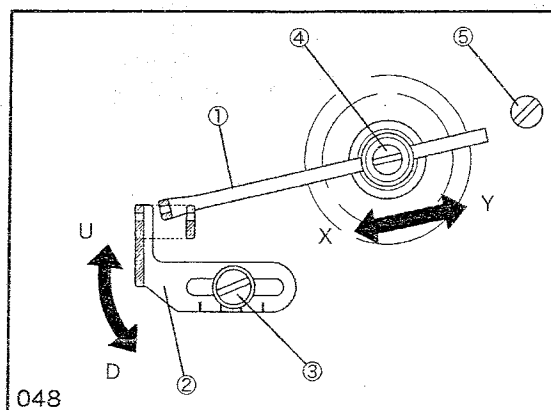
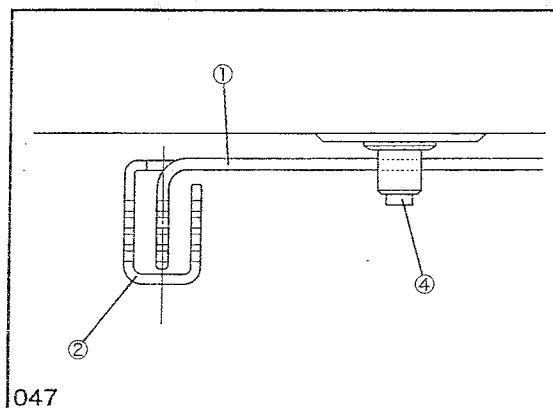
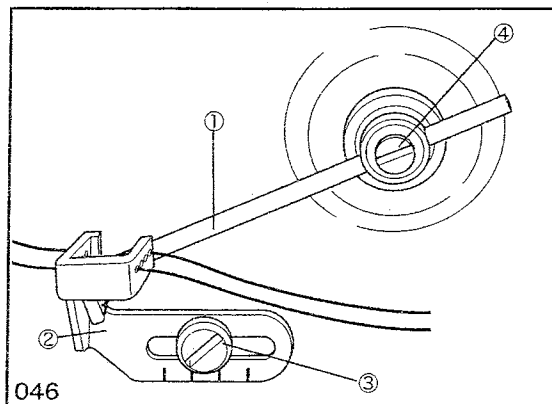
To increase the tension, move the looper thread take-up① to direction Y in the right figure after making the above adjustment.

To decrease the tension, move the take-up① to direction X in the right figure after making the above adjustment.

Here, also adjust the looper thread eyelet②.

Note: When the eyelet② moves to direction U, the tension increases, and when the eyelet② moves to direction D, the tension decreases. On normal occasion, however, don't make this adjustment.

Do not lower the eyelet② toward direction D from the position where when the take-up① is in the lowest position, the thread hole of the take-up① and that of the eyelet② are in the same line. (See Fig.048-1.)



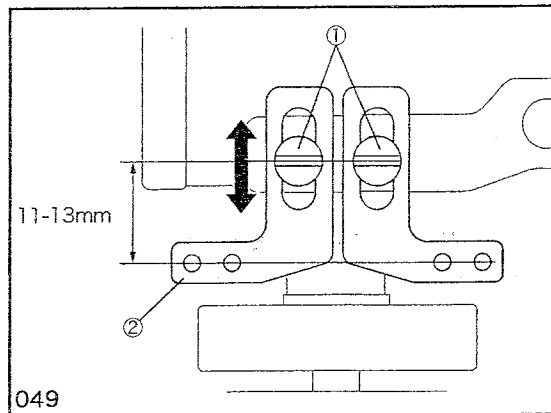
2. Adjusting needle thread eyelet

At shipment, from the center of the screws ① to that of the thread holes is 10 - 13 mm.

〈Making adjustment〉

Loosen the screw ① and move the eyelet ② to the proper position. Then, tighten the screw ①.

- To decrease thread tension, raise the eyelet ②.
- To increase thread tension, lower the eyelet ②.

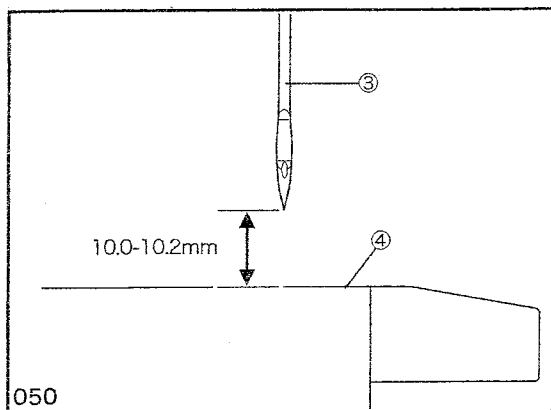


3. Checking needles height

〈Checking〉

1. Remove the presser foot.
2. Rotate the pulley and raise the needles ③ to the highest position.
3. Check if from the stitch plate surface ④ to the needles points is 10.0 - 10.2 mm.

Note: To adjust the needles height, see the technical service manual.

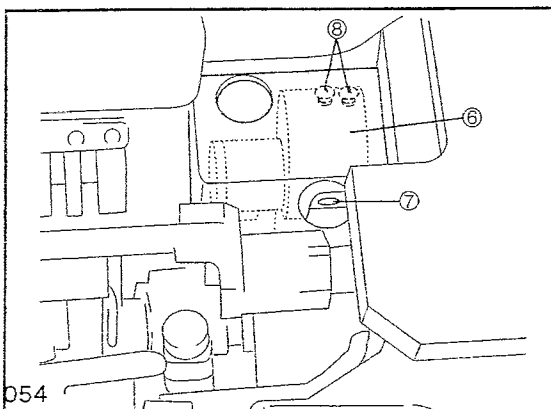
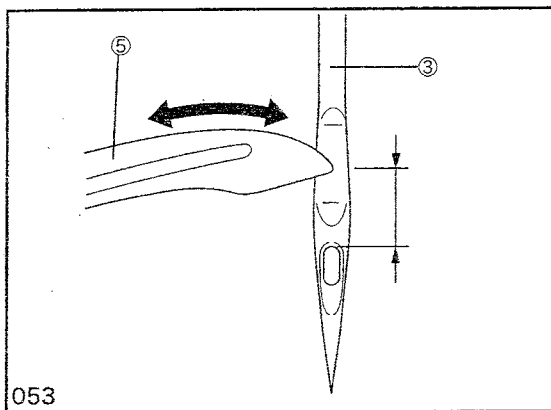


4. Adjusting timing between needles and loopers

Rotate the pulley and check if the needles ③ and the loopers ⑤ pass the same points in coming and returning.

〈Making adjustment〉

1. Remove the seal plug.
2. Loosen two screws ⑦ on the looper eccentric ⑥.
3. Loosen one of two screws ⑧ on the looper eccentric ⑥, and tighten the other screw.
4. Check the timing between the needles ③ and the loopers ⑤.
 - When the timing is still not correct (the difference is small), repeat step 3.
 - When the timing is still not correct (the difference is big) or reverses, change the tightened screw ⑧ and the loosened screw at the step 3.
5. After adjustment, tighten the screws ⑦ on the looper eccentric ⑥.



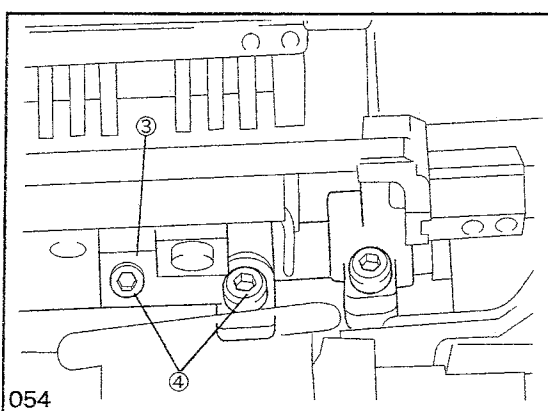
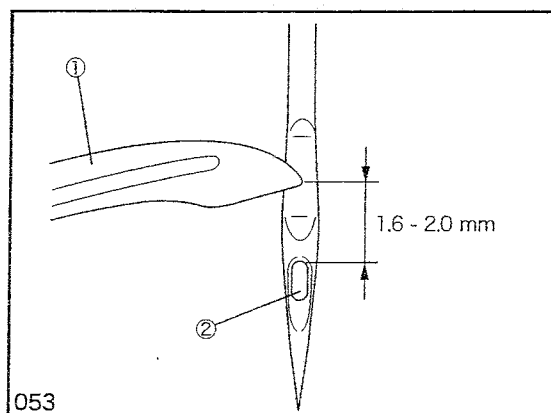
5. Adjusting needles and loopers

Adjust the looper holders so that the loopers① points pass where 1.6 - 2.0 mm higher than the upper end of the needle eye②.

〈Making adjustment〉

To set the loopers to the proper position, loosen two screws④ on the looper holder (lower)③ and move the holder.

Then, tighten the screws④.

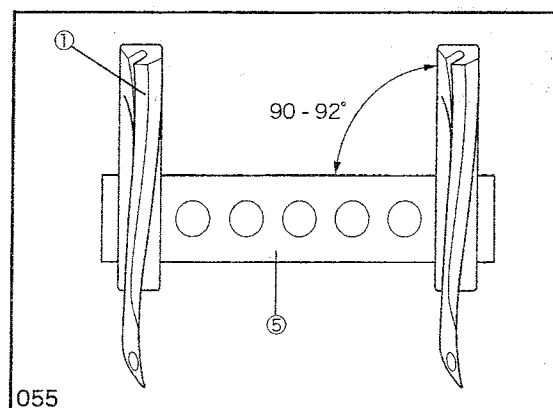


6. Adjusting loopers' angle

Set the loopers①' angle to 90 - 92°.

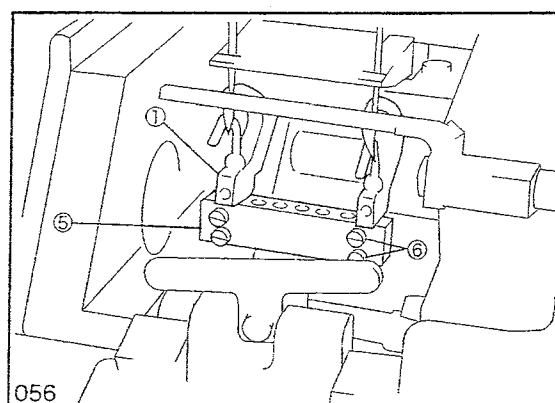
〈Making adjustment〉

Loosen the screws⑥ on the looper holder⑤ and adjust the angle. Then, tighten the screws⑥.



Attention

Never set the loopers①' angle to lower than 90°.



7. Clearances between loopers and needles

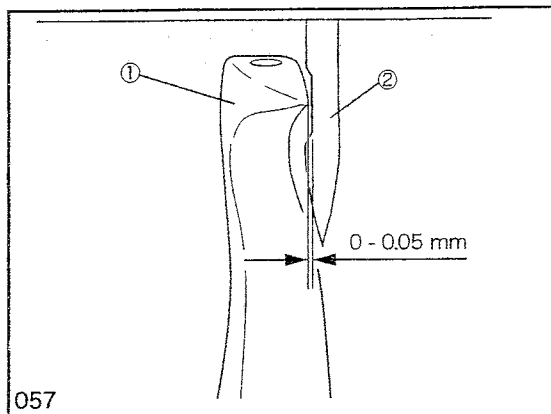
Set the clearances between the loopers① points and the needles② to 0 - 0.05 mm under the condition that the needle holder⑥ does not push the needles②.

〈Making adjustment〉

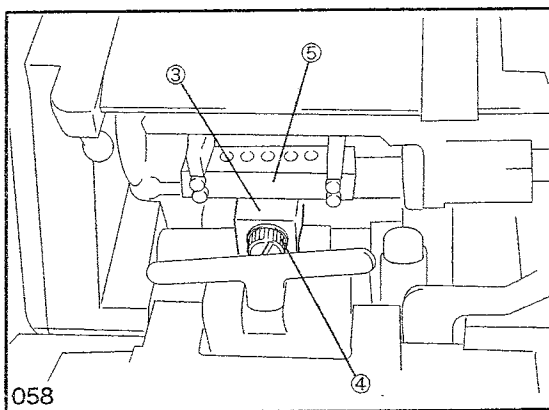
Loosen the screw④ on the looper holder(lower)③ and move the looper holder⑤ to the left or to the right.

Then, tighten the screw④.

Note: Set the loopers①' angle mentioned before to 90 - 92° so that all the clearances are the same (0 - 0.05 mm).



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8. Clearance between needles and needle guards

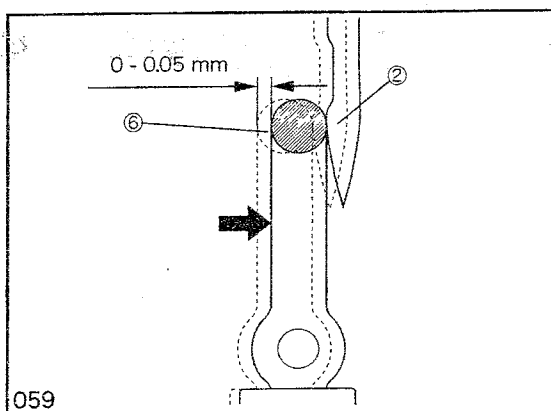
Adjust the needle guards⑥ so that they push the needles② 0 - 0.05 mm.

At this moment, the clearances between the looper points① and the needles② are 0 - 0.1 mm.

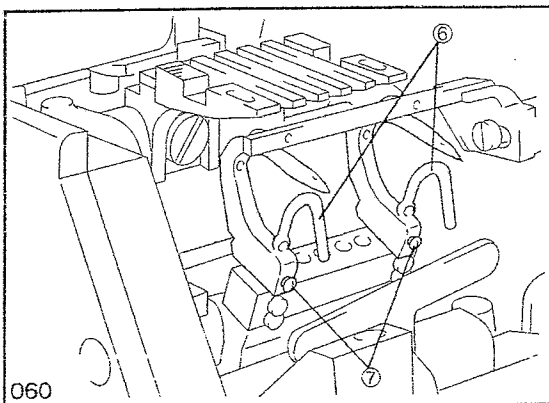
〈Making adjustment〉

Loosen the screws⑦ and turn the needle guards⑥. Then, tighten the screws⑦.

Here, the clearances between the loopers① points and the needles② are 0 - 0.1 mm.



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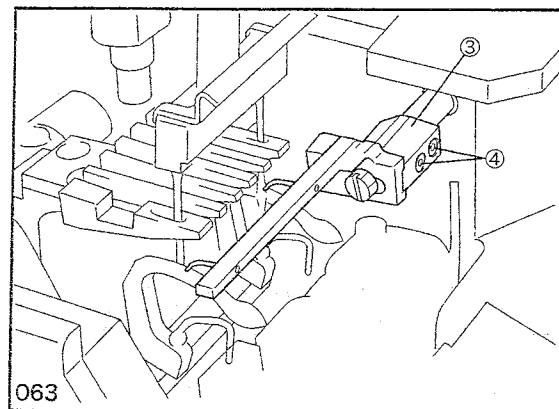
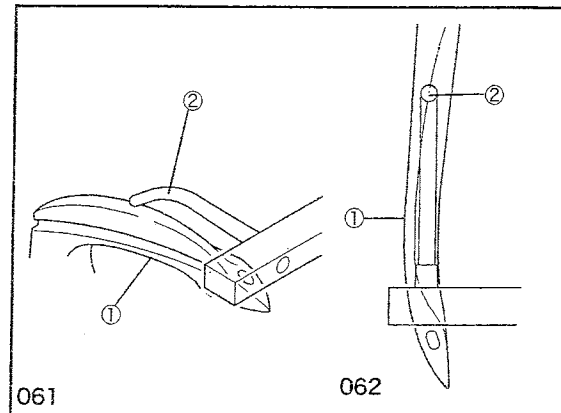
060

9. Adjusting retainers

〈Retainers' right-and-left position〉

Adjust the retainers so that when the loopers① are at the extreme front, the retainer pin②'s points are near to the ridge of the loopers①.

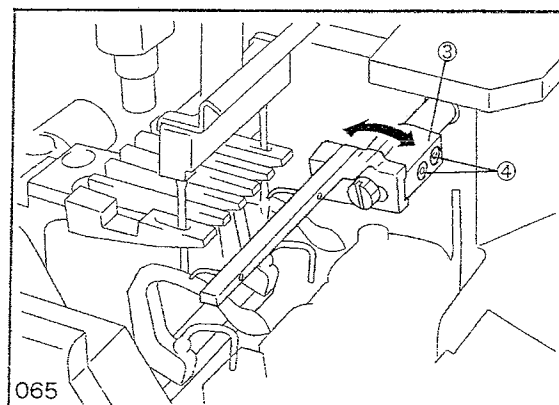
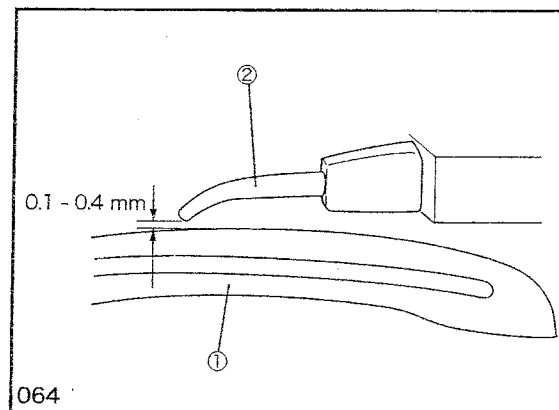
To adjust the position, loosen the screw④ on the retainer holder③ and move the holder left or right. Then, tighten the screw④.



〈Height of the retainer pins〉

The clearances between the points of the retainer pins② and the top of the loopers① should be 0.1 - 0.4 mm when the retainer bins are at the nearest position to the top of the loopers①.

To adjust the clearances, loosen the screw④ on the retainer holder③ and turn the holder③. Then, tighten the screw④.

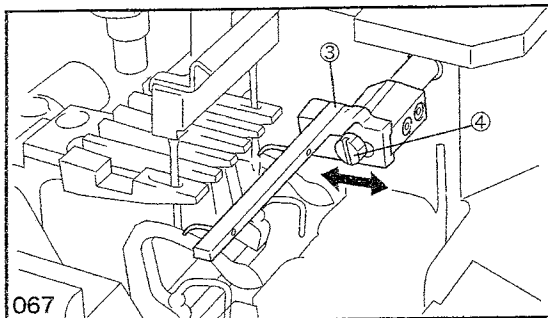
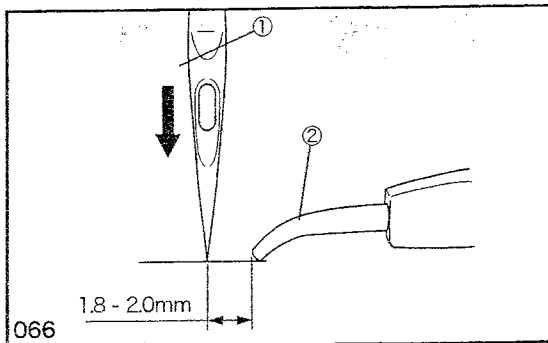


〈Clearances between the retainers and the needles〉

When the needles① move down, the clearances from the needles' points to the those of retainer pins② should be 1.8 - 2.0 mm when they are at the same height.

To adjust the clearances, loosen the screw④ on the retainers③ and move the retainer holder. Then, tighten the screw④.

Note : When setting the scale on the pulley to 4 or more, always adjust the clearances.

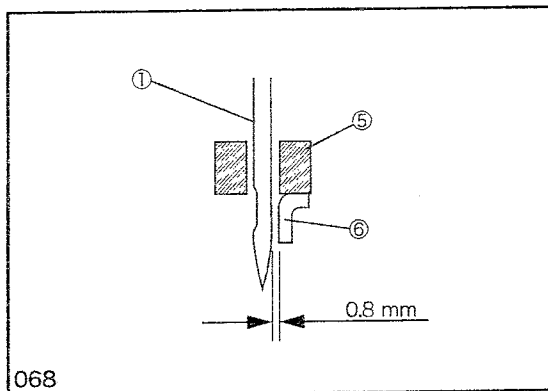


10. Adjusting looper deflections

〈Checking〉

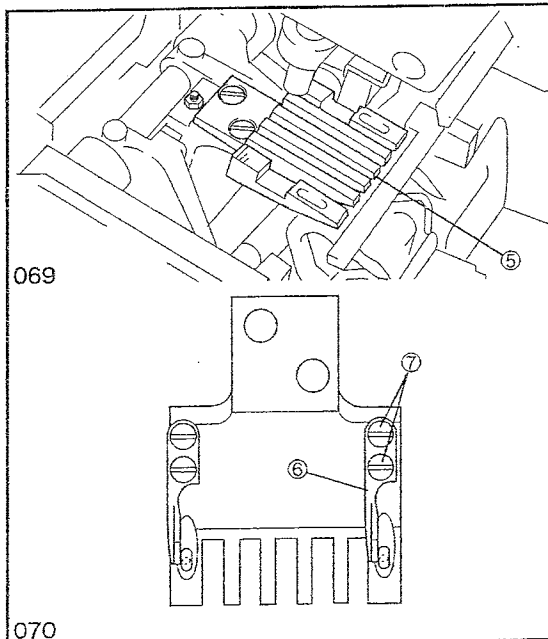
Check if the clearances between the looper deflections⑥ on the feed dog⑤ and the needles are the size in Fig. 068.

Regarding the front and back position, the points of the looper deflections⑥ should not exceed the needles① front when the needles① are in the stitch plate.



〈Making adjustment〉

1. Remove the presser foot, and the stitch plate holder.
2. Remove the feed dog⑤.
3. Loosen the screws⑦ on the looper deflections⑥ and move the deflections⑥.
4. Then, tighten the screws⑦.
5. Reset the feed dog⑤, the stitch plate holder, and the presser foot.



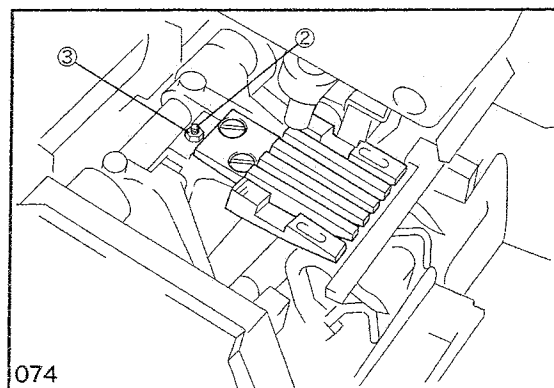
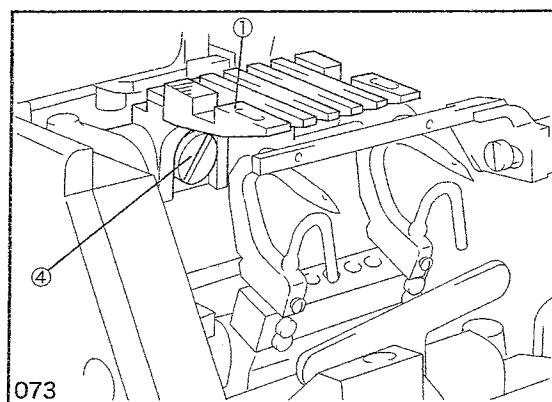
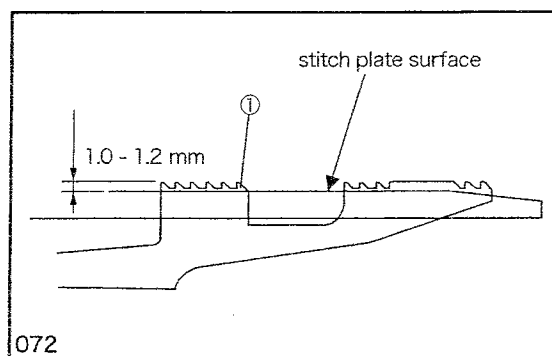
11. Adjusting height of feed dog

At its highest position, the distance between the top of the feed dog① and the stitch plate surface should be 1.0 - 1.2 mm.

〈Making adjustment〉

1. Remove the needles, the presser foot, and the stitch plate holder.
2. Loosen the adjusting screws②, the screw④, and the nut③ on the feed dog①.
3. Adjust the up-and-down position of the feed dog and tighten the screw④.
4. Tighten the adjusting screw② to where it softly touches the feed bar. Then, fix it with the nut③.
5. Reset the stitch plate holder, the presser foot, and the needles.

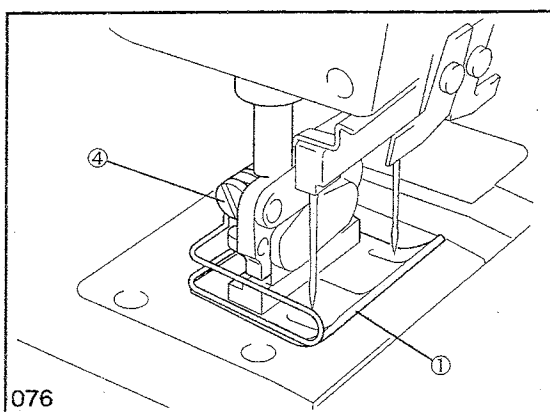
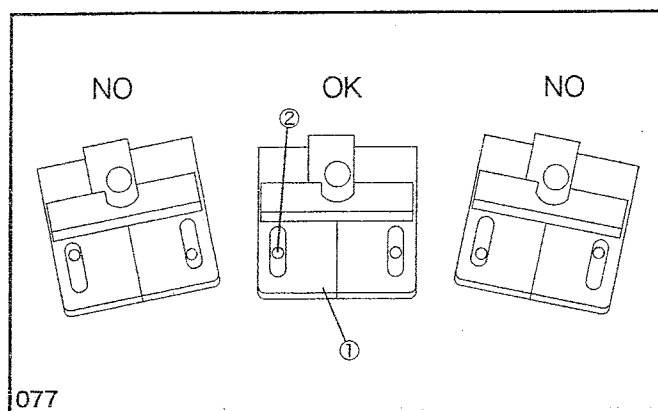
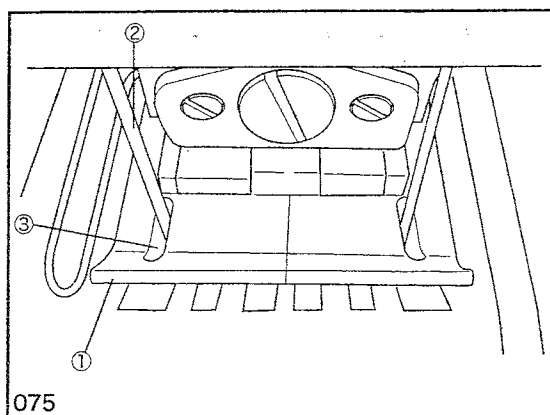
Note: Once this adjustment gets completed, there is no need to repeat it even after the feed dog① is removed for cleaning.



12. Adjusting presser foot position

Set the presser foot ① to the presser bar so that the needles ② pass the center of each needle hole ③.

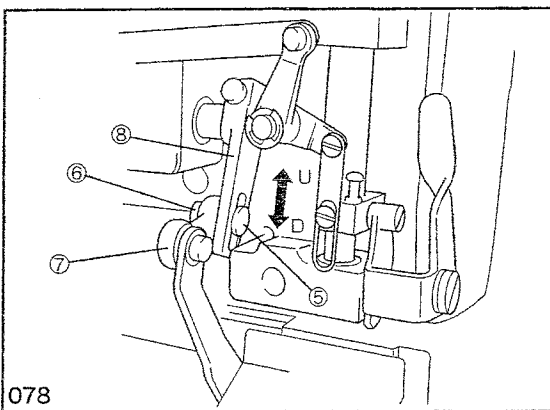
Loosen the screw ④ on the presser foot ① and adjust the position by turning the presser foot ①.



13. Adjusting upper feed roller's movement (puller's feed amount)

Adjust the upper feed roller's movement according to kinds of materials and sewing conditions.

1. Remove the cover.
2. Loosen the nut ⑥ which fixes the upper feed roller lever pin ⑤, and set the upper feed roller lever rod ⑦ to the middle of the slot on the upper feed roller lever ⑧. This is the standard position. After setting, tighten the nut ⑥.
3. If the above adjustment doesn't improve the condition, adjust the position of the upper feed roller lever rod ⑦.
 - Moving to the U direction.....The feed amount decreases.
 - Moving to the D direction.....The feed amount increases.



14. Adjusting height of lower roller

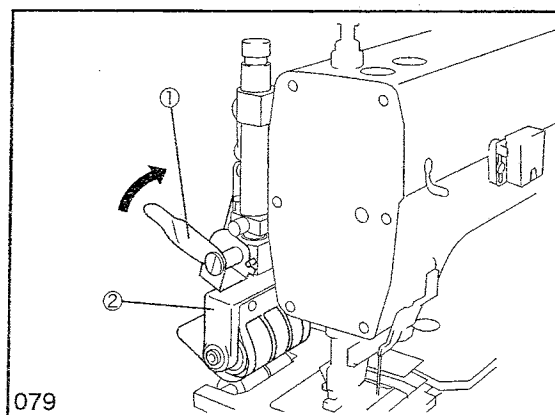
〈Checking〉

1. Push the upper feed roller lifting lever① and raise the upper feed roller②.
2. Check if from the top of the lower roller③ to the surface of the stitch plate holder④ is the same as shown in Fig. 080.

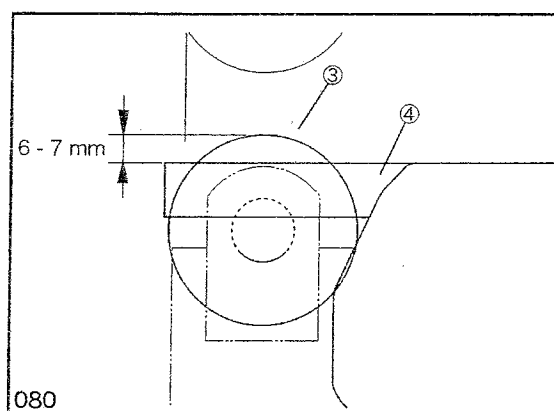
〈Making adjustment〉

1. Loosen the rock nut⑥ on the adjusting nut⑤.
2. Turn the adjusting nut⑤ and set the roller③ and the cylinder cover (upper)④ to the position in Fig. 080.
3. After adjustment, tighten the rock nut⑥.

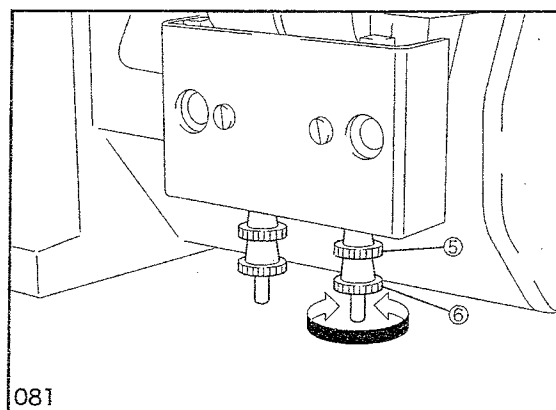
Note: Don't forget to adjust both sides.



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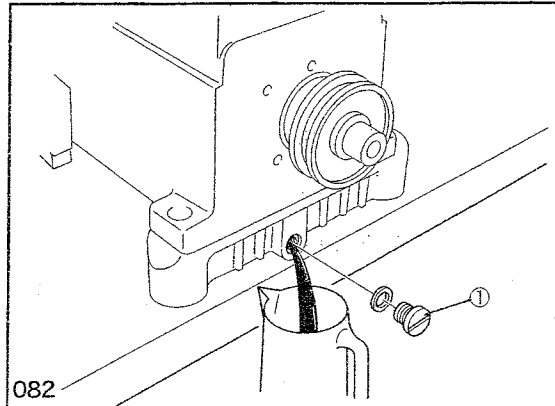
15. Changing lubrication oil

〈Time for changing〉

When the machine is new, change lubricating oil after operating the machine around 250 hours.
After that, change the oil every 6 months.

〈How to change the oil〉

1. Remove the belt cover. (See page 5.)
2. Remove the V-belt from the motor pulley. (See page 5.)
3. Remove the machine from the table.
4. Set a oil cup under the drain screw① to keep the oil.
5. Remove the screw①. Then the oil drains out.



⚠ CAUTION

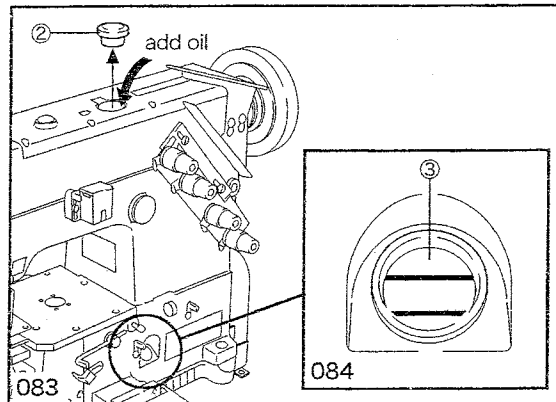
Make sure that oil doesn't attach the V-belt.

6. Reset the screw①.
7. Remove the rubber seal plug② which has the letters "OIL."
8. Pour the oil through the hole for the seal plug②. Make sure that the oil surface is at the same level as the upper red line on the oil sight gauge③.

● Proper oil : Yamato SF 28 Oil

● Oil amount : 1000cc

9. Reinstall the machine to the table.
10. Hang the V-belt on the motor pulley, and reset the belt cover. (See page 5.)



⚠ CAUTION

Make sure that the oil surface is always between two red lines.

If the surface exceeds the upper line, oil can leak.

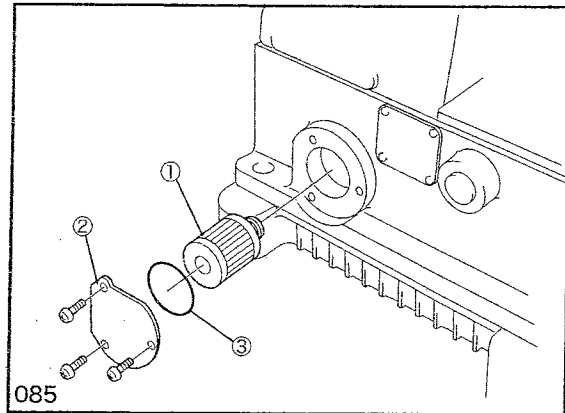
If the surface is below the lower line, the machine can be damaged.

16. Checking and changing oil filter

If the oil filter① is filled with dust, oil cannot be supplied properly. Check the filter every 6 months.

〈Checking and changing〉

1. Remove the oil filter cover②, and take out and check the O ring③ and the oil filter①.
2. If the filter① is filled with dust, change it with a new one.



⚠ CAUTION

When removing the oil filter cover②, take enough care because oil in the oil filter① can drop.

7. Trouble shooting

Malfunctions	Check points	Cures	Ref.
Skip stitch	Is the machine threaded wrongly?	Thread the machine correctly.	10
	Are the needles bent and smashed?	Change the needles.	9
	Is the thread tension too tight?	Loose the tension.	13
	Is the timing and clearances between the needles and the loopers or between the needles and the retainer correct?	Adjust the timing and the clearances.	17-20
	Are the needles too thin comparing to the threads?	Change the needles or the threads with proper ones.	9
	Is setting of the needles wrong? (Is setting direction wrong, or are the needles inserted to enough height?)	Set the needles correctly.	9
Thread break	Do the threads wind up something?	Remove the winding threads.	
	Is the machine threaded wrongly?	Thread the machine correctly.	10
	Is the thread tension too tight?	Loose the tension.	13
	Are the threads too thick comparing to the needles?	Change the needles or the threads with proper ones.	9
	Is the threads quality low?	Use high-quality threads.	
	Is the thread broken by heat?	Use SP device.	14
	Are the thread eyelets or the looper thread take-up damaged?	Repair them, or change them with new ones.	
Chain stitch is not made properly	Are the timing and the clearances among the needles, the loopers, and the retainer correct?	Adjust the timing or the clearances.	17-20
The needles break	Do the needles hit the loopers?	Adjust the clearances among the needles, the loopers, and the retainer.	19
The threads are too loose	Is the machine threaded properly?	Thread the machine properly.	10
	Is the balance between needle threads and looper threads correct?	Adjust the balance of the thread tension.	
Irregular stitch	Is the machine threaded properly?	Thread the machine properly.	10
	Is the balance between needle threads and looper threads correct?	Adjust the balance of the thread tension.	
Oil is not splashed from the nozzle	Is the oil surface lower than the lower line on the oil gauge?	Put the oil into the machine.	8
	Is the oil filter filled with dust?	Change the oil filter.	26

8. Specification

Model		MG2002	MG2004	MG2002P	MG2004P
Description		Multi Needle Double Chain Stitch Machine with Needle Feeding for Medium Material		Multi Needle Double Chain Stitch Machine with Needle Feeding for Medium Material(with Puller)	
Demensions (mm)	Length	480			
	Width	249		278	
	Height	446			
	Cylinder circumference	395		470	
Weight (kg)		46		50	
Stitch type		ISO 401			
Application		For sewing waist band of jeans, working pants, etc.			
Sewing speed		Up to 5,000 s.p.m. (When stitch length is more than 4.5 mm : 4000 s.p.m.)		Up to 4,000 s.p.m.	
Stitch length (mm)		2.1 - 6.4 mm 4 - 12 stitches per inch 5 - 14 stitches per 30 mm			
Needle system		DV 57 (62 57, SY3260, 5640) #18 - 20 (#21 is standard)			
Needle distance (mm)		4.8 - 50.8			
Number of needles		2	4	2	4
Needle stroke (mm)		32			
Number of threads		4	8	4	8
Presser foot lift (mm)		9			
Feed regulation		Push button system (Lower feed and needle feed are linked)		Push button system (Lower feed and needle feed are linked)(Puller can be adjusted infinitely)	
Looper movement		Vertical looper movement, Retractable looper mechanism for easy threading			
Lubrication		Automatic lubrication by trochoid pump			
Lubrication oil		YAMATO SF OIL No.28			
Capacity of oil reservoir (cc)		1000			
Installation		Table top type or semi-submerged type			

Yamato

ヤマトミシン製造株式会社

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