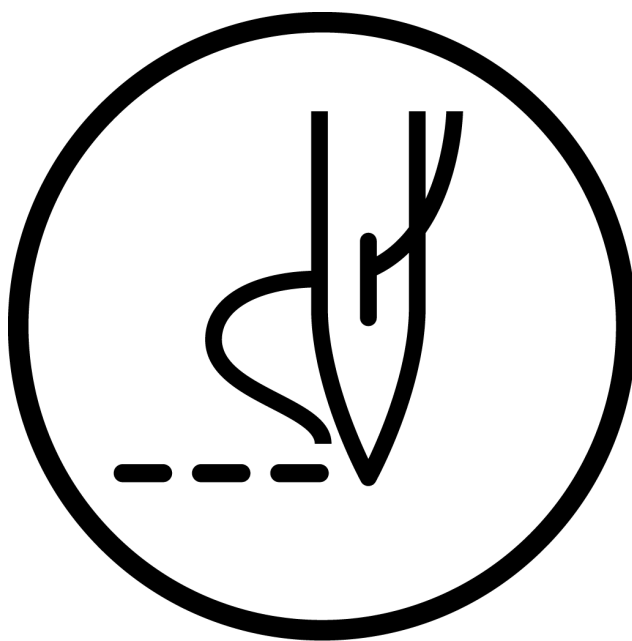

ELECTRONIC EYELET BUTTON HOLER

Please read this manual before using the machine.

Please keep this manual within easy reach for quick reference.

This basic operation manual describes basic operations including sewing machine operations. For cleaning, standard adjustments and more details, please refer to the instruction manual contained in the Document CD.



Thank you very much for buying a BROTHER sewing machine. Before using your new machine, please read the safety instructions and the explanations given in the instruction manual.

With industrial sewing machines, it is normal to carry out work while positioned directly in front of moving parts such as the needle and thread take-up lever, and consequently there is always a danger of injury that can be caused by these parts. Follow the instructions from training personnel and instructors regarding safe and correct operation before operating the machine so that you will know how to use it correctly.



SAFETY INSTRUCTIONS

[1] Safety indications and their meanings

This instruction manual and the indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and to prevent accidents and injury to yourself or other people.

The meanings of these indications and symbols are given below.

Indications

 DANGER	The instructions which follow this term indicate situations where failure to follow the instructions may result in death or serious injury.
 CAUTION	The instructions which follow this term indicate situations where failure to follow the instructions could cause injury when using the machine or physical damage to equipment and surroundings.

Symbols



..... This symbol (△) indicates something that you should be careful of. The picture inside the triangle indicates the nature of the caution that must be taken.
(For example, the symbol at left means “beware of injury”.)



..... This symbol (⊘) indicates something that you must not do.



..... This symbol (●) indicates something that you must do. The picture inside the circle indicates the nature of the thing that must be done.
(For example, the symbol at left means “you must make the ground connection”.)

[2] Notes on safety

DANGER



Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the cover of the control box. Touching areas where high voltages are present can result in severe injury.

CAUTION

Environmental requirements



Use the sewing machine in an area which is free from sources of strong electrical noise such as electrical line noise or static electric noise. Sources of strong electrical noise may cause problems with correct operation.



Any fluctuations in the power supply voltage should be within $\pm 10\%$ of the rated voltage for the machine. Voltage fluctuations which are greater than this may cause problems with correct operation.



The power supply capacity should be greater than the requirements for the sewing machine's power consumption. Insufficient power supply capacity may cause problems with correct operation.



The pneumatic delivery capability should be greater than the requirements for the sewing machine's total air consumption. Insufficient pneumatic delivery capability may cause problems with correct operation.



The ambient temperature should be within the range of 5°C to 35°C during use. Temperatures which are lower or higher than this may cause problems with correct operation.



The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices. Excessively dry or humid environments and dew formation may cause problems with correct operation.



In the event of an electrical storm, turn off the power and disconnect the power cord from the wall outlet. Lightning may cause problems with correct operation.

Installation



Machine installation should only be carried out by a qualified technician.



Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.



The sewing machine weighs approximately 120 kg. Installation of the sewing machine and adjustment of the table height should be carried out by four or more people.



Do not connect the power cord until installation is complete. If this is not done, the sewing machine may operate if the start switch is pressed by mistake, which could result in serious injury.



Hold the machine head with both hands when tilting it back or returning it to its original position. In addition, do not subject the machine head to extra force while it is tilted back. If this is not observed, the machine head may become unbalanced and fall over (together with the table), and serious injury or damage to the sewing machine may result.



Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.



All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples. If this is not observed, fire or electric shocks may result.



Install belt covers to the machine head.



If using a work table which has casters, the casters should be secured in such a way so that they cannot move.












Be sure to wear protective goggles and gloves when handling the lubricating oil, so that it does not get into your eyes or onto your skin. If care is not taken, inflammation can result. Furthermore, do not drink the lubricating oil. Diarrhea or vomiting may result. Keep the oil out of the reach of children.





CAUTION










Sewing

- | | |
|--|---|
| <p> This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.</p> <p> The sewing machine should not be used for any applications other than sewing.</p> <p> Be sure to wear protective goggles when using the machine.
If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.</p> <p> Turn off the power switch at the following times. If this is not done, the sewing machine may operate if the start switch is pressed by mistake, which could result in serious injury.</p> <ul style="list-style-type: none"> • When threading the needle • When replacing the needle • When not using the machine and when leaving the machine unattended | <p> If using a work table which has casters, the casters should be secured in such a way so that they cannot move.</p> <p> Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.</p> <p> Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.</p> <p> If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest Brother dealer or a qualified technician.</p> <p> If the machine develops a problem, contact your nearest Brother dealer or a qualified technician.</p> |
|--|---|

Cleaning

- | | |
|--|--|
| <p> Turn off the power switch before carrying out this operation. If this is not done, the sewing machine may operate if the start switch is pressed by mistake, which could result in serious injury.</p> | <p> Be sure to wear protective goggles and gloves when handling the lubricating oil, so that it does not get into your eyes or onto your skin.
If care is not taken, inflammation can result.
Furthermore, do not drink the lubricating oil. Diarrhea or vomiting may result.
Keep the oil out of the reach of children.</p> |
|--|--|

Maintenance and inspection

- | | |
|--|---|
| <p> Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.</p> <p> Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.</p> <p> Turn off the power switch and disconnect the power cord at the following times. If this is not done, the sewing machine may operate if the start switch is pressed by mistake, which could result in serious injury.</p> <ul style="list-style-type: none"> • When carrying out inspection, adjustment and maintenance • When replacing consumable parts such as the loopers and knife <p> Disconnect the air hoses from the air supply and wait for the needle on the pressure gauge to drop to "0" before carrying out inspection, adjustment and repair of any parts which use the pneumatic equipment.</p> | <p> Hold the machine head with both hands when tilting it back or returning it to its original position.
In addition, do not subject the machine head to extra force while it is tilted back.
If this is not observed, the machine head may become unbalanced and fall over (together with the table), and serious injury or damage to the sewing machine may result.</p> <p> If the power switch and air need to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.</p> <p> Use only the proper replacement parts as specified by Brother.</p> <p> If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.</p> <p> Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.</p> |
|--|---|

[3] Warning labels

The following warning labels appear on the sewing machine.

Please follow the instructions on the labels at all times when using the machine. If the labels have been removed or are difficult to read, please contact your nearest Brother dealer.

1

	⚠ 危険 高電圧部分にふれて、大けがをすることがある。電源を切り、5分たってからカバーをはずすこと。	⚠ 危険 触摸高压电部分, 会导致受伤。在切断电源5分钟后, 再开启盖罩。
⚠ DANGER	⚠ GEFAHR	⚠ PELIGRO
Hazardous voltage will cause injury. Turn off main switch and wait 5 minutes before opening this cover.	Hochspannung verletzungsgefahr! Bitte schalten sie den hauptschalter aus und warten sie 5 minuten, bevor sie diese abdeckung öffnen.	Un voltage non adapte provoque des blessures. Eteindre l'interrupteur et attendre 5 minutes avant d'ouvrir le capot.
	Un voltaje inadecuado puede provocar las heridas. Apagar el interruptor principal y esperar 5 minutos antes de abrir esta cubierta.	

2

	⚠ 注意 触摸运动部分, 易造成受伤。所以在装上安全保护装置后, 再进行缝纫操作。在切断电源后, 进行穿线, 更换梭芯, 机针和做清扫, 调整工作。
⚠ CAUTION	
Moving parts may cause injury. Operate with safety devices. Turn off main switch before threading, changing bobbin and needle, cleaning etc.	

3

Do not touch the knife or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

Safety devices

Devices such as eye guard, finger guard, needle bar guard, needle guide cover and belt cover

4

Be careful not to get your hands caught when returning the machine head to its original position after it has been tilted.

5

Be careful not to get your hands caught when moving the feed base backward.

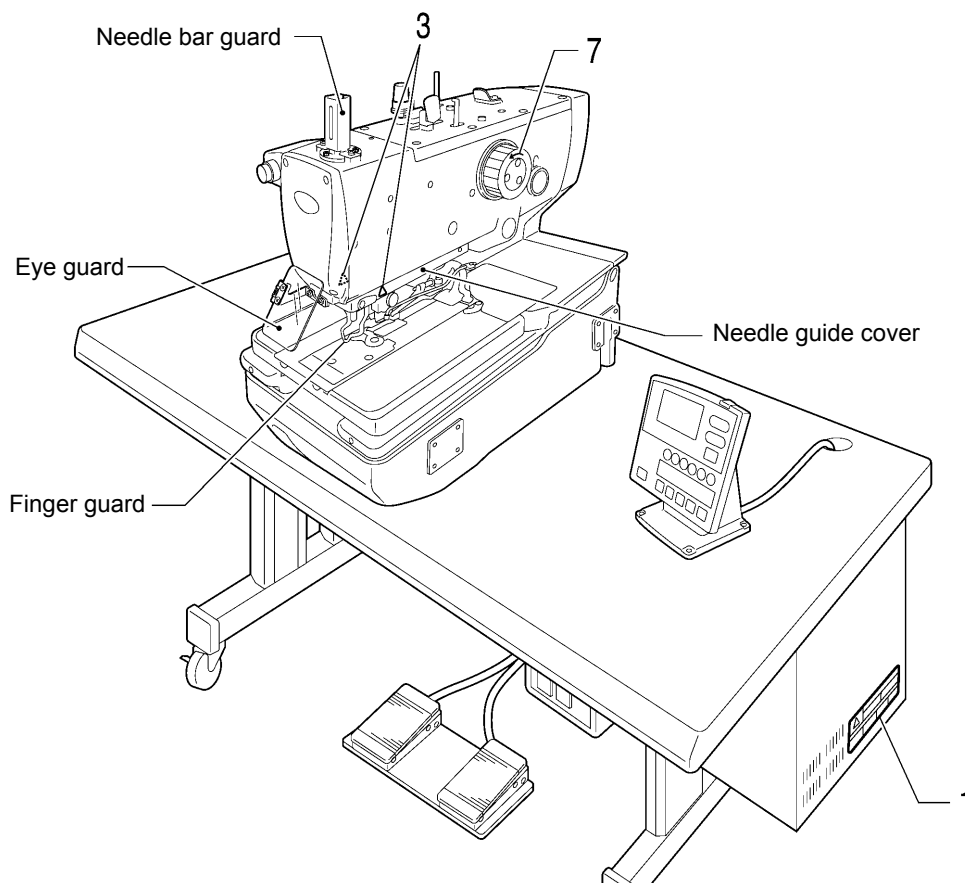
6

Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

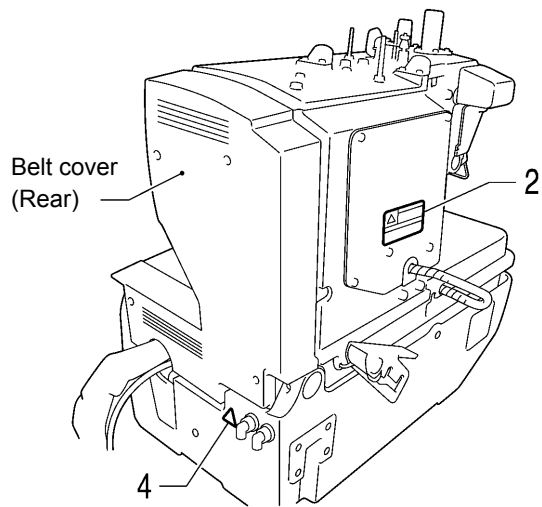
7 Direction of operation

8

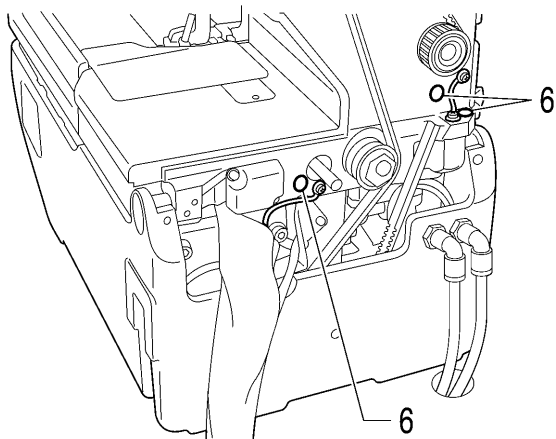
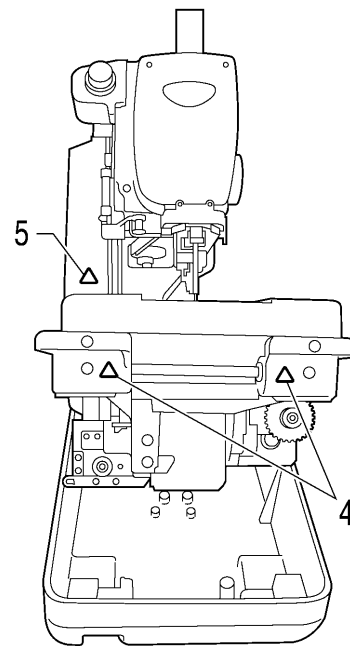
High temperature warning display



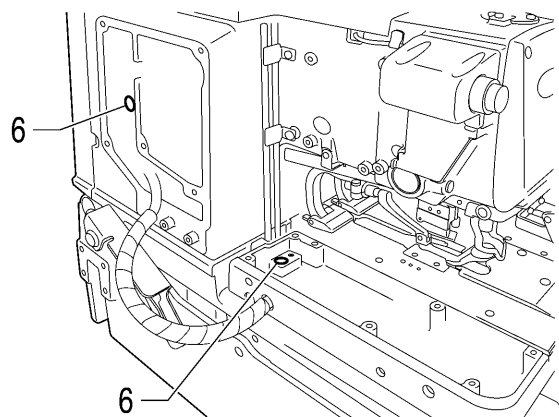
0332B



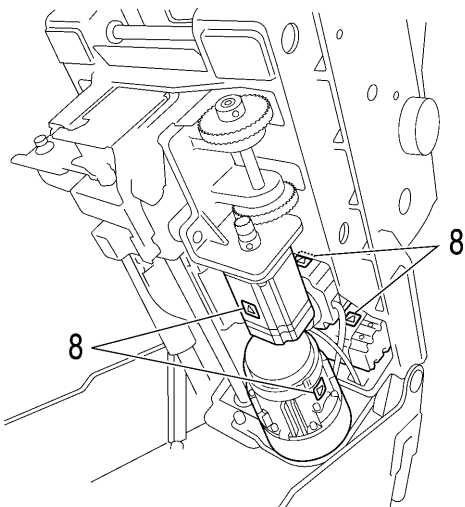
0331B



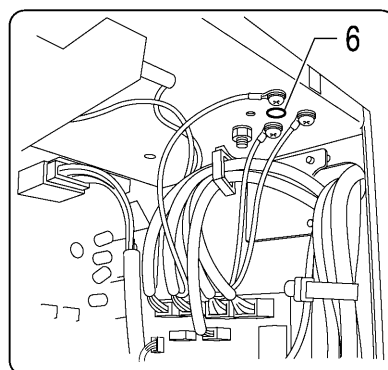
0333B



0486B



0334B

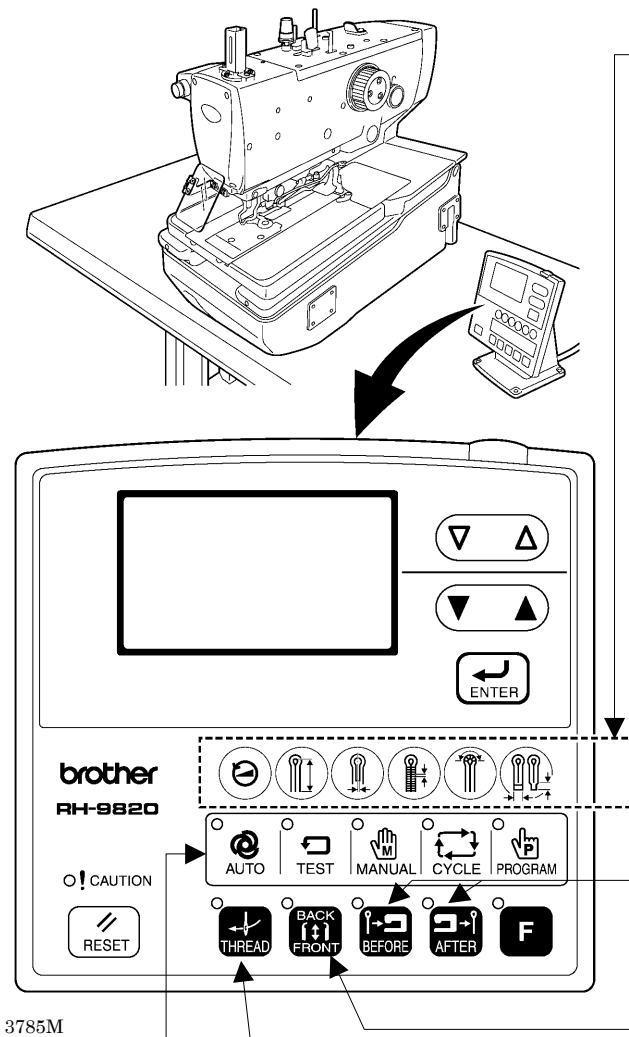


0485B

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1. CONVENIENT FUNCTION FOR SMOOTH SEWING



3785M

Fast setting using shortcut keys

➔ Page 39

Settings such as sewing speed and sewing length which are used frequently can be carried out quickly.

Cutting selection can be easily set using key operations.

➔ Page 47

The timing for cutting the material can be easily selected.



Cutting before sewing



Cutting after sewing



No cutting

3786M

One-touch key setting of material setting position

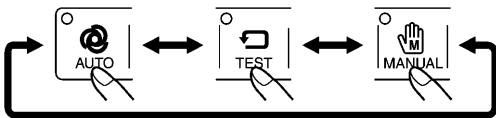
➔ Page 48

The setting position (forward or back) for the material being sewn can be easily set.

Sewing mode can be switched while sewing is in progress

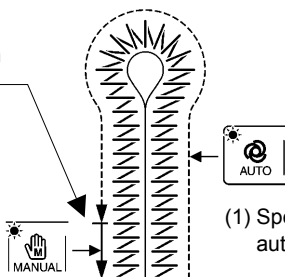
➔ **INSTRUCTION MANUAL CD**
7-7. Switching the sewing mode while sewing is in progress

The sewing mode can be switched while sewing is in progress, so that tasks such as continuing sewing and checking operation can be carried out easily.



<Example: Checking lower thread trimming operation>

(2)
STOP switch
+
REET key



(1) Speedy sewing in automatic mode

(3) Accurate checking of lower thread trimming operation during manual mode

Easy threading in threading mode

➔ Page 49

In threading mode, the needle bar rotates 180 degrees and the tension discs are open, so that the upper thread can be threaded easily.

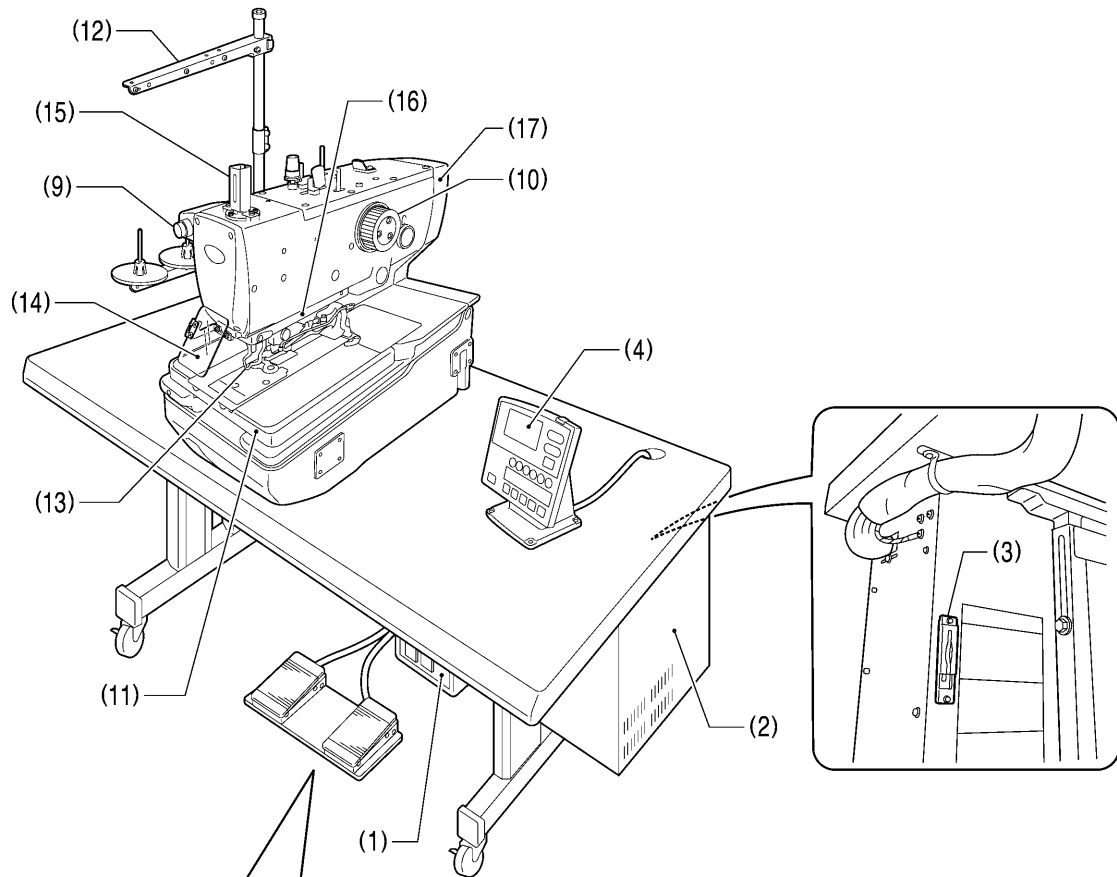
In addition, safety is ensured because the sewing machine will not start even if the start switch is pressed.

3787M

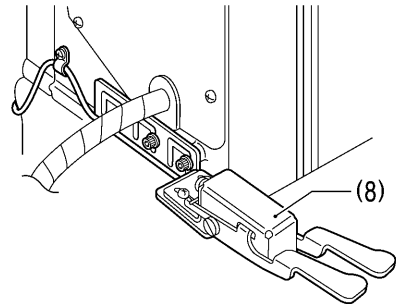
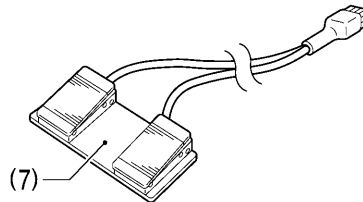
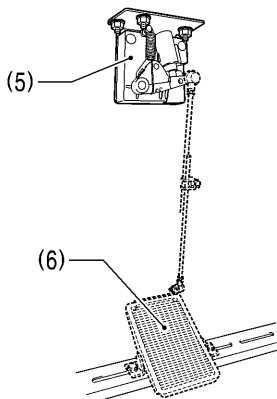
3788M

2. NAMES OF MAJOR PARTS

0335B



The accessory switches shown below to use for starting the sewing machine will vary depending on the destination.



- (1) Power switch
- (2) Control box
- (3) CF slot*
- (4) Operation panel
- (5) Treadle unit
- (6) Treadle (commercially-available)

- (7) 2-pedal foot switch
- (8) Hand start switch
- (9) STOP switch
- (10) Upper shaft pulley
- (11) Feed base
- (12) Cotton stand

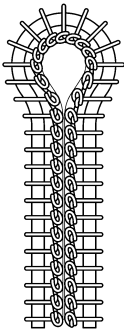
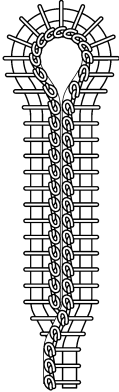
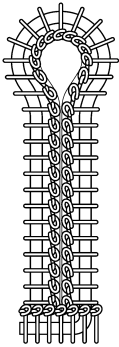
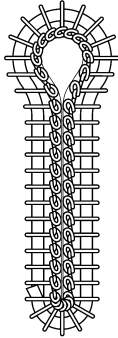
Safety devices:

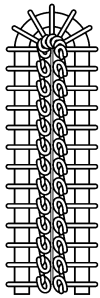
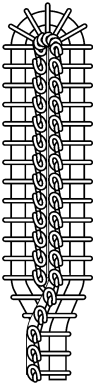
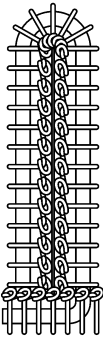
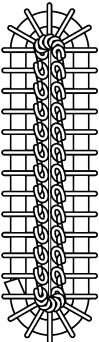
- (13) Finger guard
- (14) Eye guard
- (15) Needle bar guard

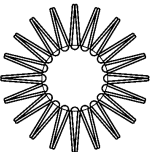
- (16) Needle guide cover
- (17) Belt cover

*: CF™ is a trademark of SanDisk Corporation.

3. SEWING SHAPES

Eyelet buttonhole			
			
Without bartack	Taper bartack	Straight bartack	Round bartack










Straight buttonhole			
			
Without bartack	Taper bartack	Straight bartack	Round bartack

Circular stitch


0536B-0539B
0540B-0543B
0544B

4. INSTALLATION

CAUTION

- | | |
|---|--|
| <ul style="list-style-type: none">  Machine installation should only be carried out by a qualified technician.  Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.  The sewing machine weighs approximately 120 kg. Installation of the sewing machine and adjustment of the table height should be carried out by four or more people.  Do not connect the power cord until installation is complete. If this is not done, the sewing machine may operate if the start switch is pressed by mistake, which could result in serious injury.  Hold the machine head with both hands when tilting it back or returning it to its original position. In addition, do not subject the machine head to extra force while it is tilted back. If this is not observed, the machine head may lose balance and fall over (together with the table), and injury or damage to the sewing machine may result. | <ul style="list-style-type: none">  All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples. If this is not observed, there is the danger that fire or electric shocks could occur.   Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.  Install the safety covers to the machine head and motor. |
|---|--|

4-1. Table processing diagram

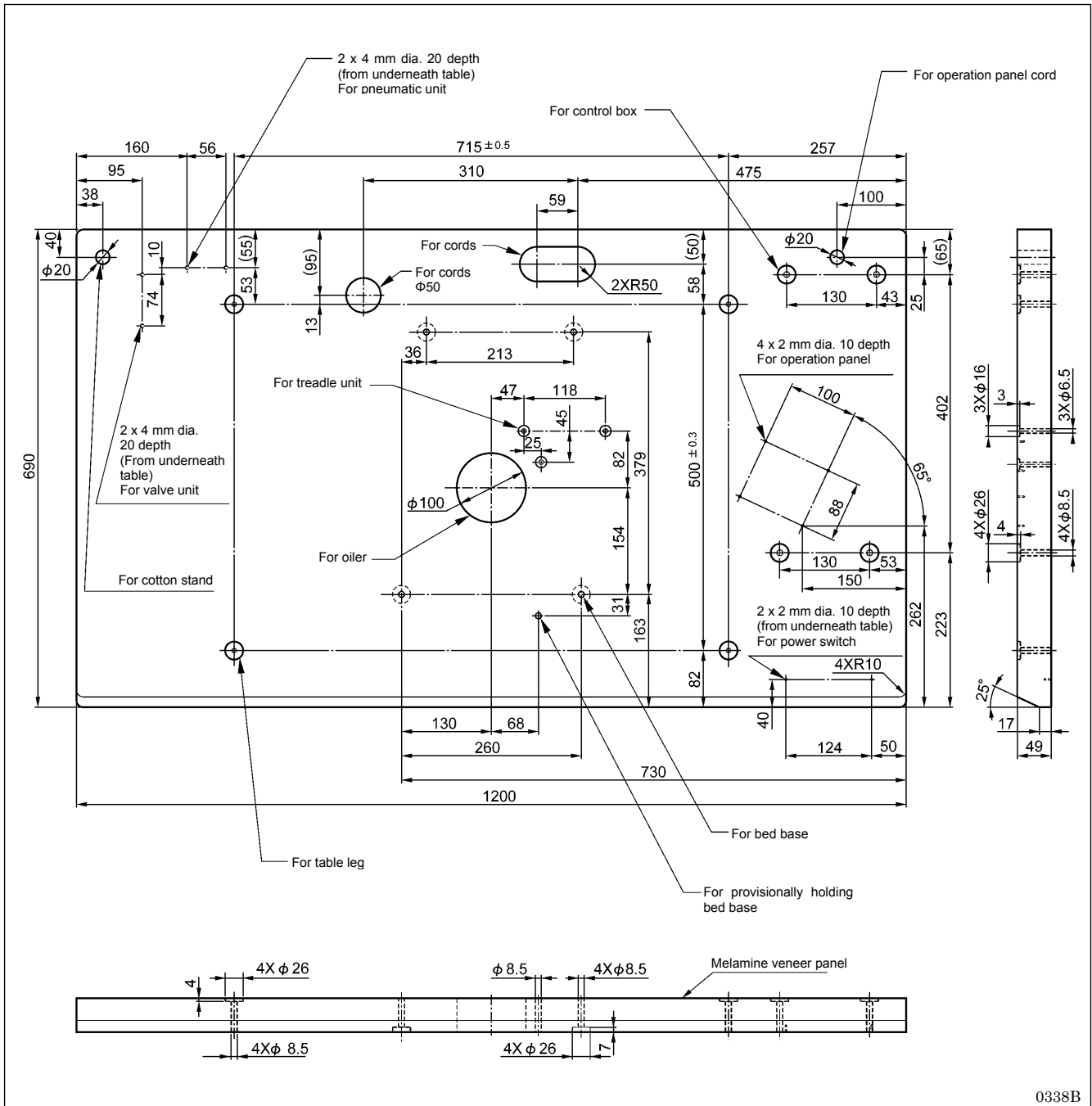
- Use a table with legs which is strong enough to bear the weight of the sewing machine (120 kg) and which can also withstand vibration. Use a table with a top thickness of 49 - 60 mm.

NOTE:

If the thickness of the table exceeds 60 mm, the accessory bolts and the cables coming from the machine head may not be long enough.

- If using casters, use ones which can bear the total weight of sewing machine and table.
- Check that the control box is at least 10 mm away from the leg. If the control box and the leg are too close together, it may result in incorrect sewing machine operation.
- The method of processing the table varies depending on whether the machine head is sitting on the table or embedded into the table. Refer to the processing diagrams for each respective setting-up method and drill the holes as appropriate.

4-1-1. When setting up on top of the table



0338B

4-1-2. When embedding into the table

NOTE:

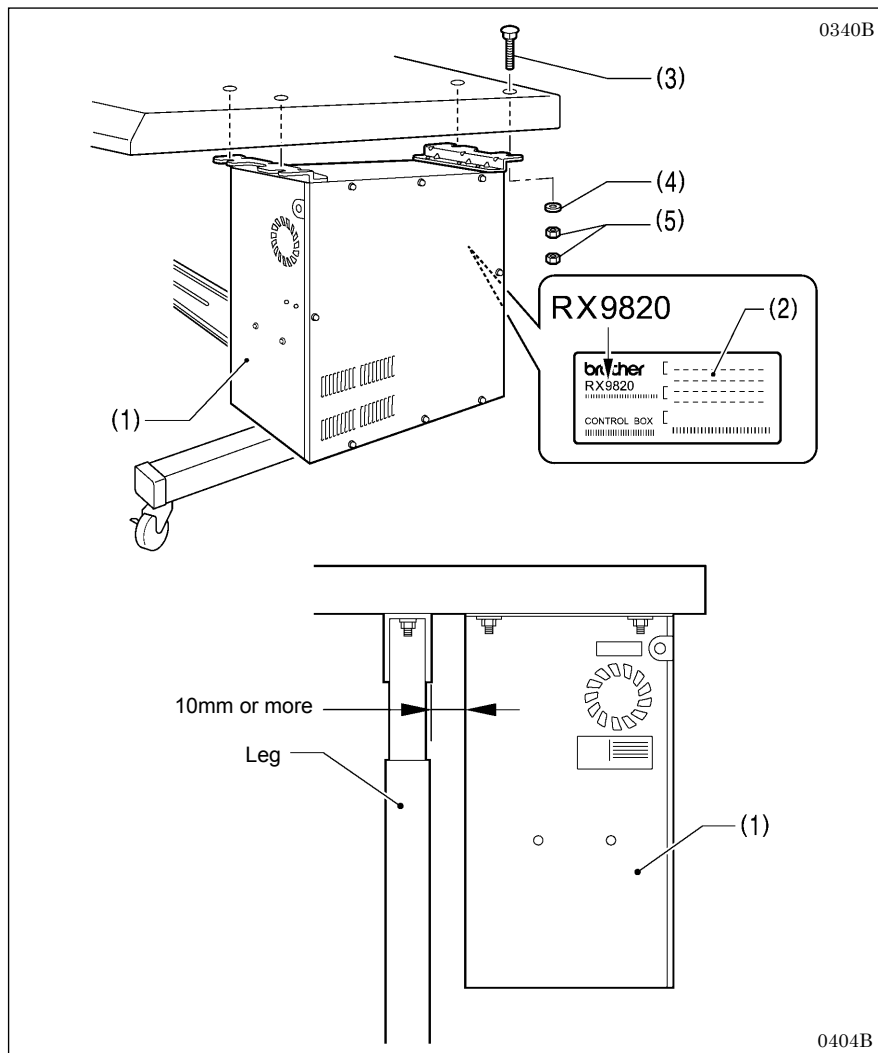
[illegible]

4-2. Installing the control box

CAUTION



Before installing the control box, take steps to make sure that the control box does not fall down. If this is not done, injury to feet or damage to the control box may result.

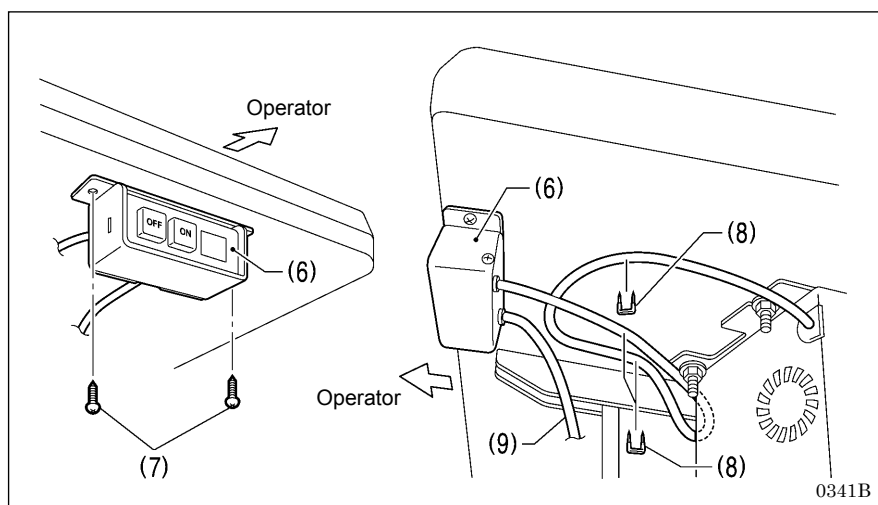


Before installing the control box (1), check that the model plate (2) on the control box (1) is "RX9820" to indicate that it is an RX-control box for RH-9820 sewing machines.

- (1) Control box
- (3) Bolts [4 pcs.]
- (4) Plain washers [4 pcs.]
- (5) Nuts [8 pcs.]

NOTE:

Check that the control box (1) is at least 10 mm away from the leg. If the control box (1) and the leg are too close together, it may result in incorrect sewing machine operation.



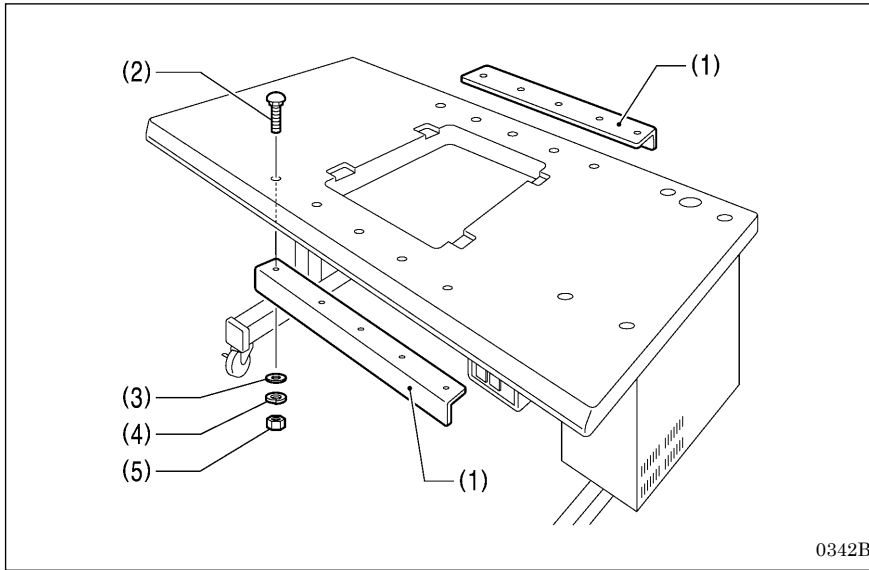
- (6) Power switch
- (7) Screws [2 pcs.]
- (8) Staples [5 pcs.]

* Use the remaining two staples to secure the power cord (9) in a position that matches the position of the wall outlet.

NOTE:

Take care when tapping in the staples (8) to make sure that they do not pierce the power cord (9).

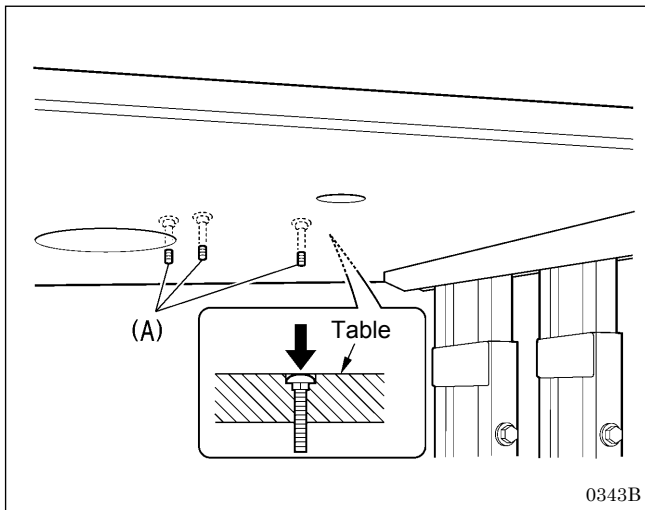
4-3. Installing the table reinforcement plates (embedded installation only)



- (1) L-shaped reinforcement plates [2 pcs.]
- (2) Bolts [10 pcs.]
- (3) Plain washers [10 pcs.]
- (4) Spring washers [10 pcs.]
- (5) Nuts [10 pcs.]

4-4. Installing the machine head

4-4-1. When setting up on top of the table



<Only when using the treadle>

Before installing the machine head, install the three treadle mounting bolts (A) to the table.

* Insert the bolts (A) securely so that their heads do not protrude out from the top of the table.

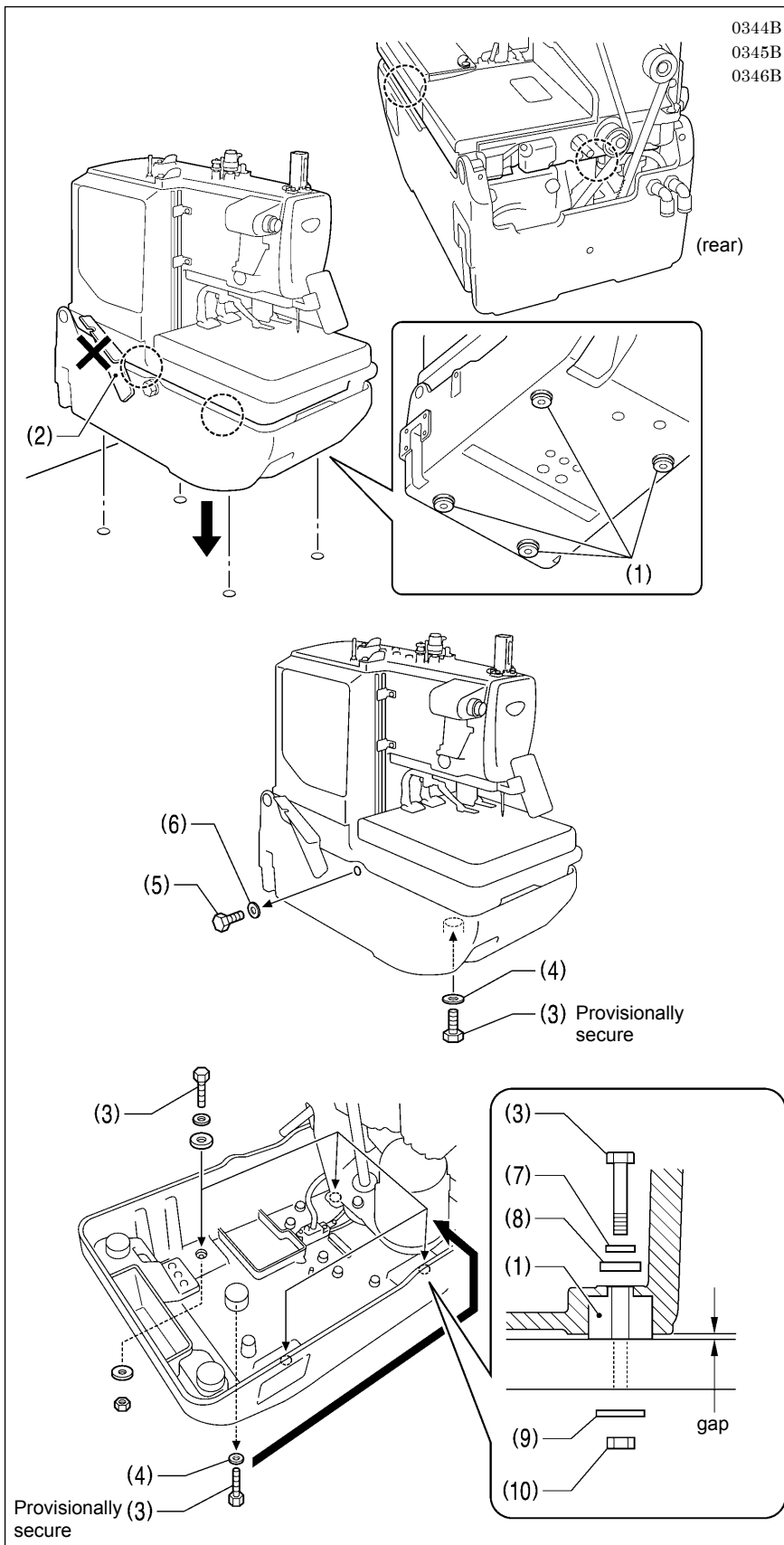
(Refer to "4-12. Installing the treadle unit (when using the treadle)".)

(Continued on next page)

! CAUTION



Always be sure to install the stopper bolt before tilting back the machine head in step 4 below. If this is not done, the machine head will tip over and fall down, and injury or damage to the machine head may result.



1. Check that the four bed base cushions (1) have all been installed to the bottom of the bed base, and then place the machine head onto the table.

NOTE:

- When placing the machine head onto the table, have four or more people hold the machine head by the places indicated by the four ○ locations in the illustration.
- Do not hold by the head support lever (2).

2. Use one of the four bolts (3) and a plain washer (4) to provisionally secure the bed base to the table from underneath the table.
3. After provisionally securing the bed base, remove the fixing bolt (5) and washer (6).
4. Tilt back the machine head, and then install the remaining three of the four bolts (3) to the other three places in the bed base. (Refer to "4-5. Tilting back and returning the machine head" for details on tilting back the machine head.)

(7) Washers [4 pcs.]

(8) Rubber sheets [4 pcs.]

(9) Washers (large) [4 pcs.]

(10) Nuts [4 pcs.]

NOTE:

Do not over tighten the bolts (3) so much that a gap is produced between the table and the bed base.

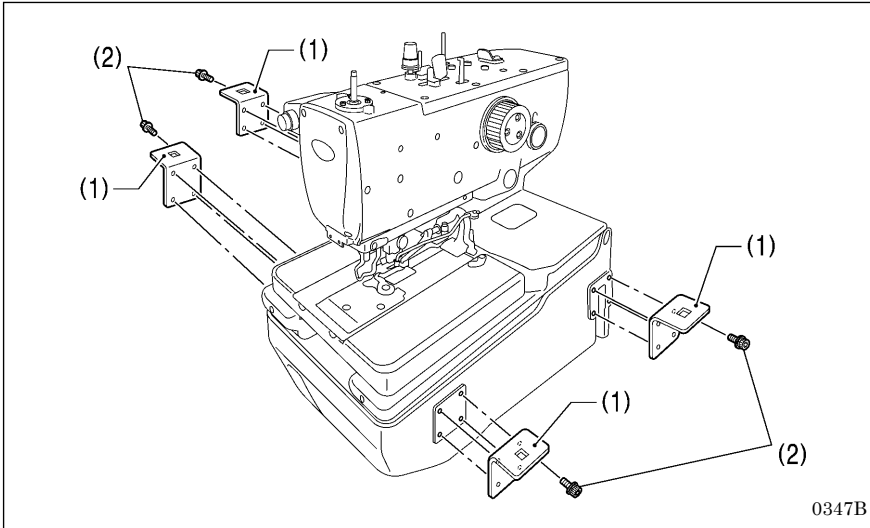
5. Remove the bolt (3) and washer (4) that were used to provisionally secure the bed base, and install them to the one remaining location.

NOTE:

The fixing bolts (5) and washers (6) are needed when moving the machine head, so store them in a safe place.

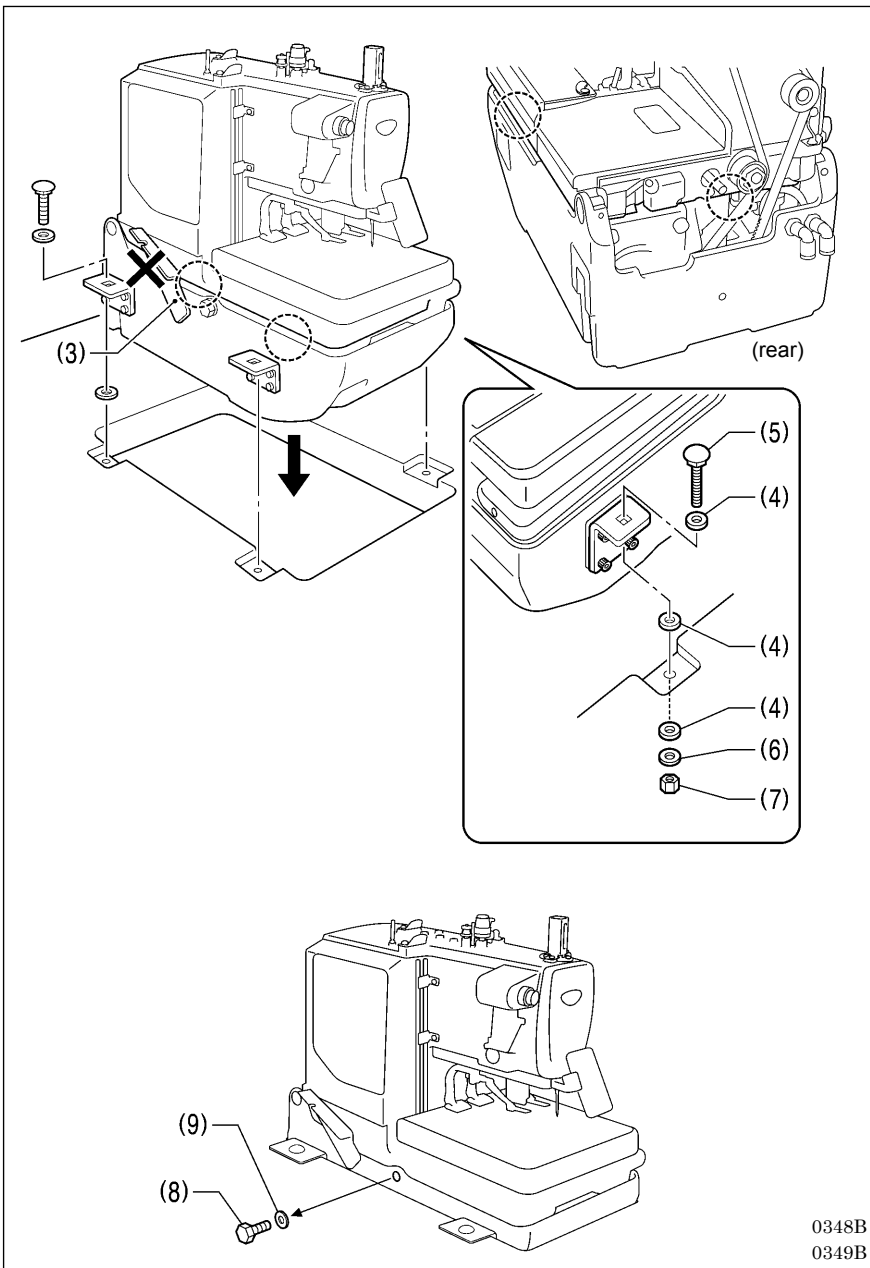
4. INSTALLATION

4-4-2. When embedding into the table



- (1) Bed support plates [4 pcs.]
- (2) Bolts [16 pcs.]

* Install so that they are horizontal to the bed base.



NOTE:

- When placing the machine head onto the table, have four or more people hold the machine head by the places indicated by the ○ locations in the illustration.
- Do not hold by the head support lever (3).

- (4) Rubber sheets [4 pcs.]
- (5) Bolts [4 pcs.]
- (6) Washers (large) [4 pcs.]
- (7) Nuts [4 pcs.]



After installing the machine head, remove the fixing bolts (8) and washers (9).

NOTE:

The fixing bolts (8) and washers (9) are needed when moving the machine head, so store them in a safe place.

4-5. Tilting back and returning the machine head

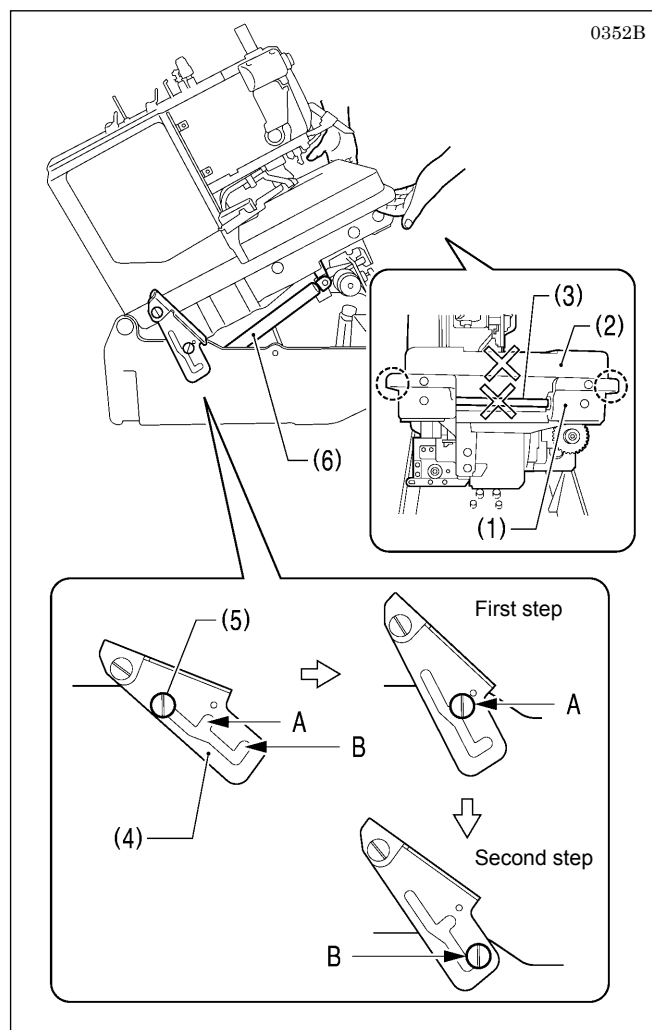
! CAUTION

-  Hold the machine head with both hands when tilting it back or returning it to its original position. In addition, do not subject the machine head to extra force while it is tilted back. If this is not observed, the machine head may lose balance and fall over (together with the table), and injury or damage to the sewing machine may result.
-  Do not hold the feed base (2) and the feed guide shaft (3). If this is not observed and the feed base (2) or feed guide shaft (3) come off, the machine head may fall down and injury or damage to the machine head may result.

The machine head can be tilted back and returned to one of two heights.

NOTE:

Always be sure to turn off the power switch before tilting back and returning the machine head.



Tilting back the sewing machine head

1. Hold the bed (1) at both sides (at the places indicated by ○ in the illustration) with both hands.
2. **To tilt back to the first step:**
Gently lift up the machine head until the head support lever (4) securely engages section A of the hinge support shaft (5) (until a click is heard).
3. **To tilt back to the second step:**
Remove the head support lever (4) from section A of the hinge support shaft (5), and then gently lift up the machine head until the head support lever (4) securely engages section B.

NOTE:

The machine head will be momentarily stopped by the gas spring (6) immediately before it rises to the second step, but it will not be locked at this point. Lift the machine head until the head support lever (4) securely engages section B of the hinge support shaft (5).

! CAUTION



Be sure to check that the head support lever (4) and the hinge support shaft (5) are engaged. If they are not engaged, the machine head may suddenly return to its original position and injury may result.

<Returning the machine head to its original position>

1. To return the machine head from the second step:

After lifting up the machine head, remove the head support lever (4) from section B of the hinge support shaft (5), and then hold the bed at both sides and gently return it to its original position.

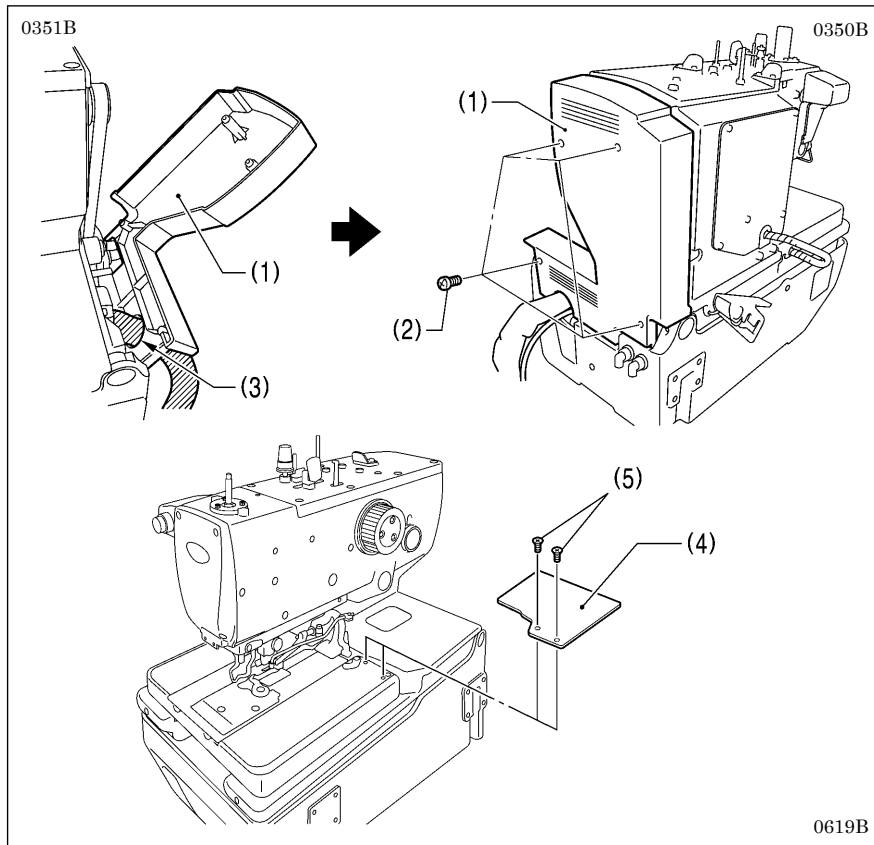
* The machine head will start returning until the gas spring (6) starts to operate, so support the machine head securely with both hands.

* When the machine head is returned to the first step, the head support lever will lock onto section A.

2. To return the machine head from the first step:

After gently lifting up the machine head, remove the head support lever (4) from section A of the hinge support shaft (5), and then hold the bed at both sides and gently return it to its original position.

4-6. Installing the belt cover and feed bar cover U



- (1) Belt cover
- (2) Screws [4 pcs.]
- Before installing the belt cover, pass the cords through the belt cover notch (3).

NOTE:

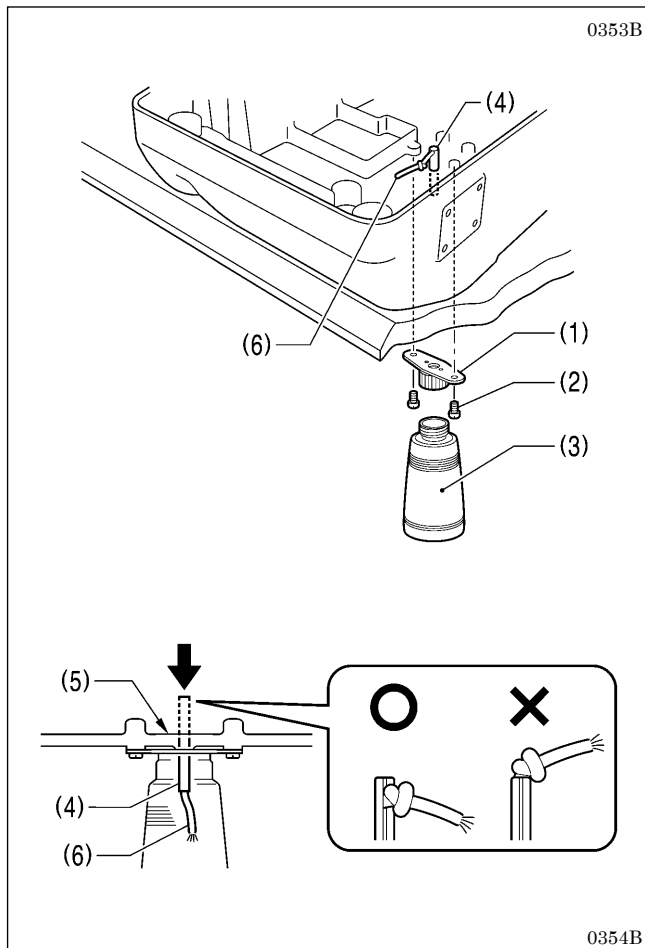
- Be careful not to clamp the cords when installing the belt cover. If care is not taken, the belt cover and cords may become damaged.
- If using the embedded installation method, check that the belt cover (1) does not touch the table when the machine head is tilted back.

- (4) Feed bar cover U
- (5) Screws [2 pcs.]

NOTE:

- If the screws (5) are tightened too much, the feed bar cover U (4) may become cracked.

4-7. Installing the oiler



The oiler should be installed while the machine head is tilted back.
(Refer to "4-5. Tilting back and returning the machine head".)

- (1) Dust oiler support
- (2) Screws [2 pcs.]
- (3) Oiler
- (4) Oiler spring pin

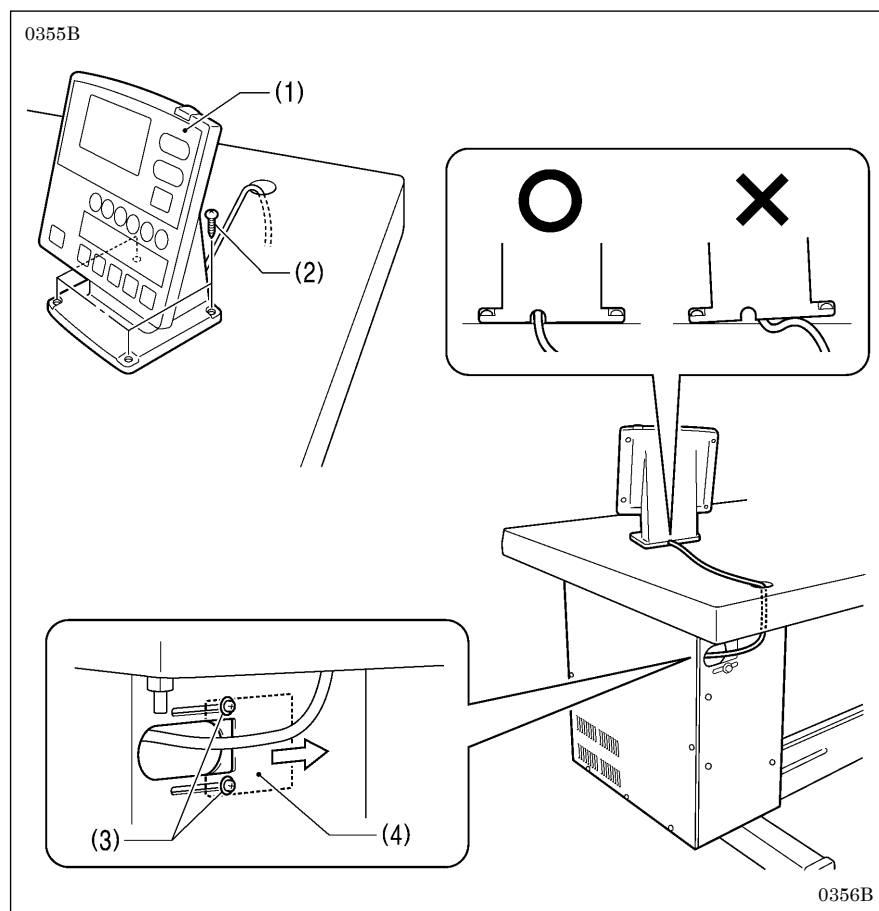
- Use a hammer or similar to tap the pin (4) so that its head is flush with the base of the oil pan (5).

NOTE:

When tapping in the pin (4), check that the knot in the wick (6) is below the top of the pin (4) as shown in the illustration at left. If the knot is above the pin (4), it may become hit by the hammer and this may cause the wick (6) to break.

- Once installation is complete, return the machine head to its original position.

4-8. Installing the operation panel



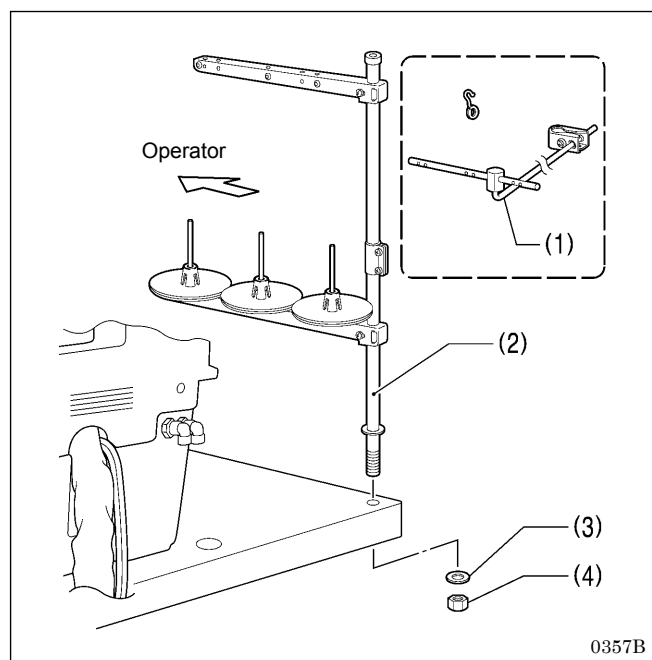
- (1) Operation panel
(2) Screws [4 pcs.]

1. Pass the cord of the operation panel (1) through the table hole.
2. Loosen the two screws (3) at the rear of the control box, open the cord presser plate (4) in the direction of the arrow, and pass the cord through the hole into the box. (Refer to "4-1. Table processing diagram" for details on the installation position for the operation panel.)

NOTE:

Check that the operation panel cord is not being clamped when screwing the operation panel into the table. The cord may become damaged if it is clamped.

4-9. Installing the cotton stand



Install the cotton stand so that it is at the far left of the table when looking from the front of the sewing machine.

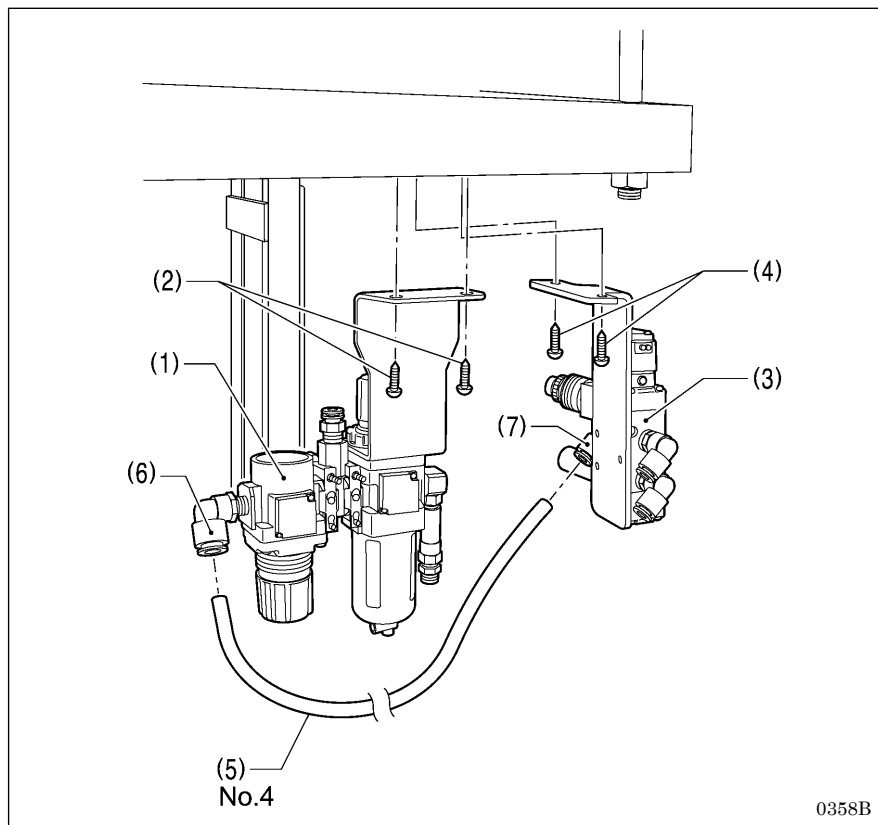
* Do not use the thread guide (1) which is provided as an accessory with the cotton stand.

- (2) Cotton stand
(3) Washer
(4) Nut

NOTE:

- Tighten the nut to secure the cotton stand firmly so that it will not move.
- The cotton stand can also be installed on the far right side of the table, but if this is done, the threading method will change. (Refer to the instruction manual CD "4-5. Threading the thread when the cotton stand is installed on the right side".)

4-10. Installing the air unit and valve unit



Install to the underside of the table.
(Refer to "4-1. Table processing diagram" for the installation positions.)

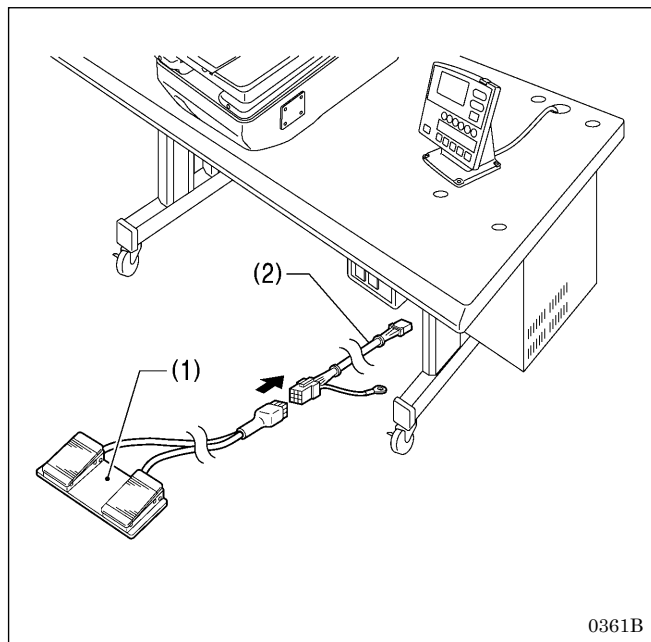
- (1) Air unit
- (2) Screws [2 pcs.]
- (3) Valve unit
- (4) Screws [2 pcs.]
- (5) Air tube No. 4

Insert air tube No. 4 (5) into the joint (6) and the joint (7).

NOTE:

- Install the air unit (1) so that it does not touch the table leg.
- Be careful to avoid injury from items such as sewing machine parts and the corners of table drawers during installation.

4-11. Installing the 2-pedal foot switch (when using the 2-pedal foot switch)

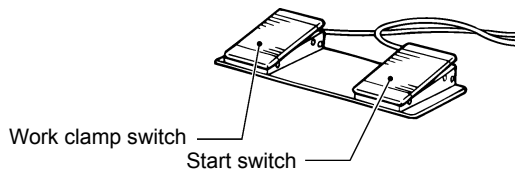


- (1) 2-pedal foot switch
- (2) Foot switch conversion harness

Pass the connector of the foot switch conversion harness (2) into the control box through the hole in the rear of the control box. (Refer to "4-8. Installing the operation panel".)

<2-pedal foot switch operation method>

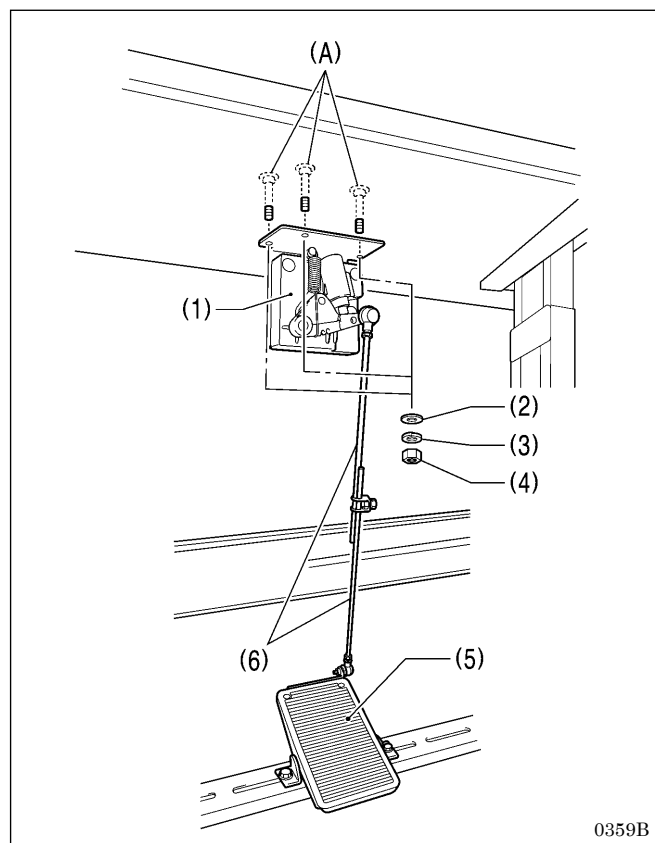
When the work clamp switch (left side) is depressed, the work clamp will be lowered, and when the start switch (right side) is depressed, the sewing machine will start.



4923Q

4-12. Installing the treadle unit (when using the treadle)

4-12-1. When setting up on top of the table



NOTE:

Before installing the machine head, install the three treadle unit mounting bolts (A) to the table. (Refer to "4-4-1. When setting up on top of the table".)

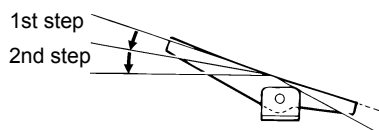
- (1) Treadle unit
- (2) Plain washers [3 pcs.]
- (3) Spring washers [3 pcs.]
- (4) Nuts [3 pcs.]

Pass the connector of the treadle unit (1) into the control box through the hole in the rear of the control box. (Refer to "4-8. Installing the operation panel".)

- * Use a commercially-available treadle (5) and connecting rod (6).

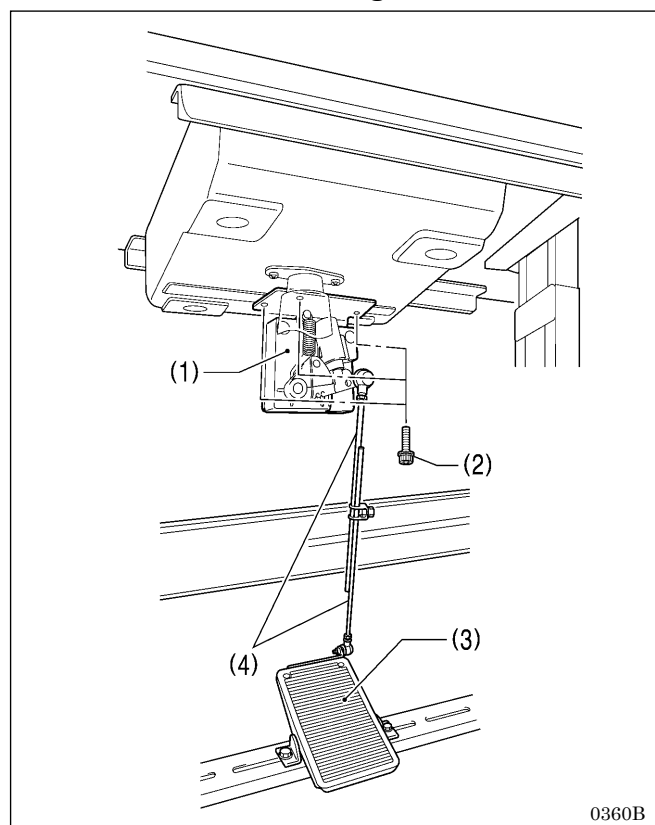
<Treadle operation method>

When the treadle (5) is depressed to the 1st step, the work clamp will be lowered, and when it is depressed to the 2nd step, the sewing machine will start.



4441Q

4-12-2. When embedding into the table



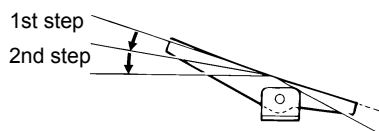
- (1) Treadle unit
- (2) Screws [3 pcs.]

Pass the connector of the treadle unit (1) into the control box through the hole in the rear of the control box. (Refer to "4-8. Installing the operation panel".)

- * Use a commercially-available treadle (3) and connecting rod (4).

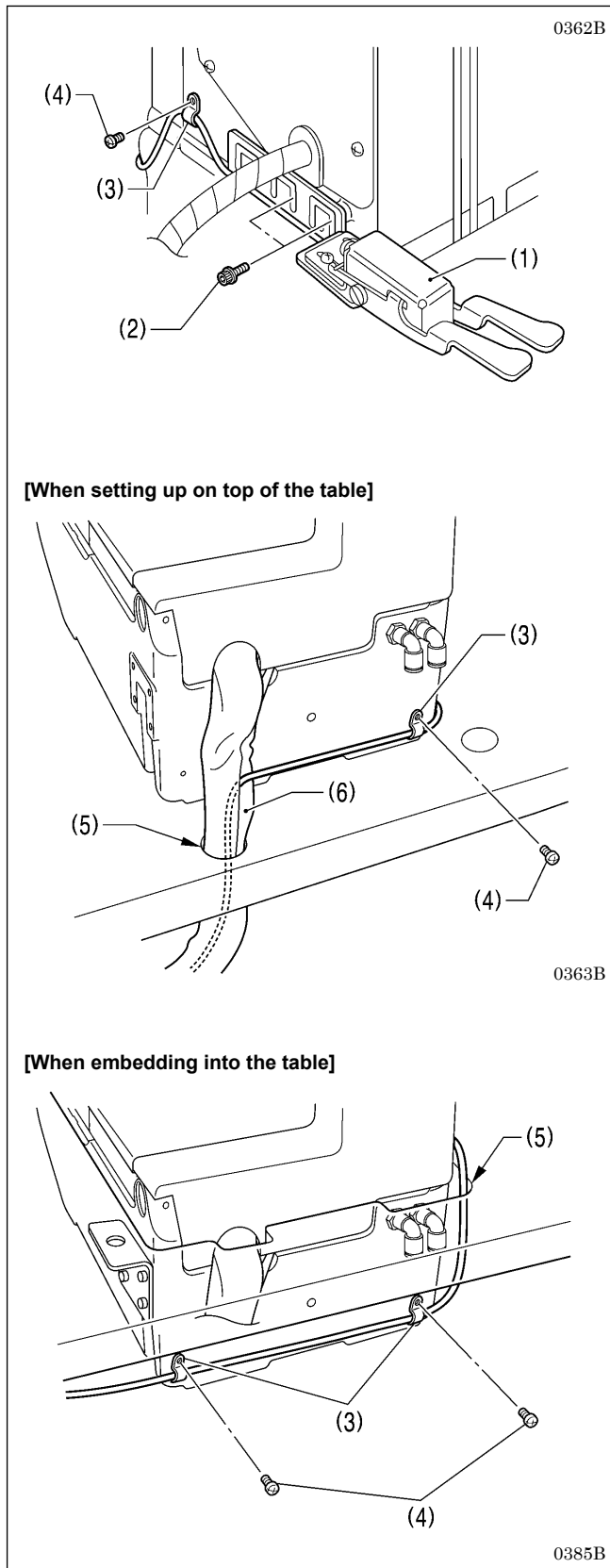
<Treadle operation method>

When the treadle (3) is depressed to the 1st step, the work clamp will be lowered, and when it is depressed to the 2nd step, the sewing machine will start.



4441Q

4-13. Installing the hand start switch (when using the hand start switch)



- (1) Hand start switch
- (2) Screws [2 pcs.]
- (3) Cord holders [3 pcs.]
- (4) Screws [3 pcs.]

* When setting up on top of the table, use only two of the cord holders (3) and screws (4).

Pass the cord of the hand start switch (1) through the table hole (5), and pass the connector into the control box through the hole in the rear of the control box. (Refer to "4-8. Installing the operation panel".)

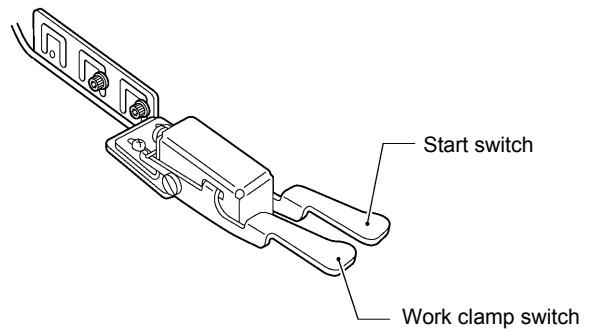
[When setting up on top of the table]

Insert the cord into the quick tube (6), and then pass it through the table hole (5).

* This is to prevent damage from the cord rubbing against the table hole (5) when the machine head is tilted back and returned.

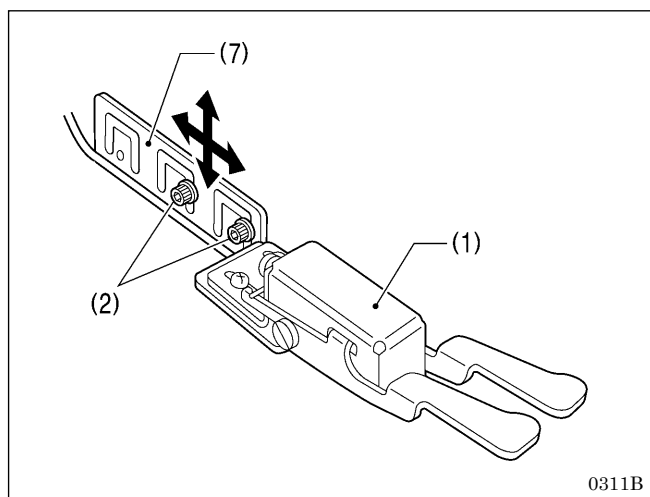
<Hand start switch operation method>

When the work clamp switch (left side) is depressed, the work clamp will be lowered, and when the start switch (right side) is depressed, the sewing machine will start.



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(Continued on next page)

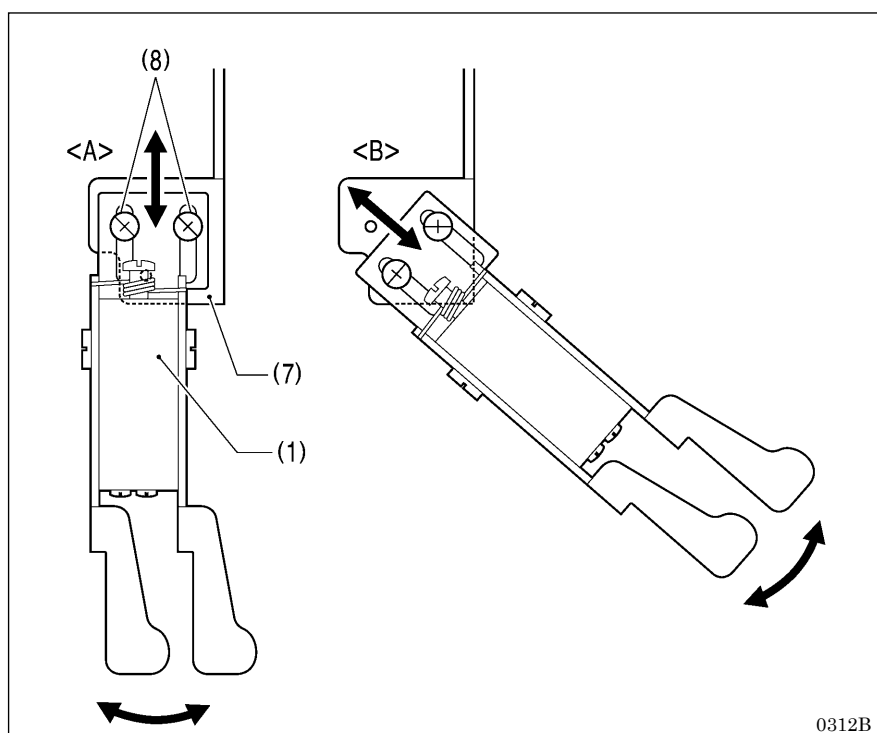


<Adjusting the hand start switch position>

Adjust the position of the hand start switch (1) as follows so that it is in an easy-to-use position.

[Forward/back and vertical position]

1. Loosen the two screws (2), and then move the hand start switch mounting plate (7) forward, back, up or down to adjust its position.
2. Once adjustment is complete, securely tighten the screws (2).

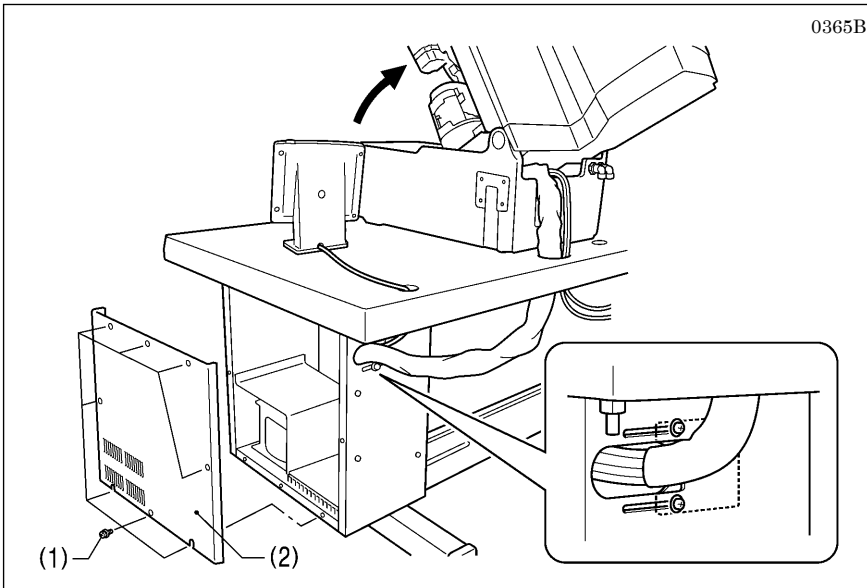


[Forward/back and sideways position]

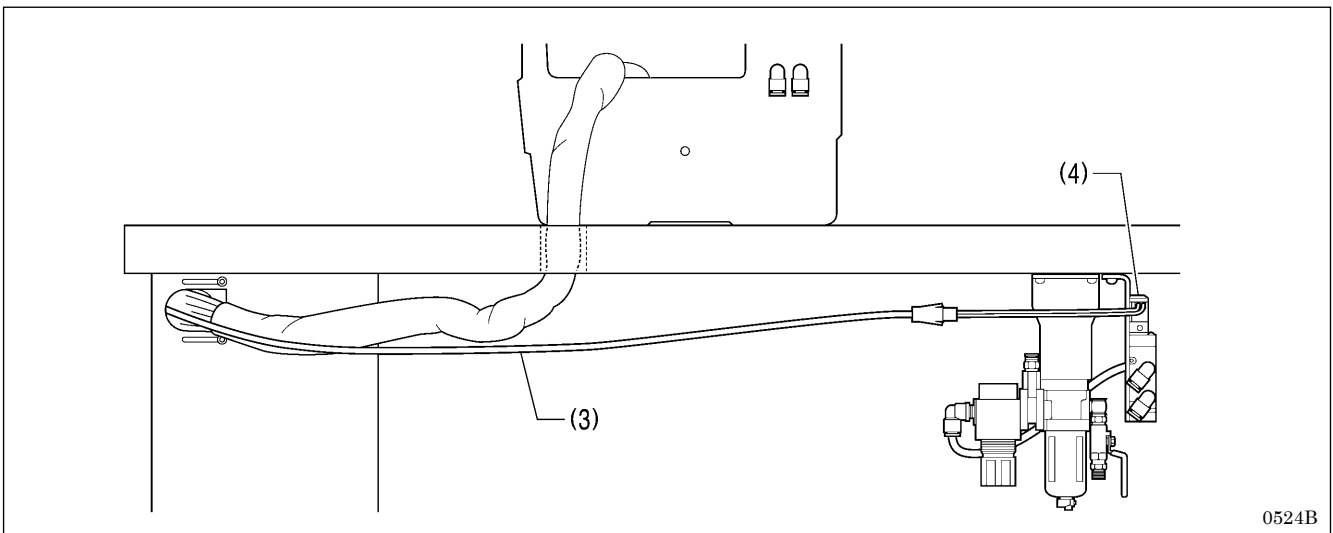
- The hand start switch mounting plate (7) has three screw holes in it. You can select the installation position from either <A> or shown in the illustration by changing the screw holes used by the screws (8).
- In addition, when the screws (8) are loosened, the hand start switch (1) can be moved forward, back and sideways to adjust its position. Once adjustment is complete, securely tighten the screws (8).

4-14. Connecting the cords

4-14-1. Connecting the connectors inside the control box



1. Remove the eight screws (1), and then remove the control box cover (2).
2. Gently tilt back the machine head.
3. Pass the cord bundle through the table hole, and then pass it into the control box through the hole in the rear of the control box.



4. Pass the hammer valve harness (3) into the control box through the hole in the rear of the control box.

(4) Hammer valve

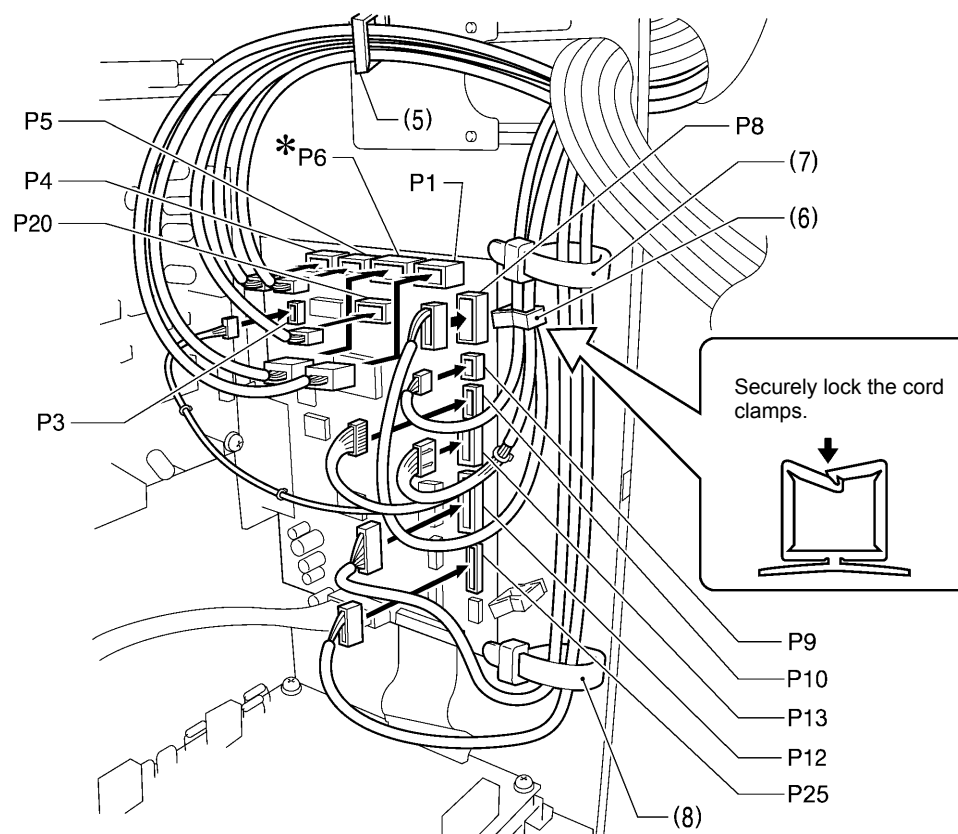
5. Insert each of the connectors as shown in the illustration and table on pages 19 and 20.

NOTE:

- Check that the connectors are facing the correct way, and then insert them firmly until they lock into place.
- Secure the cables with fastening bands and cord clamps, while being careful not to pull on the connectors.

(Continued on next page)

<Main P.C. board>



* <If using the 2-pedal foot switch>

Be sure to make the ground connection. (Refer to "4-14-2. Connecting the ground wire".)

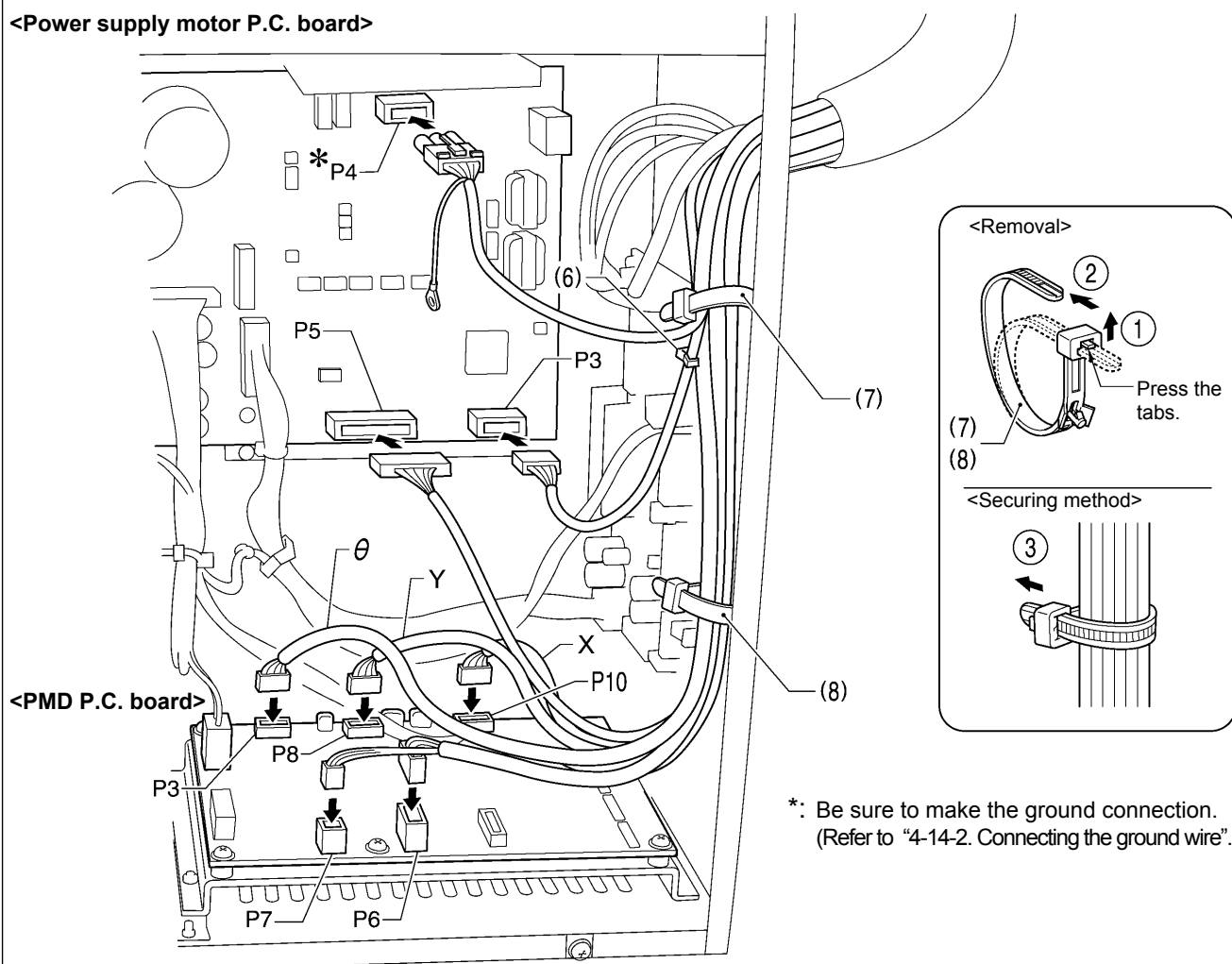
Connectors	At main P.C. board Insertion location	Cord clamp
X pulse motor encoder 5-pin white	P20 (X-ENC)	(5)
Y pulse motor encoder 5-pin blue	P4 (Y-ENC)	(5)
θ-feed motor encoder 5-pin black	P5 (P-ENC)	(5)
Treadle, 2-pedal foot switch, hand start switch 10-pin	P6 (FOOT)	(5)
Operation panel 8-pin	P1 (PANEL)	(5)
Hammer position sensor	P3 (CUTTER)	(6)
Machine head safety switch 3-pin	P9 (HEAD-SW)	(6)
(Y home position, cooling fan) sensor 12-pin	P8 (SENSOR1)	(6)
STOP switch 6-pin	P13 (HEAD)	(6)
(Zigzag check, low thread trimming OFF) sensor 6-pin	P10 (SENSOR2)	(6)
Valve harness 12-pin	P12 (AIR1)	(7), (8)
Hammer valve harness 10-pin	P25 (AIR2)	(7), (8)

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(Continued on next page)

4. INSTALLATION

<Power supply motor P.C. board>



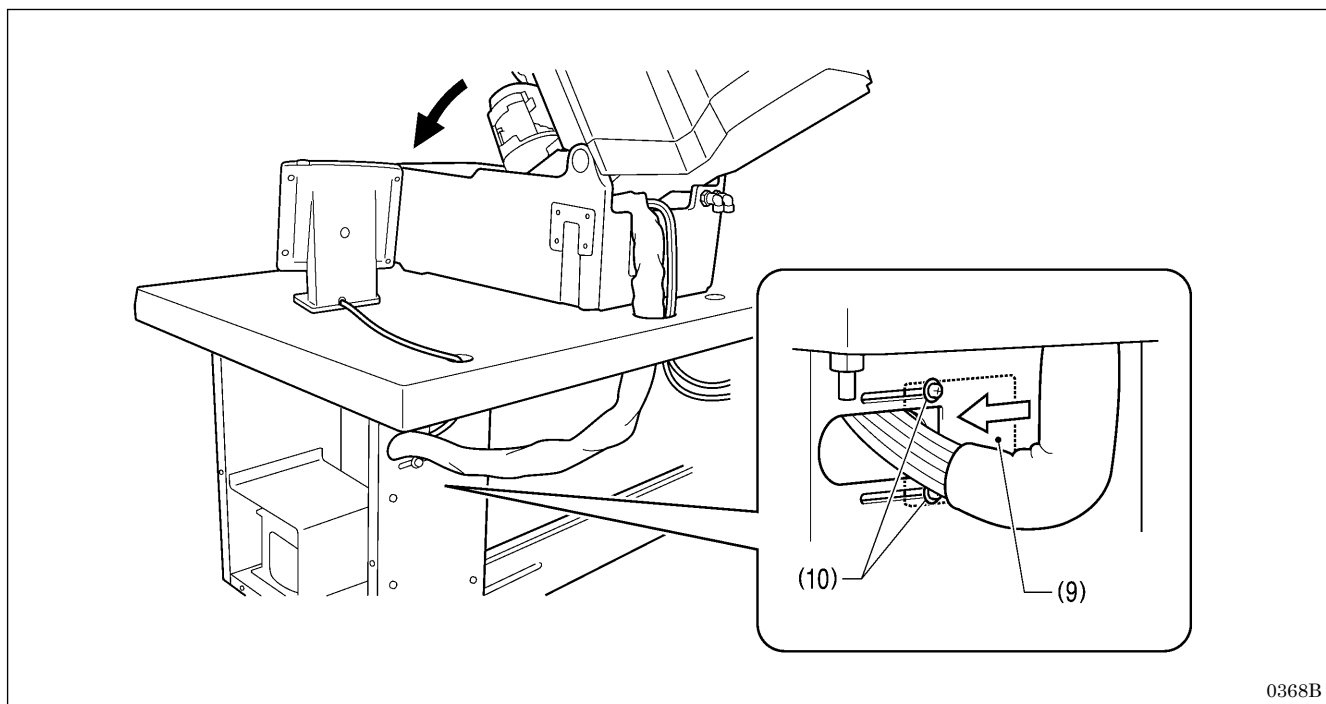
Connectors	At power supply motor P.C. board Insertion location	Cord clamp
Machine head memory 7-pin	P3 (HEAD-M)	(6)
Upper shaft motor 3-pin	P4 (UVW)	(7)
Synchronizer 14-pin	P5 (SYNC)	(7), (8)
Connectors	At PMD P.C. board Insertion location	Cord clamp
θ -feed motor 4-pin black	P3 (PPM)	(7), (8)
(Gimp clamp, lower tension release) solenoid 6-pin	P6 (SOL1)	(7), (8)
Upper tension release solenoid 4-pin	P7 (SOL2)	(7), (8)
Y-feed motor 4-pin blue	P8 (YPM)	(7), (8)
X-feed motor 4-pin white	P10 (XPM)	(7), (8)

NOTE:

Route the X-feed, Y-feed and θ -feed motor harnesses so that they do not touch the PMD P.C. board.

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(Continued on next page)



6. Close the cord presser plate (9) in the direction of the arrow, and secure it by tightening the two screws (10).

NOTE:

- Make some slack in the cords outside the control box so that the cords do not get pulled too tightly inside the control box.
- Securely close the cord presser plate (9). If dust gets inside the control box, it may cause problems with operation.

7. Check that the cords do not get pulled, and then gently return the machine head to its original position.

4. INSTALLATION

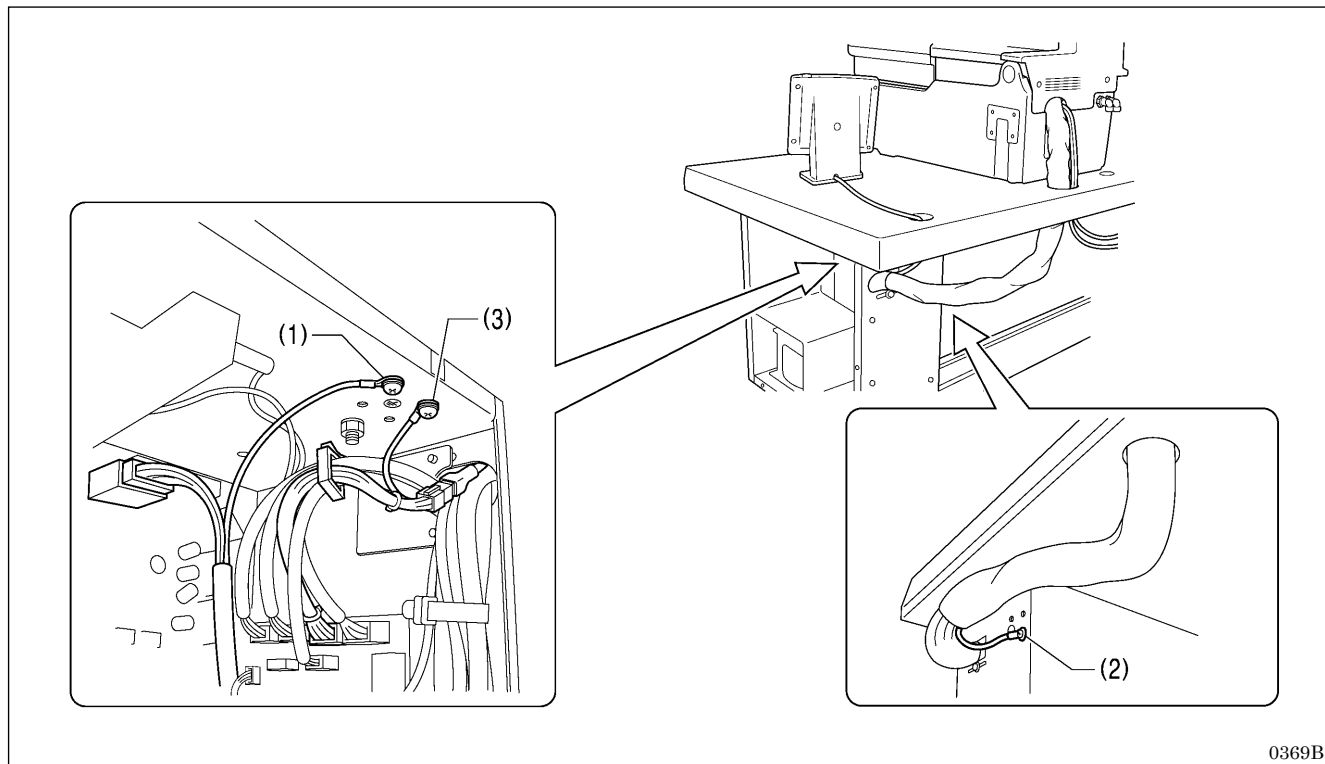
4-14-2. Connecting the ground wire

CAUTION



Be sure to connect the ground.

If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.



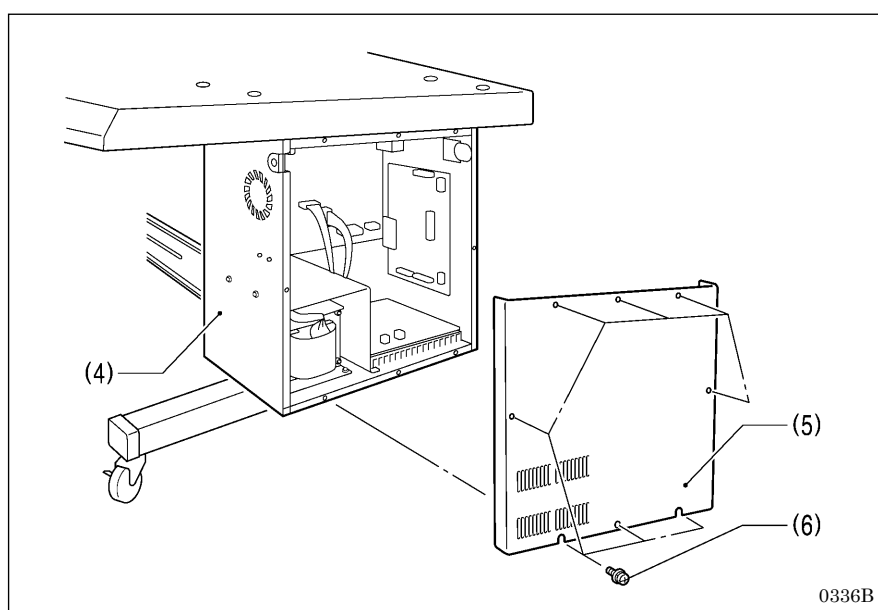
(1) Ground wire from upper shaft motor harness

(2) Ground wire from the machine head

(3) Ground wire from foot switch conversion harness of 2-pedal foot switch (when using 2-pedal foot switch)

NOTE:

Make sure that the ground connections are secure in order to ensure safety.

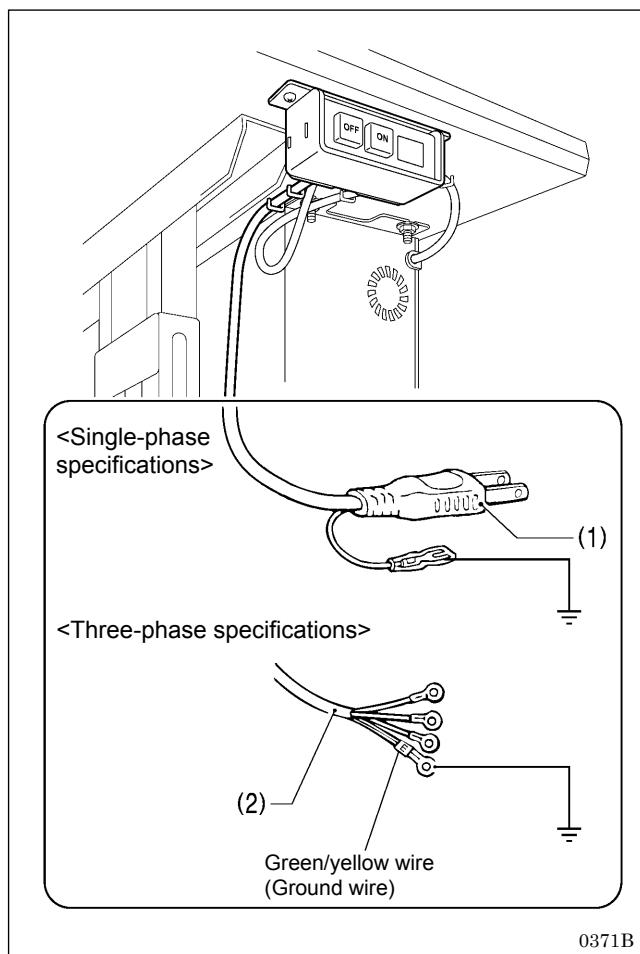


Secure the cover (5) of the control box (4) by tightening the eight screws (6). Check that the cords are not clamped by the cover at this time.

<For European destinations>

For European destinations, there are other ground wire connection locations in addition to those mentioned above. Refer to the CE instruction manual for further details.

4-14-3. Connecting the power cord



<For single-phase specifications>

Insert the power cord plug (1) into a wall outlet.

<For three-phase specifications>

1. Attach an appropriate plug to the power cord (2). (The green and yellow wire is the ground wire.)
2. Insert the power plug into a properly-grounded AC power supply.

* The inside of the control box uses single-phase power.

NOTE:

Do not use extension cords. They may cause problems with correct operation of the sewing machine.

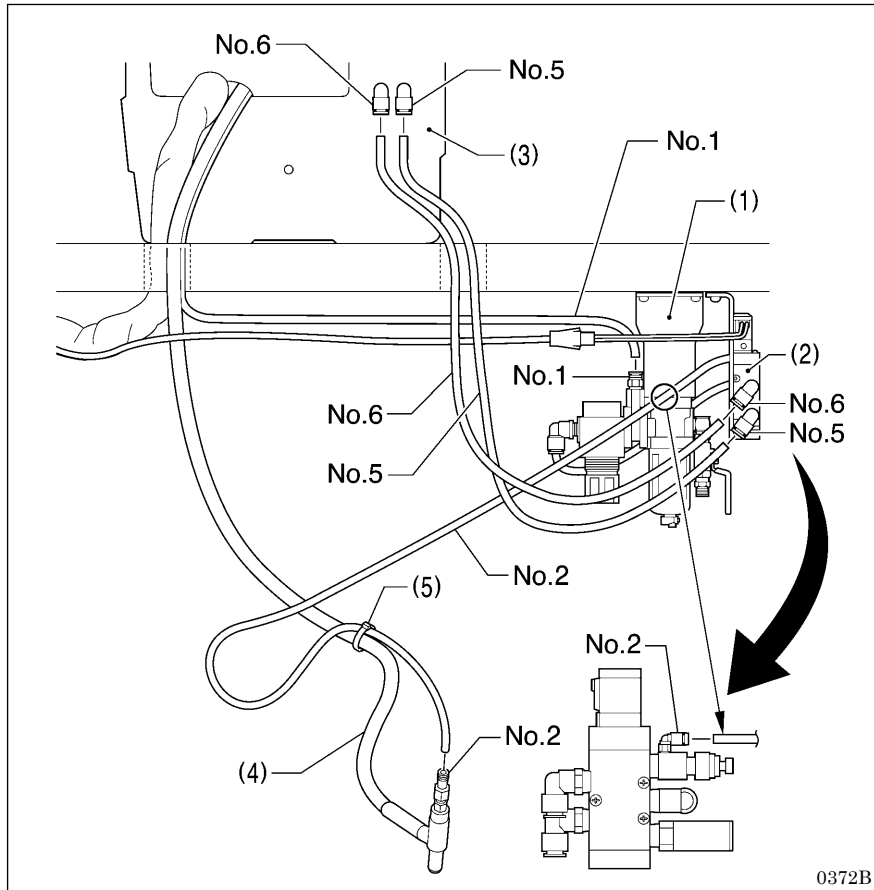
4. INSTALLATION

4-14-4. Connecting the air tubes

CAUTION

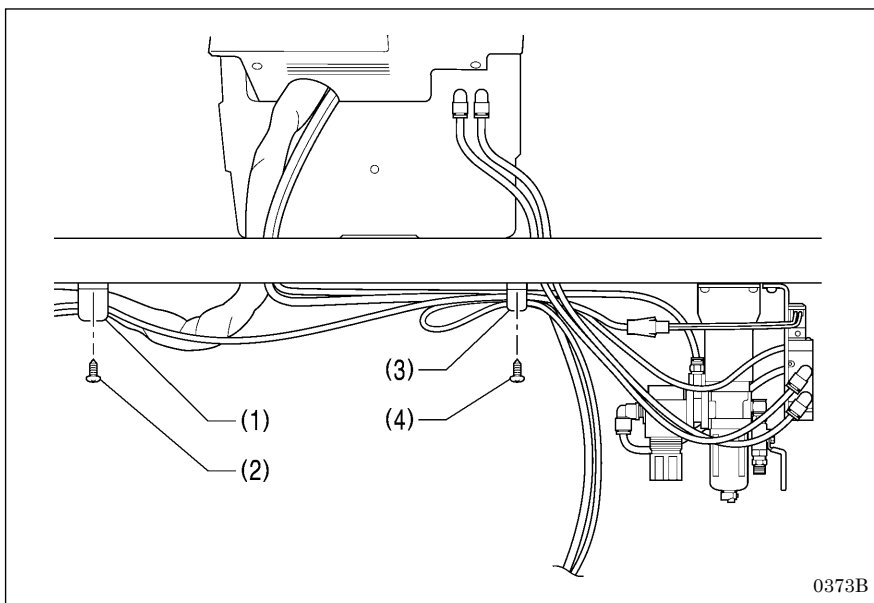


Do not switch the insertion locations for air tube No. 5 and No. 6 by mistake. If they are not connected correctly, the hammer may be lowered when the power is turned on or when the air cock is opened, and serious injury may result.



1. Insert air tube No. 1 coming from the machine head into the nipple for the air unit assembly (1). (The numbers appear on the air tubes coming from the sewing machine.)
2. Insert accessory air tube No. 5 and No. 6 into the nipples of the solenoid valve assembly (2) and bed base (3). (When setting up the machine head on top of the table, pass the air tubes through the table hole.)
3. Insert accessory air tube No. 2 into the nipples of the solenoid valve assembly (2) and venturi tube (4).
4. Bind the air tubes together using fastening bands (5).

4-14-5. Securing the cords



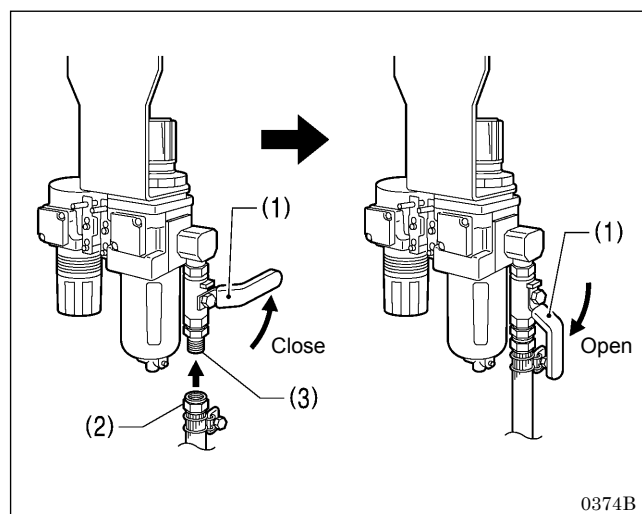
NOTE:

Secure the cords while leaving enough slack in them so that they do not get pulled when the machine head is tilted back.

1. Pass the cord bundle and the hammer valve harness through the accessory cord holder (large) (1), and secure the cord holder (large) (1) to the underside of the table with the screw (2).
2. Pass the air tubes and the valve cords through the accessory cord holder (small) (3), and secure the cord holder (small) (3) to the underside of the table with the screw (4).

4-15. Installing the air hose

Connect the air hose coming from the compressor to the air unit which is installed underneath the table.



1. Close the cock (1).
2. Turn the nut (2) at the end of the air hose and connect it to the valve (3).
3. Open the cock at the compressor.
* Check that no air is leaking from the valve connection.
4. Open the cock (1).
(The meter pointer will turn clockwise.)
5. Adjust the air pressure.

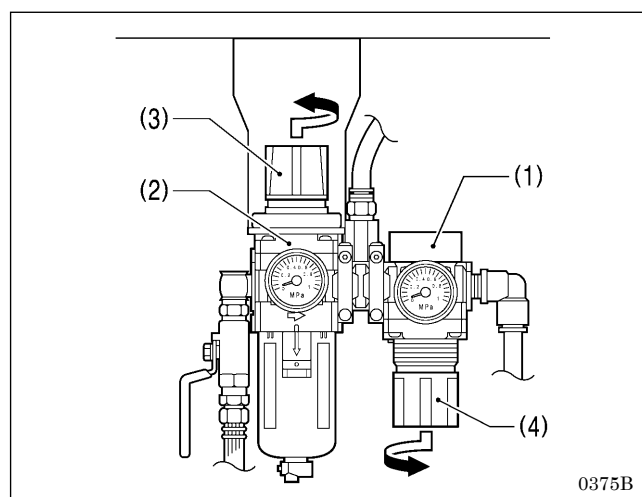
NOTE:

Turn the cock (1) gently to open it. If this is not done, the air cylinder may operate too suddenly.

4-16. Adjusting the air pressure

Adjust the hammer pressure adjustment regulator (1) to the minimum pressure setting which will allow cutting of the article being sewn.

To set to the standard pressure, adjust the main regulator (2) to 0.5 MPa.

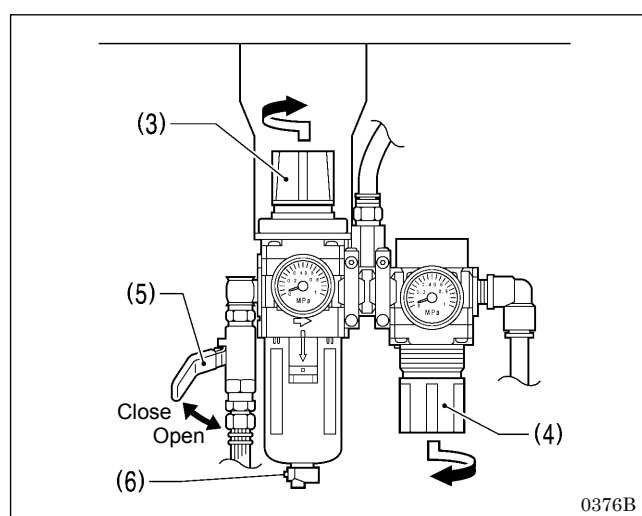


<Increasing the air pressure>

1. Lift up the knob (3) of the main regulator (2) and turn it gently to adjust the pressure.
* When the knob (3) is turned in the direction of the arrow, the air pressure will increase.
2. Pull down the knob (4) of the hammer pressure adjustment regulator (1) and turn it gently to adjust the pressure.
* When the knob (4) is turned in the direction of the arrow, the air pressure will increase.

NOTE:

The hammer pressure adjustment regulator (1) is already adjusted to a pressure of 0.4 MPa. Do not increase the pressure if it is not necessary to do so. If the pressure is too high, the sharpness of the knife will deteriorate and the knife may become damaged.



<Decreasing the air pressure>

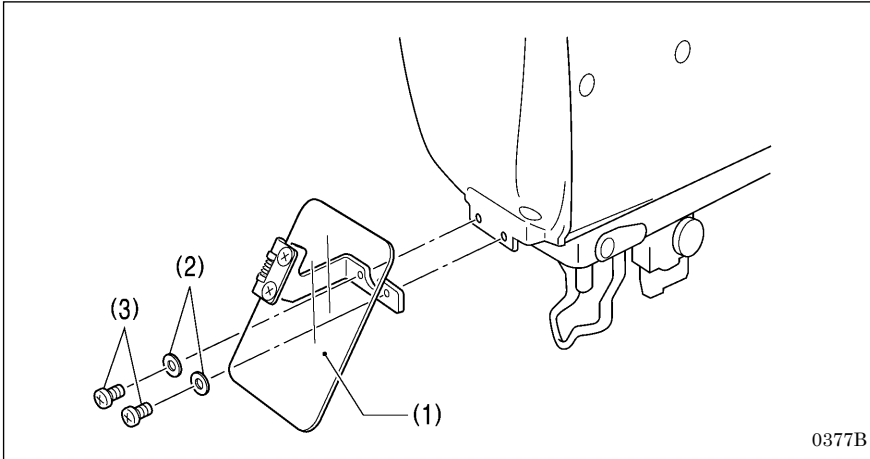
1. Close the air cock (5). (The pointer will stay at the high position on the scale.)
2. Press the button (6).
The air pressure inside the bowl will be released and the pointer will move down.
3. To decrease the air pressure, lift up the knob (3) or pull down the knob (4) and turn it in the direction of the arrow.
4. Open the cock (5).
Air will enter the bowl and the pointer will move.
5. Repeat steps 1 to 4 until the desired air pressure is obtained.

4-17. Installing the eye guard

! CAUTION

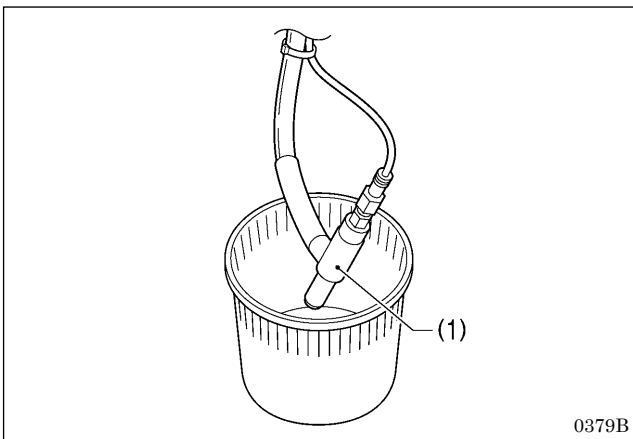


Attach all safety devices before using the sewing machine.
If the machine is used without these devices attached, injury may result.



- (1) Eye guard assembly
- (2) Plain washers [2 pcs.]
- (3) Screws [2 pcs.]

4-18. Setting the scrap holder for the knife



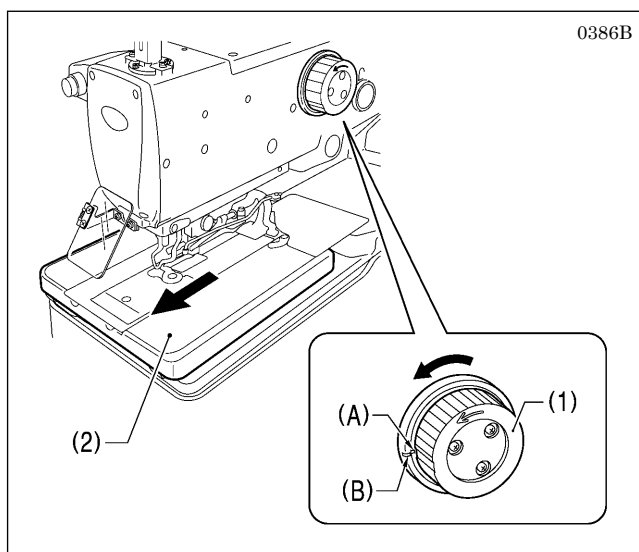
Scraps that have been cut by the knife will come out of the venturi tube (1), so place the venturi tube (1) into a trash can or similar to catch the scraps.

NOTE:

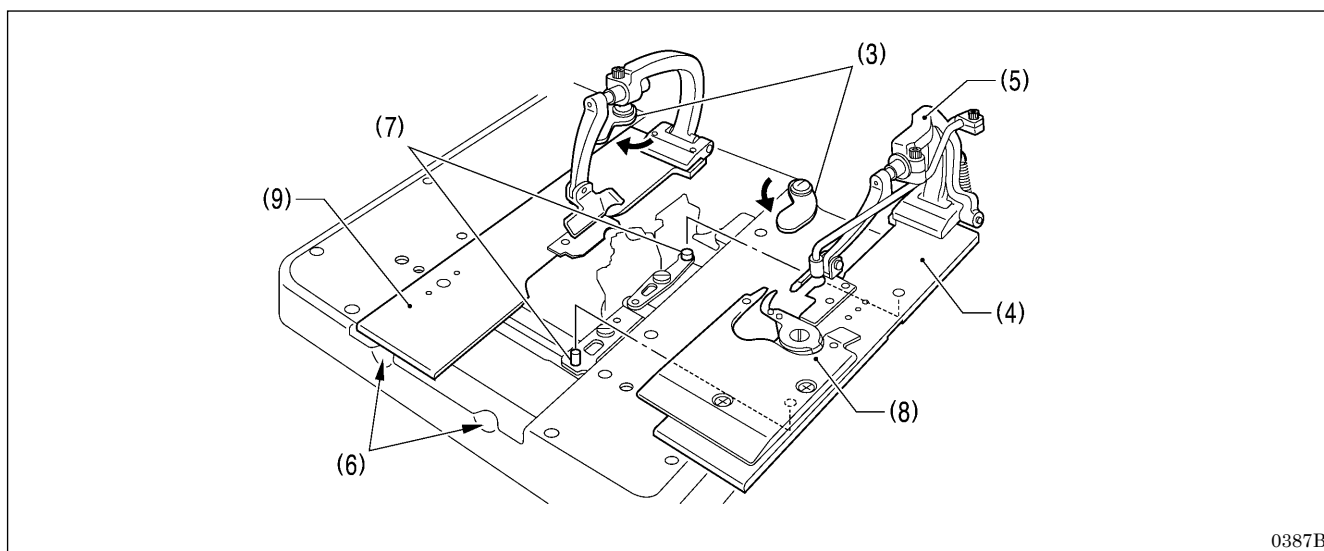
Do not cover the outlet of the venturi tube (1).
If the outlet is covered, it will not be possible for the scraps cut by the knife to be recovered, and the scraps will collect inside the knife base.

4-19. Installing and removing the work clamp plates

<Removal>



1. Turn the upper shaft pulley (1) forward to align the mating mark (A) on the pulley with the notch (B) in the machine head.
* The needle will be set to the needle up stop position.
2. Move the feed base (2) forward.



3. Push the left and right plate pressers (3) in the directions of the arrows (toward the outside).
4. While holding the clamp lever (5), insert a finger into the notch (6) and push up the right work clamp plate (4) to remove it from the pin (7).
5. Pull the right work clamp plate (4) forward to remove it.

NOTE:

Move the feed base (2) to a position where the work clamp plate JU (8) can be removed without touching the needle, and then lift up the right work clamp plate (4) and remove it.

6. Remove the left work clamp plate (9) in the same way as for the right work clamp plate (4).

<Installation>

Install by carrying out the "Removal" procedure given above in reverse.

4-20. Lubrication

⚠ CAUTION



Turn off the power switch before carrying out this operation.

If this is not done, the machine may operate if the start switch is pressed by mistake, which could result in serious injury.



Be sure to wear protective goggles and gloves when handling the lubricating oil, so that it does not get into your eyes or onto your skin. If care is not taken, inflammation can result.

Furthermore, do not drink the lubricating oil. Diarrhea or vomiting may result.

Keep the oil out of the reach of children.

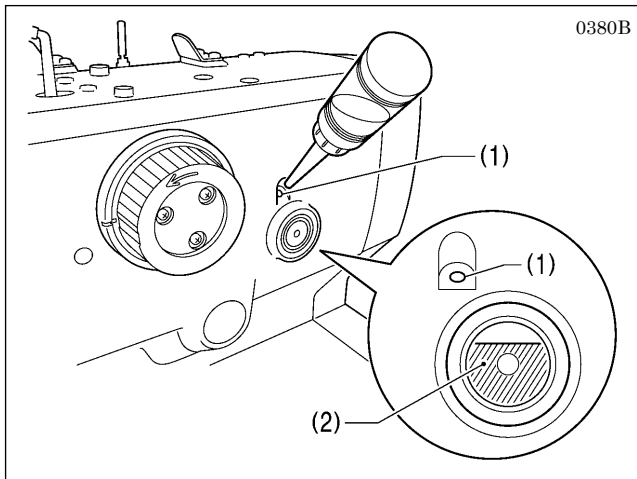
NOTE:

Use only the Nisseki Mitsubishi Sewing Lube 10N, VG10 lubricating oil specified by Brother.

* If this type of lubricating oil is difficult to obtain, the recommended oil to use is Exxon Mobil Essotex SM10, VG10.

4-20-1. Adding oil

The sewing machine should always be lubricated and the oil supply replenished before it is used for the first time, and also after long periods of non-use.

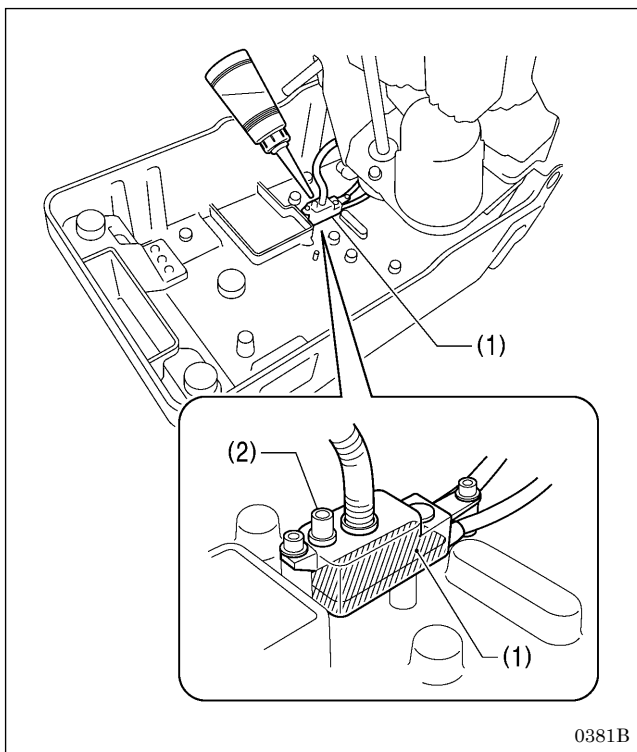


<Filling the arm oil tank>

Pour lubricating oil in through the lubricating hole (1) in the arm oil tank. Use the oil gauge window (2) to check the oil amount, and pour in the oil until the oil gauge window (2) is about 8/10ths covered.

NOTE:

- If the oil level in the oil gauge window drops to cover about 1/3rd of the window, be sure to add more lubricating oil. If this is not done, problems such as seizing may occur.
- Be careful not to add too much lubricating oil. If too much lubricating oil is added, it may overflow inside the sewing machine.



<Adding oil to the bed oil tank (sub tank)>

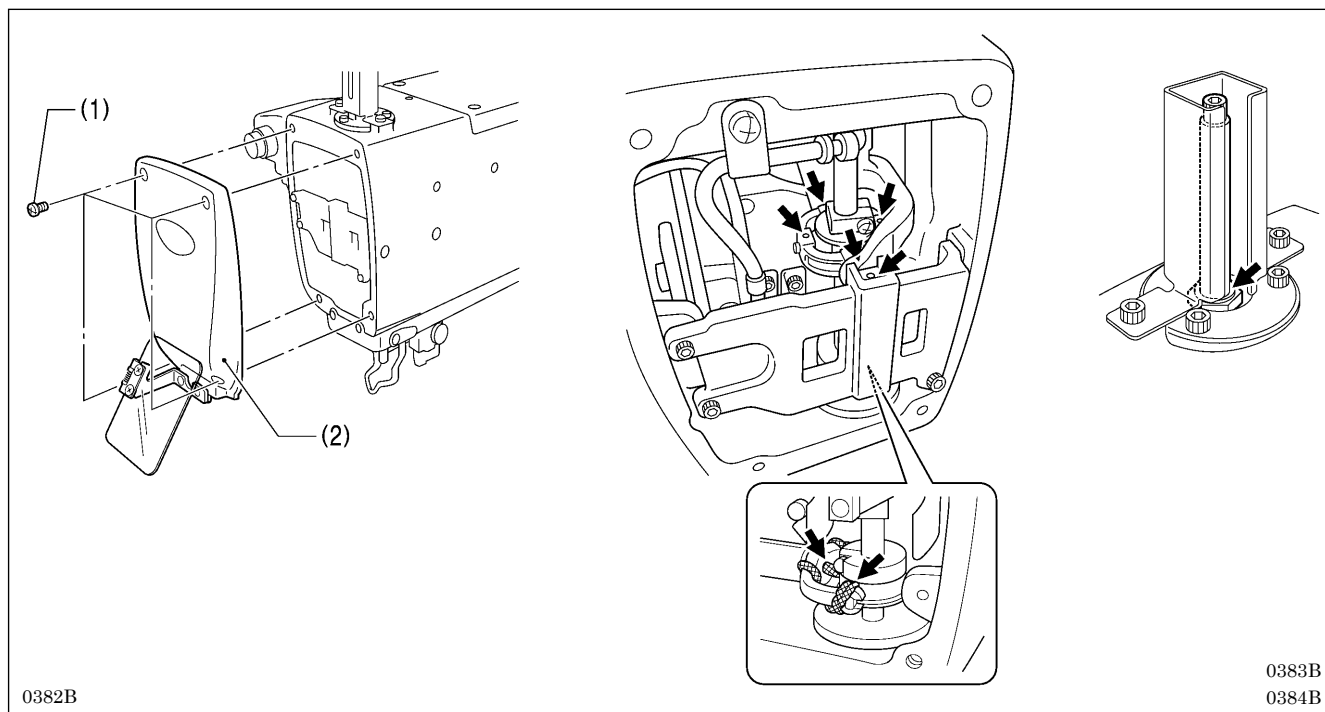
1. Tilt back the machine head.
2. Pour lubricating oil in through the lubricating hole (2) of the sub tank (1) without letting it overflow.

* During normal use, oil will be fed automatically from the arm oil tank, so it is not necessary to add oil.

4-20-2. Lubrication

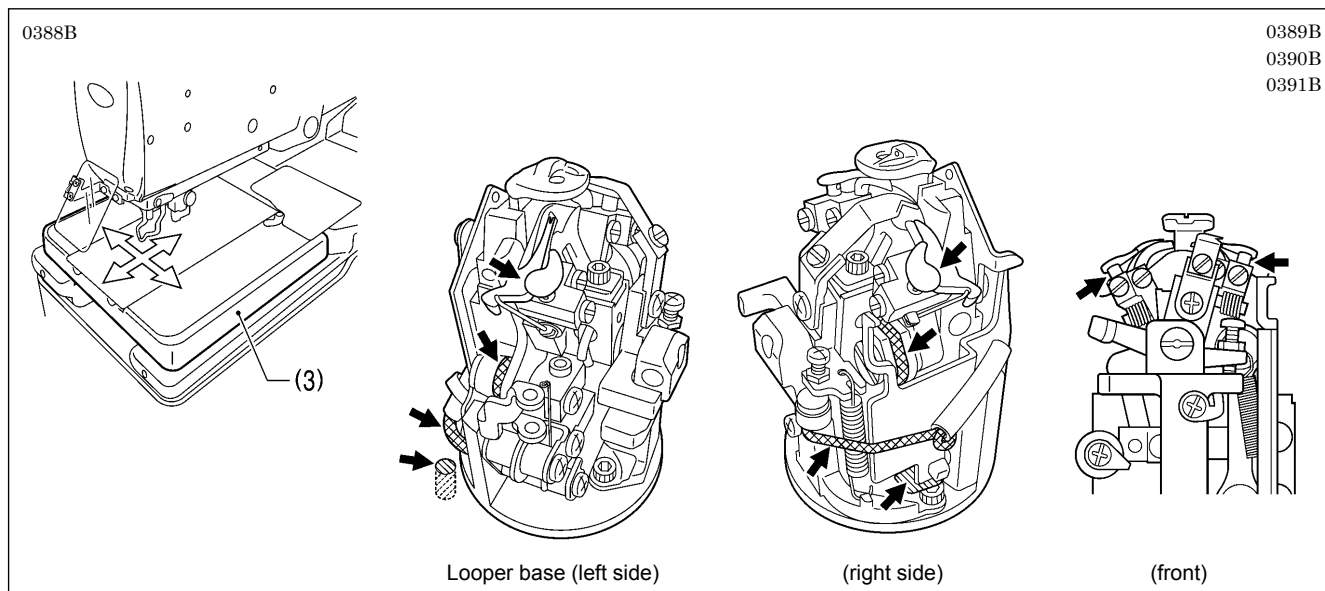
- When using the sewing machine for the first time, and also after long periods of non-use, lubricate the sewing machine in the places indicated by arrows in the illustration below.
- Oil may get onto the thread while lubrication is being carried out. Carry out a test sewing to ensure that your material does not get stained with oil.

<Lubricating the needle bar>



1. Loosen the four screws (1) and then remove the face plate (2).
2. Add 2 - 3 drops of oil in the places indicated by the arrows.
3. Once lubrication is complete, install the face plate (2).

<Oiling the looper, spreader and looper base>



1. Remove the left and right work clamp plates. (Refer to "4-19. Installing and removing the work clamp plates".)
2. Move the feed base (3) to a position where it will not interfere with lubrication.
3. Turn the looper base and add 2 - 3 drops of oil in the places indicated by the arrows.
4. Once lubrication is complete, install the work clamp plates.

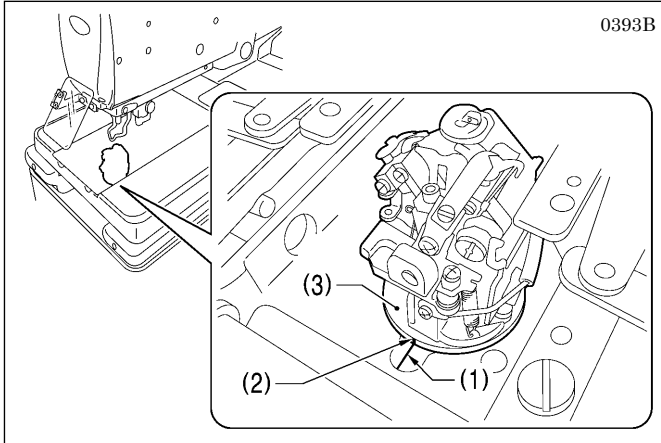
5. PREPARATION BEFORE SEWING

5-1. Installing the needle

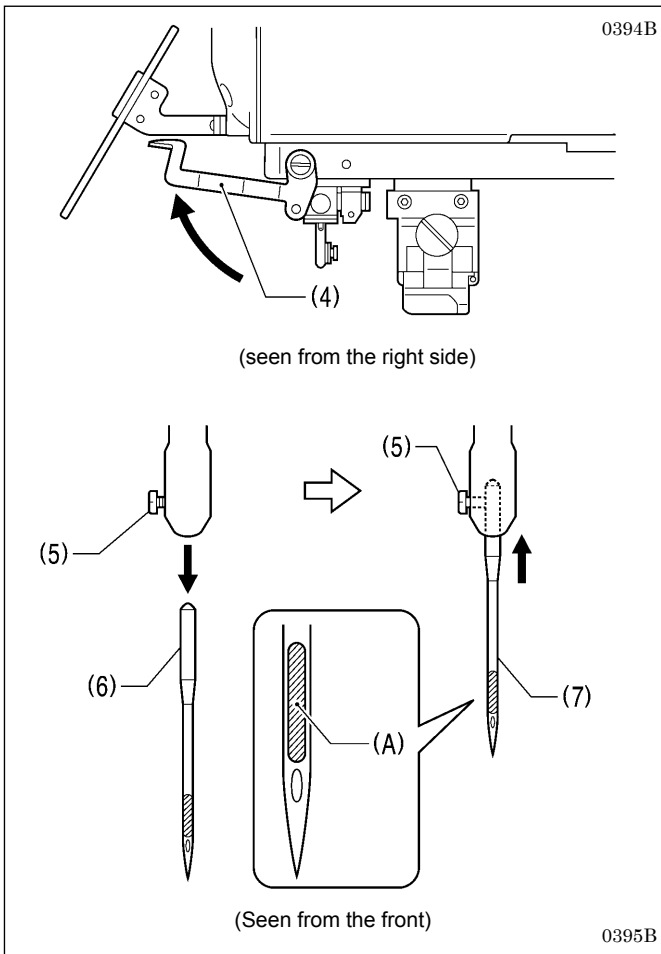
CAUTION



Turn off the power switch before installing the needle.
Otherwise the machine may operate if the start switch is pressed by mistake, which could result in serious injury.



1. Remove the work clamp plates. (Refer to “4-19. Installing and removing the work clamp plates” for details on removing the plates.)
2. Check that the index mark (1) on the bed is aligned with the index mark (2) on the looper base.
* If they are not aligned, turn the looper base (3) until they are aligned.



3. Raise the finger guard (4).
4. Loosen the set screw (5), and then remove the needle (6).
5. Insert the new needle (7) as far as it will go, with the hollow (A) facing toward the front.
6. Securely tighten the set screw (5).
7. Lower the finger guard (4).

NOTE:

Do not tighten the set screw (5) while the needle has been removed. If the set screw (5) is tightened, it may damage the inside of the needle bar and it may not be possible to insert the needle.

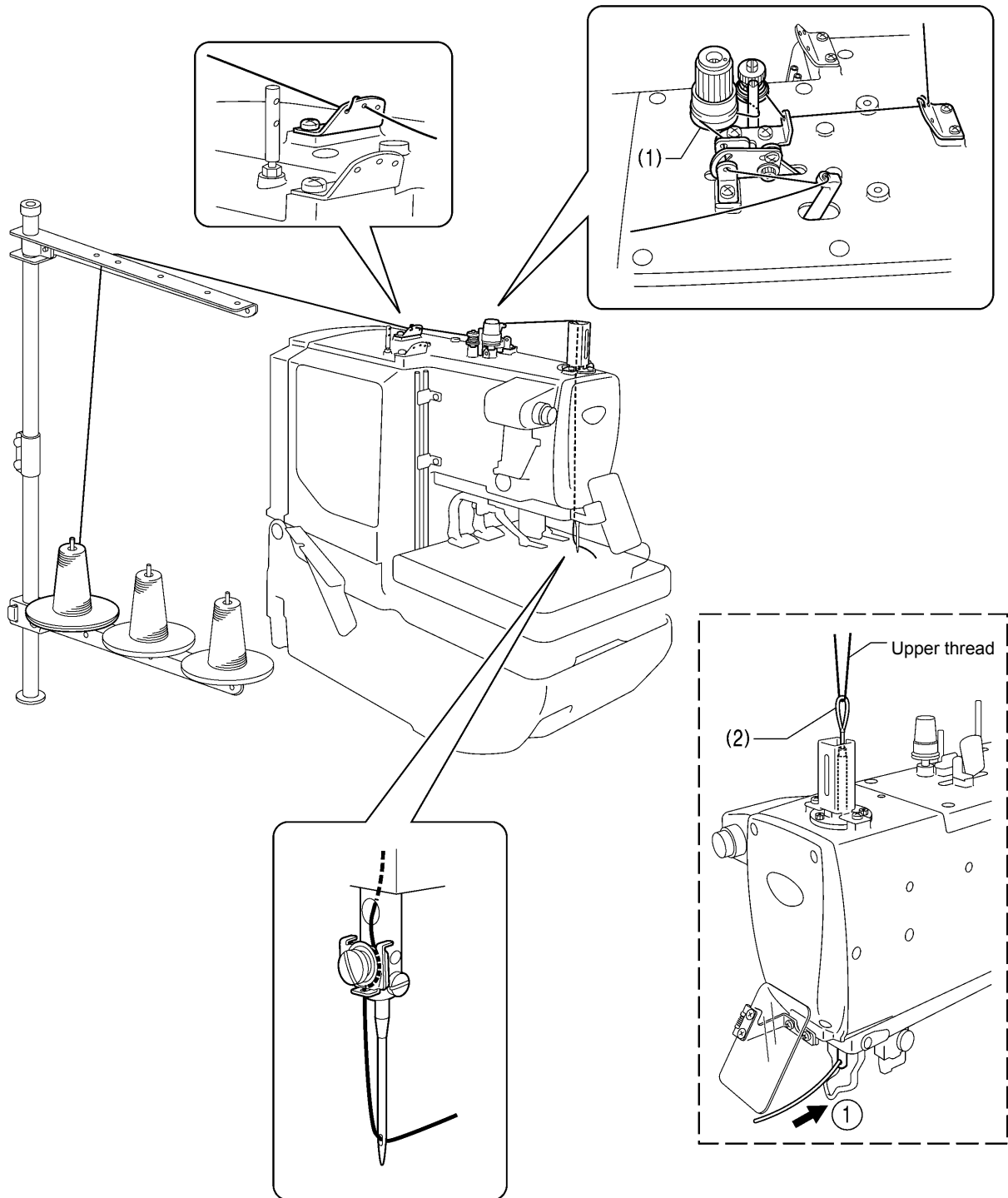
<Recommended needle>

DO x 558 80 - 120 Nm (Schmetz 558)

5-2. Threading the upper thread

Thread the upper thread correctly as shown in the illustration below.

- * The illustration below shows the method when the cotton stand is installed on the left side. If the cotton stand is installed on the right side, the threading method will be different. Before threading, refer to the instruction manual CD "4-5. Threading the threads when the cotton stand is installed on the right side".
- * When using threading mode for threading, the tension discs (1) will open so that the thread can be threaded more easily. (Refer to "6-7. Using threading mode".)
- * Use the accessory threader (2). (① in the illustration shows the position for inserting the threader.)



0396B

0398B

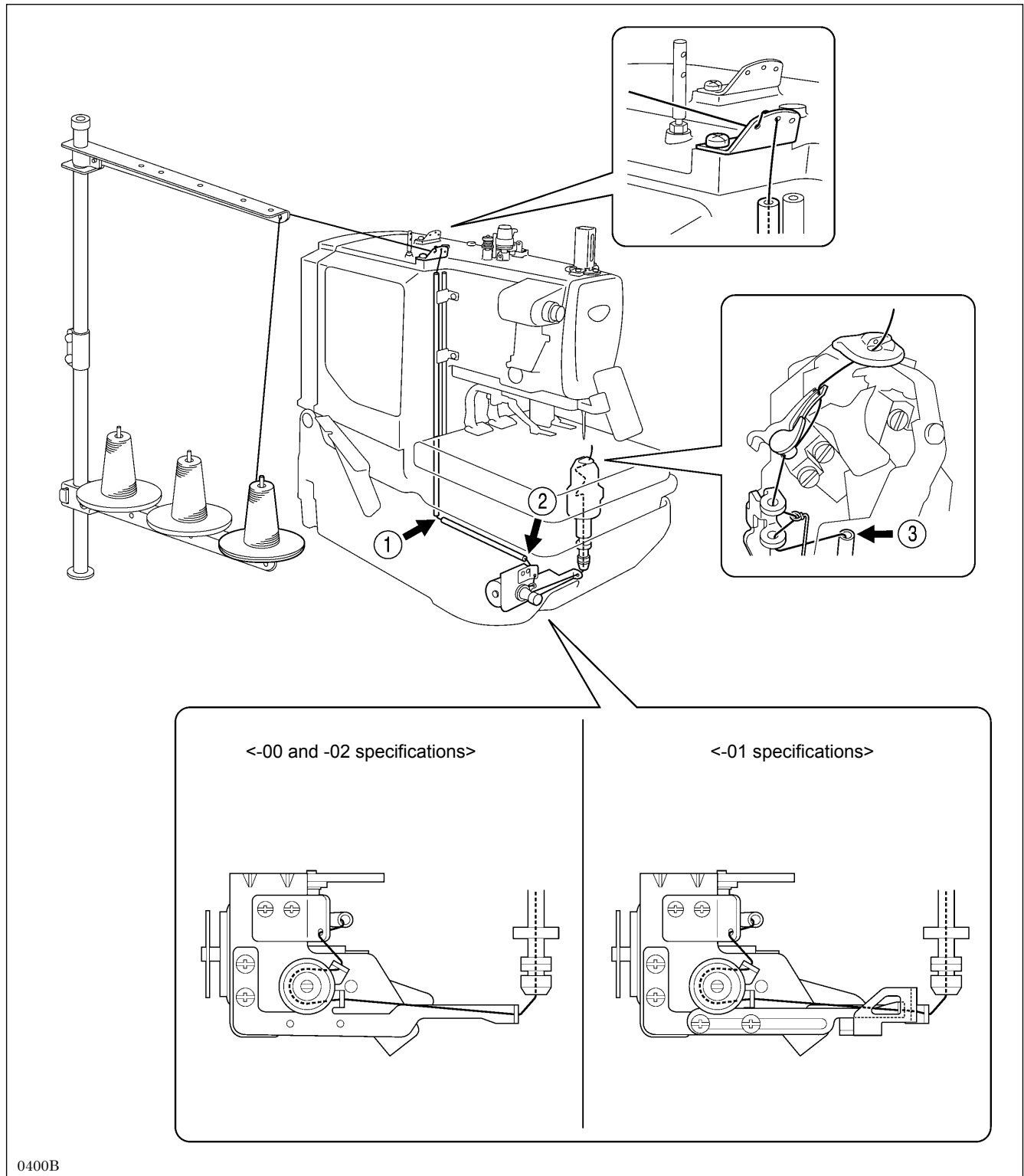
5-3. Threading the lower thread

When threading the lower thread, first remove the work clamp plates, and then thread the lower thread correctly as shown in the illustration below.

(Refer to “4-19. Installing and removing the work clamp plates” for details on removing the work clamp plates.)

* The illustration below shows the method when the cotton stand is installed on the left side. If the cotton stand is installed on the right side, the threading method will be different. Before threading, refer to the instruction manual CD “4-5. Threading the threads when the cotton stand is installed on the right side”.

* (① - ③ in the illustration show the positions for inserting the threader.) (Refer to “5-2. Threading the upper thread” for details on using the threader.)



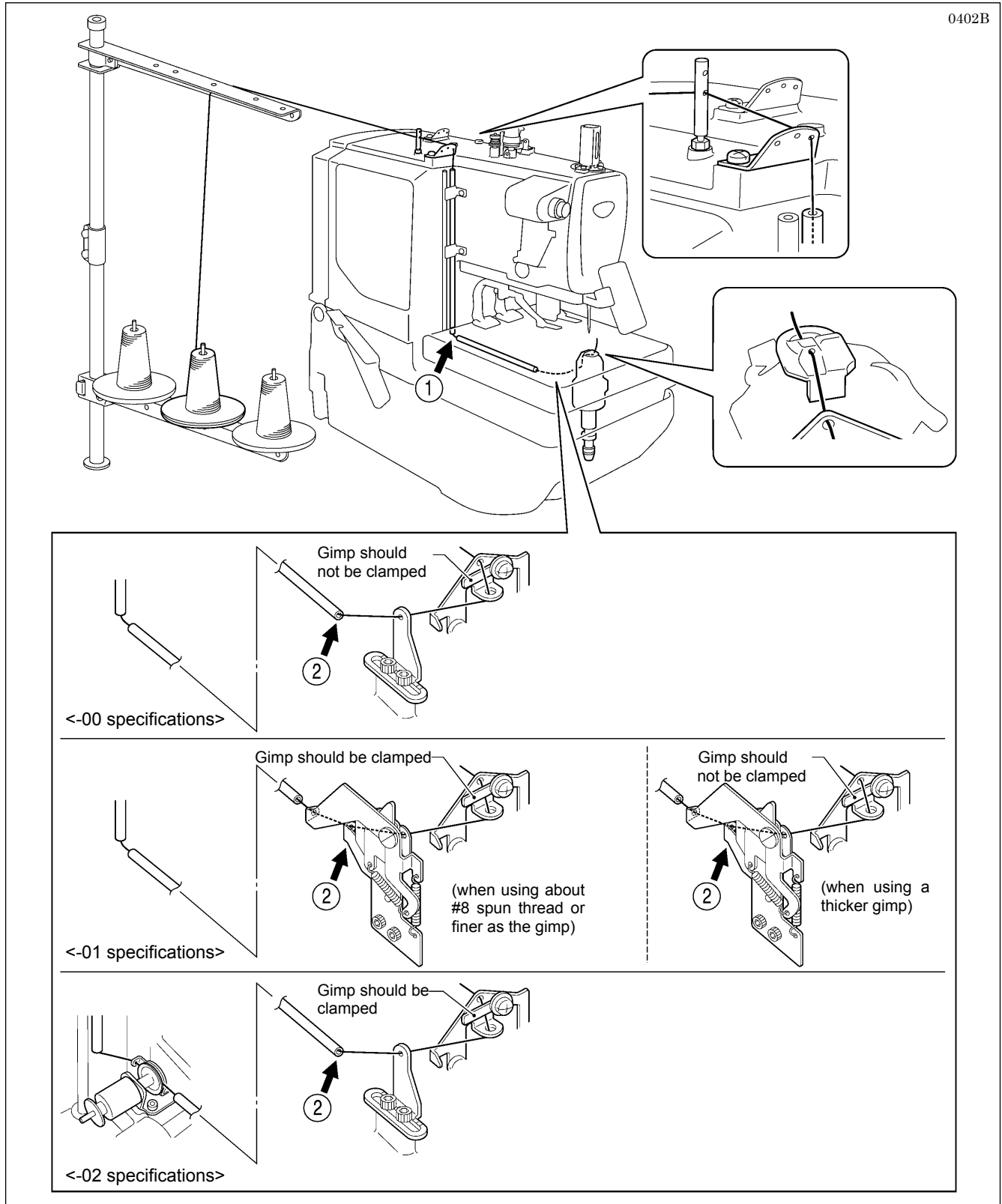
0400B

5-4. Threading the gimp

When threading the gimp, first remove the work clamp plates, and then thread the gimp correctly as shown in the illustration below. Once threading has been completed, install the work clamp plates. (Refer to “4-19. Installing and removing the work clamp plates”.)

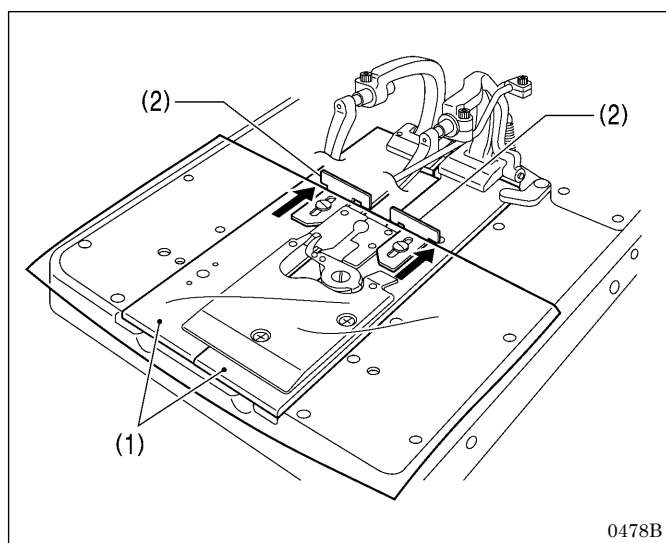
* The illustration below shows the method when the cotton stand is installed on the left side. If the cotton stand is installed on the right side, the threading method will be different. Before threading, refer to the instruction manual CD “4-5. Threading the threads when the cotton stand is installed on the right side”.

* ① - ② in the illustration show the positions for inserting the threader. (Refer to “5-2. Threading the upper thread” for details on using the threader.)



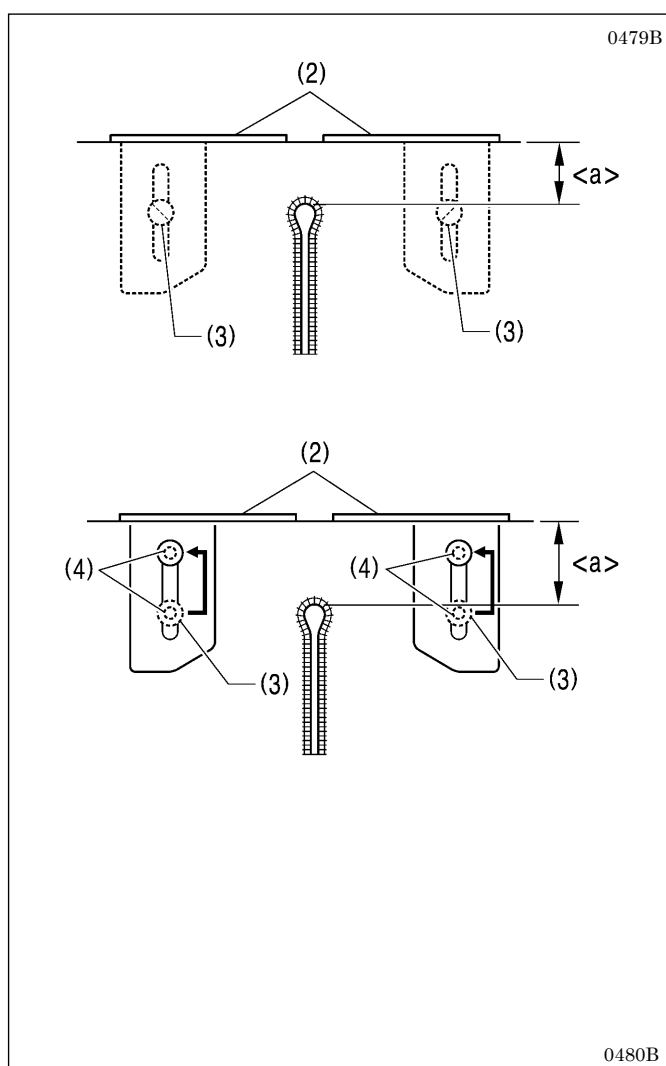
5-5. Setting the material

Cloth guides (2) are attached to the left and right work clamp plates (1). The material can be set so that it is vertical and parallel to the sewing machine by aligning the edges of the material with the cloth guides (2). In addition, the width (sewing margin) between the edge (top edge) of the material and the sewing pattern can be adjusted by changing the installation positions of the cloth guides (2).



Setting the material

Set the material so that its edges are aligned with the cloth guides (2) as shown in the illustration.



Adjusting the sewing margin

<For -00 and -01 specifications>

1. Loosen the screws (3) at the left and right, and then move the cloth guides (2) forward or back to adjust the sewing margin <a>.
* <a> can be adjusted to between 10 - 30 mm.
2. Once adjustment is complete, securely tighten the screws (3).

<For -02 specifications>

There are two installation holes (4) for the left and right screws (3), one at the front and one at the back.

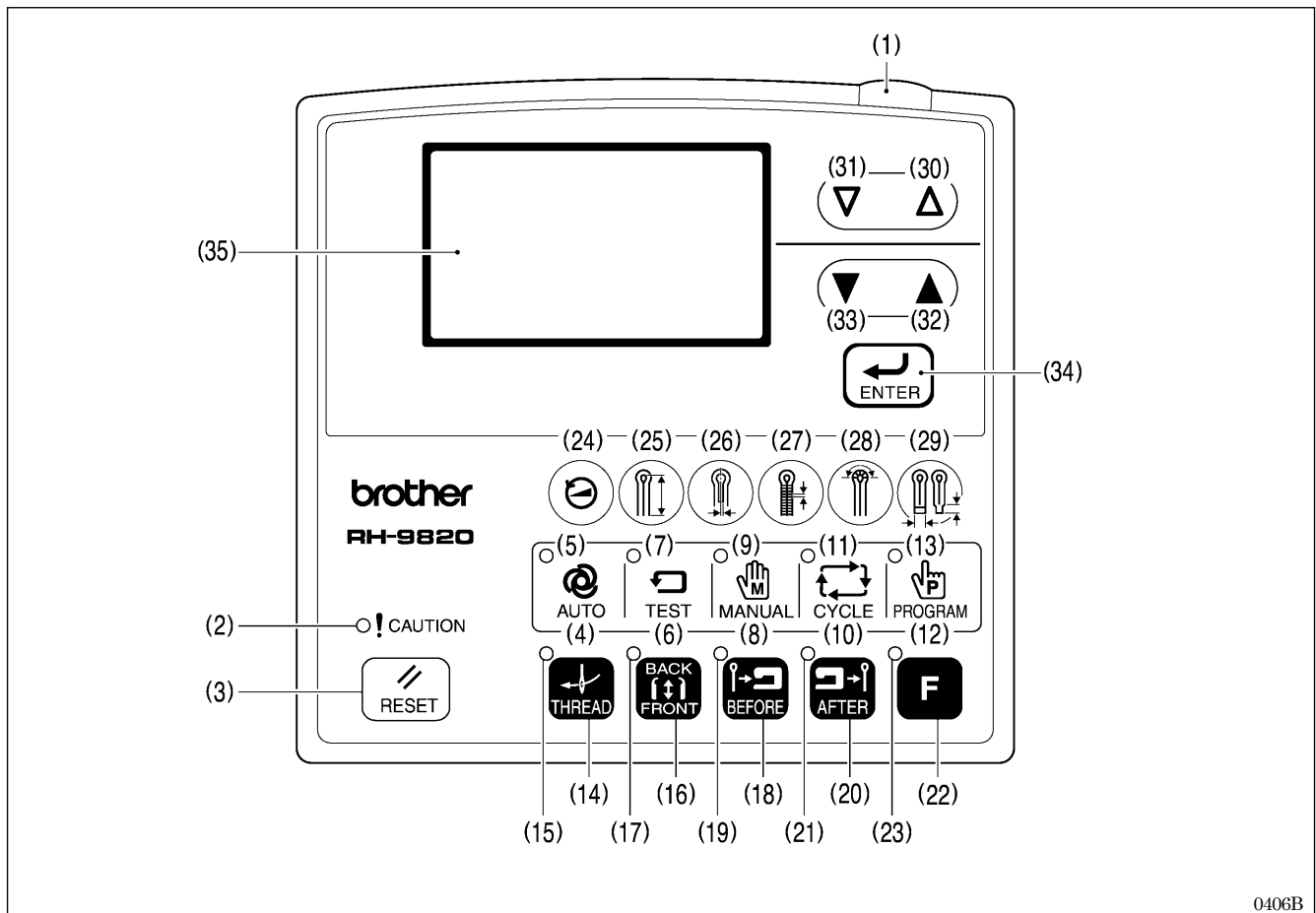
1. Move the screws (3) to whichever installation hole (4) is needed.
2. With the screws (3) loosened, move the cloth guides (2) forward or back to adjust the sewing margin <a>.
* Adjustment range for <a>
The following adjustment ranges can be obtained by changing the installation holes (4).

Sewing length	Adjustment range
L1422	10 - 50 mm
L1826	10 - 46 mm
L2230	10 - 42 mm
L2634	10 - 38 mm
L3442	10 - 30 mm

3. Once adjustment is complete, securely tighten the screws (3).

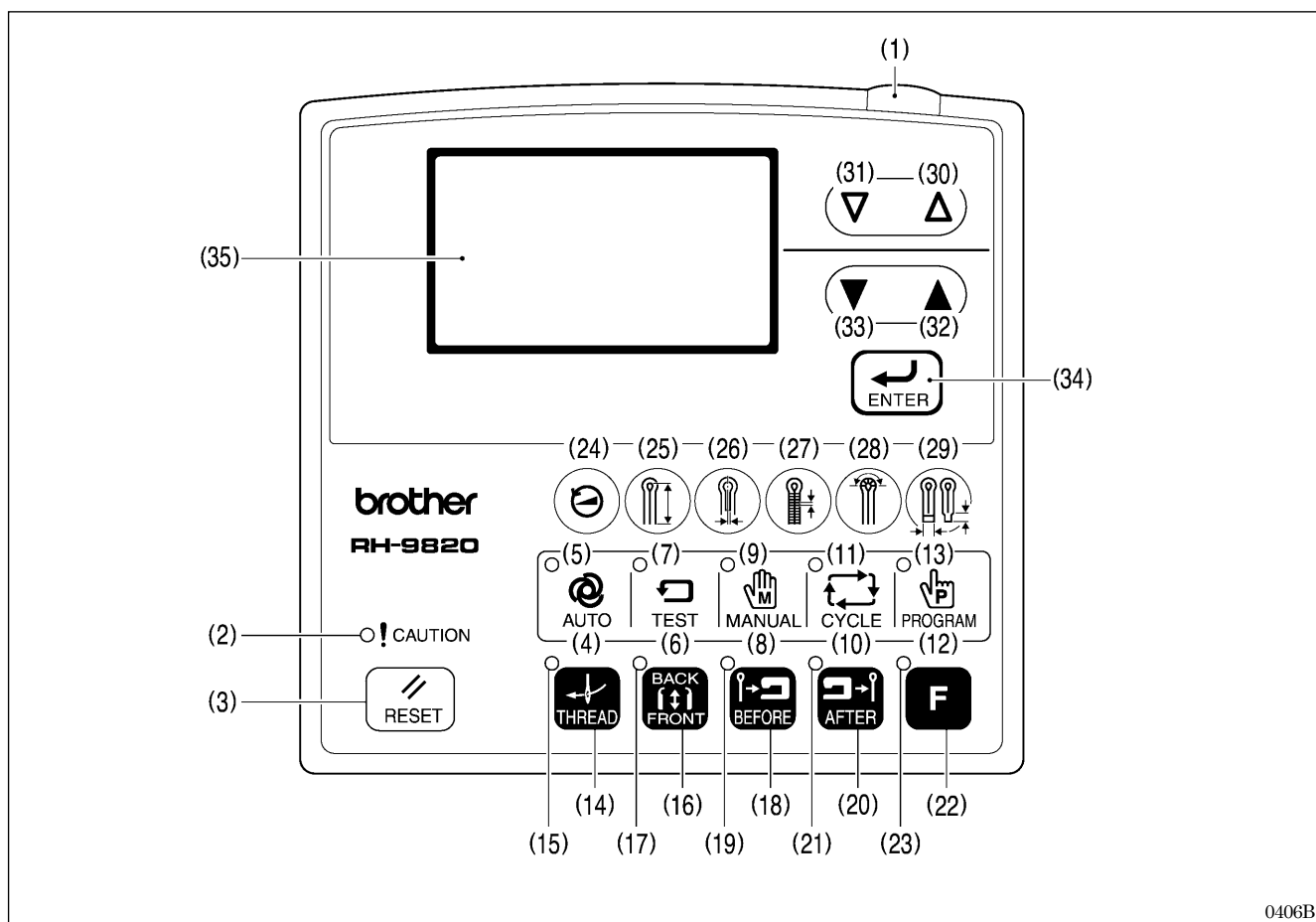
6. USING THE SEWING MACHINE (OPERATION PANEL: BASIC OPERATION)

6-1. Name and function of each operation panel item



0406B

- | | |
|---|---|
| <p>(1) Power indicator
Illuminates when the power is turned on.</p> <p>(2) CAUTION indicator
Illuminates when an error occurs.</p> <p>(3) RESET key
Press to reset errors, and to clear the production counter value.</p> <p>(4) AUTO key
This key is used to start automatic mode.</p> <p>(5) AUTO indicator
Illuminates during automatic mode.</p> <p>(6) TEST key
This key is used to start test mode.</p> <p>(7) TEST indicator
Illuminates during test mode.</p> <p>(8) MANUAL key
This key is used to start manual mode.</p> <p>(9) MANUAL indicator
Illuminates during manual mode.</p> | <p>(10) CYCLE key
This key is used to start cycle program mode.</p> <p>(11) CYCLE indicator
Illuminates during cycle program mode.</p> <p>(12) PROGRAM key
This key is used to start program mode.</p> <p>(13) PROGRAM indicator
Illuminates during program mode.</p> <p>(14) THREAD key
This key is used when threading the threads.</p> <p>(15) THREAD indicator
Illuminates when the THREAD key is pressed (while threading is in progress).</p> <p>(16) FRONT/BACK key
This key is used to switch the material setting position to "front" or "back".</p> <p>(17) FRONT indicator
Illuminates when the material setting position is set to "front".</p> |
|---|---|



0406B

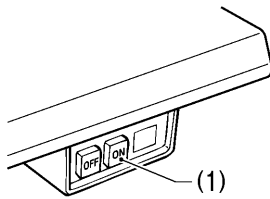
- (18) **BEFORE key**
This key is used to set cutting operation to cutting before sewing.
- (19) **BEFORE indicator**
Illuminates when cutting operation is set to cutting before sewing.
- (20) **AFTER key**
This key is used to set cutting operation to cutting after sewing.
- (21) **AFTER indicator**
Illuminates when cutting operation is set to cutting after sewing.
- (22) **F key**
This key is used to display the help screen.
- (23) **F indicator**
Illuminates while a CF card is being read from or written to.
- (24) **Shortcut 1 key**
This key is used to change the sewing speed.
- (25) **Shortcut 2 key**
This key is used to change the sewing length.
- (26) **Shortcut 3 key**
This key is used to change the cutting spacing.
- (27) **Shortcut 4 key**
This key is used to change the stitch pitch.
- (28) **Shortcut 5 key**
This key is used to change the number of stitches sewn for eyelets.
- (29) **Shortcut 6 key**
This key is used to change the bartack length.
- (30) **△ key**
This key is used to increase the values for program numbers and parameter numbers.
- (31) **▽ key**
This key is used to decrease the values for program numbers and parameter numbers.
- (32) **▲ key**
This key is used to increase the values for parameter settings and memory switch settings.
- (33) **▼ key**
This key is used to decrease the values for parameter settings and memory switch settings.
- (34) **ENTER key**
This key is used to apply the values for parameter settings and memory switch settings.
- (35) **Display**
This shows program numbers and messages.

6-2. Starting the sewing machine

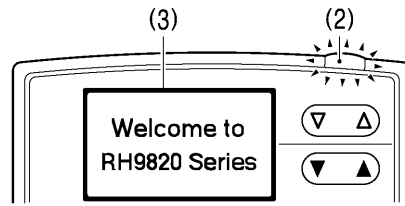
[The display examples are for a -01 specification sewing machine.]

1

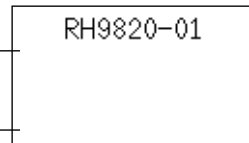
Push the power switch (1) to the ON side.



The power indicator (2) will illuminate and the contents of the panel display (3) will switch in the order shown below.



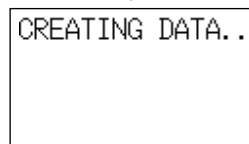
0407B



0261B

*1

Displayed for approx. 2 seconds



0314B



<For 2-pedal foot switch/hand start switch specifications>



<For treadle specifications>

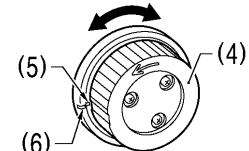
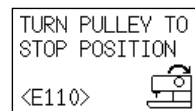


0311B

0312B

NOTE:

If "E110" is displayed, turn the upper shaft pulley (4) by hand to align the index mark (5) on the pulley with the notch (6).



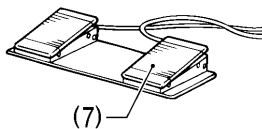
0313B

0408B

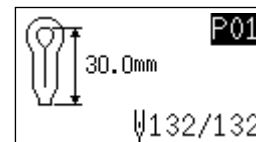
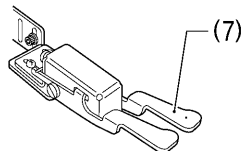
2

Press the start switch (7).

<For 2-pedal foot switch specifications>

<For treadle specifications>
Depress the treadle.

<For hand start switch specifications>



[During test mode]

0409B

0506B

0507B

0229B

- The feed base will move to the material setting position.
- The panel display will switch to the standby condition *2 for the mode (automatic mode, manual mode, test mode, cycle program mode or program mode) that was active when the sewing machine was last turned off.

*1: If settings for an optional device have been made, the icon for the optional device will appear here.

Indexer



Lapel device



Upper thread nipper device



Upper thread breakage detector



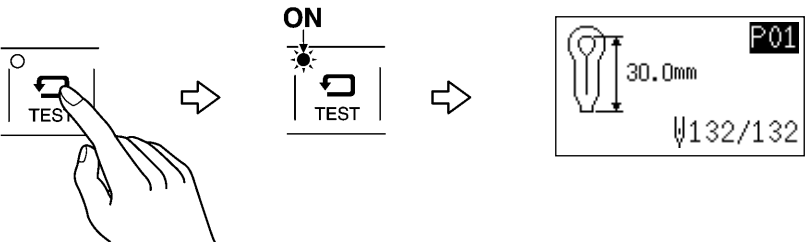
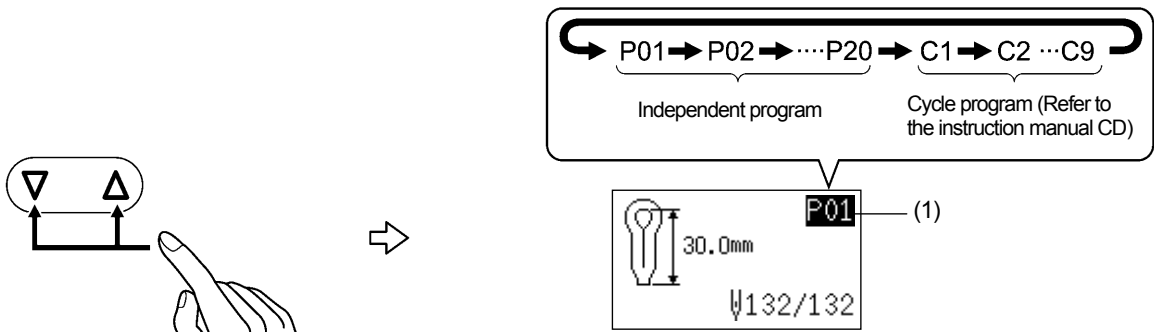
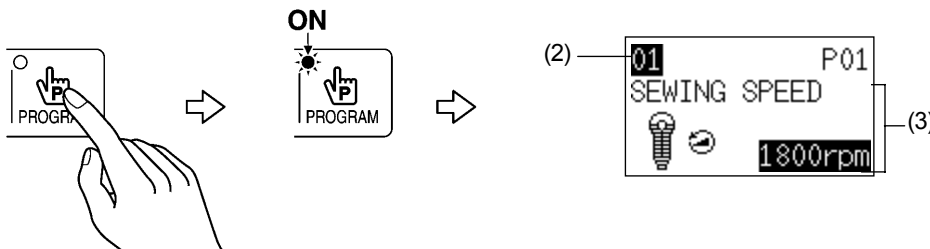
0264B - 0267B

*2: The "standby condition" is the name for the period from the point after switching to one of these modes until the first operation occurs.

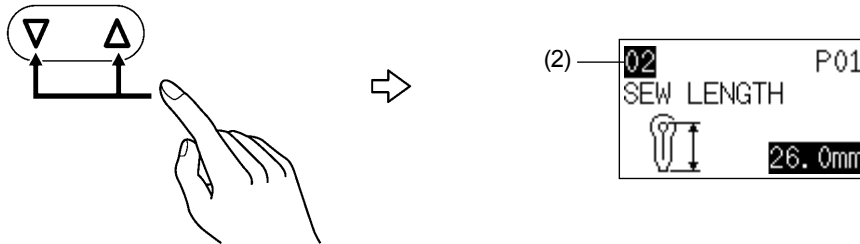
6-3. Program setting method

It is recommended that you register patterns that are sewn frequently as programs. After programs have been registered, you can retrieve the desired sewing patterns simply by selecting a program number, which eliminates the need to set the pattern each time.

- Normally up to 20 programs can be registered, and their contents can be changed at any time. The contents can be set by changing the parameters for each item.
- At the time of shipment from the factory, temporary contents are set for programs P01 to P20. (The contents are the same for all programs from P01 to P20.) Follow the method given below to change the contents of a program before using it.

<p>1</p>	<p>Switch the mode to test mode.</p>  <p>0410B 0229B</p>
<p>2</p>	<p>Select the program number from P01 to P20 (1) to select the program that you would like to change.</p>  <p>The program No. (1) changes in the order shown in the illustration each time the Δ key is pressed. (The ∇ key changes the order in the opposite direction.)</p> <p>NOTE: Program mode is not available if a cycle program has been selected.</p> <p>0413B 0337B 0229B</p>
<p>3</p>	<p>Switch to program mode.</p>  <p>The parameter number (2) that was last selected and the setting (3) for that parameter will appear in the display.</p> <p>* You can also start program mode by pressing a shortcut key. In this case, the parameter number that corresponds to the shortcut key will be selected. (Refer to the next page.)</p> <p>0412B 0315B</p>

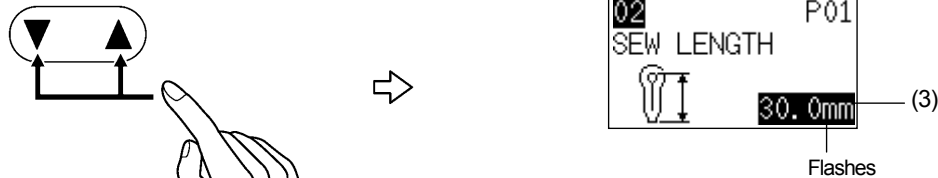
- 4** Select the parameter number (2) for the parameter that you would like to change. (Refer to “6-3-1. Parameter list”.)



0413B

0316B

- 5** Change the setting (3) for the parameter.

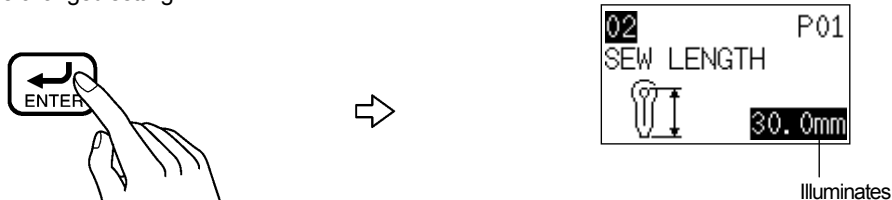


0414B

0317B

- * The flashing display means that the setting has not yet been applied.
- * You can make the initial setting appear in the display by pressing the RESET key.

- 6** Apply the changed setting.



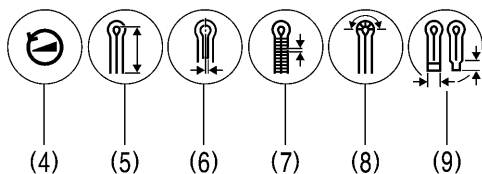
0415B

0317B

- * The display will change from flashing to illuminated, and this means that the setting has been applied.
- * You can cancel the setting change by pressing the Δ , ∇ , AUTO, TEST or MANUAL key without pressing the ENTER key.

- 7** Repeat steps 4 - 6 above to change other parameters.

Shortcut keys



The shortcut keys have the following six often-used parameters registered into them.

- You can retrieve a desired parameter simply by pressing the corresponding shortcut key.
- These operations can be carried out from any mode (automatic, manual, test and program mode) except cycle program mode.

- (4) Sewing speed (Parameter No. 01)
- (5) Sewing length (Parameter No. 02)
- (6) Cutting spacing (Parameter No. 03)
- (7) Stitch pitch (Parameter No. 04)
- (8) No. of eyelet stitches (Parameter No. 05)
- (9) Bartack length (Parameter Nos. 06, 08, 10)*

*: Loads the parameter number corresponding to the bartack shape for parameter No. 40.

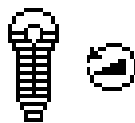
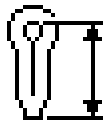

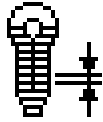

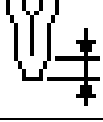

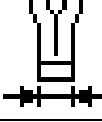
0416B

6. USING THE SEWING MACHINE (OPERATION PANEL: BASIC OPERATION)

6-3-1. Parameter list



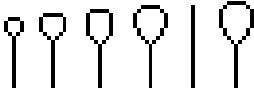


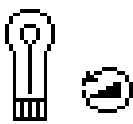


NOTE:

It may not be possible to change some setting values or some settings may be invalid because of the settings for other parameters.

No.	Setting	Setting range	Unit	Initial value
01	Sewing speed 	1,000 - 2,500 rpm	100	1,800 rpm
02	Sewing length (*1) 	<-00 specifications>: 5 - 50 mm <-01 specifications>: 5 - 42 mm <-02 specifications> (L1422): 14 - 22 mm (L1826): 18 - 26 mm (L2230): 22 - 30 mm (L2634): 26 - 34 mm (L3442): 34 - 42 mm	0.5	<-00 specifications>: 25 mm <-01 specifications>: 25 mm <-02 specifications> (L1422): 18 mm (L1826): 22 mm (L2230): 26 mm (L2634): 30 mm (L3442): 38 mm
03	Cutting space 	-0.3 - 0.5 mm	0.05	0.2 mm
04	Stitch pitch 	0.5 - 2.0 mm	0.1	1.0 mm
05	No. of eyelet stitches 	4 - 20 stitches	1	9 stitches
06	Taper bartack length 	1 - 20 mm	1	6 mm
07	Offset 	0.5 - 2.0 mm	0.1	1.5 mm
08	Straight bartack length 	2.0 - 6.0 mm (up to 3.0 mm on one side)	0.1	5.0 mm

0268B - 0275B

*1: The sewing length setting range and initial value vary depending on the machine sub-class.

No.	Setting	Setting range	Unit	Initial value
09	No. of straight bartack stitches 	5 - 18 stitches	1	7 stitches
10	No. of round bartack stitches 	5 - 17 stitches	1	7 stitches
11	Eyelet pattern 1 2 3 4 5 6 	1 - 6 (Once the knife has been replaced, check the knife number for the replacement knife and then select an appropriate eyelet pattern.)	1	2
12	Zigzag width adjustment 	-1.0 - 1.0 mm	0.1	0.0 mm
13	Eyelet deceleration speed (*2) 	-600 - 0 rpm	100	0 rpm
14	Straight bartack speed (*3) 	1,000 - 2,500 rpm	100	1,800 rpm
15	Number of slow start stitches 	0 - 3 stitches	1	0 stitches
16	Slow start speed (*4) 	400 - 1,500 rpm	100	700 rpm

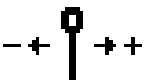




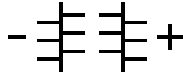
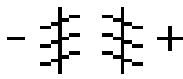

0276B - 0283B

*2: The standard eyelet deceleration speed is the value that has been set by parameter No. 01 (sewing speed).

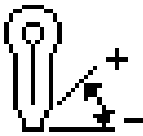
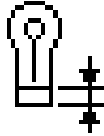

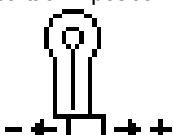
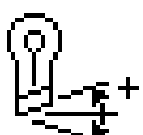

*3: If the sewing speed is set to a speed that is slower than the straight bartack speed, the straight bartack speed used for sewing will be the same as the normal sewing speed.

*4: If the sewing speed is set to a speed that is slower than the slow start speed, the slow start speed used for sewing will be the same as the normal sewing speed.

6. USING THE SEWING MACHINE (OPERATION PANEL: BASIC OPERATION)




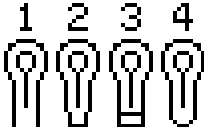
No.	Setting	Setting range	Unit	Initial value
17	X cutting position correction value 	-0.5 - 0.5 mm	0.05	0.0 mm
18	Y cutting position correction value 	-0.7 - 0.7 mm	0.05	0.0 mm
19	No. of tying stitches at the sewing start 	0 - 2 stitches	1	0 stitches
20	No. of tying stitches at the sewing end 	0 - 2 stitches	1	0 stitches
21	X correction value 	-1 - 6	1	0
22	Y correction value 	-1 - 6	1	0
23	θ 1 correction value 	-3 - 3	1	0
24	θ 2 correction value 	-3 - 3	1	0

0284B · 0291B

No.	Setting	Setting range	Unit	Initial value
25	Taper bartack angle 	-5 - 5	1	0
26	Straight bartack width correction value 	-1.0 - 0.0 mm	0.1	0.0 mm
27	Straight bartack overlap amount 	0.0 - 2.0 mm	0.1	1.0 mm
28	Straight bartack X position alignment 	-1.0 - 1.0 mm	0.1	0.0 mm
29	Straight bartack angle correction value 	-3 - 1	1	0
30	Spare (For future version upgrades)			
31	Spare (For future version upgrades)			
32	No. of round bartack overlap stitches 	1 - 4 stitches (within 45 degrees)	1	1 stitch
33	Spare (For future version upgrades)			

0292B · 0294B
0471B
0295B
0297B

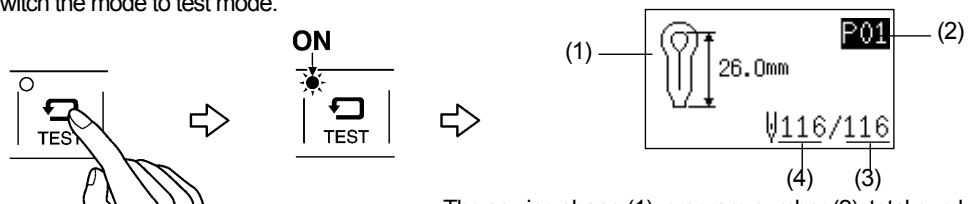
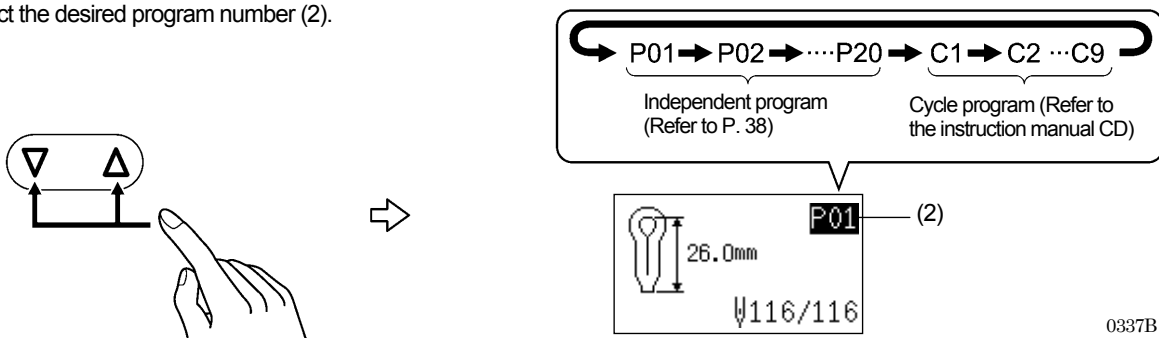
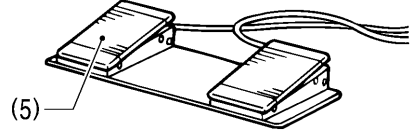
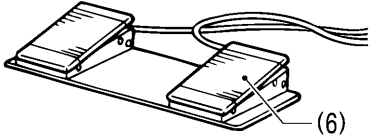
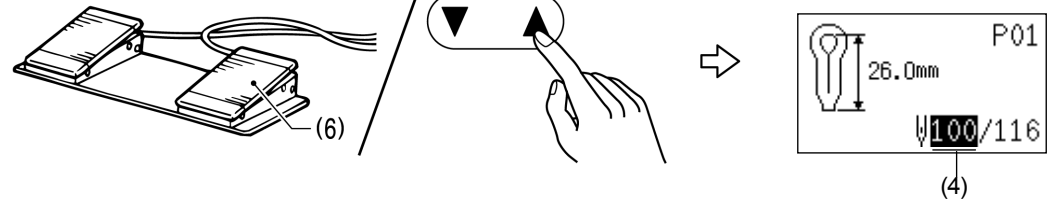
6. USING THE SEWING MACHINE (OPERATION PANEL: BASIC OPERATION)

No.	Setting	Setting range	Unit	Initial value
34	Circular stitch knife size 	2 - 5 mm	1	2
35	No. of circular stitch stitches 	8 - 100 stitches	1	20
36	No. of circular stitch overlap stitches 	1 - 5 stitches (within 45 degrees)	1	2
37	Spare (For future version upgrades)			
38	Spare (For future version upgrades)			
39	Program copy	OFF, 1 - 20 (Specify the program number for the copy source)	1	OFF
40	Bartack shape 1 2 3 4 	1: Without bartack 2: Taper bartack 3: Straight bartack 4: Round bartack	1	2

0298B - 0301B

6-4. Checking the sewing pattern in test mode

Test mode can be used to make only the feed base move in the same way as during normal sewing, but with the upper shaft stopped. This mode is useful for checking the positions of the needle and the work clamps.

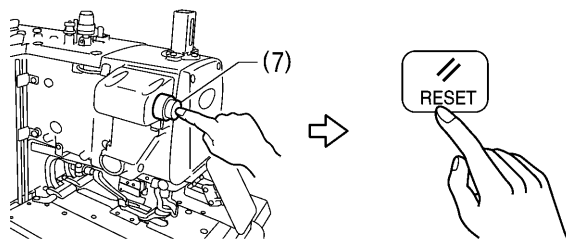
<p>1</p>	<p>Switch the mode to test mode.</p>  <p>The sewing shape (1), program number (2), total number of stitches (3) and number of remaining stitches (4) will appear in the display.</p> <p>0410B 0230B</p>
<p>2</p>	<p>Select the desired program number (2).</p>  <p>The program No. (2) changes in the order shown in the illustration each time the Δ key is pressed. (The ∇ key changes the order in the opposite direction.)</p> <p>0413B 0337B 0230B</p>
<p>3</p>	<p>Press the work clamp switch (5).</p>  <p>The work clamps will be lowered.</p> <p>0419B</p>
<p>4</p>	<p>Press the start switch (6).</p>  <p>The feed base will move to the sewing start position.</p> <p>0420B</p>
<p>5</p>	<p>Press the start switch (6) or the \blacktriangle switch to start test feeding.</p>  <p>(The feed base will move forward by 2 stitches each time the switch or key is pressed.) (The feed base will move quicker if you keep the switch or key pressed down.)</p> <ul style="list-style-type: none"> • The number of remaining stitches (4) on the display will decrease by 2 each time. • When the final stitch is reached, the buzzer will sound. • Thread trimming and cutting operation will not be carried out in test mode. <p>0421B 0231B</p>

(Continued on next page)

6

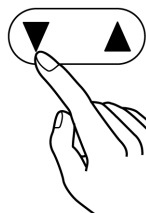
[If you would like to pause test feeding and return the feed base to the material setting position]

Press the STOP switch (7) and then press the RESET key.

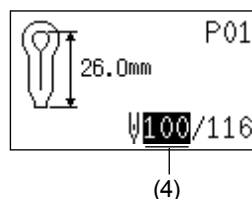


0422B

[If you would like to return the feed base to the previous sewing position during test feeding]



0423B



0231B

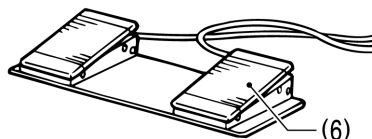
(The feed base will move backward by 2 stitches each time.)

The number of remaining stitches (4) on the display will increase by 2 each time.

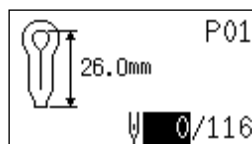
[Once sewing continues to the final stitch and the buzzer sounds]

Press the start switch (6).

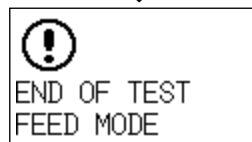
* Keep pressing until the feed base returns to the material setting position.



0424B



0232B



0318B

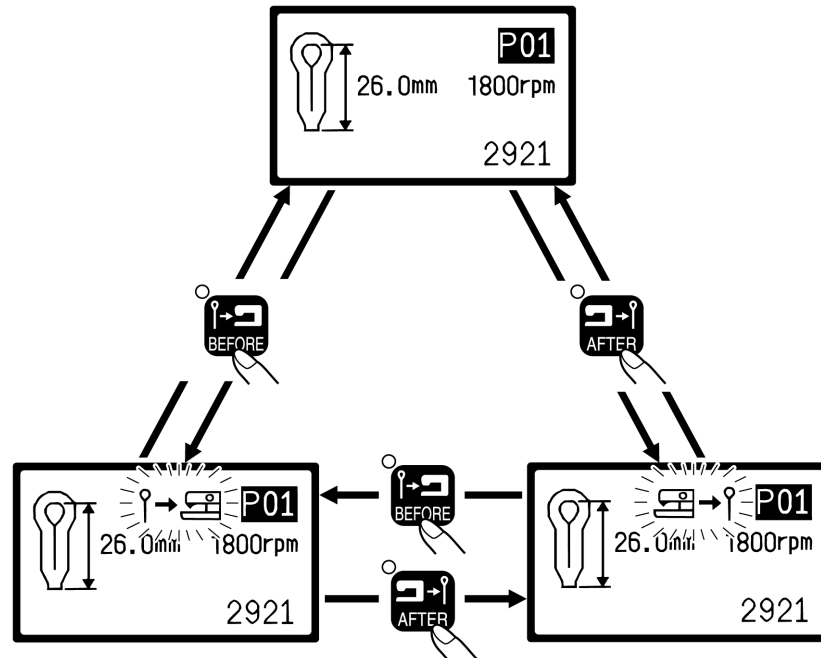
6-5. Switching cutting operation

0310B
0425B**No cutting**

Cutting operations are not carried out.



When "No cutting" is selected, the cutting before sewing indicator and the cutting after sewing indicator will both switch off.

**Cutting before sewing**

Sewing is carried out after cutting has been carried out.



When cutting before sewing is selected, the cutting before sewing indicator illuminates.

Cutting after sewing

Cutting is carried out after sewing has been carried out.



When cutting after sewing is selected, the cutting after sewing indicator illuminates.

0308B
0309B

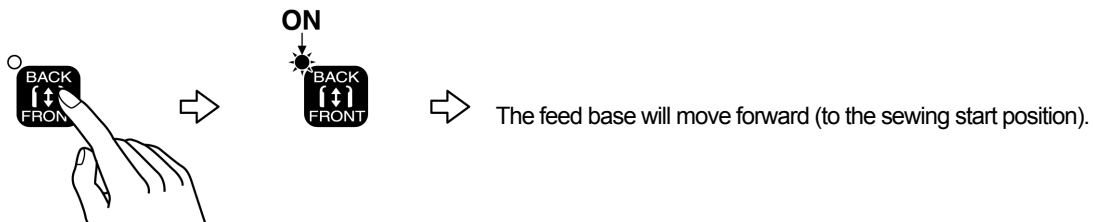
Press the BEFORE or AFTER key during the standby condition in automatic mode, test mode or manual mode.
The cutting operation changes as shown in the illustration each time a key is pressed.

6-6. Changing the material setting position

The feed base can be moved forward from the standard material setting position. This can make it easier to set the material in place. Cycle time will be reduced with this setting, particularly if cutting after sewing is selected.

[To move the feed base forward]

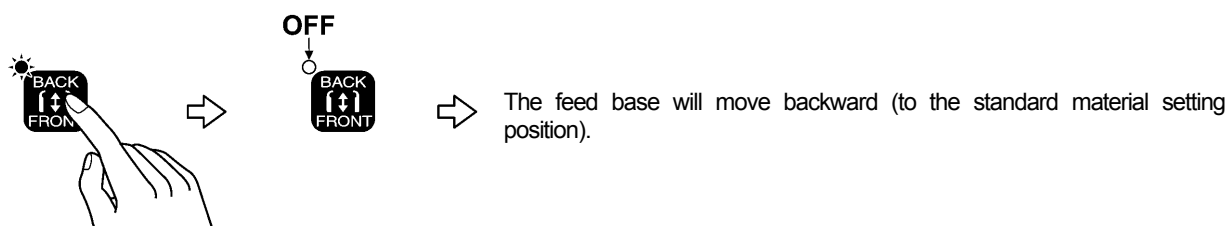
Press the FRONT/BACK key during the standby condition in automatic mode, test mode or manual mode.



0426B

[To move the feed base backward (standard material setting position)]

Press the FRONT/BACK key once more.

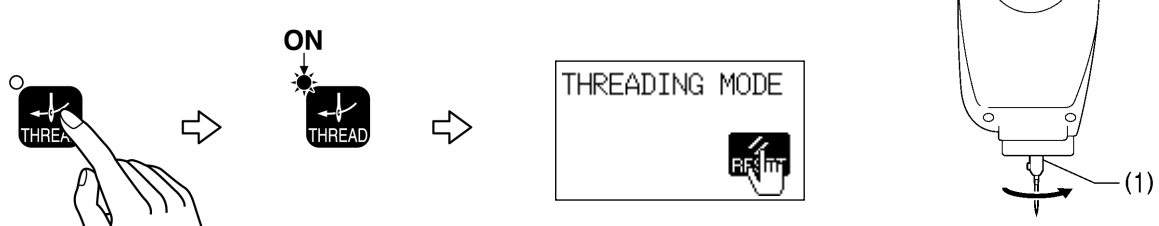
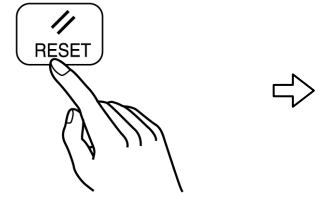


0427B

6-7. Using threading mode

This is used to thread the upper thread. (Refer to "5-2. Threading the upper thread" for details on using the threader.)

When the sewing machine switches to threading mode, the needle bar (θ feed) turns 180 degrees, and then the energization of the X, Y and θ feed motors is stopped. This allows the needle bar and feed base to move freely, in order to make threading of the upper thread easier. In addition, threading mode is safe because the sewing machine will not operate when the start switch is pressed (or the treadle is depressed).

1	<p>Press the THREAD key during the standby condition in automatic mode, test mode or manual mode.</p>  <ul style="list-style-type: none"> • The tension discs will open. • The buzzer will sound, and then the needle bar (θ feed) (1) will turn 180 degrees. After this, energization of the X, Y and θ feed motors will be stopped. <p>0428B 0319B 0529B</p>
2	<p>Thread the thread.</p> <ul style="list-style-type: none"> • After 3 minutes have passed, the tension discs will close.
3	<p>Once the upper thread has been threaded, press the RESET key.</p>  <ul style="list-style-type: none"> • After the home positions are detected, the needle bar and feed base will return to the material setting position. • The tension discs will close. <p>0429B</p>

7. USING THE SEWING MACHINE (SEWING OPERATION)

CAUTION



Turn off the power switch before carrying out the following operations.

If this is not done, the machine may operate if the start switch is pressed by mistake, which could result in serious injury.

- When replacing the needle
- When not using the sewing machine and when leaving the sewing machine unattended



Do not touch any of the moving parts or press any objects against the sewing machine while sewing.

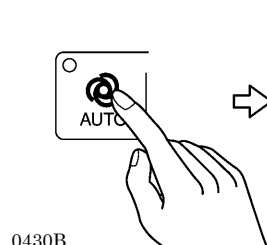
If this is not observed, it may result in personal injury or damage to the sewing machine.

7-1. Automatic sewing (automatic mode)

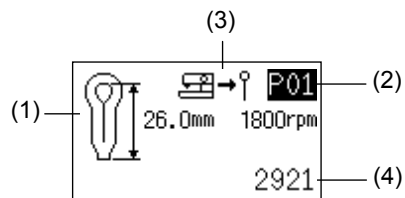
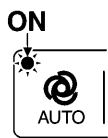
- When carrying out automatic sewing for the first time, be sure to carry out a test sewing first.
- In addition, if using the sewing machine when the ambient temperature is cold, carry out several test sewing operations to allow the motor to warm up.

1

Switch the mode to automatic mode.



0430B

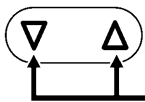


The sewing shape (1), program number (2), cutting operation (3) and production counter (4) will appear in the display.

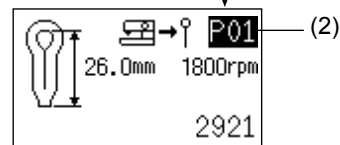
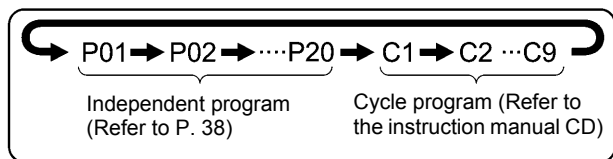
0222B

2

Select the desired program number (2).



0413B



0337B

0222B

The program number (2) changes in the order shown in the illustration each time the Δ key is pressed. (The ∇ key changes the order in the opposite direction.)

3

Select the desired cutting operation (Cutting before sewing/No cutting/Cutting after sewing).



or

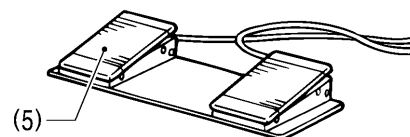


0432B

* Refer to "6-5. Switching the cutting operation" for details on switching the cutting operation.

4

Place the material to be sewn under the work clamps, and then press the work clamp switch (5).



(5)

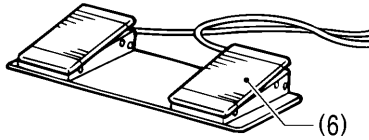


The work clamps will be lowered.

0419B

5

Press the start switch (6).



0420B

Sewing will then start.

* When sewing is finished, the work clamps will be raised. In addition, the production counter value appearing in the display will increase by 1.

6

To repeat the sewing operation, repeat steps 4 and 5 above.

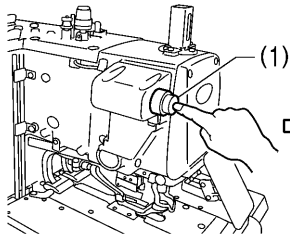
7-2. Using the STOP switch

7-2-1. Pausing sewing during automatic sewing

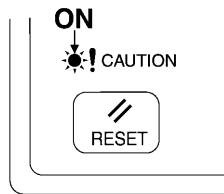
The STOP switch is used to stop the sewing machine if a problem occurs such as a thread breakage.

<Pausing sewing>

Press the STOP switch (1) while sewing is being carried out.



0436B



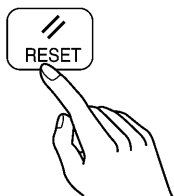
The sewing machine will stop and the buzzer will sound.

0320B

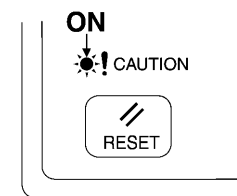
<Clearing the pause (when not continuing from the point where sewing was paused)>

1

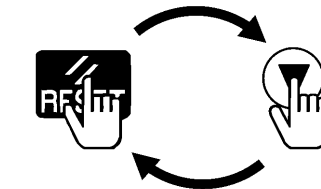
Press the RESET key.



0437B



The buzzer will stop sounding.



(The display will change alternately.)

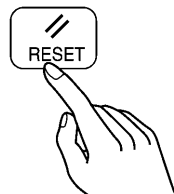
0438B

2

Eliminate the cause of the problem.

3

Press the RESET key once more.

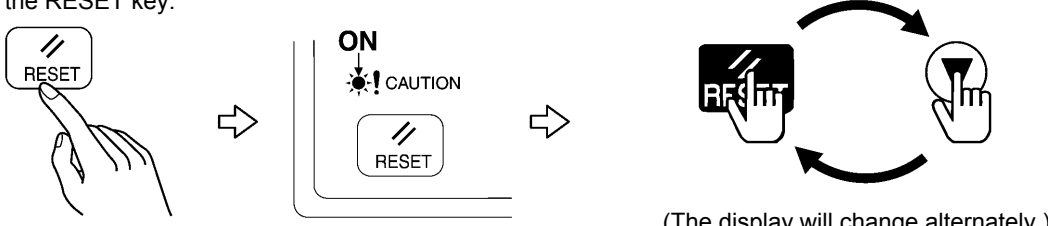
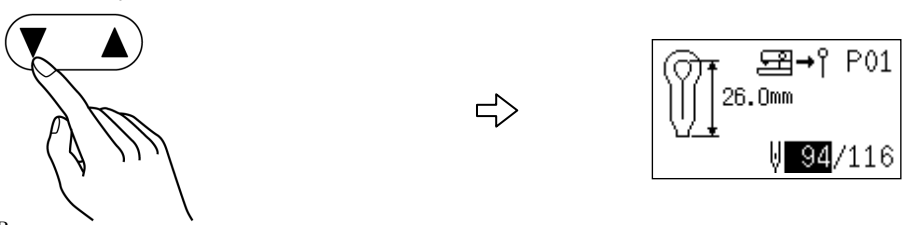
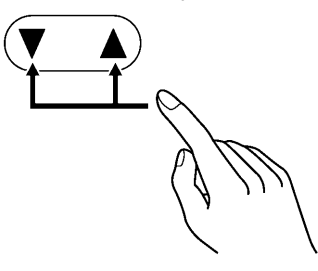
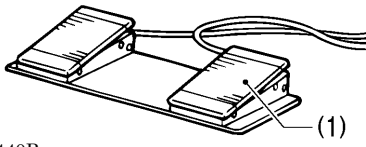


0392B

After the home positions are detected, the needle bar and feed base will move to the material setting position.

7. USING THE SEWING MACHINE (SEWING OPERATION)

<Clearing the pause (when continuing from the point where sewing was paused)>

<p>1</p>	<p>Press the RESET key.</p>  <p>The buzzer will stop sounding.</p> <p>(The display will change alternately.)</p> <p>0437B 0438B</p>
<p>2</p>	<p>Eliminate the cause of the problem.</p> <p>* If a problem such as an upper thread breakage has occurred, you can press the THREAD key to switch to threading mode.</p>
<p>3</p>	<p>Press the ▼ key once.</p>  <p>0423B 0482B</p>
<p>4</p>	<p>Press the ▲ and ▼ keys to determine the position to resume sewing.</p>  <p>* If a problem such as an upper thread breakage has occurred, you can press the THREAD key to switch to threading mode.</p> <ul style="list-style-type: none"> • The ▲ key moves forward, and the ▼ key moves backward. • (The feed will move quicker if you keep the key pressed down.) <p>0439B</p>
<p>5</p>	<p>Press the start switch (1).</p>  <p>Automatic sewing will resume.</p> <p>0440B</p>

NOTE:

If the STOP switch is pressed before the upper shaft motor starts operating or after it has stopped, it will not be possible to continue sewing from the point where sewing was paused.

Document CD



For cleaning, standard adjustments and more details, please refer to the instruction manual contained in the Document CD.

3168M

Contents of the Document CD

The following documents are contained in PDF format.

- Basic Operation Manual
- Instruction Manual
- Parts Book

How to use the Document CD

Refer to "Using Document CD" which comes with the Document CD or the help function of the Document CD.

Recommended system configuration for using the Document CD

OS:	Microsoft® Windows® 98 Second Edition, Windows® 2000 Service Pack 4, Windows® XP Service Pack 2
Browser version:	Microsoft® Internet Explorer 6 Service Pack 1 or higher
Screen resolution:	1024 x 768 pixels or more
Plug in (required to access):	Adobe Reader 6.0 or higher

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