

# BAS-364E,366E BAS-370E,375E

INSTRUCTION MANUAL

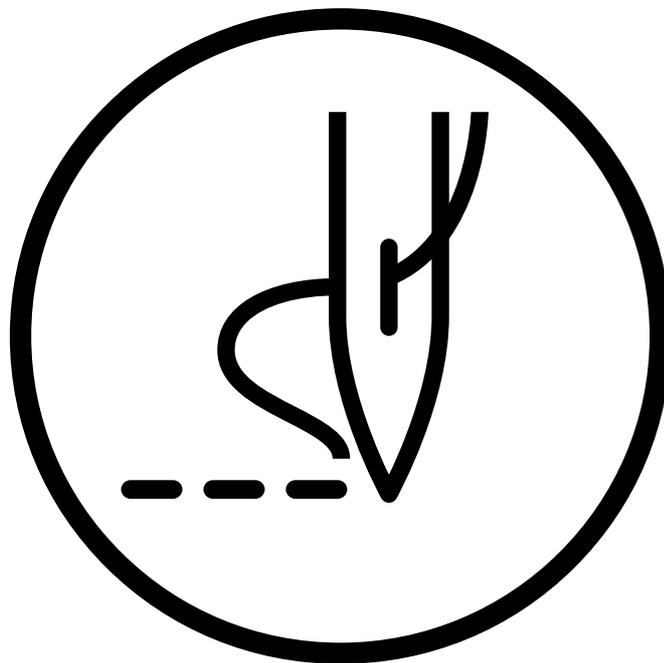


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Please read this manual before using the machine.  
Please keep this manual within easy reach for quick reference.

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PROGRAMMABLE ELECTRONIC PATTERN SEWER



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**brother**<sup>®</sup>

Thank you very much for buying a BROTHER sewing machine. Before using your new machine, please read the safety instructions below 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 the machine 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



The instructions which follow this term indicate situations where failure to follow the instructions will almost certainly result in death or severe injury.



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 face plate of the control box Leg cover. 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 high-frequency welders. 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 electrical consumption. Insufficient power supply capacity may cause problems with correct operation.
-  The air supply should have a capacity greater than the machine air consumption. If air is not supplied sufficiently, a machine malfunction may occur.
-  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.
-  Avoid exposure to direct sunlight during use. Exposure to direct sunlight 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 more than BAS-364E, 366E are 400 kg, BAS-370E, 375E are 600 kg. The installation should be carried out by two or more people.
-  Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is pressed by mistake, which could result in injury.
-  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 tube 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.
-  Use the arm motor cover with the leg cover installed.
-  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 and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

# CAUTION

## Sewing

-  This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.
-  The sewing machine should not be used for any applications other than sewing.
-  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.
-  Set the needle to the needle up stop position before turning on the power.
-  Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is pressed by mistake, which could result in injury.
  - When replacing the needle
  - When not using the machine and when leaving the machine unattended
-  Secure the legs of the table on a level surface so that the sewing machine does not move.
-  Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.
-  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.
-  If an error occurs in machine, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest Brother dealer or a qualified technician.
-  If the machine develops a problem, contact your nearest Brother dealer or a qualified technician.

## Cleaning

-  Set the needle to the needle up stop position before turning on the power.  
If this is not done, the wiper may strike the needle, which might cause the needle to break.
-  Turn off the power switch before carrying out cleaning, otherwise the machine may operate if the foot switch is pressed by mistake, which could result in injury.
-  Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result.  
Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea.  
Keep the oil out of the reach of children.

## Maintenance and inspection

-  Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
-  Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.
-  Set the needle to the needle up stop position before turning on the power.
-  Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is pressed by mistake, which could result in injury.
  - When carrying out inspection, adjustment and maintenance
  - When replacing consumable parts such as the rotary hook
-  If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.  
  
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.
-  Use only the proper replacement parts as specified by Brother.
-  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.
-  Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.

### 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

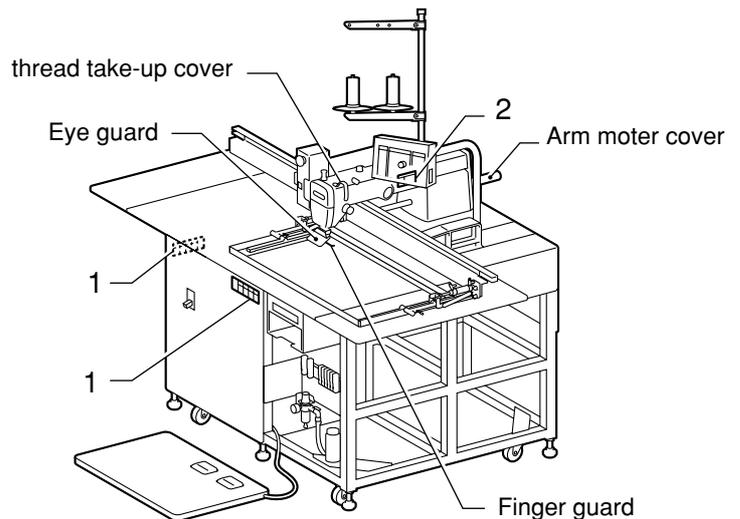
	<b>⚠ DANGER ⚠ GEFAHR ⚠ DANGER ⚠ PELIGRO</b>			
	<p>Hazardous voltage will cause injury.</p> <p>Turn off main switch and wait 5 minutes before opening this cover.</p>	<p>Hochspannung verletzungsgefahr!</p> <p>Bitte schalten sie den hauptschalter aus und warten sie 5 minuten, bevor sie diese abdeckung öffnen.</p>	<p>Un voltage non adapté provoque des blessures.</p> <p>Eteindre l'interrupteur et attendre 5 minutes avant d' ouvrir le capot</p>	<p>Un voltaje inadecuado puede provocar las heridas.</p> <p>Apagar el interruptor principal y esperar 5 minutos antes de abrir esta cubierta.</p>

2

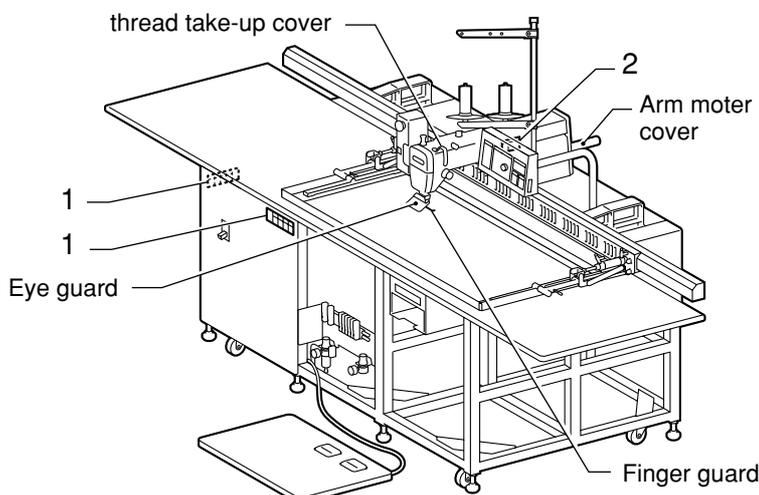
<b>⚠ CAUTION</b>	
	<p>Moving parts may cause injury.</p>
	<p>Operate with safety devices.</p> <p>Turn off main switch before changing needle, cleaning etc.</p>

Safety devices: Thread take-up cover, Belt cover, Eye guard, Finger guard, Arm motor cover, etc.

\* BAS-364E, 366E



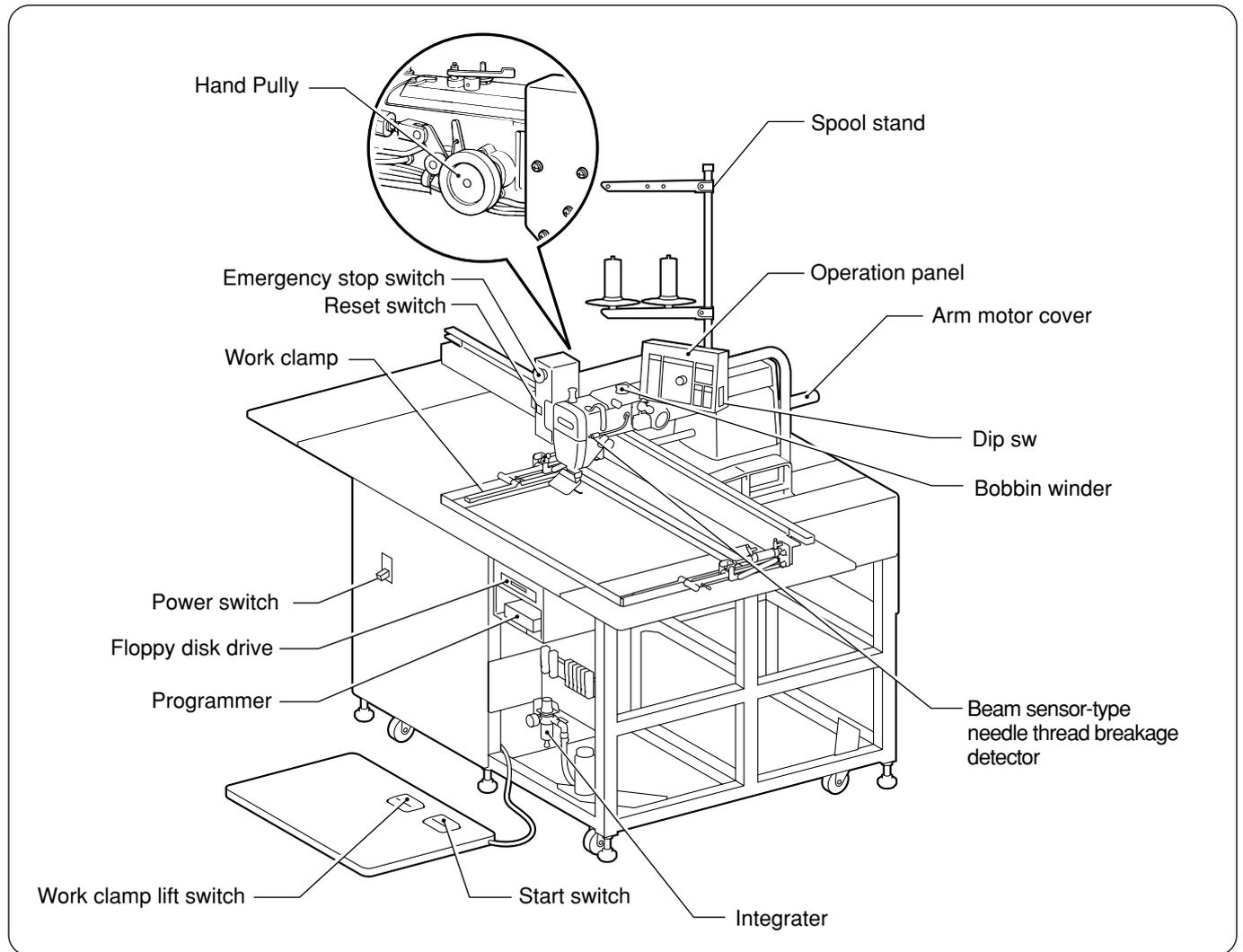
\* BAS-370E, 375E



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# Chapter 1 NAME OF MAJOR PARTS



# Chapter 2 SPECIFICATIONS

Stitch type	Single needle, lock stitch		
Sewing machine	Lock stitch, double rotary hook, long arm machine		
Rotary hook	Double rotary hook		
Needle	DPX17, MR		
Stitch length	0.05 - 12.7 mm		
Max. sewing speed	intermittent feed mode	2,000 rpm (Max. stitch length 3 mm)	
	continuous feed mode	3,200 rpm (Max. stitch length 3 mm)	
Max. pattern size (X - Y)	420 × 400 mm ..... (BAS-364E)		
	650 × 400 mm ..... (BAS-366E)		
	800 × 400 mm ..... (BAS-370E)		
	1,200 × 400 mm ..... (BAS-375E)		
Max. number of stitches	20,000 stitches per pattern		
Work clamp lift stroke	Max. 50 mm		
Intermittent lift stroke	16 mm		
Test function	Operation test function provided for use with low speed drive		
Safety devices	Automatic stop function for activation in the event of misoperation realized with intermediate stop function and safety circuits		
Machine dimensions	W. 1,624 mm	D. 1,100mm	H. 1,868mm ..... (BAS-364E)
	1,624mm	1,557mm	1,868mm ..... (BAS-366E)
	1,625mm	1,820mm	1,868mm ..... (BAS-370E)
	1,625mm	2,620mm	1,868mm ..... (BAS-375E)
Data storage method	3.5 - floppy disc 2HD/ 1.44 MB, 2DD		
Power supply	Three phase 220V, 380V, 400V 1KVA		
Motor	AC Servo motor 750W		
Air pressure	0.5 MPa 1.8 l/ min		
Weights	BAS-364E	BAS-370E	
	BAS-366E 400kg	BAS-375E 600kg	

# Chapter 3 INSTALLATION

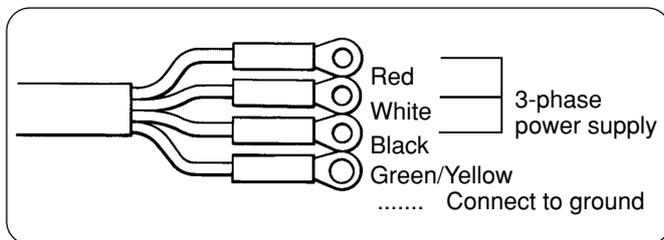
## ⚠ CAUTION

-  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 head weighs more than 65 kg. The installation should be carried out by two or more people.
-  Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
-  Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock.
-  Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.
-  Avoid setting up the sewing machine near sources of strong electrical noise such as highfrequency welding equipment. If this precaution is not taken, incorrect machine operation may result.

## 1. Connecting the ground wire

### ⚠ DANGER

-  Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock.

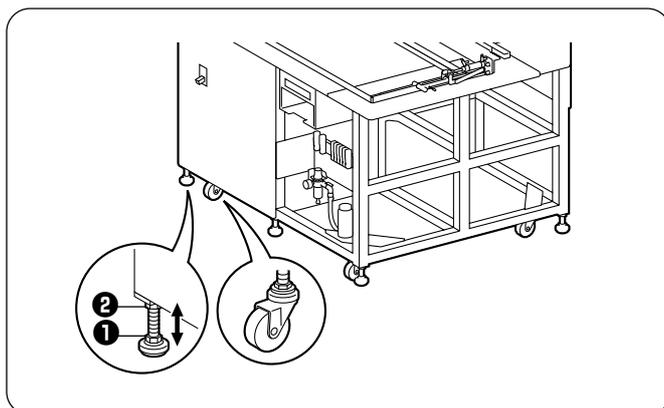


Connection method for 3-phase power supply

## 2. Positioning

### Note

- Disconnect the power supply from the special socket after install has been completed.
- Be sure to connect the ground. If it is not connected, damage to the machine, incorrect operation and electric shocks may result.



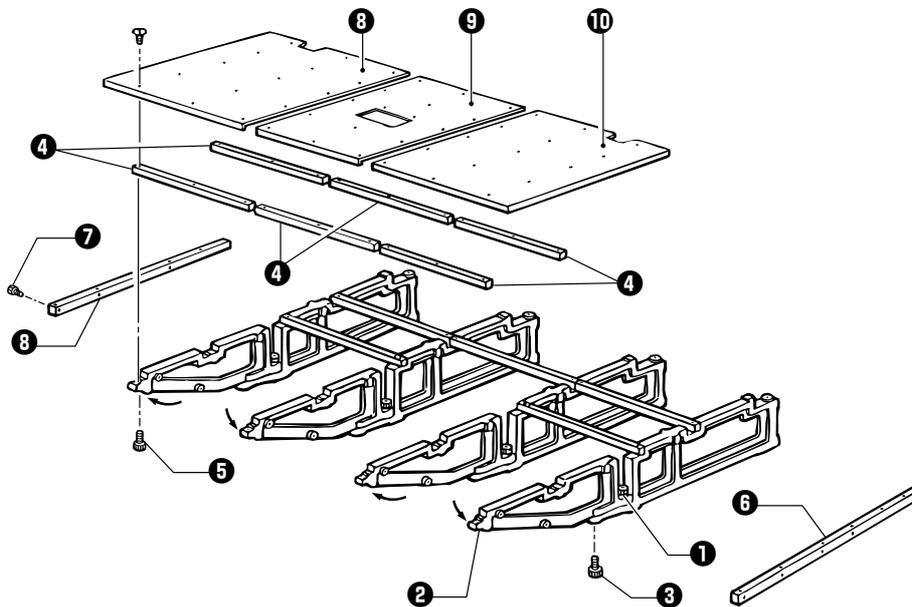
Decide the position for the sewing machine. Loosen nuts of six level adjusters ❶. Lower the level adjusters and secure them with nuts ❷. Turning the level adjuster counterclockwise will raise its height and turning it clockwise will lower it.

### Note

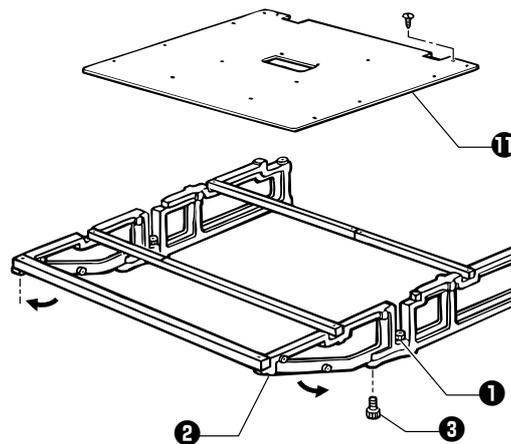
If the level adjusters are not secured properly, the machine may move during operation, which could result in injury or damage.

## 3. Installing the needle plates

\* For BAS-370E, 375E

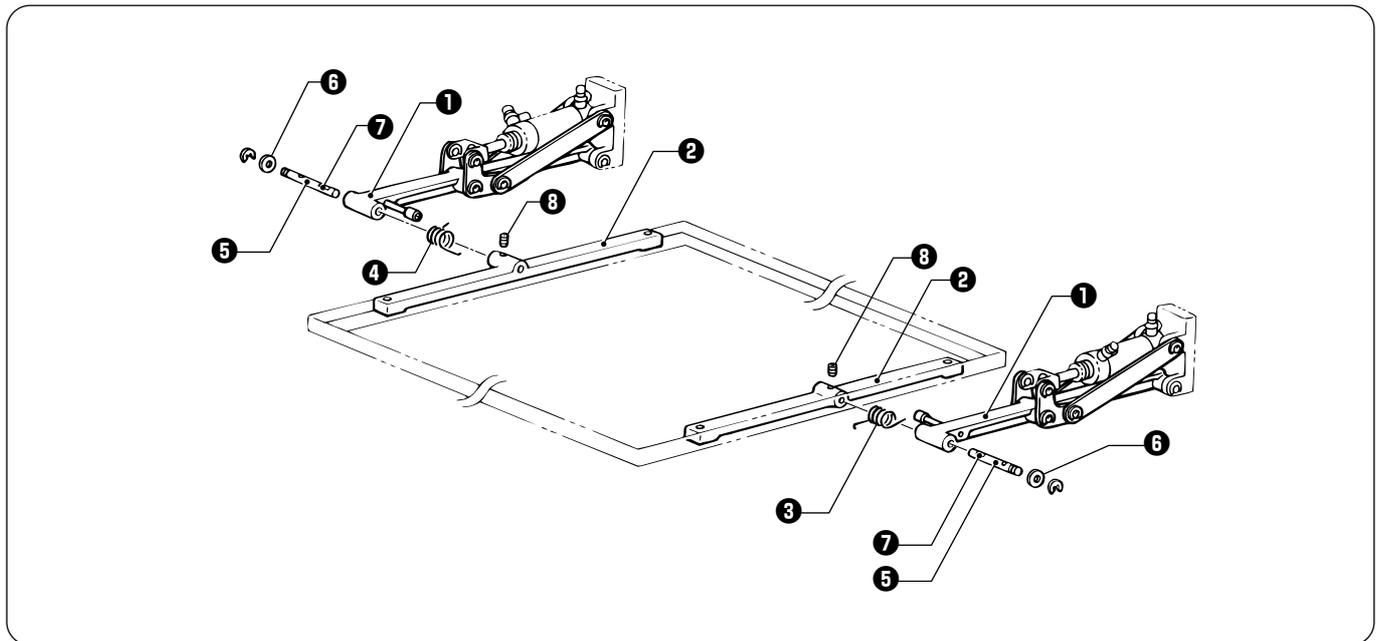


\* For BAS-364E, 366E



1. Loosen the bolts **1**, and then pull the needle plate support bases **2** to the outside.
2. Secure the needle plate support bases **2** by tightening the bolts **1** and the bolts **3**.
3. Install the needle plate support brackets **4** to the needle plate support bases **2** by tightening the bolts **5** from below.
  - \* For the BAS-366E and BAS-375E, install the needle plate support brackets **6** to the needle plate support brackets **4** with the bolts **7**.
4. Place the screw holes in the left needle plate **8**, center needle plate **9** and right needle plate **10** on top of the needle plate support bases **2** so that the screw holes are aligned, and then secure them by tightening the screws.
  - \* For the BAS-364E, install the center needle plate **11** only.

## 4. Installing the work clamp hinge



1. Clamp hinge spring (R) ③ and hinge spring (L) ④ with the work clamp arm ① and work clamp hinge ②.
2. After placing the thrust washer ⑥ onto Y pulley shaft (A) ⑤, insert Y pulley shaft (A) ⑤ into the work clamp arm ① and work clamp hinge ②.

**Note**

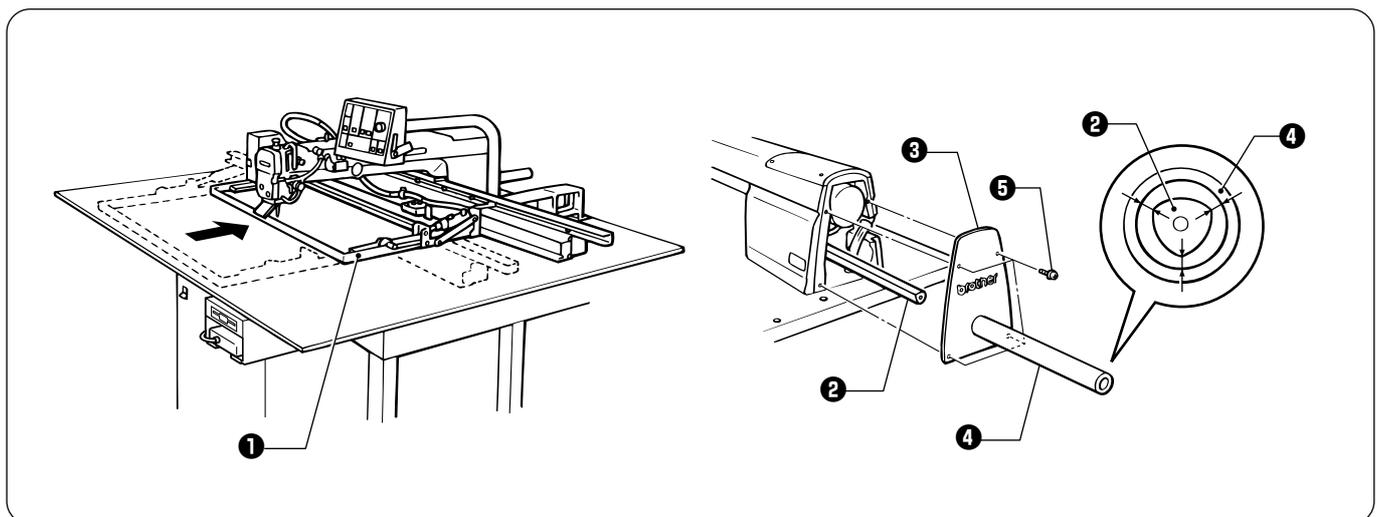
Insert Y pulley shaft (A) ⑤ into the hole of the work clamp hinge ② so that the screw stop ⑦ is facing upward.

3. Secure the work clamp hinge ② and Y pulley shaft (A) ⑤ with the set screw ⑧.

**Note**

Make sure that the set screw ⑧ goes into the screw stop ⑦ of Y pulley shaft (A) ⑤.

## 5. Installing the arm motor cover



1. Move the feed mechanism ① manually until it is as far into the machine as it will go.  
(The ball spline ② should be extended fully toward the front when looking from behind the arm.)
2. Align the arm motor cover ③ with the rear of the arm so that there is even clearance between the tube section ④ and the ball spline ②, and then secure with the accessory screws ⑤.

**Note**

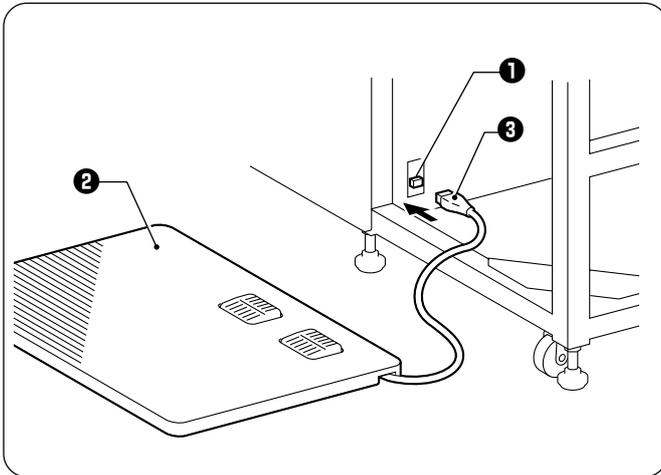
If noise is heard from the tubular section ④ of the arm motor cover ③ while the machine is operating, adjust the installation position of the arm motor cover ③ according to the procedure in step 2. above.

## 6. Installing the foot switch

### ⚠ CAUTION

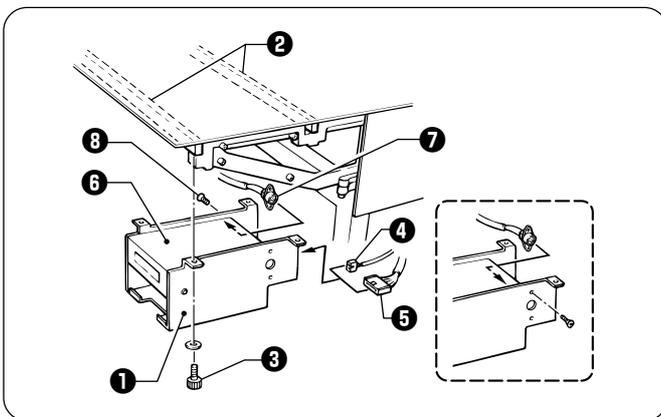


Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



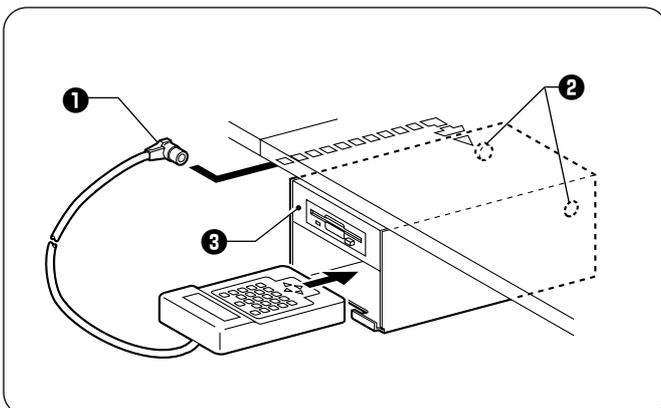
Be sure to attach the connector **3** of the foot switch **2** to the connector **1** whose cord comes from the center of the front cover at the bottom of the machine.

## 7. Installing the programmer box



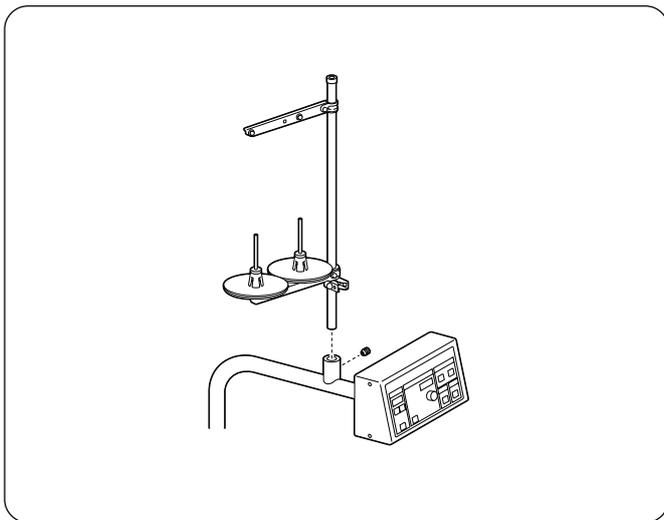
1. Attach the programmer box **1** to the needle plate support **2** using the screws.
2. Be sure to attach the two connectors **4** and **5** to the respective receptacles on the rear of the floppy disk drive **6**.
3. Attach the connector **7** to the side of the programmer box **1** using the two screws **8**.

## 8. Installing the programmer



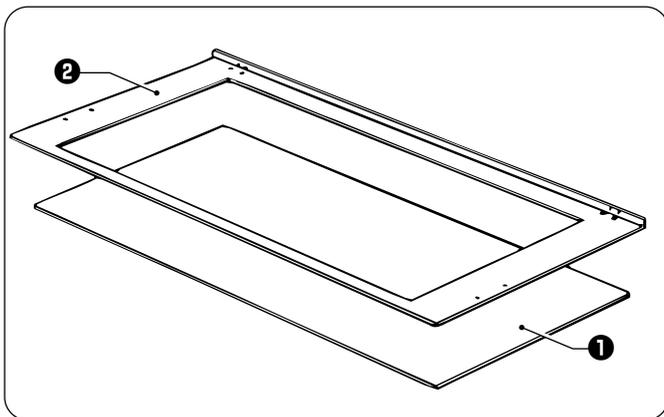
1. Insert the cord **1** of the programmer into the connector **2** below the needle plate.
2. The programmer can be placed inside the box **3**.

## 9. Installing the spool stand



Install the spool stand to the support of the panel.

## 10. Preparation of cassette



When not using the presser plate lower **1**, put the teflon tape on the rear of the cassette **2**.

### Note

If tape is not attached to the rear of the cassette, the top of the needle plate will become dirty, which could cause the material to become dirty.

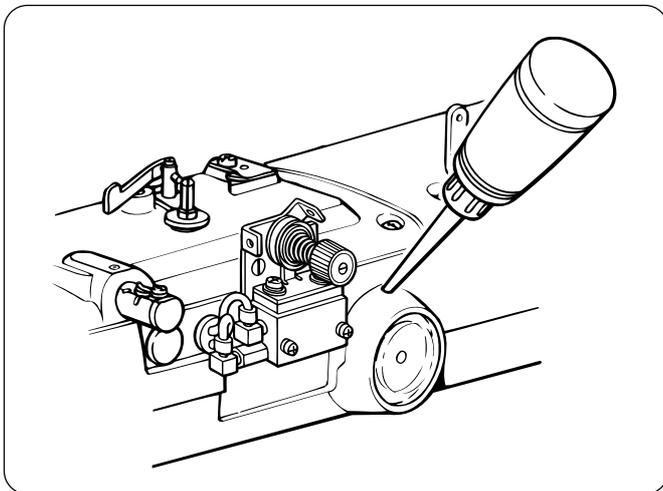
# 11. Lubrication

## ⚠ CAUTION

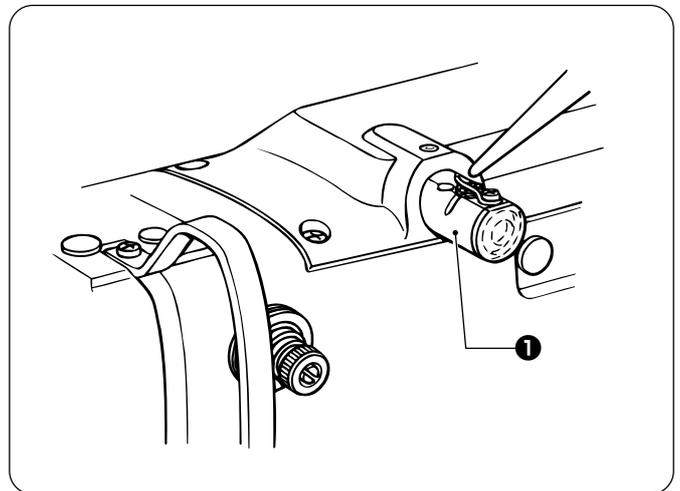
-  Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
-  Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

### Note

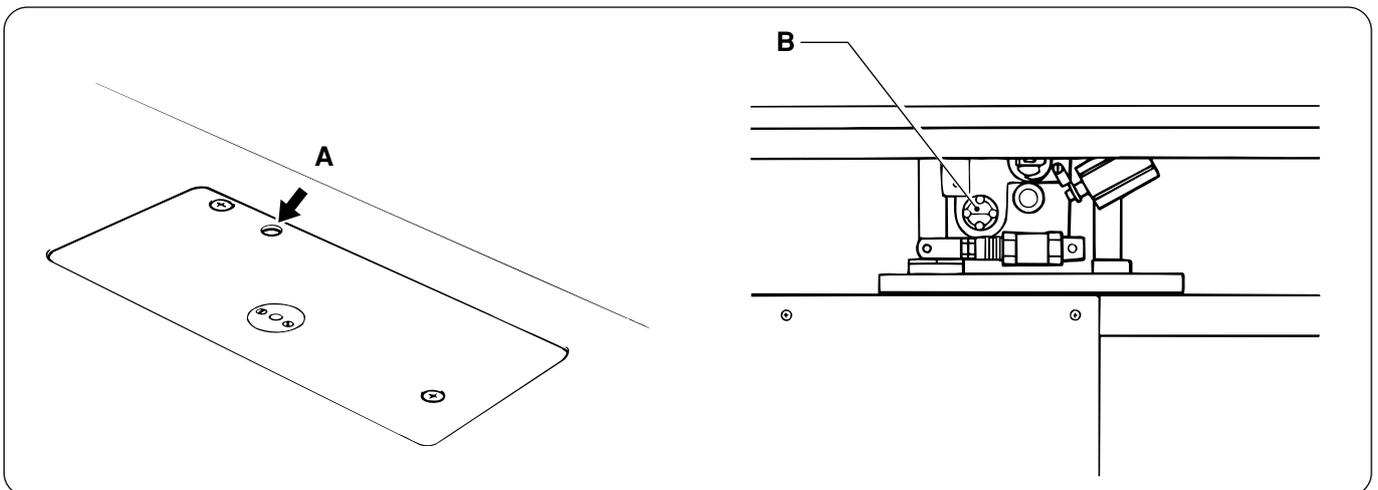
- Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass. If oil is not added and the oil drops below this level, there is the danger that the machine may seize during operation.
- Be sure to let the machine operate for a while after adding the oil.
- Be sure to use Brother-specified machine oil (Nisseki Sewing Lub. 10).



1. Fill the oil tank with sewing machine oil.

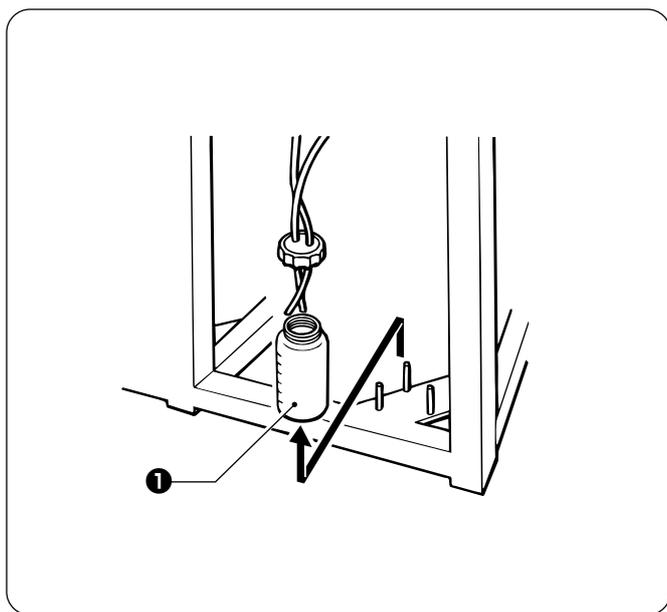


2. Fill the cooling tank ❶ with silicon oil.



3. Once or twice a week, fill the rotary hook lubrication tank B with machine oil from lubrication oil hole A until the tank is approximately two-thirds full. If more oil than this is added, oil may leak from the rotary hook.

## 12. Draining oil



Remove and empty the waste oil tank ❶ whenever it is full.

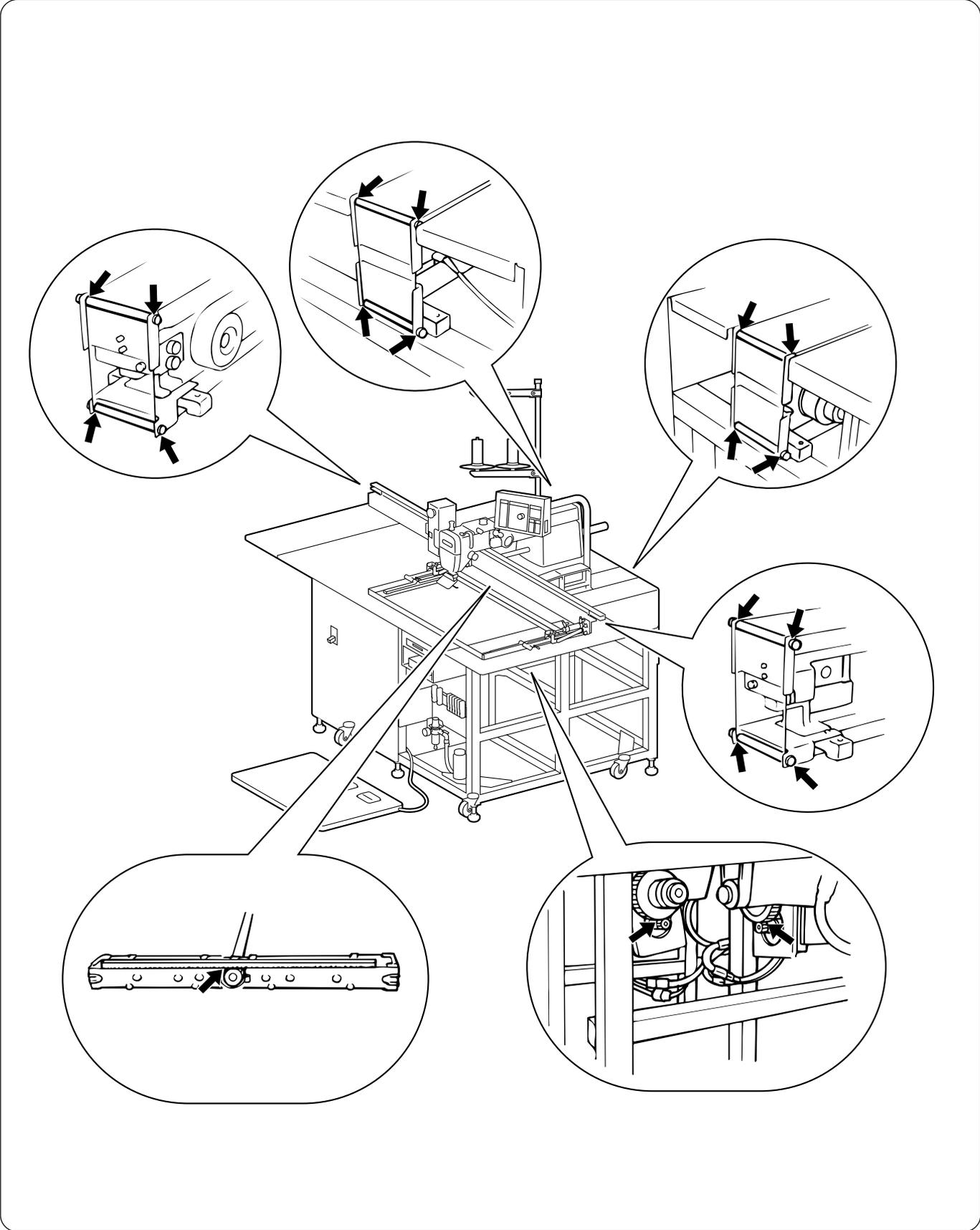
The waste oil tank ❶ is underneath the front right leg.

# 13. Applying grease

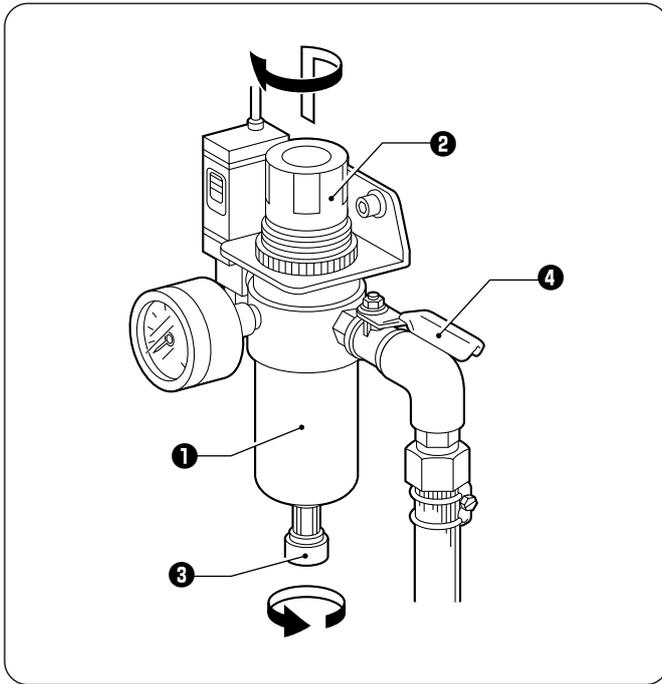
If the grease has run out, apply more grease in the places indicated by the arrows below.

**Note**

If you continue to operate the machine without any grease, it will cause abnormal noise and malfunctions to occur.



## 14. Adjusting the air pressure



1. Air pressure should be 0.5 MPa.

The air pressure can be adjusted by pulling up and turning the control knob ② on the integrator ①.

After adjustment is complete, push the control knob ② downward to lock it.

2. If water stands in the bottle of the integrator ①, turn the drain cock ③ in the direction indicated by an arrow to drain the water.

### Note

Open the air cock ④ slowly.

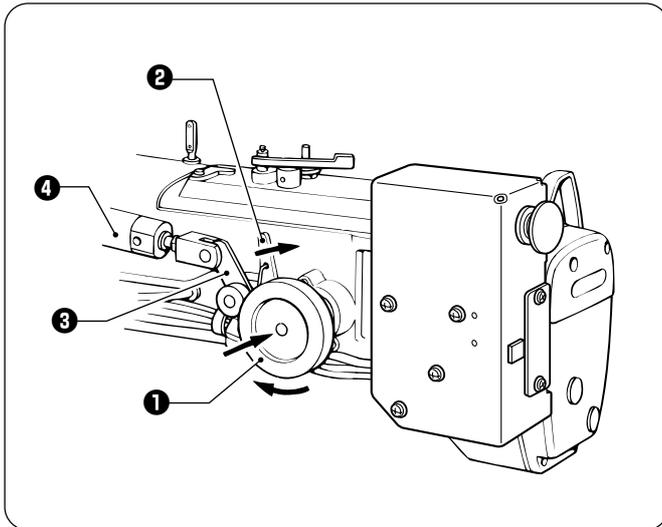
# Chapter 4 CORRECT OPERATION

## 1. Turning the pulley by hand

### ⚠ CAUTION



If the power switch and air need to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.



After pressing the hand pulley **1** in, it can then be turned by hand. To return the hand pulley **1**, pull the lever **2** toward you.

\* Furthermore, the hand pulley **1** will automatically return to its original position at the sewing start and when the work clamp is raised and lowered.

#### Note

Do not touch the hand pulley **1**, lever **2**, work clamp lifter arm **3** or cylinder **4** while the machine is operating and when the work clamp is being raised and lowered, otherwise injury may result.

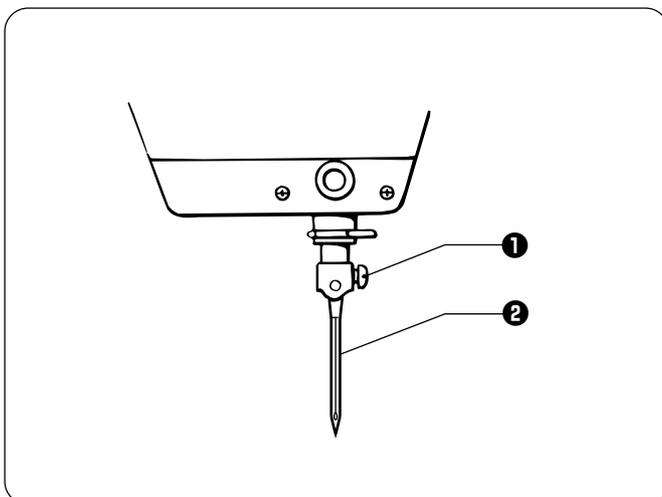
## 2. Installing the needle

### ⚠ CAUTION



Turn off the power switch at the following times, otherwise the machine may operate if the start switch is pressed by mistake, which could result in injury.

- When replacing the needle



Loosen set screw **1**. Fully insert the needle **2** with the groove facing the front, and then retighten set screw **1**.

#### Note

- Always make sure that the needle **2** is fully inserted facing the front.
- If the needle is installed incorrectly, problems such as needle breakage may occur.

### 3. Threading the upper thread

#### CAUTION

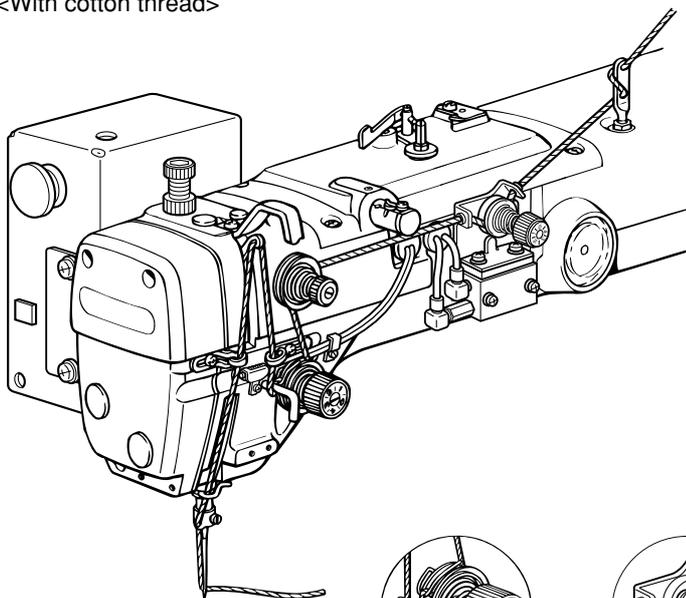


If the power switch needs to be left on when carrying out threading, be extremely careful to observe all safety precautions.

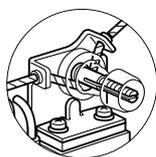
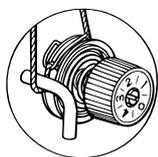
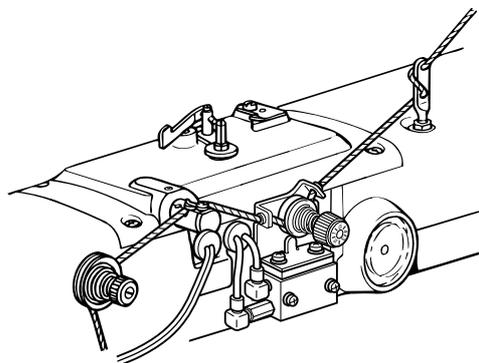
The machine may operate if the foot switch is depressed by mistake, which could result in injury.  
(ex. Continuing sewing from a stopping point)

Thread the upper thread as shown in the diagrams below.

<With cotton thread>



<With synthetic thread>



Hole inclination 45°

## 4. Winding the lower thread

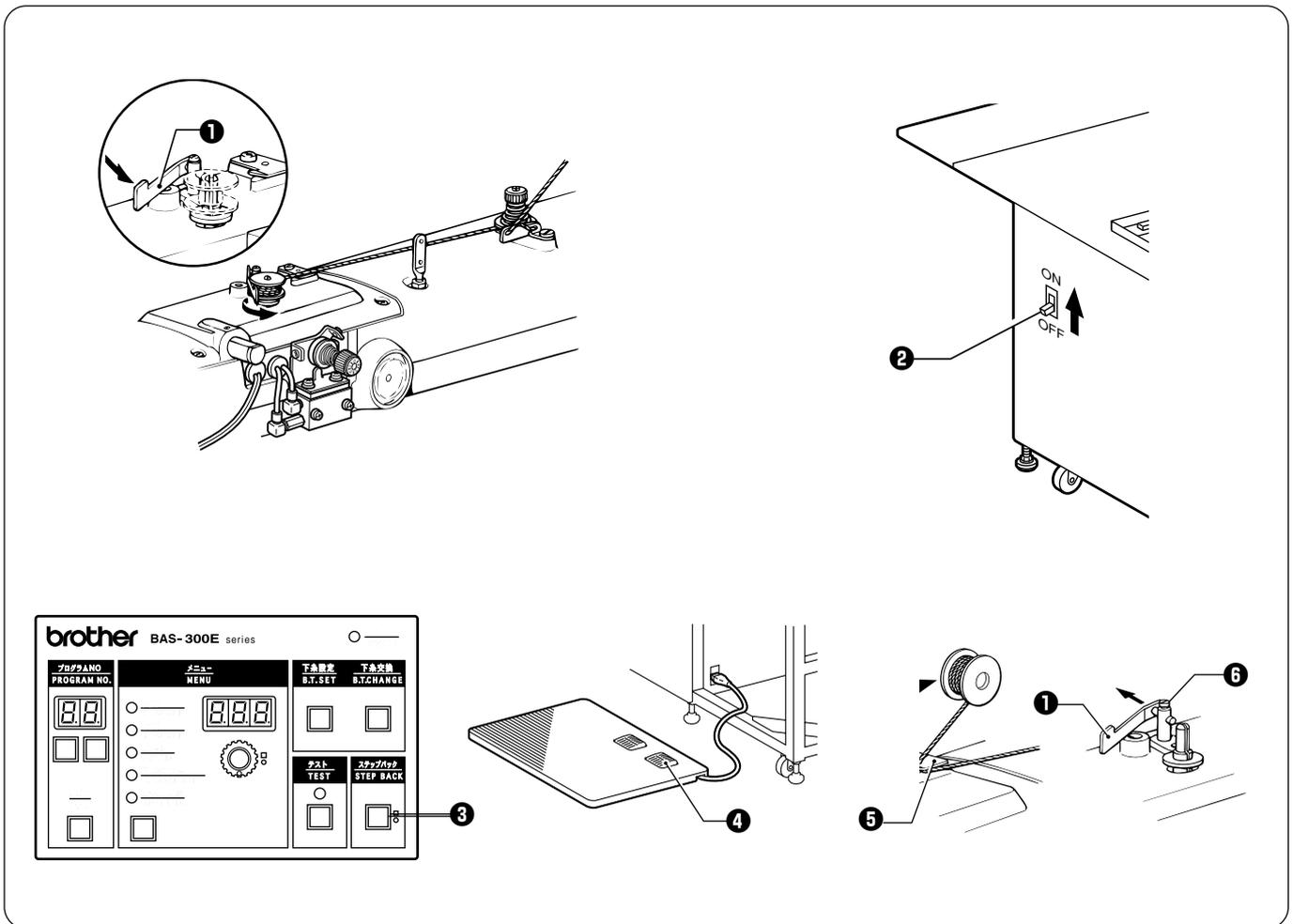
### CAUTION



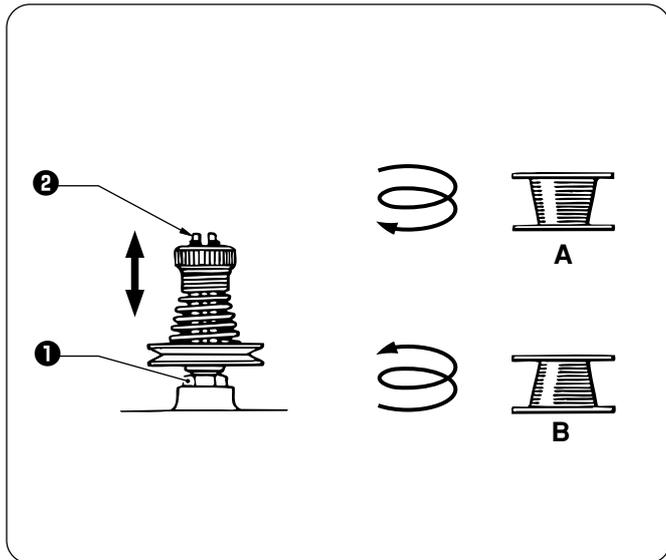
Do not touch any of the moving parts or press any objects against the machine while the bobbin is turning, as this may result in personal injury or damage to the machine.

#### Note

Do not touch the bobbin or the bobbin holder while the bobbin is turning, otherwise injury may result.



1. Slide the bobbin all the way onto the spindle.
2. Thread the thread as shown in the illustration (in the case of the BAS-364E and 366E, there is no lower thread guide **7**), wind the thread around the bobbin several times in the direction shown by the arrow, and then press the bobbin presser **1**.
3. Turn the power switch **2** on.
  - The power indicator on the operation panel will light.
4. Press and hold the STEP BACK switch **3** on the operation panel, and depress the start switch **4** to start the sewing machine.
  - Keep the start switch depressed until the bobbin is fully wound.
  - Release the STEP BACK switch **3** when the sewing machine starts.
5. The bobbin holder **1** will automatically return when the bobbin is filled to capacity (approximately 80 - 90 % of the bobbin diameter).
6. Release the start switch **4**.
7. Remove the bobbin, and pull the bobbin in the direction of the arrow to cut the thread on the thread cutter **5**.
8. To wind more thread onto the bobbin, loosen the set screw **6** and move the bobbin holder **1** out in the direction of the arrow.



**Note**

If the bobbin thread is wound unevenly onto the bobbin, loosen nut ①, and turn thread tension stud ② to adjust so that the thread is wound evenly. If the bobbin is wound as in Fig. A, turn the stud clockwise, if Fig. B, turn the stud counterclockwise.

## 5. Installing the bobbin case

### ⚠ CAUTION

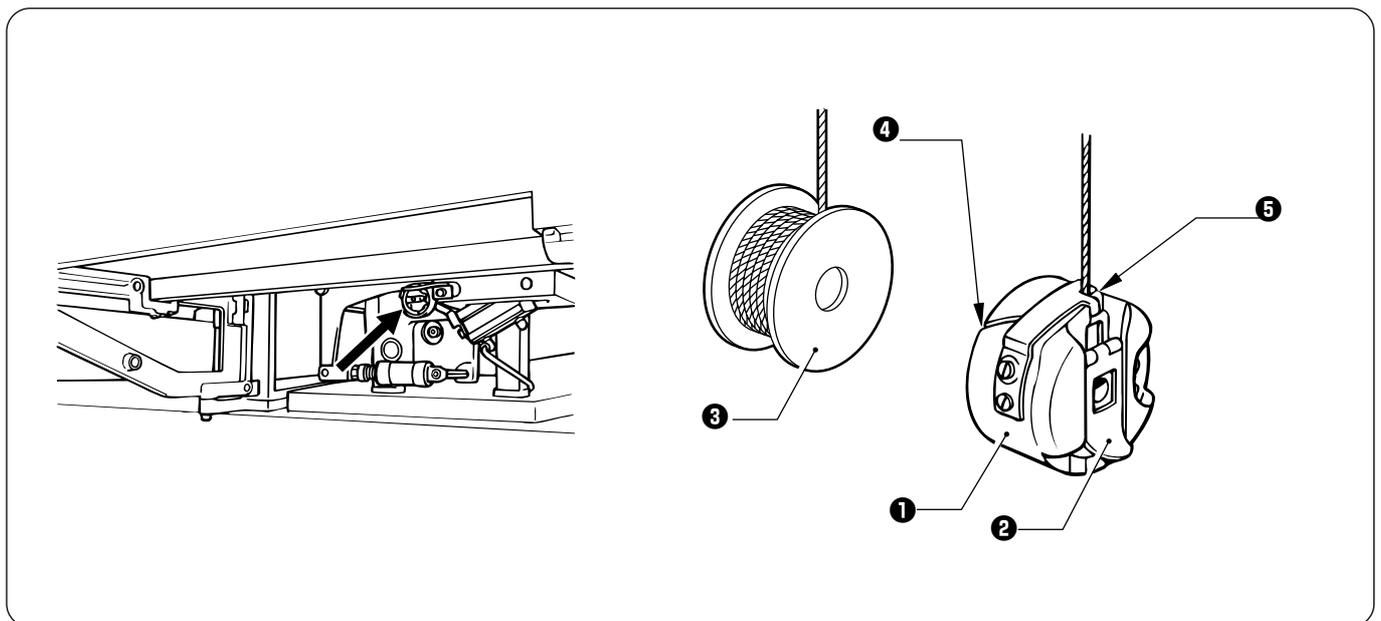


If the power switch needs to be left on when carrying out replacing the bobbin, be extremely careful to observe all safety precautions.

The machine may operate if the foot switch is depressed by mistake, which could result in injury. (ex. Continuing sewing from a stopping point)

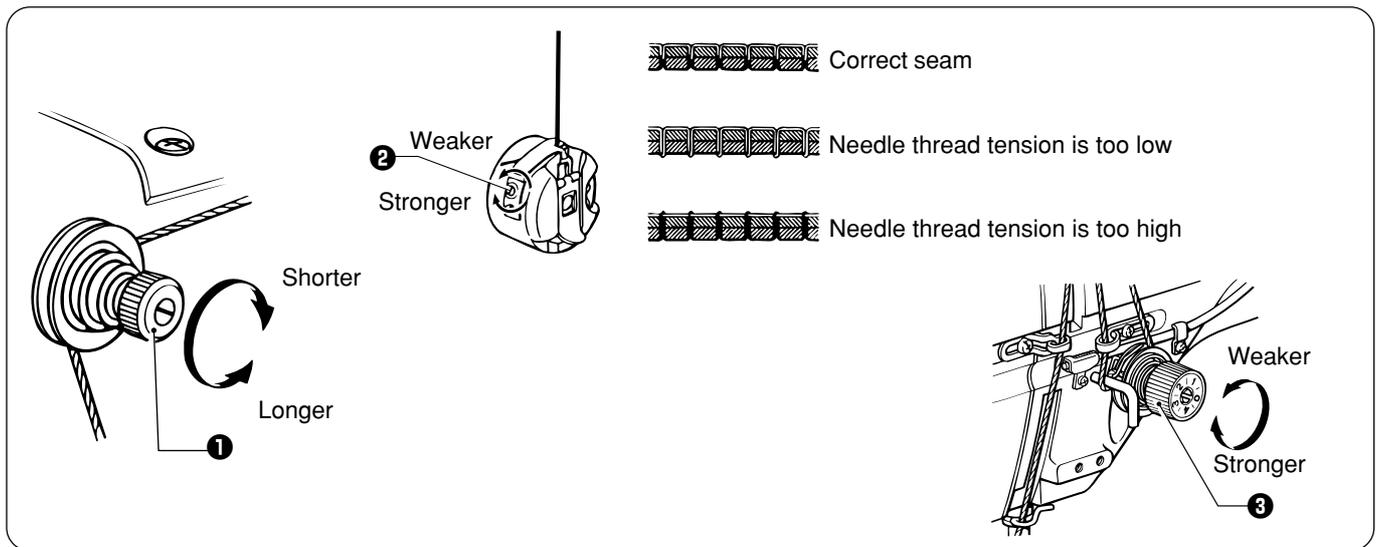
**Note**

- Do not replace the bobbin or put your hand close to the bobbin case while the machine is operating.
- Do not operate the machine while replacing the bobbin, otherwise injury and damage could result.

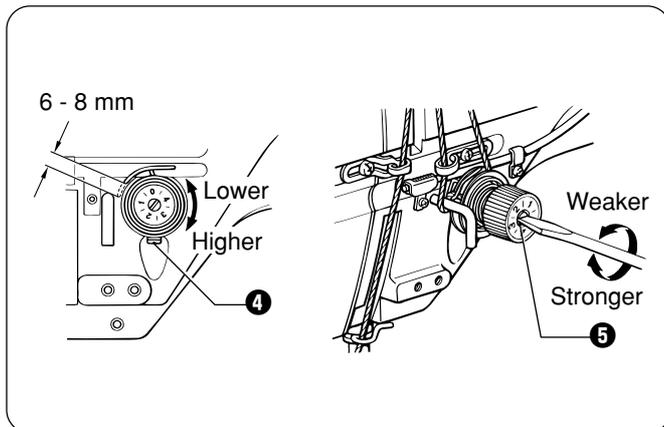


1. Raise the bobbin case latch ②, and then remove the bobbin case ① from inside the rotary hook at the front of the machine head.
2. While the bobbin case latch ② is still lowered, remove the bobbin ③ from the bobbin case ①.
3. Place a new bobbin with the bobbin thread already wound on into the bobbin case ①, and then pass the thread through the slot ④ and pull it out from the thread hole ⑤.

## 6. Thread tension



1. Turn the adjustment screw **1** to adjust so that the length of the thread remaining at the needle point when the needle bar is at its highest position after thread trimming is 40 - 45 mm.
2. The bobbin thread tension should be adjusted so that when the thread is held the bobbin will not descend of its own weight. Turn tension screw **2** to adjust.
3. Turn tension screw **3** to adjust the needle thread tension.



4. The standard operating range for the thread take-up spring (for heavy materials) is 6 - 8 mm. If adjustment is required, loosen the set screw **4** and then turn the needle thread tension adjuster. If adjustment of the thread take-up spring tension is required, turn the thread tension control stud **5** with a screwdriver.

* Medium materials	3 - 5 mm
Heavy materials	6 - 8 mm
Air bags	-1 - 2 mm

## 7. Work clamp

### CAUTION



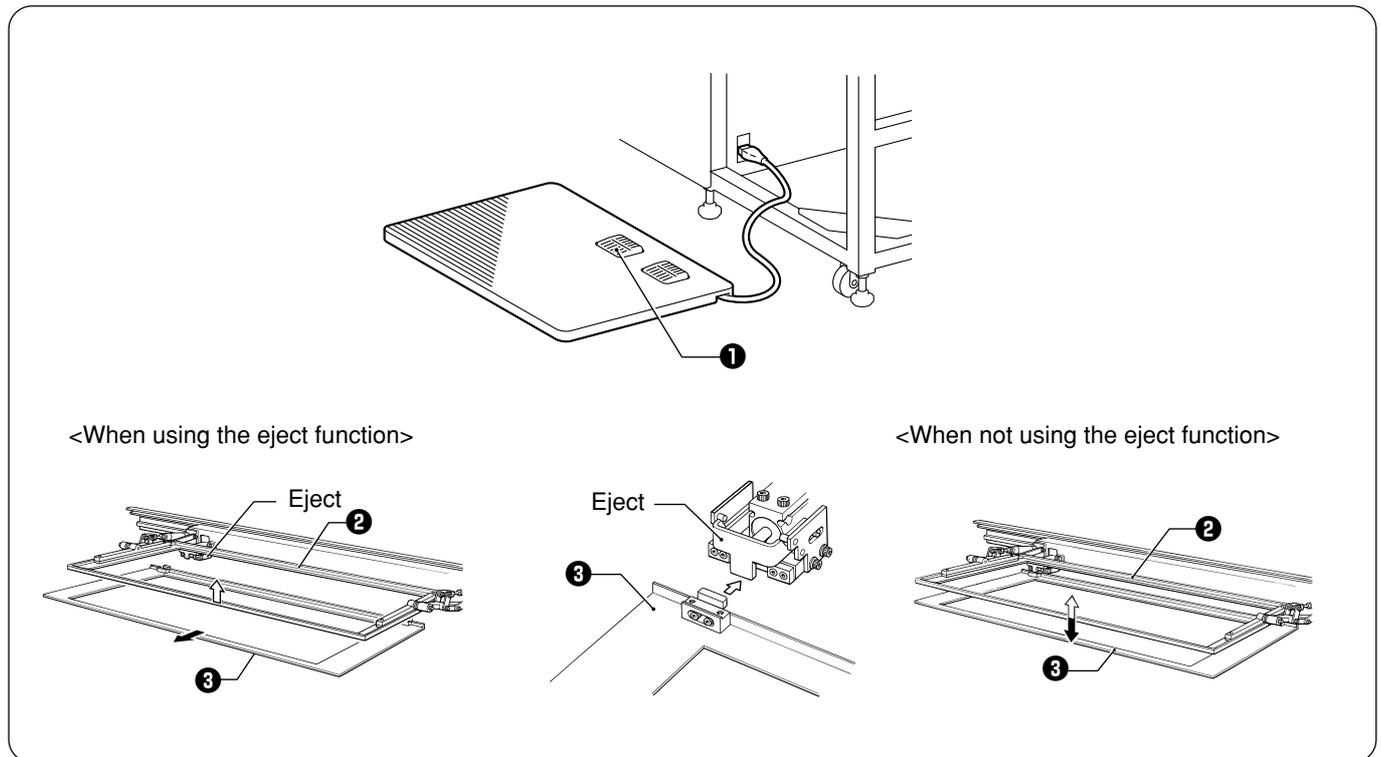
If the power switch and air need to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.



Do not touch any of the moving parts or press any objects against the machine when making adjustments, as this may result in personal injury or damage to the machine.

#### Note

Do not touch the upper work clamp mechanism, eject mechanism, upper work clamp, work clamp or cassette when depressing or pressing the work clamp lifter switch to operate the eject mechanism or the upper work clamp, otherwise injury may result.



The following two methods of setting the work clamp can be selected by means of the memory switch on the operation panel.

Refer to “Chapter 11 CHANGING SPECIAL FUNCTIONS AND USING THE MEMORY SWITCHES”.

Air bags specification: The upper work clamp ② is not equipped.

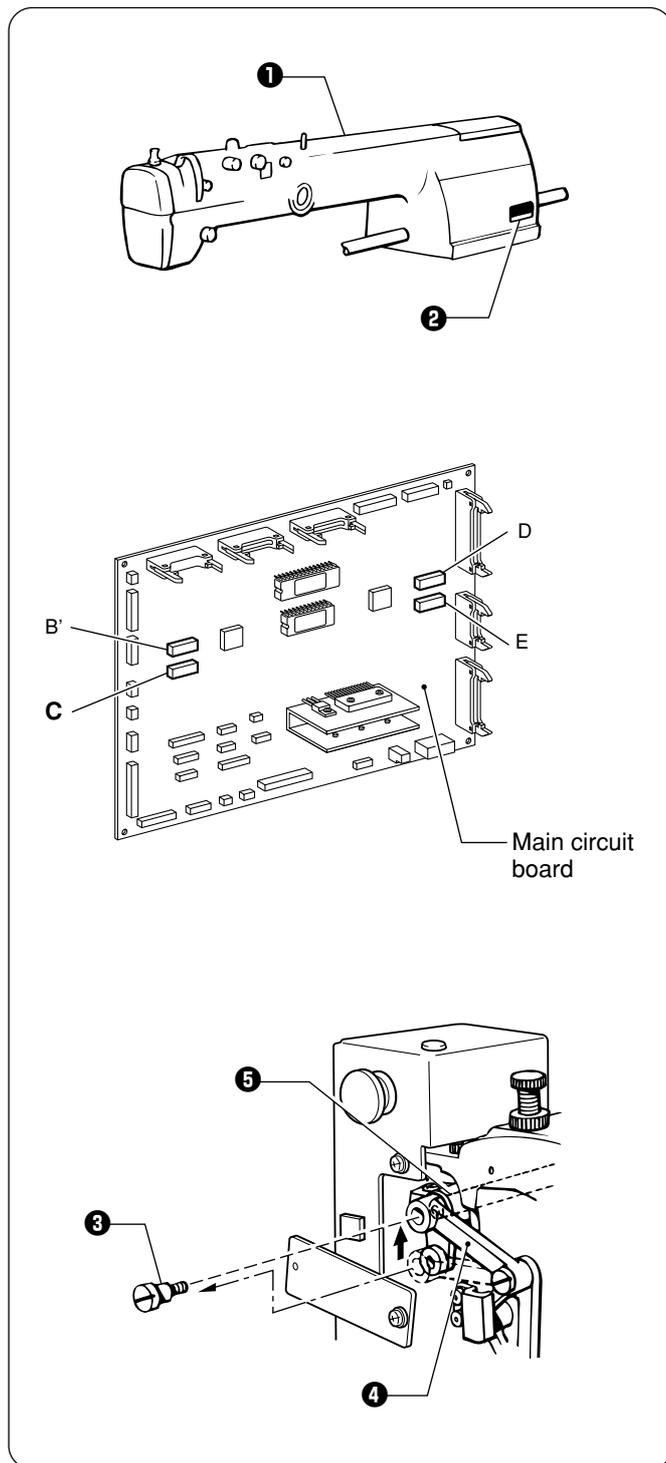
#### <When using the eject function>

1. Set the memory switch No. 03 to on .
2. Depress the work clamp lift switch ①.
  - The upper work clamp ② will be raised, and the eject mechanism will open and release the cassette ③.
3. Insert the cassette ③.
  - The cassette ③ will be secured and the upper work clamp ② will be lowered automatically.

#### <When not using the eject function>

1. Set the memory switch No. 03 to off.
2. Depress the work clamp lift switch ①.
  - The upper work clamp ② only will be raised.
  - The cassette ③ will not be released.
3. Depress the work clamp lift switch ① once more.
  - The upper work clamp ② will be lowered.

## 8. Selecting intermittent feed or continuous feed



### CAUTION



Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

Check the model number ② on the model plate on the side of the sewing machine arm ①.

1. When the model number is either BAS-364E-02, BAS-366E-02, BAS-370E-02, BAS-375E-02, select intermittent feed or continuous feed as follows:

#### Note

If DIP switch C-8 on the main circuit board is set to ON when link (L) is not reattached to the intermittent feed shaft, intermittent feed will be selected instead of continuous feed.

- When selecting intermittent feed (400 - 2000 rpm), set DIP switch C-8 on the main circuit board to OFF.
- When using continuous feed (400 - 3200 rpm), it is impossible to operate the presser foot intermittently. Remove the stud screw ③, and reattach link (L) to the intermittent feed shaft ⑤. Then, set DIP switch C-8 on the main circuit board to ON.

#### Note

Be sure to turn the power off before replacing link (L) ④, otherwise injury or damage may result.  
\* If DIP switch C-8 on the main circuit board is set to ON while the presser foot is operating intermittently, intermittent feed (400 - 2,000 rpm) will be selected instead of continuous feed (400 - 3,200 rpm).

#### For models other than those above

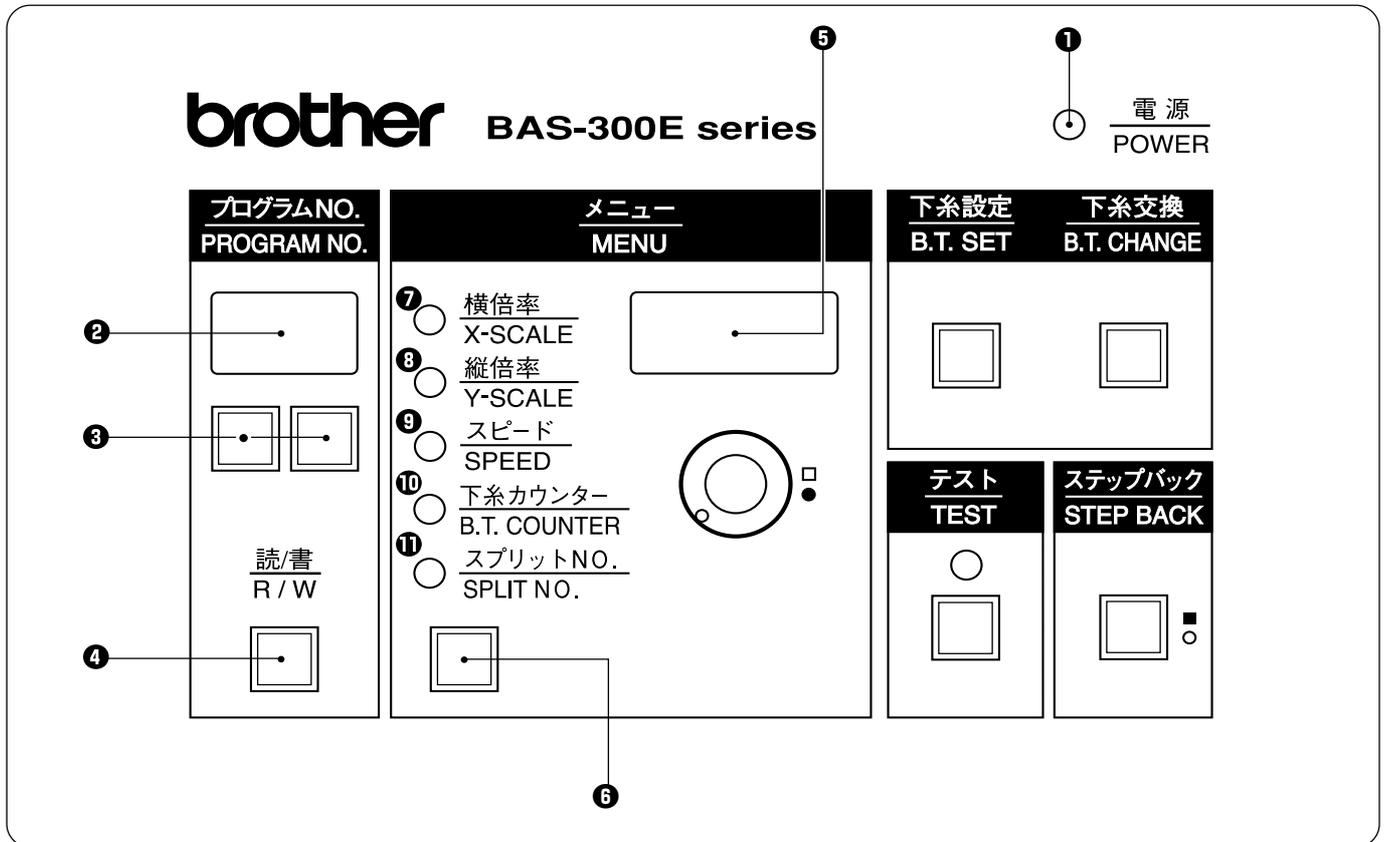
2. When the model number is either BAS-366E-01, BAS-364E-01, BAS-364E-11, BAS-370E-01, BAS-375E-01, continuous feed can not be used. Never change the setting of DIP switch as described in step 1..

#### Note

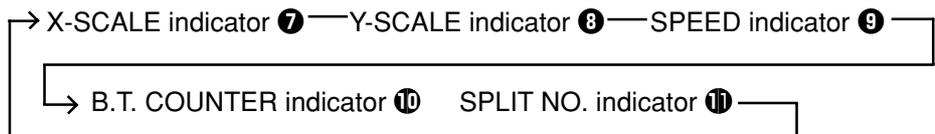
If you operate a machine with one of the above model numbers at continuous feed, problems such machine seizure will occur.

# Chapter 5 OPERATING PROCEDURE

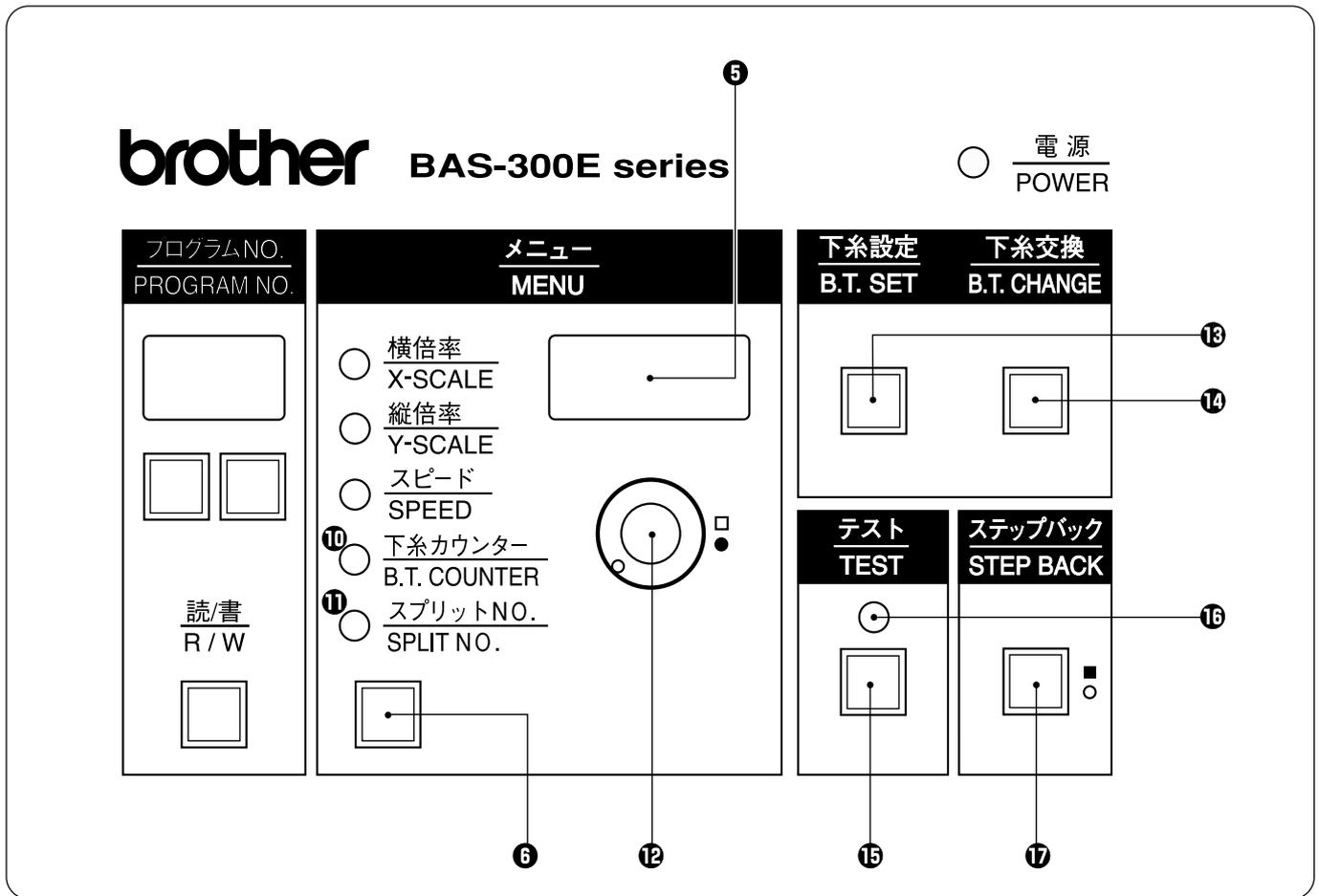
## 1. Part names and functions of the operation panel



- ❶ POWER indicator ..... When the power is turned on, the indicator lights to show that the power is on.
- ❷ PROGRAM No. display ..... Displays the program number 00 - 99.
- ❸ Program select switch ..... Used to select the program number when reading a program from or writing a program to disk.
- ❹ Program Read/Write switch ..... Used to read a program from floppy disk, or to write a newly programmed stitch pattern to floppy disk.  
Up to ten patterns (00 - 99) can be stored on each disk.
- ❺ Display screen ..... Used to display data such as menus, errors and memory switch settings.
- ❻ Menu switch ..... Used to select the desired menu (scale, speed, bobbin thread counter, split No.). One of the indicators ❷ - ❾ illuminates to indicate the menu selected, and the setting for that menu then appears on the display screen ❺.  
The illuminated indicator changes in the following order each time the switch is pressed.



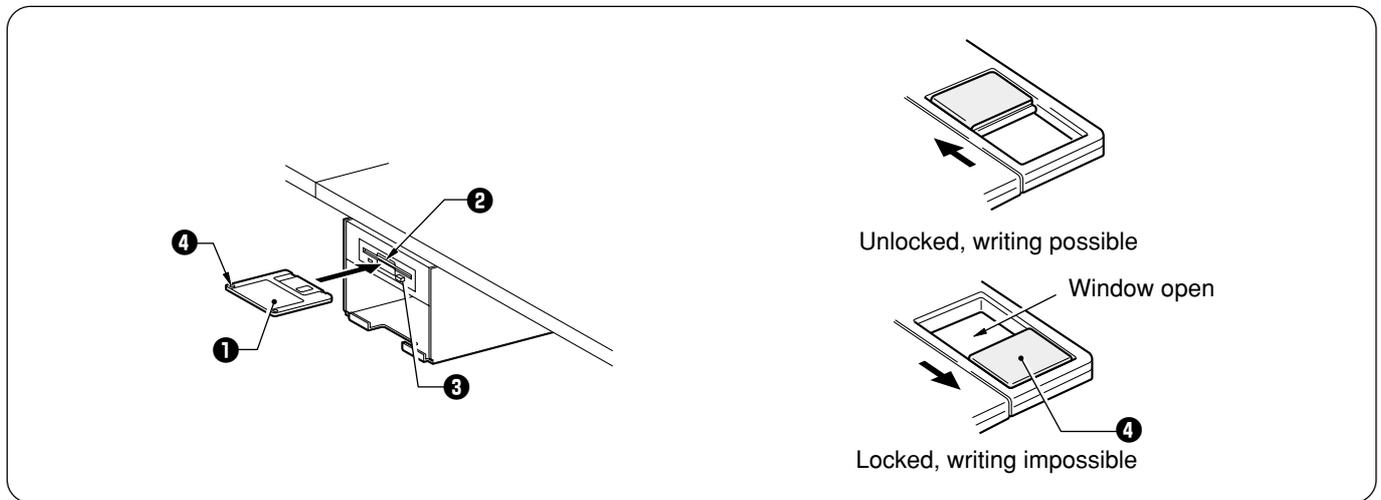
- ❷ X-SCALE indicator ..... Illuminates when X-scale mode has been selected using the menu switch ❻.
- ❸ Y-SCALE indicator ..... Illuminates when Y-scale mode has been selected using the menu switch ❻.
- ❹ SPEED indicator ..... Illuminates when speed mode has been selected using the menu switch ❻.



- 10** Bobbin Thread COUNTER ..... Illuminates when bobbin thread counter mode has been selected using the indicator
- 11** SPLIT NO. indicator ..... Illuminates when split No. mode has been selected using the menu switch **6**.
- 12** Dial ..... The setting shown on the display screen **5** can be changed by turning this dial while pressing the STEP BACK switch **17**.
- 13** Bobbin Thread SET switch ..... Used to store the number of work pieces displayed in the bobbin thread counter to floppy disk.
- 14** Bobbin Thread CHANGE ..... Used to continue sewing after replacing the bobbin thread.  
(An alarm will sound when the counter reads <000>. Sewing is not possible when the counter reads <000>.) (Refer to "10. Using the bobbin thread counter".)
- 15** TEST switch ..... Used to move the feed mechanism only in order to confirm a programmed stitch pattern.
- 16** TEST indicator ..... Lights when the TEST switch is pressed.
- 17** STEP BACK switch ..... Used when winding a fresh bobbin, or when correcting a stitch pattern due to a broken needle thread.

## 2. Using the floppy disk

A single pattern containing up to 20,000 stitches, and a maximum of 100 patterns (360,000 stitches) can be stored on a single 2HD floppy disk.



1. Turn the power switch on.
2. Hold the disk ① with the label up and the metal shutter to the front, and insert the disk into the drive ②. It will click into place.
3. To eject the disk, press the eject button ③.

### Note

- Slide the write protector ④ and the back of the disk up (the window opens) to lock the disk and prevent accidental erasure of the disk contents.
- Inserting the disk into the driven upside down or backwards may damage the driven and will prevent reading or writing of data.
- Be sure to store your disks away from any magnets or magnetic sources, including radios, televisions, telephones, and other devices. Magnetism can erase or damage disk contents. Also, be careful to prevent exposure of the disk to oil or dust.
- Be sure to make a copy of the floppy disk containing sewing data and keep the master floppy disk.
- When the R / W operation is not in operation, eject the floppy disk from the floppy disk drive and keep it in a case for floppy disk only to prevent exposure of the disk to dust.
- When the "E.4F" error (Reading error of sewing data) occurs very often;
  1. Clean the floppy disk drive using the cleaning disk.
  2. Read the sewing data. If the "E.4F" error occurs again, the floppy disk may be damaged. In this case, clean the floppy disk drive with the cleaning disk again.
  3. Read the sewing data from the master floppy disk and write it in a new floppy disk. Do not use any damaged floppy disks again.

### How to use the cleaning disk

1. Insert the cleaning disk into the floppy disk drive.
2. Select a program number (0-9), and press "the R/W" switch. If you select the same program number for cleaning every time, the same location of the cleaning disk is used and the lifetime of the cleaning disk will become short. Next time you clean it, select a different number.
3. After the cleaning is completed, "the E.4F" error appears. The error appears because the cleaning disk has no data. This is normal.
4. Cancel the error and eject the cleaning disk.

### ■ Compatible types of floppy disk

Data type	No. of stitches programmed	Data resolution	Disk	Format	Write enabled
370E type	20,000 stitches per pattern 100 pattern Up to a maximum of 360,000 stitches	0.05 mm/pulse	2HD	1.44 MB	Yes
Tajima embroidery data	50,000 stitches per pattern	0.1 mm/pulse			No
Old 370A type	20,000 stitches per pattern 10 patterns Up to a maximum of 200,000 stitches	0.1 mm/pulse	2DD	Automatically formatted	Yes

- The above 3 types of data can all be read, but when writing to disk, all data is automatically converted to 370E data when writing to 2HD disks and old 370 data when writing to 2DD disks.
- When using a 2HD disk, use a disk which has been pre-formatted as a 1.44 MB disk. (The programmer can be used to format these disks. Refer to the programmer instruction manual for details.)
- TFD embroidery data can be embroidered after it has been converted by the programmer to BAS-370E data.
- Restriction on using 2DD floppy disks.

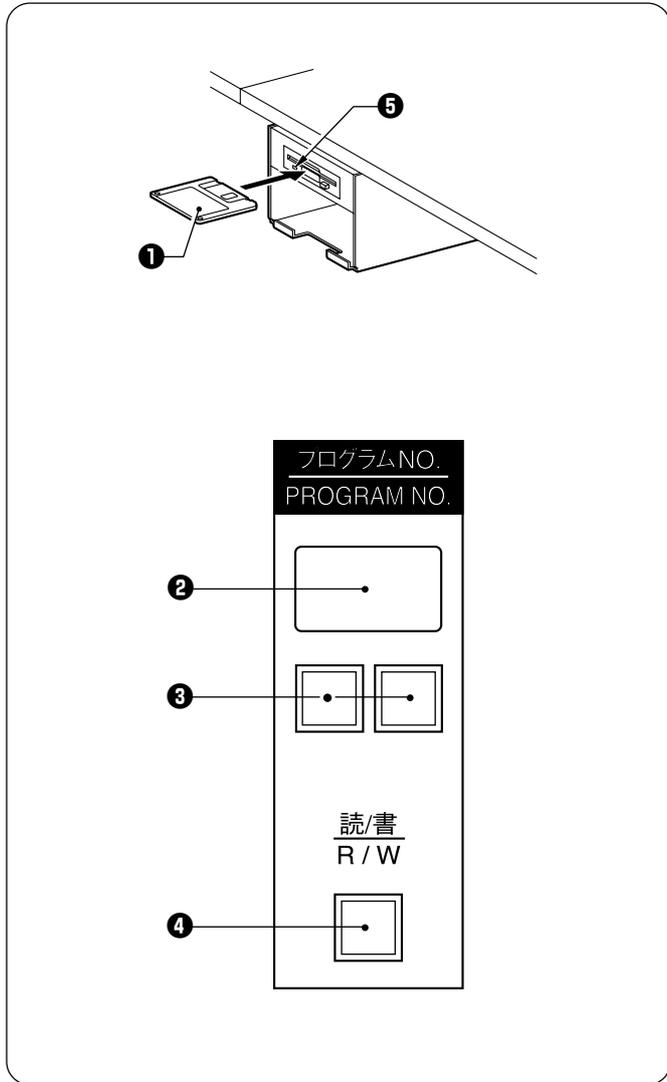
In order to maintain compatibility with the old 370 series, the following restrictions have been placed on the use of the new functions which have been added to the E series.

Restricted function	Old 370 series (2DD)	370E series (2HD)	Applicable command
Resolution	0.1 mm/pulse	0.05 mm/pulse	
Split function during embroidering	Not available	*Available	[ 220 ] L [ 221 ] L [ 230 ] L [ 231 ] L
Expansion option output	Not available	Available	

\* BAS-370E series can not set needle down stop.

### 3. Using the program R/W (Read/Write) switch

Programmed stitch patterns stored on floppy disk can be read into memory, and newly programmed patterns can be written to disk for permanent storage and later recall.



Insert the floppy disk ① containing or which is to contain the programmed stitch pattern.

**To READ a pattern to memory**

Press the program select switch ③ on the operation panel. The program number will then appear in the PROGRAM NO. display ②. After selecting the desired program number, press the R/W switch ④. The disk drive indicator ⑤ will illuminate and a "P" will appear on the PROGRAM NO. display ② to indicate that the data is being read. When the alarm sounds and the disk drive indicator ⑤ turns off, the program number will then flash in the PROGRAM NO. display ② instead of the "P" to indicate that the reading of the data is complete.

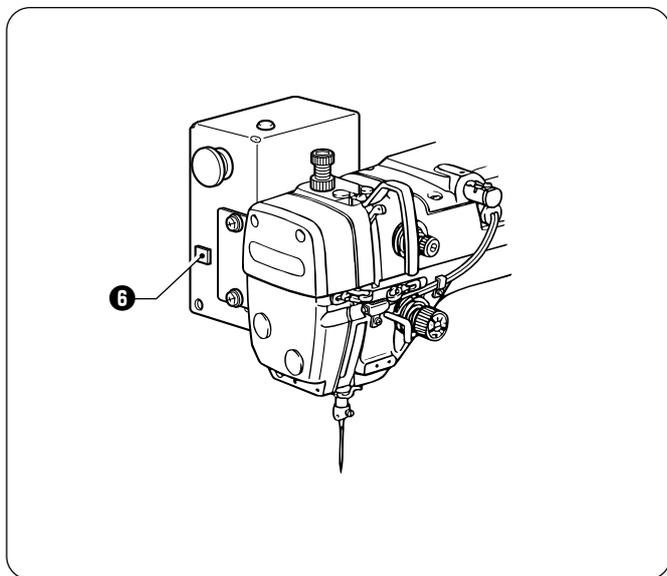
**To WRITE a pattern to disk**

Press the program select switch ③ on the operation panel to select the desired program number. After programming the pattern using the stitch programmer, press the R/W switch ④. The disk drive indicator ⑤ will illuminate and a "P." will appear on the PROGRAM NO. display ② to indicate that the data is being written. When the alarm sounds and the disk drive indicator ⑤ turns off, the program number will then flash in the PROGRAM NO. display ② instead of the "P" to indicate that the writing of the data is complete.

**If an error code is displayed**

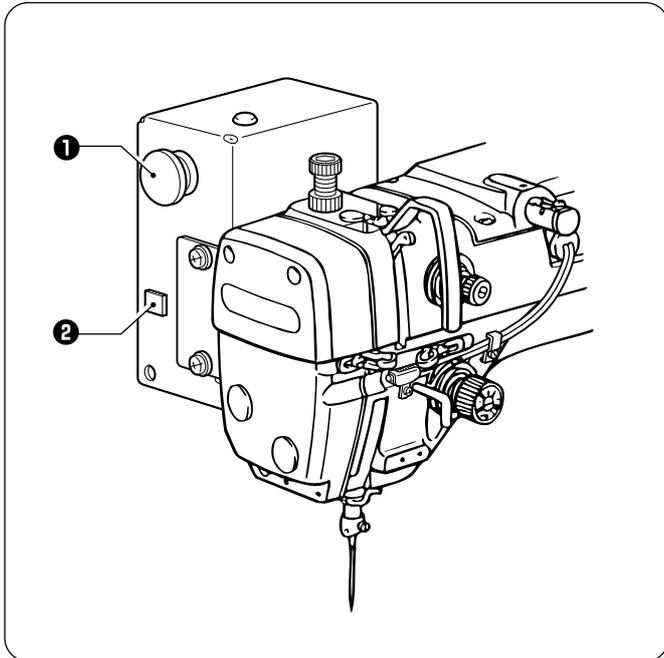
If an error code is displayed in the display ②, and alarm will sound.

Press the reset switch ⑥ on the front of the machine to stop sewing machine operation, and then refer to and follow "Chapter 12 ERROR CODE".



## 4. Using the emergency stop switch

Press the emergency stop switch 1 to immediately stop the sewing machine during actual sewing or when in the test mode.



### Note

There will be no response when the start switch or work clamp lift switch is depressed or pressed when the emergency stop switch ❶ is pushed (the alarm is sounding).

### Reset

1. If the EMERGENCY STOP switch ❶ is "turn lock type", turn the EMERGENCY STOP switch ❶ clockwise and then pull it forward to release it.
2. Press the reset switch ❷. (The alarm will stop sounding.)
3. If you do not wish to resume sewing, press the EMERGENCY STOP switch ❶ once more and then press the reset switch ❷ so that the program No. on the operation panel flashes. The sewing machine will then be ready for the next sewing operation.

### If a problem occurs

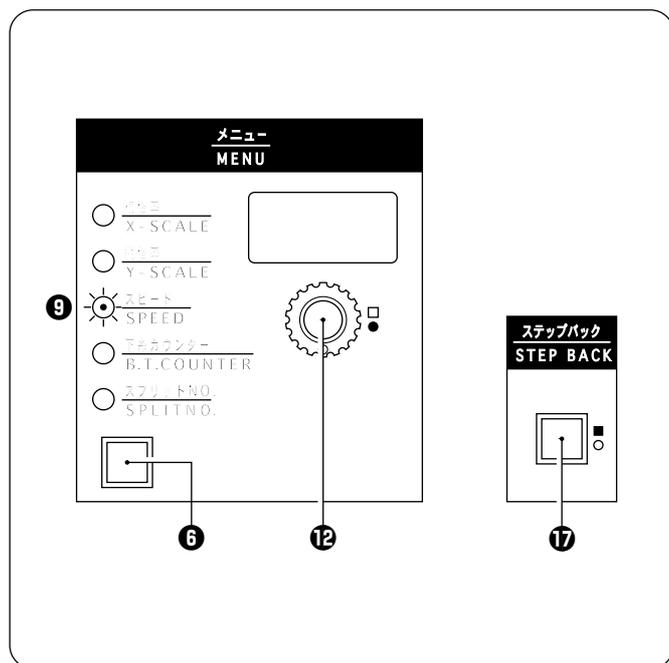
If an abnormal load is applied or a problem occurs, the emergency stop function is automatically activated, all operations stop, and the alarm sounds. If the alarm is sounding intermittently, correct the problem and press the reset switch ❷ to cancel the emergency stop mode.

### If emergency stop function is not canceled even when EMERGENCY STOP switch is pressed

Turn the power off, eliminate the cause of the problem, and then turn the power back on.

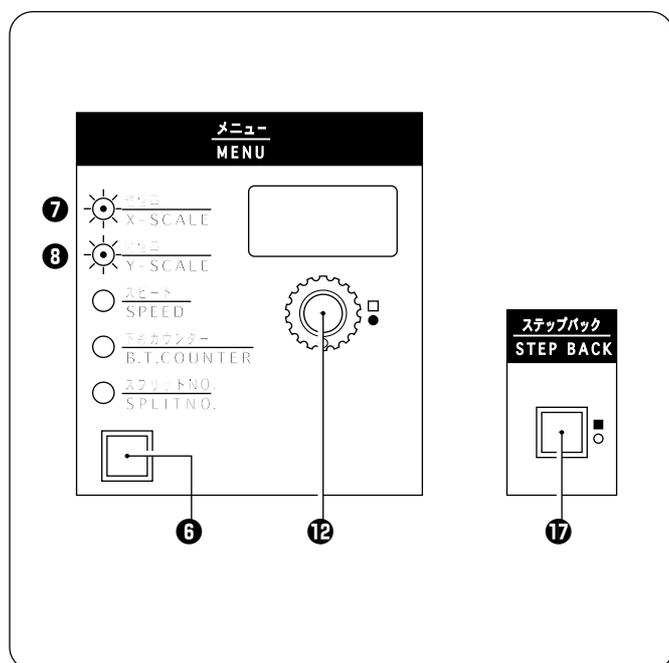
## 5. Adjusting the sewing speed control

The sewing speed can be changed in steps of 100 rpm to the appropriate speeds for each stitch length setting.



1. Press the MENU switch **6** until the SPEED indicator **9** illuminates.
2. While pressing the STEP BACK switch **17**, turn the dial **12** until the desired speed is displayed.
  - The display will change in steps of 10 rpm.

## 6. Changing the X-scale and Y-scale settings



1. Press the MENU switch **6** until the X-SCALE indicator **7** or the Y-SCALE indicator **8** illuminates.
2. While pressing the STEP BACK switch **17**, turn the dial **12** until the desired ratio is displayed on the display.
  - The scale setting is displayed as a percentage.
3. The program number will flash, and after the home position is detected the flashing will stop.

## 7. Using the TEST switch (Checking the sewing pattern)

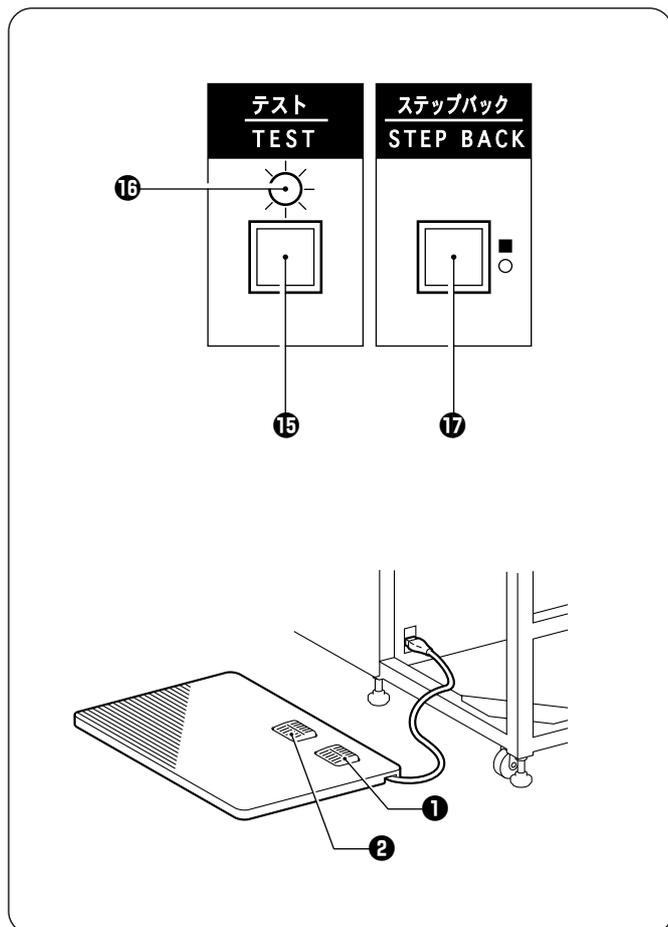
### ⚠ CAUTION



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.

Use the TEST switch to move the presser foot without sewing to check the sewing pattern.

Use the TEST switch to begin sewing again from any desired point when the thread breaks or the bobbin thread runs out.



1. Press the TEST switch **16**. The test indicator **16** will light.
2. If the work clamp is raised, depress the work clamp lift switch **2** to lower the work clamp.
3. Press the start switch **1**.

#### Note

After the feed mechanism has returned to the home position, it will then move the sewing start position and the program number will stop flashing.

This only occurs the first time that a program is selected.

4. Press the start switch **1**. (The needle will remain stationary as the work clamp advances through the pattern at low speed one stitch at a time. Press the work clamp lift switch **2** to fast forward.
- If the STEP BACK switch **17** is pressed while moving at low speed, the work clamp will move in the forward direction in steps of 100 stitches.
5. When the work clamp reaches the desired position, press the TEST switch **16**. The work clamp will stop, and the test indicator **16** will go out. If the work clamp was stopped too early, press the TEST switch **16** again to proceed.
- If the work clamp was stopped too late, press the STEP BACK switch **17** to advance the work clamp one stitch at a time.

#### Resuming operation from a stopping point

6. Sewing will start when the start switch **1** is pressed.

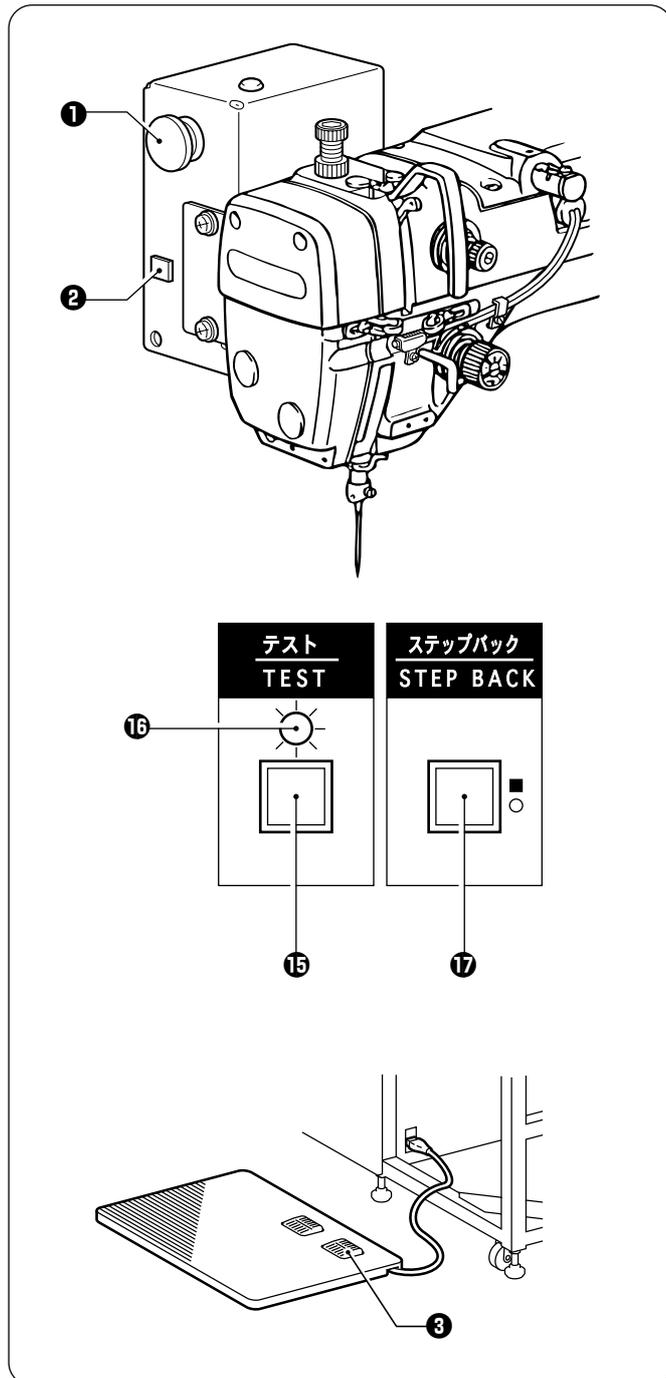
## 8. Using the STEP BACK switch

### ⚠ CAUTION



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.

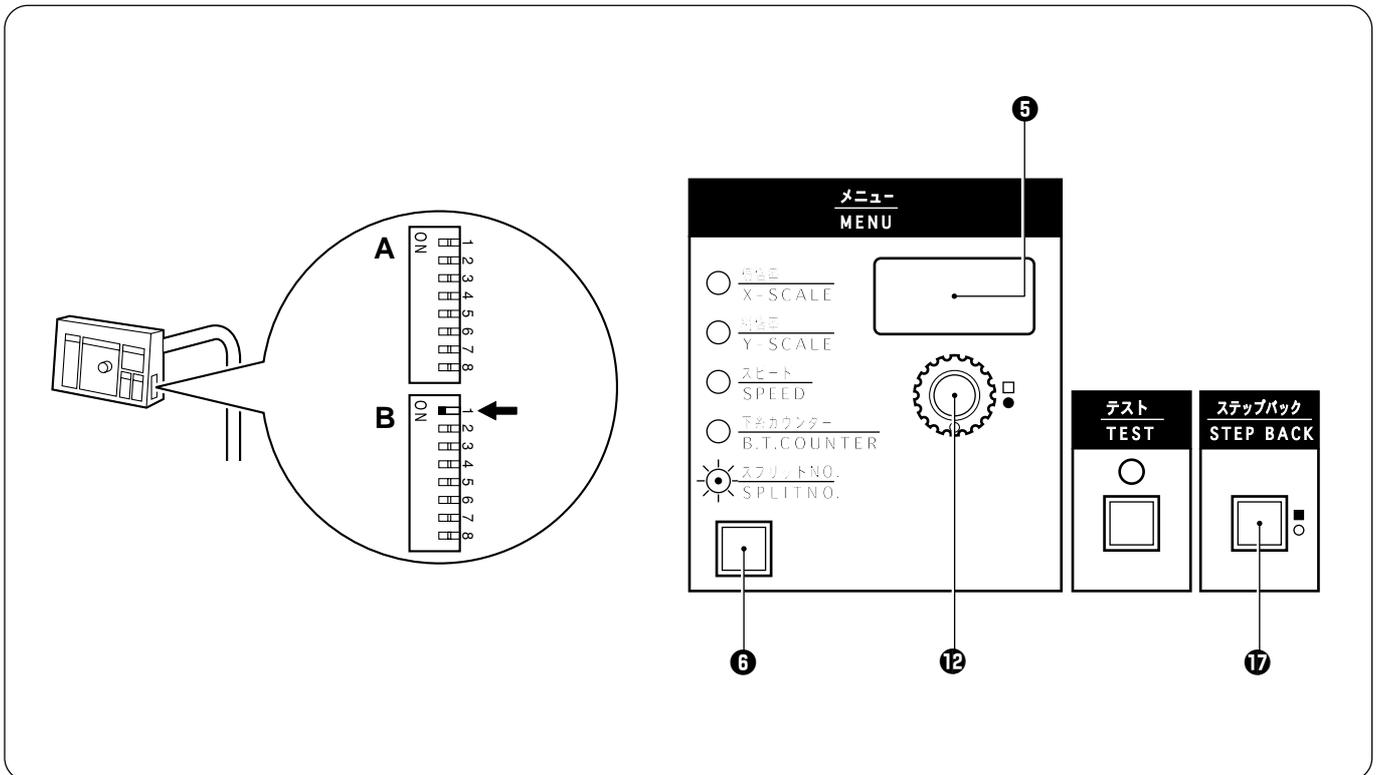
This switch is used to move the machine one stitch at a time in the reverse sewing direction to enable resewing in the event the thread breaks or the bobbin thread runs out in mid-pattern. Use this switch to return to the point where the thread broke or ran out.



1. Press the emergency, stop switch **1** while the machine is running. (All operations will stop and the emergency stop lamp will illuminate.)
2. Press the reset switch **2**.  
(The emergency stop lamp will go out.)
3. Press the STEP BACK switch **17**. (The work clamp will move stitch by stitch in the opposite direction while the STEP BACK switch **17** is being pressed.)
4. When the work clamp has returned to the desired position, release the STEP BACK switch **17**.  
(If the work clamp is stopped too soon, press the STEP BACK switch **17** again to resume work clamp movement.)
5. The machine will start sewing when the start switch **3** is pressed.

## 9. Using single split mode

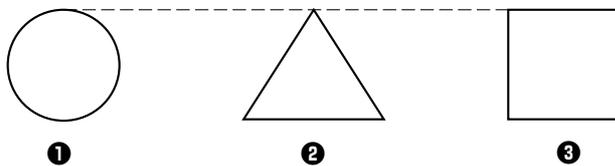
By using single split mode, it is possible to change up to 100 patterns immediately.



1. Move DIP switch B No. 1 to the ON position. This will activate single split mode. (Refer to "Chapter 10 DIP SWITCH".)
2. Turn on the power read in the patterns which have been programmed for split sewing.
3. Press the MENU switch **6** until the SPLIT NO. indicator **11** is illuminated. "1" will then appear in the display screen **5**. Then, while pressing the STEP BACK switch **17**, turn the dial **12** to change the contents appearing on the display screen **5** in order.

### Note

If three patterns have been programmed for split sewing, the number on the display screen changes in the following order: "1" → "2" → "3" → "1" → "2"...



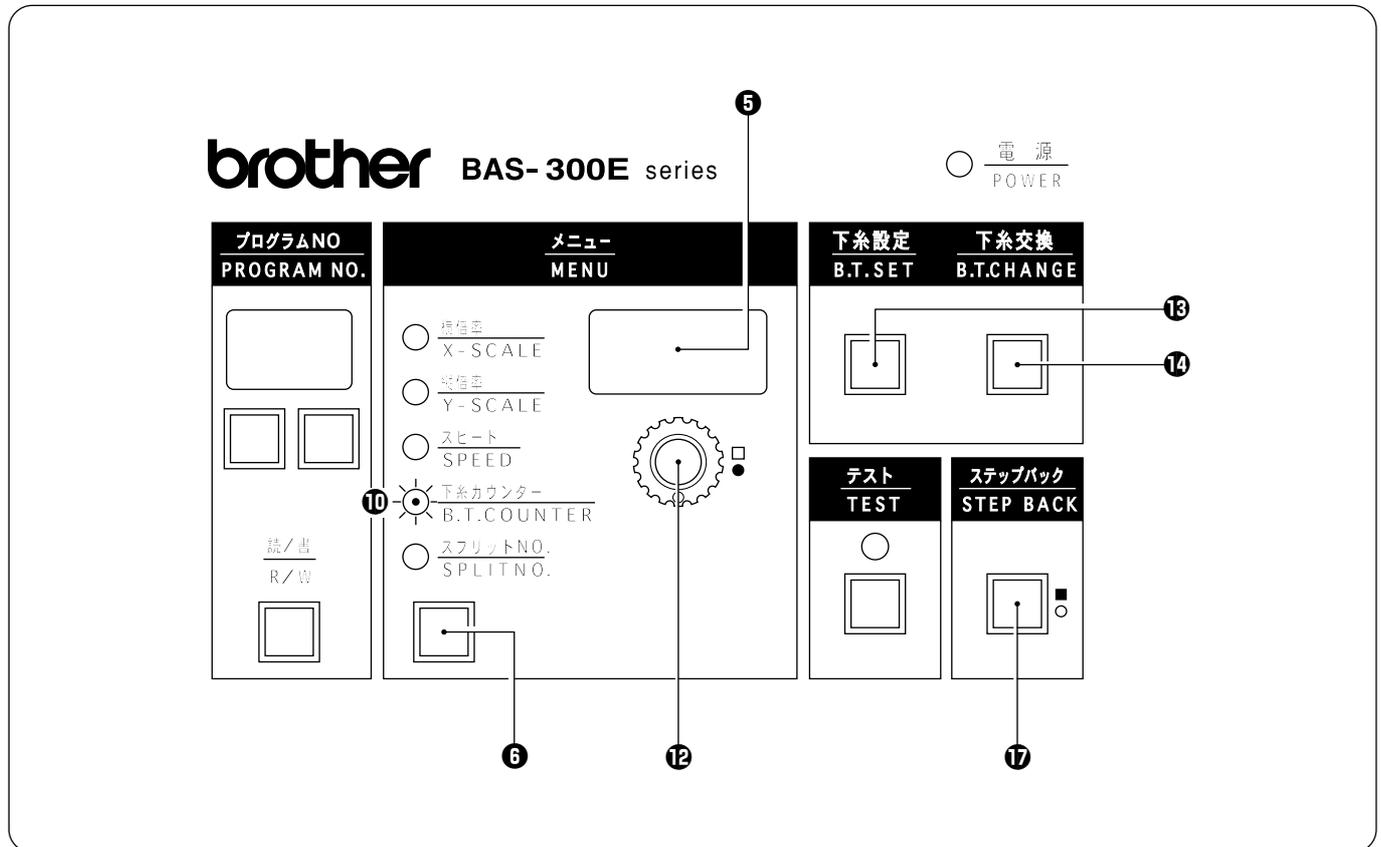
4. When the start switch is pressed, only the pattern displayed on the display screen **5** will be sewn.

### Note

As to split sewing, refer to the instruction manual of the programmer.

## 10. Using the bobbin thread counter

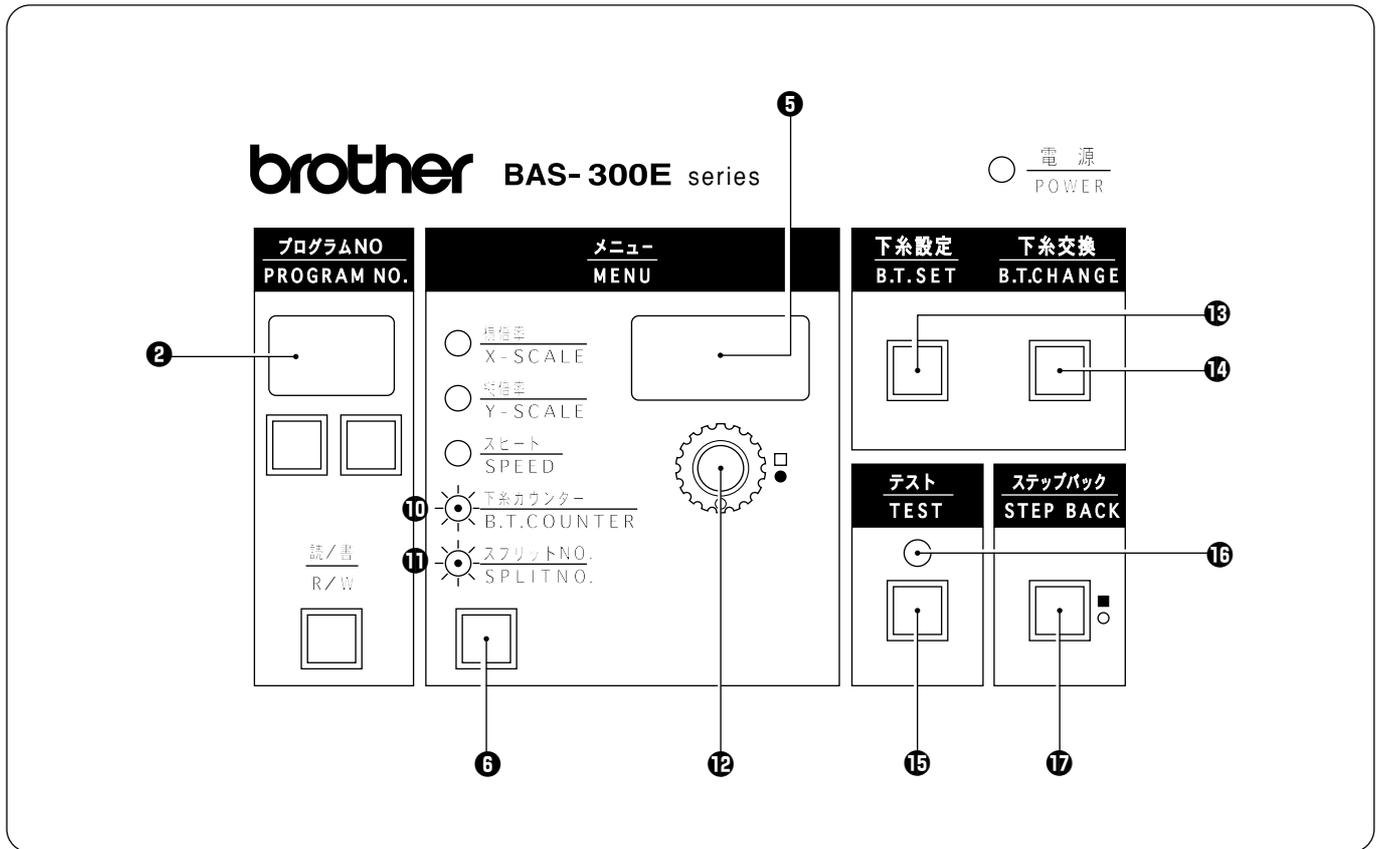
Set the bobbin thread counter to display number of pieces of the selected pattern which can be sewn with the amount of thread on the bobbin to avoid running out of bobbin thread in the middle of a pattern.



1. Press the MENU switch **6** until the B.T. COUNTER indicator **10** illuminates.
2. While pressing the STEP BACK switch **17**, turn the dial **12** to set the number of articles to be embroidered.
  - The bobbin thread counter can be set to any number from <001> to <999>. If the counter is set to <000>, sewing continues irrespective of the amount of bobbin thread remaining.
3. Insert the floppy disk and press the B. T SET switch **13**. An alarm will beep twice. This will record the number of work pieces shown in the counter **5** to the disk.
4. The number shown in the counter **5** will decrease one each time the stitch pattern is completed. When the number of patterns shown in the counter is sewn, the counter **5** will red <000>, and an alarm will sound. (The sewing machine will not start even if the start switch is pressed.)
5. Press the bobbin thread change switch **14** and replace the bobbin. The alarm will stop, and the number of work pieces set in step 3 will be displayed again in the counter **5**.

# 11. Using production counter

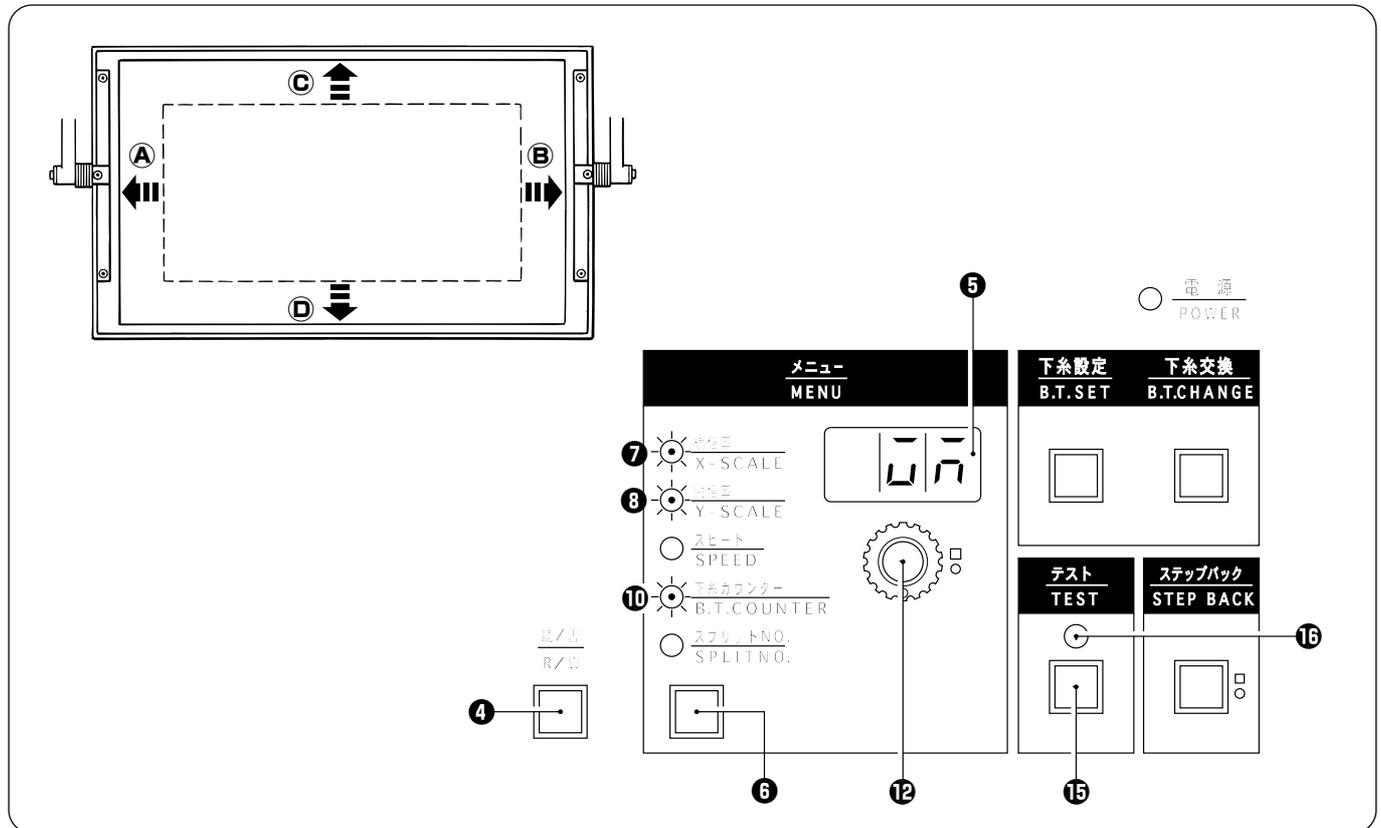
Both PRO. NO. and B.T. COUNTER displays are available for the five-digit PRODUCTION counter.



- While Pressing the TEST switch **15**, press the B.T.SET switch **13**. The B.T.COUNTER indicator **10** and the SPLIT ON. Indicator **11** will both illuminate, and production counter value will appear on the program number display **2** and on the display screen **5**.
  - Press the B.T. CHANGE switch **14**. The PRODUCTION counter will display <00000>.
  - The production counter can be set to a value between <00000> and <99999> by turning the dia **12** while pressing the STEP BACK switch **17**.
- Depress the start switch to start sewing.
- Press the TEST switch **15** or the MENU switch **6**. The TEST indicator **15** will switch off and the contents of each display screen will return to the normal display.

## 12. Shifting a stitch pattern

- Programs which have already been programmed can be moved up, down and to the left and right.  
(However, such patterns will be reset if the power supply is turned off or the program number is changed.)
- The feed position can be set to the any position desired.



1. Press the MENU switch **6** until the B.T.COUNTER indicator **10** illuminates.
2. Press and hold the TEST switch **15** and press R/W switch **4**. The test indicator **16** will light, and  $\overline{0}\overline{n}$  will appear in the counter **5**.
3. Press the MENU switch **6** so the either the X-SCALE indicator **7** or Y-SCALE indicator **8** illuminates.
4. Turn the setting dial **12** to move the feed mechanism one pulse at a time.
  - If the setting dial is turned counterclockwise while the X-SCALE indicator is illuminated, the feed mechanism will move to the right.
  - If the setting dial is turned clockwise while the X-SCALE indicator is illuminated, the feed mechanism will move to the left.
  - If the setting dial is turned counterclockwise while the Y-SCALE indicator is illuminated, the feed mechanism will move up.
  - If the setting dial is turned clockwise while the Y-SCALE indicator is illuminated, the feed mechanism will move down.
- \* When moving the stitch pattern, the sewing start position can be moved to any desired point within the sewing area, but if the pattern goes outside the sewing area, an error will not be able to sew the pattern. Give consideration to the pattern as a whole when moving it.
5. When the TEST switch **15** is pressed, the TEST indicator **16** and display window **5** will both switch off and they will return to the regular indication.

# Chapter 6 SEWING

## CAUTION



Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

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

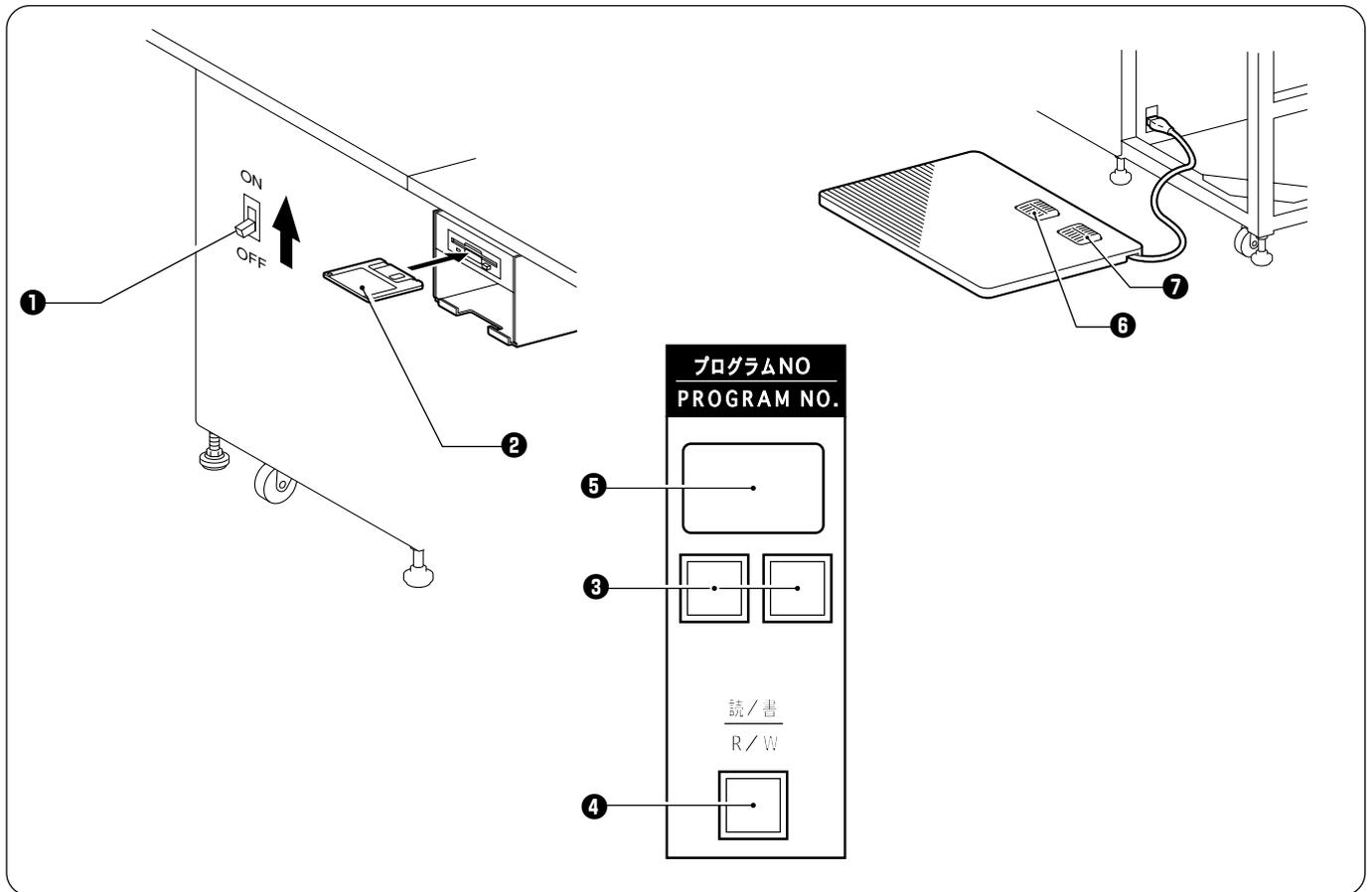


Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to be machine.

## 1. Before starting sewing....

If error E-22 (memory switch No. 14 is oFF) appears when you turn on the power switch, turn the machine pulley until the error display disappears.

## 2. Sewing operation



1. Turn the power switch **1** on.  
The POWER indicator on the operation panel will light.
2. Insert the floppy disk **2**.
3. Press the PROGRAM No. select switch **3** to select the desired program number.
4. Press Program Read/Write switch **4**.  
The floppy disk drive indicator will light and the PROGRAM No. display will show a "P" while the data is being read. When reading is completed, an alarm will sound and the indicator will go out, then the PROGRAM No. display will show the program number.
5. Step on the work clamp lift switch **5** to raise the work clamp.
6. Insert the work piece under the work clamp, and press the work clamp lift switch **6** to lower the clamp.
7. Press the start switch **7**.  
The work clamp will return to the origin, and will then advance to the sewing start position. This is only required the first time a program is sewing.
8. Press the start switch **7** again to start sewing.
9. After sewing is completed, the thread cutter will operate, then the work clamp will rise.

When the power is turned on after once being turned off, the same pattern of sewing can be continued since the machine still stored the sewing data from the last time.

# Chapter 7 STANDARD ADJUSTMENTS

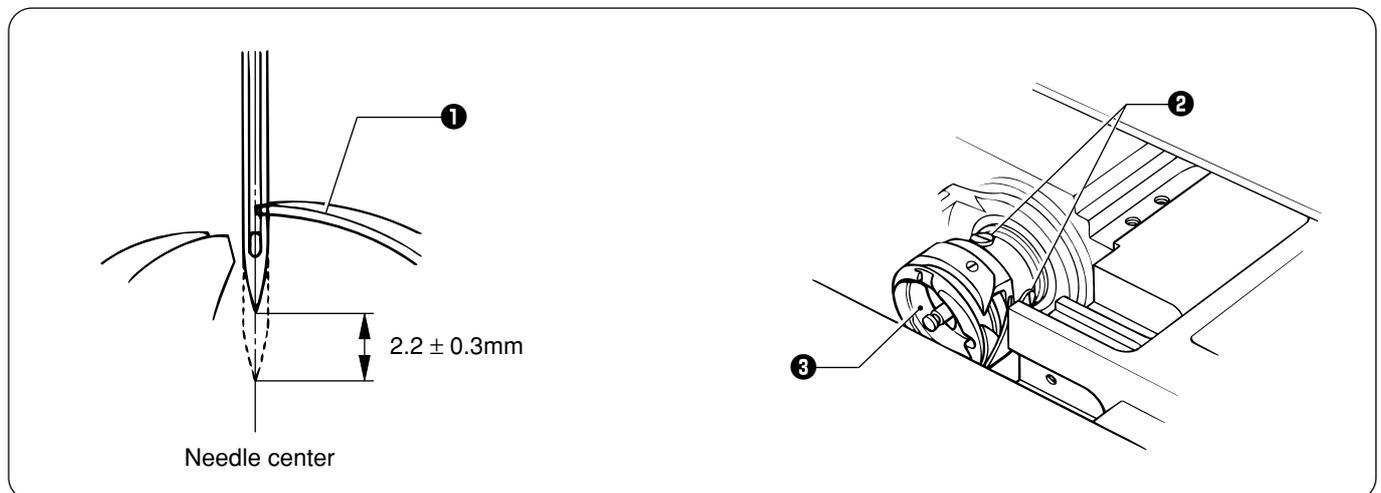
## ⚠ CAUTION

- |  |   |
|--|---|
| <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 from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.</p> <p>* When carrying out inspection, adjustment and maintenance.</p> <p>* When replacing consumable parts such as the rotary hook and knife.</p> | <p>⊘ Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.</p> <p>⚠ If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.</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> |
|--|---|

### Note

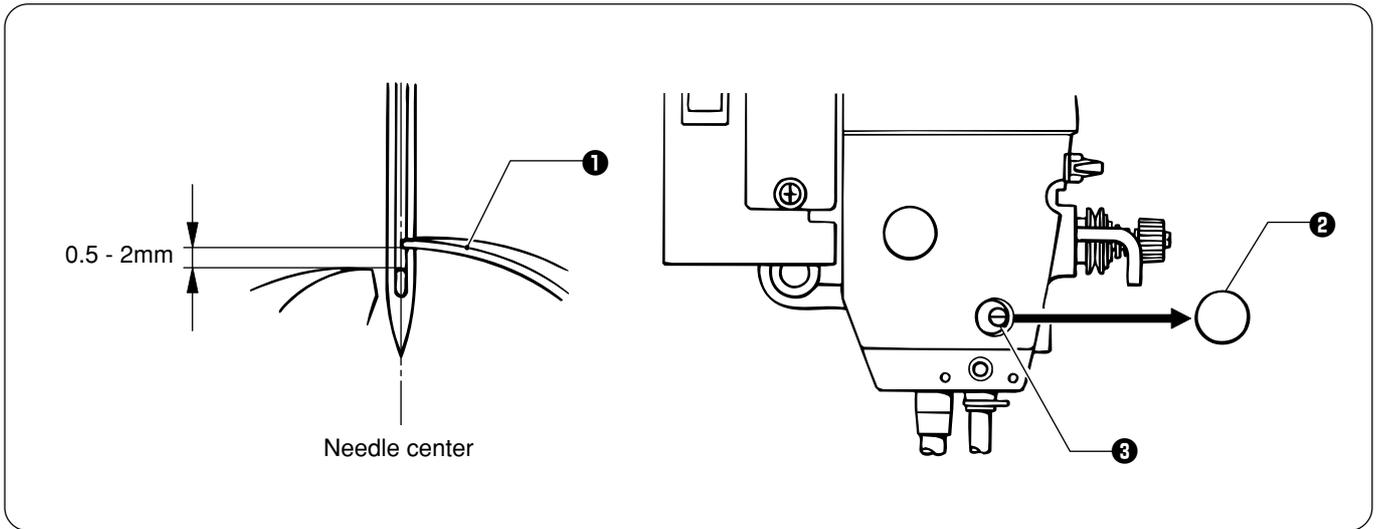
See page 10 "Chapter 4 1. Turning the pulley by hand", and turn the pulley manually for all adjustments.

## 1. Needle and rotary hook timing



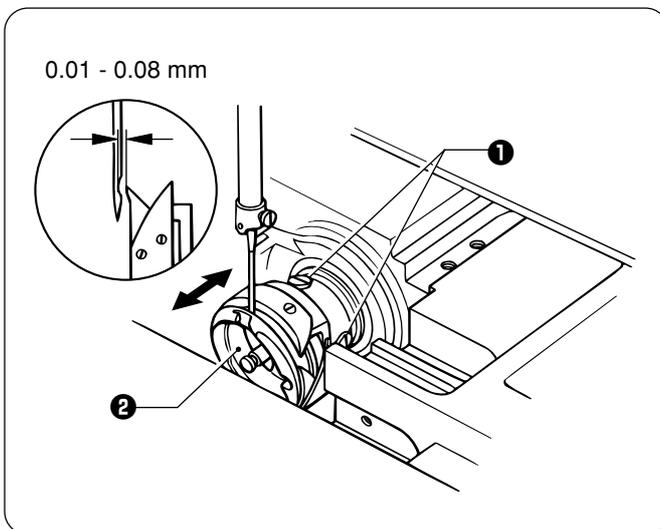
1. Turn the hand pulley so that the needle bar is  $2.2 \pm 0.3$  mm above the bottom dead center. Loosen set screws ② and turn rotary hook ③ so that the rotary hook point ① is aligned with the needle center.
2. After adjustment, securely tighten the screw ②.

## 2. Adjusting the needle bar height



1. Turn the hand pulley so that rotary hook point **1** is aligned with the needle center. Remove cap **2**, loosen screw **3**, and raise or lower the needle bar so that the gap between the top of the needle hole and the rotary hook point **1** is 0.5 - 2 mm.
2. After adjustment, tighten the screw **3** and replace the cap **2**. Furthermore, the standard adjustment amount is 1.5-0.3 mm.

## 3. Adjusting the needle clearance

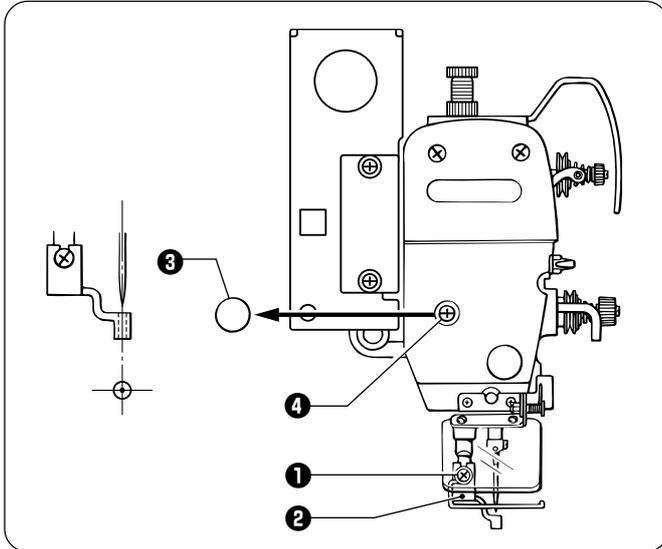


1. Turn the hand pulley so that the rotary hook point is aligned with the needle center. Loosen screw **1** and move rotary hook **2** so that the gap between the rotary hook point and needle is 0.01 - 0.08 mm.
2. After adjustment, securely tighten the screw **1**.

## 4. Adjusting the presser foot

### Note

If the presser foot is lowered too far, the work piece will shift when sewing. Also, if the presser foot is high, skipped stitches may occur.



1. Loosen screw **1**, set the bottom of the presser foot **2** lightly against the work piece, and then tighten screw **1**.
2. Turn the hand pulley, and make sure the needle enters the center of the needle hole in the presser foot **2**.

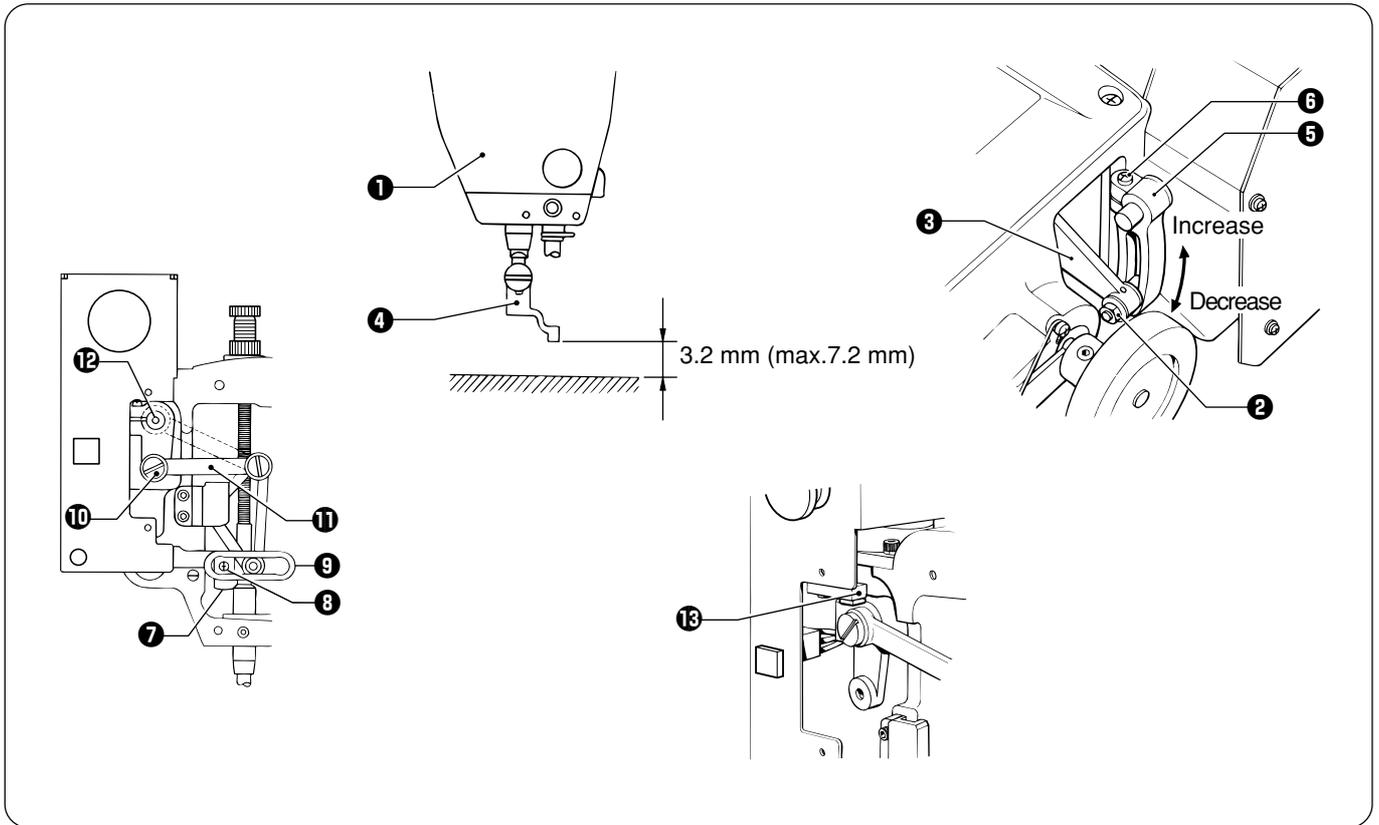
### Note

If the needle is not aligned with the center of the needle hole, remove cap **3**, loosen screw **4**, and turn the presser foot (presser bar) to adjust.

3. After adjustment securely tighten the screw **1** and remove cap **3**.

## 5. Changing the presser foot lift amount

Standard presser foot ① lift is 3.2 mm. (Max. 7.2 mm)



### Adjusting the stepping foot stroke

1. Remove the face plate ②.
2. Loosen the nut ③. After adjusting the position of the stepping foot connecting rod ④, tighten the nut ③ again.
3. Turn the hand pulley to set the stepping foot ① to its lowest position.
4. Loosen the screw ⑥ of intermittent feed arm (L) ⑤, and then adjust the position of intermittent feed arm (L) ⑤ so that the screw ⑧ of the presser bar clamp ⑦ is positioned at the center of the slot on the intermittent support assembly ⑨. Then tighten the screw ⑥.

### If it is not necessary to move the presser foot up and down

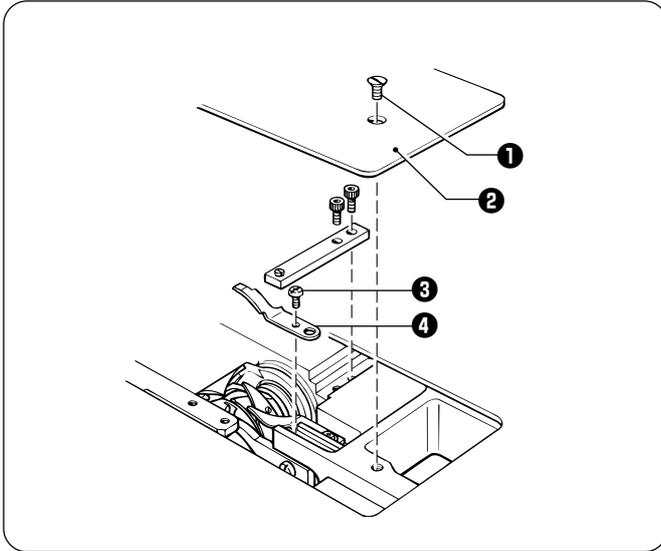
1. Remove the stud screw ⑩, and reattach link (L) ⑪ to the other screw hole of the intermittent feed shaft ⑫.
2. Turn on the power. Make sure that the red lamp on the sensor ⑬ is lit. If the lamp is not lit, adjust the position of the sensor ⑬.

### Note

If the lamp is not lit, the sewing speed will not exceed 2000 rpm.

## 6. Replacing the fixed knife and movable knife

### Replacing the fixed knife



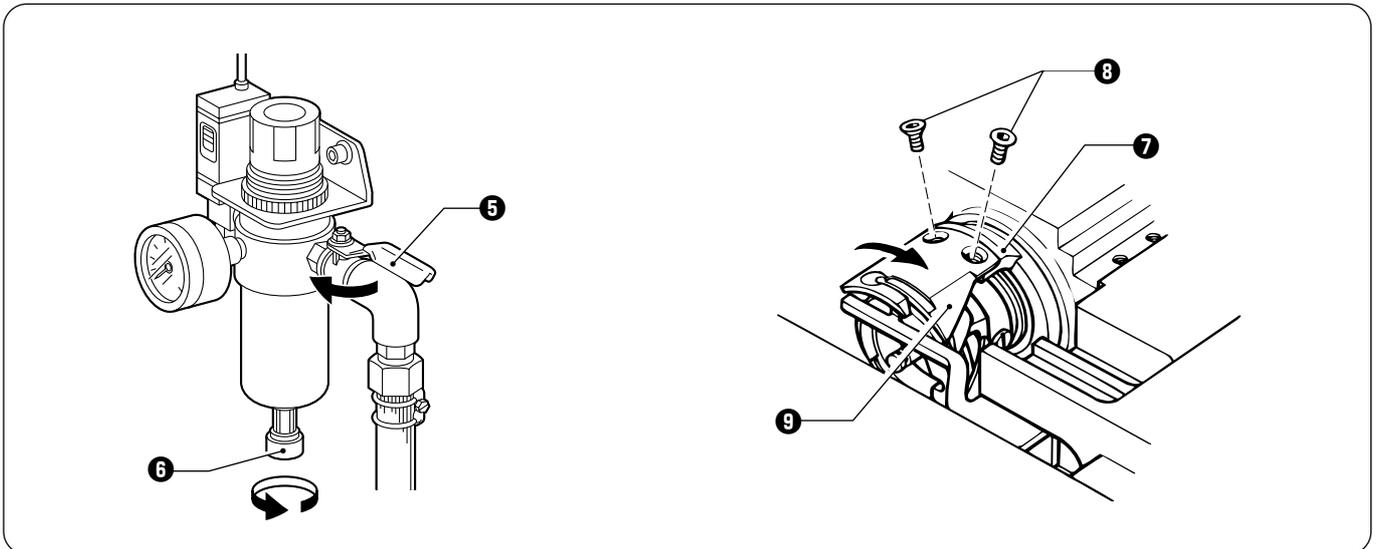
1. Turn the hand pulley by hand to raise the needle to the highest position.
2. Remove the two screws **1** and remove the needle plate **2**.
3. Remove the screw **3**, replace the fixed knife **4** with a new one, and then tighten the screw **3**.

### Replacing the movable knife

#### CAUTION

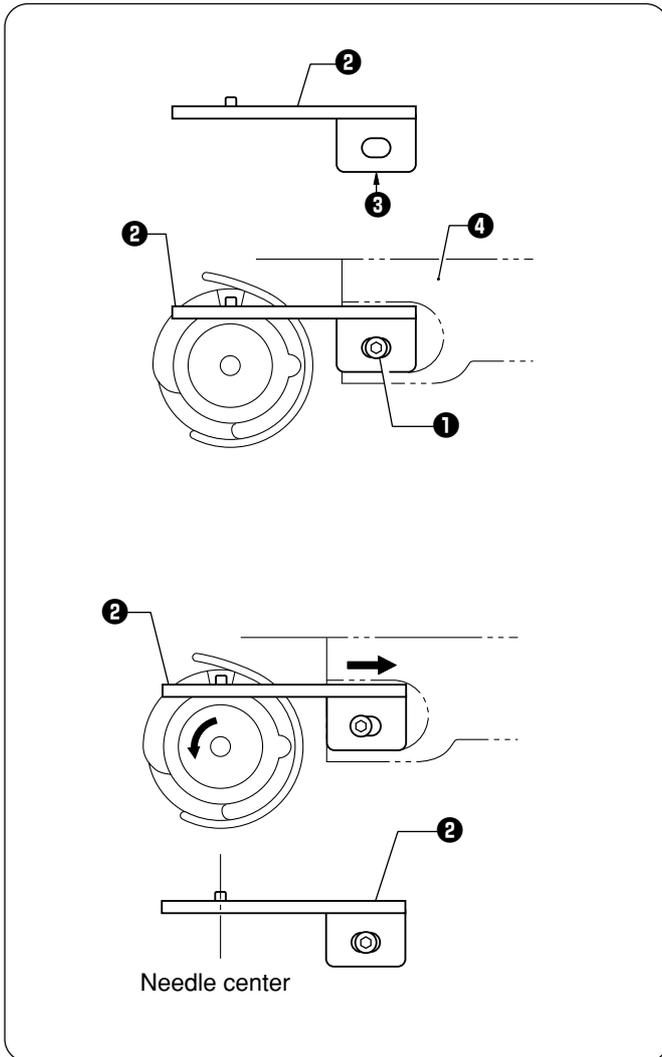


Disconnect the air hoses from the air supply and wait for the needle on the pressure gauge to drop to "0" before carrying out inspection, adjustment and repair of any parts which use the pneumatic equipment.



4. Close the air cock **5**.
5. Turn the drain cock **6** to bleed the air.
6. Push the movable knife holder **7** by hand toward the direction of the arrow so that the screw **8** is visible.
7. After replacing the fixed knife and movable knife, install the needle plate **2** with the screws **1**.

## 7. Adjusting the inner rotary hook bobbin case holder position



Loosen the bolt ❶. Adjust the position of the rotary hook bobbin case holder ❷ so that there is no clearance between the bottom ❸ of the rotary hook bobbin case holder ❷ and the machine bed ❹, then retighten the bolt ❶.

### Note

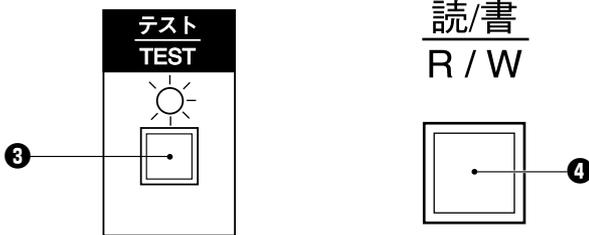
- If the rotary hook bobbin case holder is not installed correctly, the rotary hook bobbin case holder will interfere with the rotary hook, which will damage the machine.
- For heavy-weight and air bag material specifications, install the rotary hook bobbin case holder so that it is as close as possible to the right of the rotary hook.
- For medium-weight material specifications, install the bobbin case holder so that the projection is at the center of the needle.

## 8. Checking the input voltage

1. Turn on the power switch.
2. Press the menu switch ❶ until the X-SCALE indicator ❷ illuminates.



3. While pressing the TEST switch ❸, press the R/W switch ❹.



4. If the input voltage is normal, the input voltage conditions will be shown in the display as indicated at right.

Rated voltage: "100"

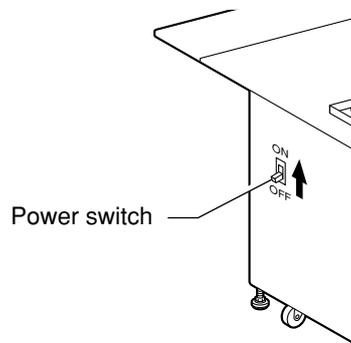
Allowable voltage range: "090" - "110"

5. Press the TEST switch e once more to return the display to the regular condition.

## 9. Clearing all memory settings

If the sewing machine stops operating normally, the cause may be that an incorrect memory setting may have been made by means of the memory switch, for instance. In such cases, carry out the following procedure to clear the memory, and also check the DIP switch settings.

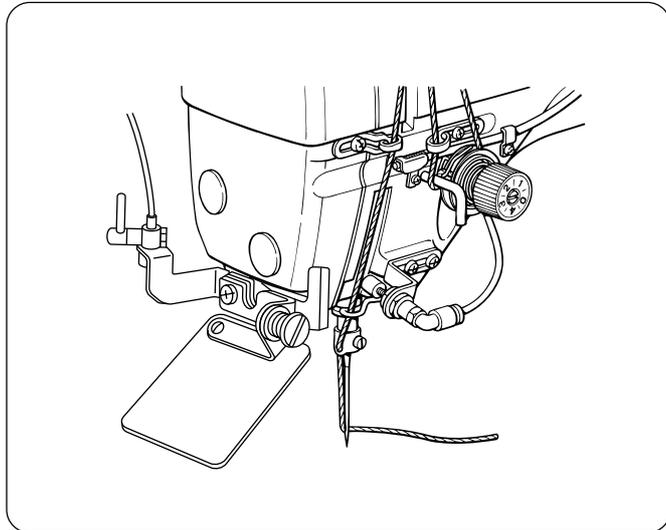
1. While pressing the R/W switch, turn on the power.
2. When the alarm sounds with a short beep, release the R/W switch.



# Chapter 8 DEVICES

Some of the specifications include optional devices as standard equipment.

## 1. Needle thread presser



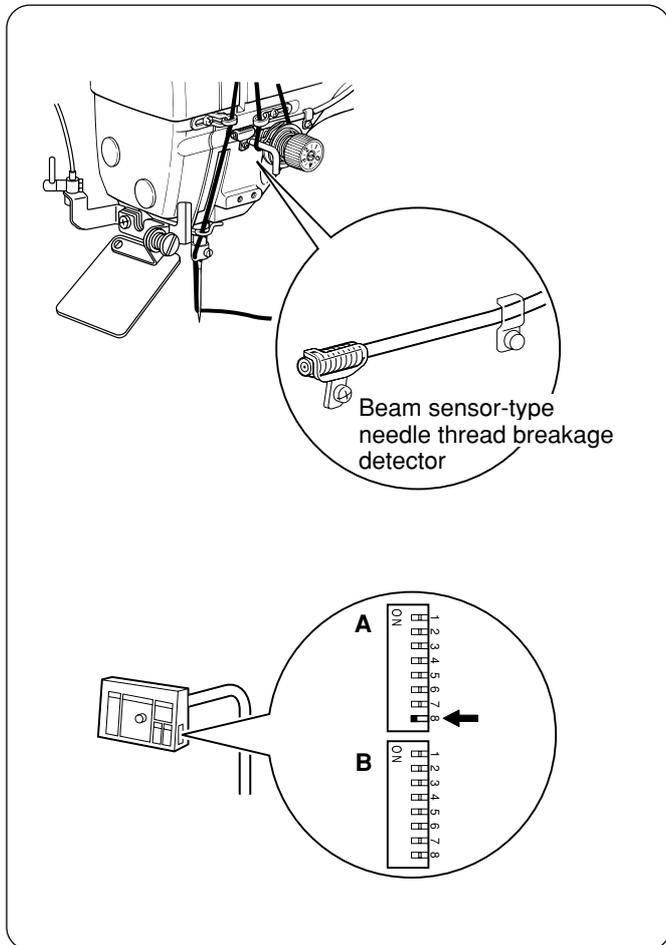
- The needle thread presser is used to enable the needle thread to be securely sewn underneath the material.
- The needle thread presser presses the needle thread when the needle is lowered for the first stitch at the sewing start, and releases the needle thread when the needle comes out of the needle plate.

### Selecting the needle thread presser

The needle thread presser can be set to operate or not operate by means of the memory switch.

## 2. Beam sensor-type needle thread breakage detector

The needle thread detection mechanism is a beam sensor-type which can quickly detect thread breakage even though it does not contact the thread.



### Selecting thread breakage detection

The thread breakage detection mechanism can be set to operate or not operate by means of DIP switch A-8.

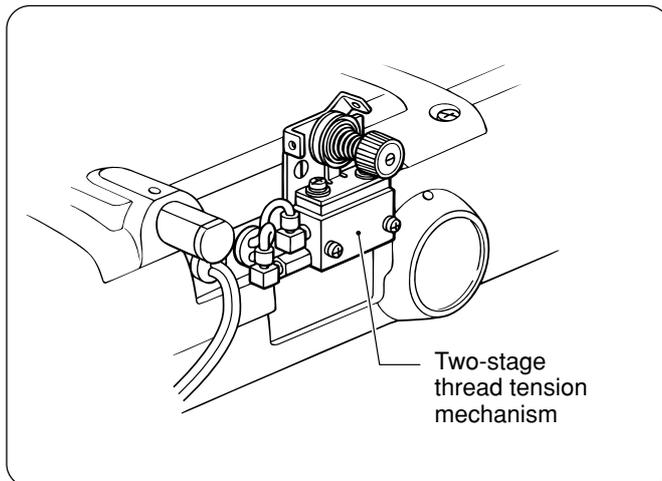
### Note

Always be sure to turn off the power when changing the DIP switch settings.

### DIP switch A-8

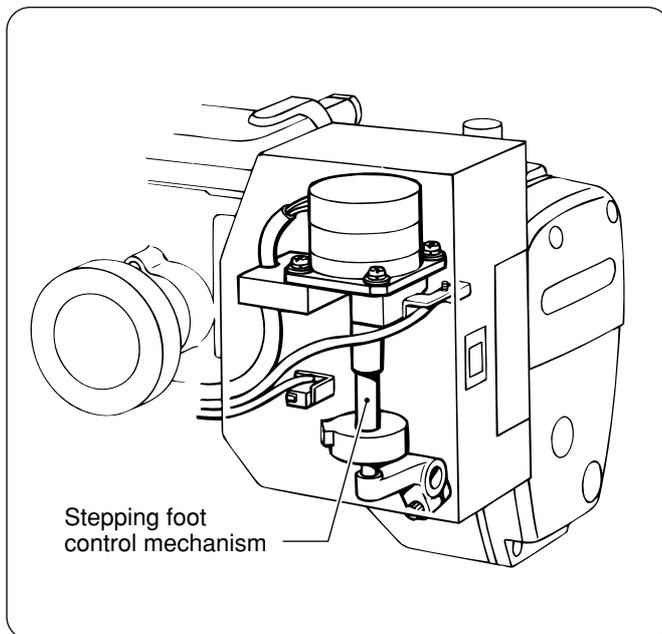
- Normally A-8 is OFF and the thread breakage detection mechanism does not operate.
- When A-8 is ON, the thread breakage detection mechanism operates.

### 3. Two-stage thread tension mechanism (Option)



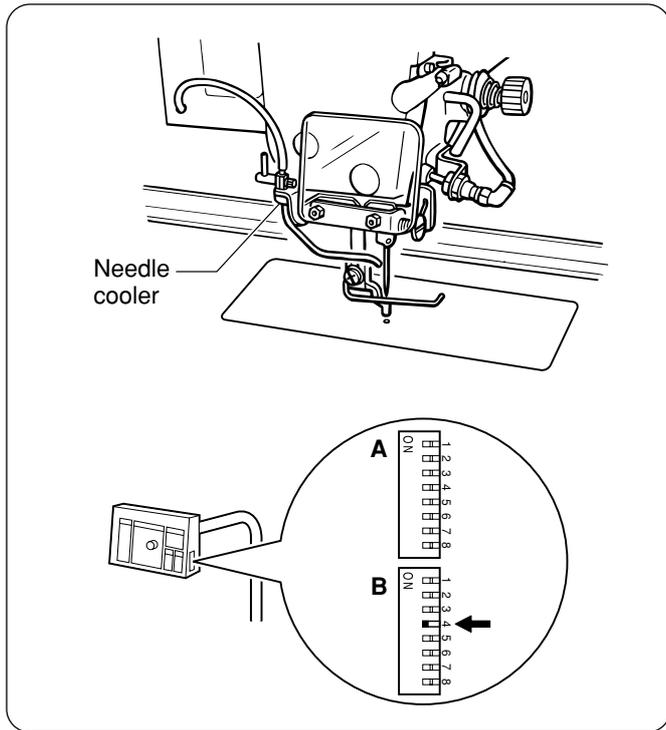
- This mechanism is used to enable selection of the thread tension in two steps when sewing a single pattern.
- It is useful when a different sewing tension is necessary while sewing a single pattern due to the sewing direction or differences in the material.
- Use the programmer to program the different needle thread tensions in two steps.
- The two-stage thread tension mechanism can be set to operate or not operate by means of the memory switch.

### 4. Stepping foot control mechanism



- If the thickness of the material being sewn changes when sewing one pattern, an intermittent presser foot height can be selected without interrupting sewing.
- Use the programmer to program the intermittent presser foot height.
- The height of the intermittent presser foot can be changed in 0.5 mm or 1 mm increments. Operate the panel and change the memory switch setting to select the desired mode.

## 5. Needle cooler (Air bag specification→Option)



- Scorching and breakage of the thread resulting from the needle becoming warm can be prevented by using the needle cooler mechanism.
- The needle cooler mechanism starts operating at the same time that sewing starts, and stops when sewing stops.

### Setting the needle cooler operation

#### Note

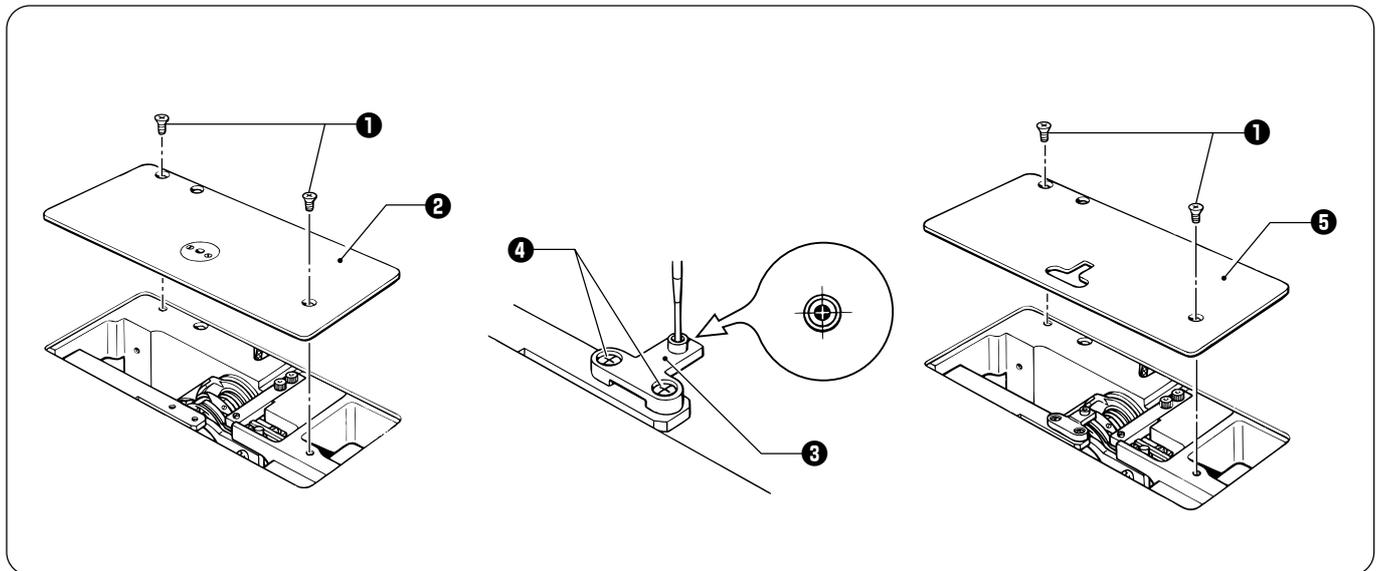
Be sure to turn the power off before changing the DIP switch setting.

The needle cooler operation is controlled by DIP switch B-4.

- \* When DIP switch B-4 is OFF, the needle cooler does not operate.
- \* When DIP switch B-4 is ON, the needle cooler operates.

## 6. Installing the bottom plunger (Option)

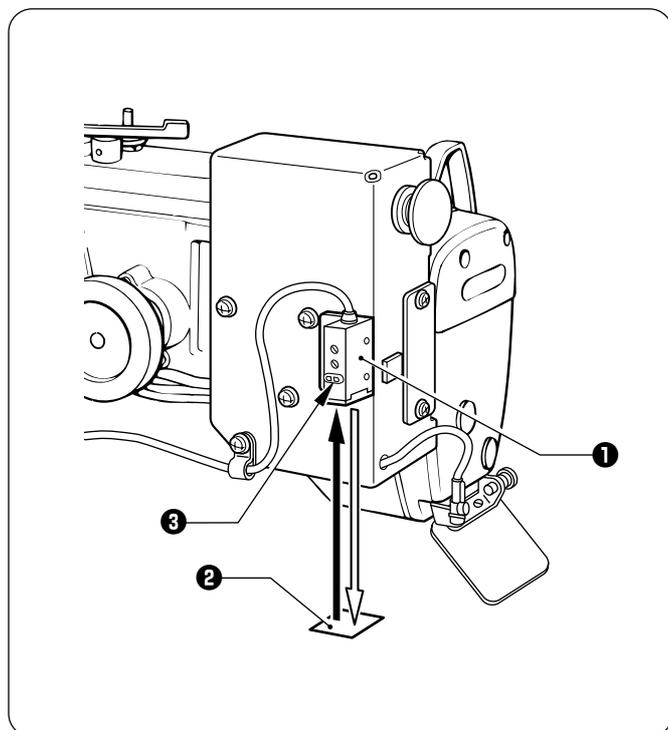
- Depending upon the material being sewn, replace the needle plate with the optional needle plate when the bottom plunger is removed.
- The bottom plunger can be set to operate or not operate by means the memory switch.



1. Remove screws ①, and remove optional needle plate ②.
2. Temporarily install bottom plunger ③ with screws ④.
3. Turn the pulley to lower the needle to the bottom dead center.
4. Hold up the bottom plunger ③ manually and adjust its position at the center of the hole in the plunger. Then, tighten screws ④.
5. Secure the provided needle plate ⑤ with screws ①.

## 7. Jig pattern sensor (Option)

If the work clamp foot is not appropriate for use with the programmed sewing pattern, an error will be displayed and the machine will enter the emergency stop condition.

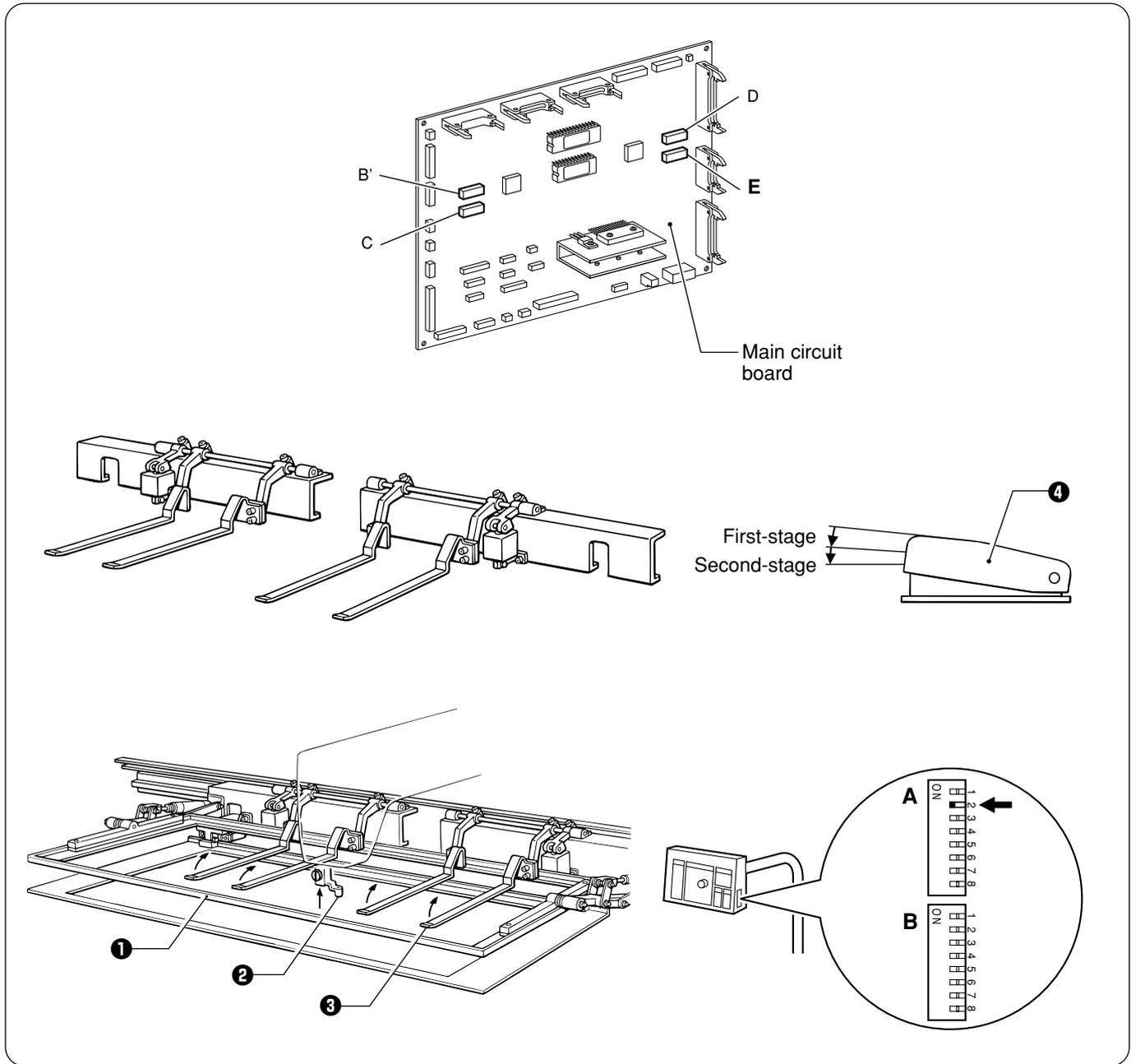


### Setting the start position

- At the sewing start position, attach reflector tape **2** directly below the jig pattern sensor **1** (In the position where the indicator **3** of the jig pattern sensor **1** illuminates).
- When sewing a stitch pattern with a different work clamp, set the sewing start position to the new corresponding position.
- If the indicator **3** of the jig pattern sensor **1** does not illuminate at the sewing start position, the machine will stop and sewing will not be possible even if the start switch is depressed.
- Whether the jig pattern sensor mechanism can be moved or not can be change over the memory switch .

# 8. Sub clamp (BAS-370E, 375E only)

This is used when the standard clamp alone cannot hold the work piece properly. When using the sub clamp, set DIP switch E-2 on the main circuit board.

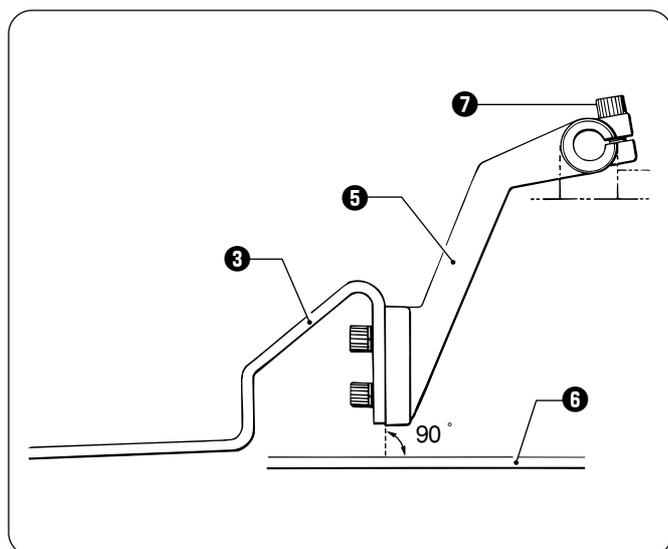


## Selecting sub-work clamp operation

### Note

Always be sure to turn off the power when changing the DIP switch settings.

- After sewing, the standard work clamp ①, presser foot ② and sub clamp ③ are raised simultaneously, but they are lowered separately as shown below. The movement can be changed by means of a DIP switch. (The work clamp lift switch ④ is a two-stage switch.)
- When DIP switch A-2 is OFF
  - \* When the first-stage switch is ON, work clamp ①, stepping foot ② and sub clamp ③ are lowered.
- When DIP switch A-2 is ON
  - \* When the first-stage switch is ON, the work clamp ① and stepping foot ② are lowered. Then, when the second-stage switch is ON, the sub clamp ③ is lowered.



### Adjusting the cloth clamp lever fixed angle

## CAUTION



Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

When the sub clamp **3** is lowered, the attaching surfaces of the cloth clamp lever **5** and the sub clamp **3** should be positioned vertically to the needle plate **6**. Adjust the fixed angle of the cloth clamp lever **5**.

# Chapter 9 CLEANING AND INSPECTION

## ⚠ CAUTION

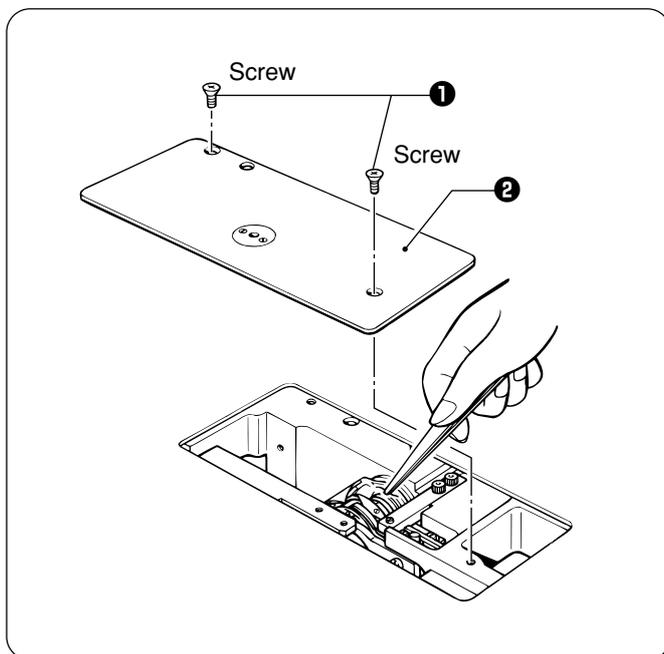


Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



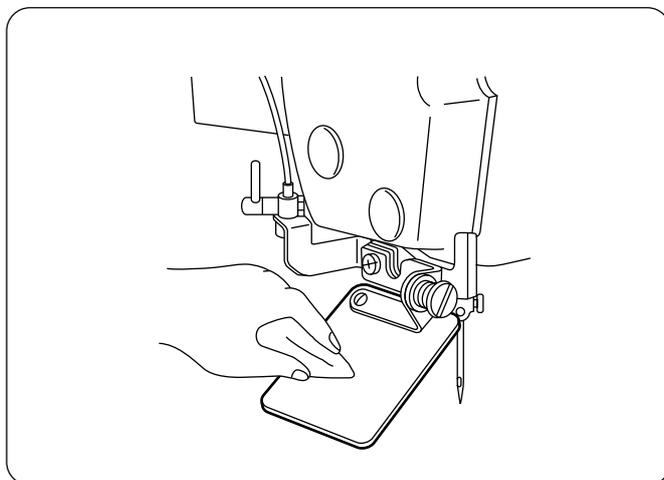
Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

## 1. Rotary hook



1. Remove the two screws **1**, and remove needle plate **2**.
2. Remove pieces of thread and other foreign matter from around the rotary hook.
3. After cleaning, install the needle plate **2** with the two screws **1**.

## 2. Eye guard

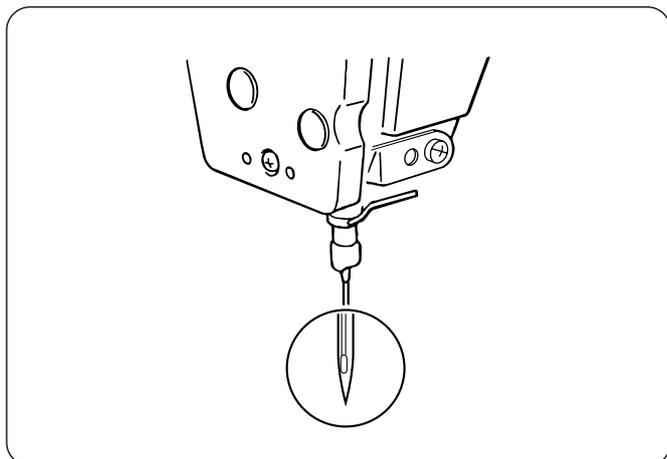


Wipe the eye guard clean with a soft cloth.

### Note

Do not use solvents such as kerosene thinner to clean the eye guard.

### 3. Checking the needle



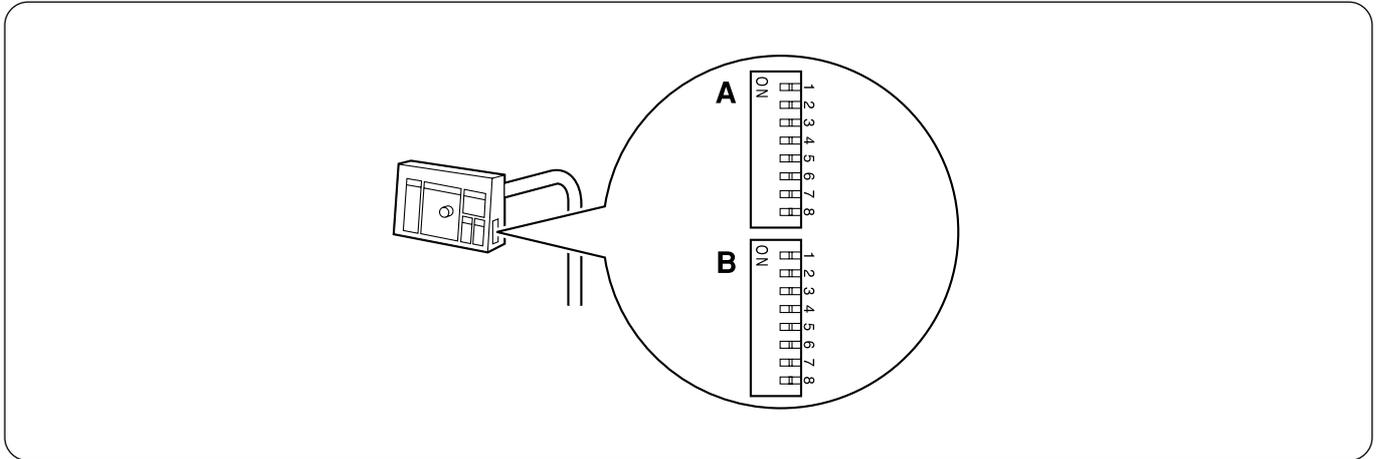
Always check that the tip of the needle is not broken before starting sewing.

# Chapter 10 DIP SWITCH

## Note

When changing DIP switch, the power must be off.

## 1. Panel DIP switch functions



### ■ DIP switch A (on side of operation panel, at the top)

SW No.	When ON
A-1	Presser foot rises when presser lift switch is pressed, and does not rise automatically after sewing is complete.
A-2	Selecting work clamp operation
A-3	-
A-4	-
A-5	For split timing only, presser foot is not raised automatically after sewing is complete.
A-6	-
A-7	Single pedal specifications using mobile foot switch. Work clamp drops when foot switch is depressed, and sewing starts when foot switch is released.
A-8	Thread trimming sensor operation is enabled.

### ■ DIP switch B (on side of operation panel, at the bottom)

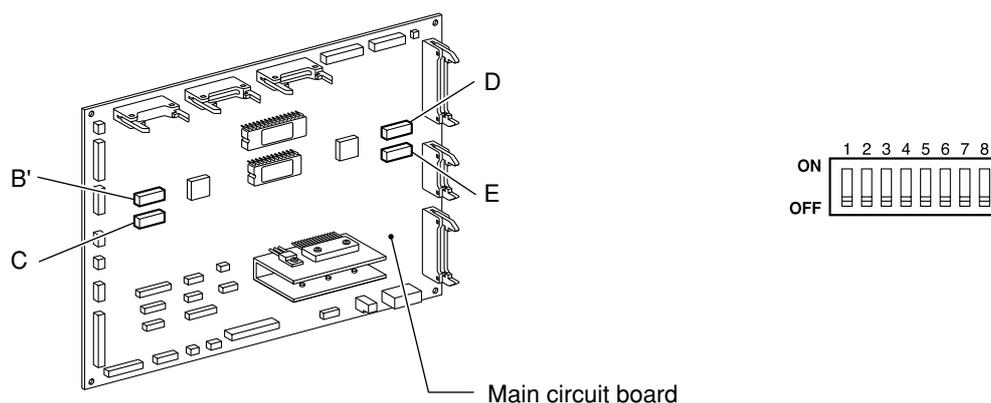
SW No.	When ON
B-1	Independent split mode is activated.
B-2	Split data is ignored (continuous split mode).
B-3	Thread is not trimmed after an emergency stop.
B-4	Needle cooler operates.
B-5	Thread breakage sensor sensitivity is reduced.
B-6	-
B-7	-
B-8	Feeding speed is increased.

## 2. DIP switches inside the control box

### DANGER



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



#### ■ DIP B' (Upper left side of main circuit board)

B'-1	B'-2	B'-3	Model setting	Size (X × Y)
-	-	-	BAS-364E	420 × 400
ON	-	-	BAS-366E	650 × 400
-	ON	-	BAS-370E	800 × 400
ON	ON	-	BAS-375E	1200 × 400
-	-	ON	-	
ON	-	ON	-	
-	ON	ON	-	
ON	ON	ON	-	

SW No.	When ON
B'-4	-
B'-5	Extend pattern size: 5 mm (For adjustment)
B'-6	-
B'-7	-
B'-8	-

## Chapter 10 DIP SWITCH

### ■ DIP C (Lower left side of main circuit board)

SW No.	When ON
C-1	Low speed at the sewing start and sewing end is approx. 260 rpm
C-2	Low speed at the sewing start and sewing end is approx. 200 rpm
C-3	-
C-4	-
C-5	-
C-6	Not added low speed data at the acute angle part sewing
C-7	When upper shaft stops, it stops near the thread take-up top dead center position without motor reversing.
C-8	Continuous feed mode is activated.

### ■ DIP D (Upper right side of main circuit board)

SW No.	When ON
D-1	
D-2	-
D-3	-
D-4	-
D-5	-
D-6	-
D-7	-
D-8	-

### ■ DIP E (Lower right side of main circuit board)

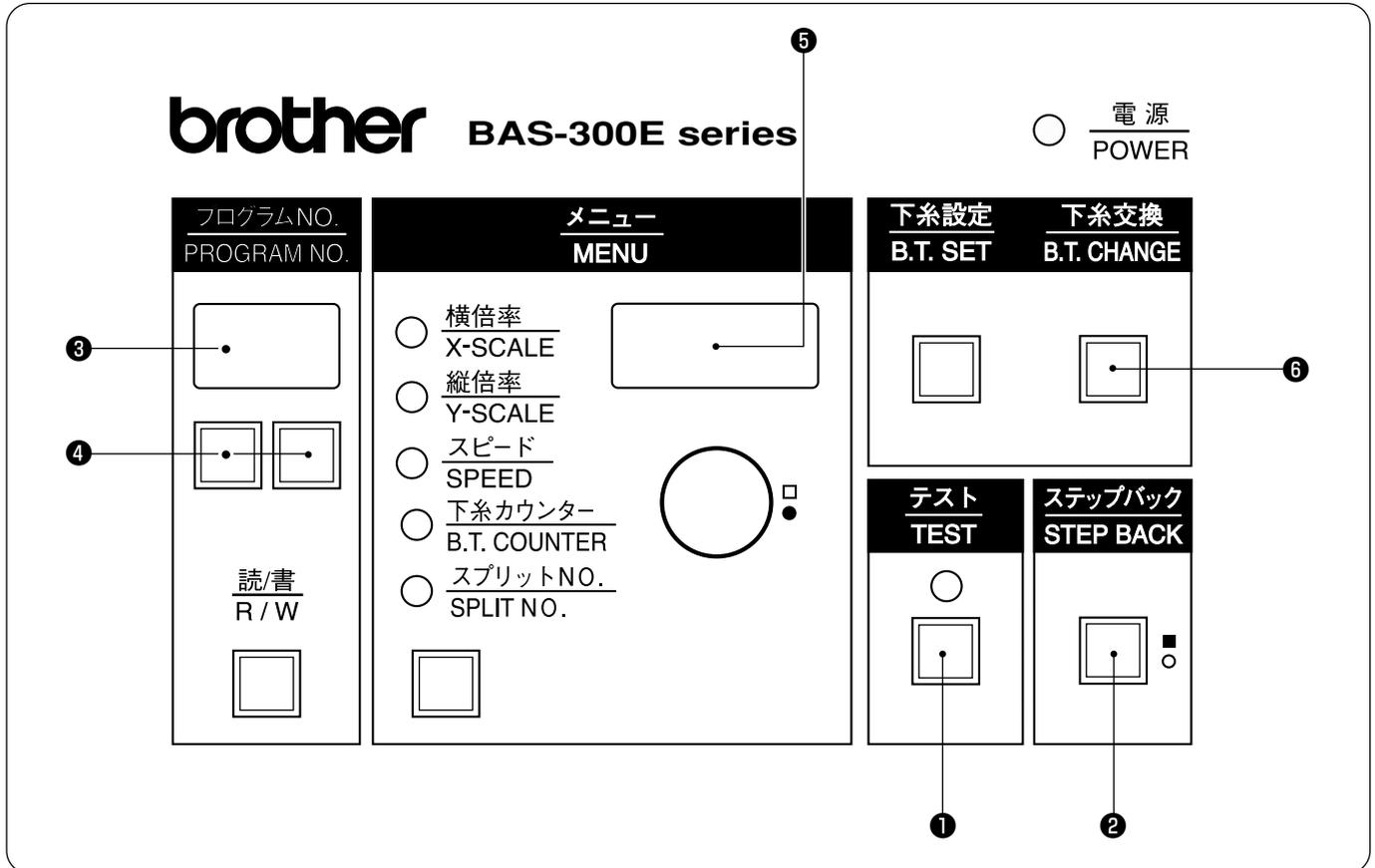
SW No.	When ON
E-1	Not use standard work clamp
E-2	Use sub clamp
E-3	-
E-4	-
E-5	-
E-6	-
E-7	-
E-8	-

# Chapter 11 CHANGING SPECIAL FUNCTIONS AND USING THE MEMORY SWITCHES

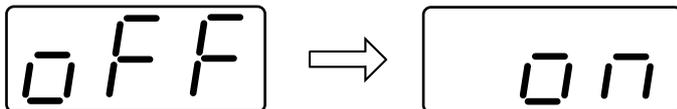
The functions of the switches on the operation panel can be changed to carry out special functions.

## Note

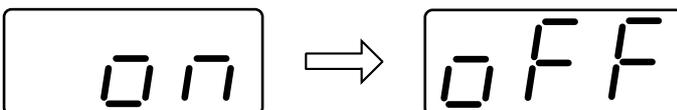
All of the memory switches are set to OFF or the condition of initial setting at the time of shipment.



1. Turn on the power switch.
2. While pressing the TEST switch ❶, press the STEP BACK switch ❷ to switch to setting mode.
3. Press the program select switch ❹ so that the number displayed on the display screen ❸ matches the switch number (00 - 3F) for the function that you would like to select from the table.
4. Press the STEP BACK switch ❷ to switch the setting appearing in the display screen ❺ from OFF to ON.



If pressed once more:



If the B.T. CHANGE switch ❻ is pressed at this time, all memory switch settings will be changed to OFF or the initial setting.

5. Press the TEST switch ❶. The display will return to normal.

■ **Memory switches [00] - [0F]**

SW. No.	When "on"
memo-00	Feed plate moves in the order X → Y when moving to the home position, and moves in the order Y → X when moving to the sewing start position.
memo-01	Feed plate moves in the order Y → X when moving to the home position, and moves in the order X → Y when moving to the sewing start position.
memo-02	Feed plate moves in the order forward X → Y when moving to the home position, and moves in the order forward X → Y when moving to the sewing start position.
memo-03	Eject device operates. If DIP switch A-7 is also ON, eject is on standby so that sewing starts automatically.
memo-04	-
memo-05	-
memo-06	-
memo-07	-
memo-08	-
memo-09	-
memo-0A	-
memo-0b	Set to "on" when using the 2-step tension device.
memo-0c	-
memo-0d	-
memo-0E	-
memo-0F	-

■ **Memory switches [10] - [1F]**

SW. No.	When "on"
memo-10	-
memo-11	Lower thread counter and production counter are updated each time thread is trimmed.
memo-12	Upper thread presser operates.
memo-13	Presser foot controller operates at 0.5 - mm intervals.
memo-14	Needle up errors are not detected.
memo-15	-
memo-16	-
memo-17	Bottom plunger operates.
memo-18	Jig recognition device operates.
memo-19	-
memo-1A	-
memo-1b	-
memo-1c	Lower thread counter is decremented at the sewing start.
memo-1d	-
memo-1E	-
memo-1F	-

■ Memory switches [00] - [2F]

SW No.	When "on"
memo-20	100/500 stitch jump feeding is possible during test feed operation.
memo-21	-
memo-22	-
memo-23	-
memo-24	-
memo-25	-
memo-26	-
memo-27	-
memo-28	-
memo-29	-
memo-2A	-
memo-2b	-
memo-2c	-
memo-2d	-
memo-2E	-
memo-2F	-

## Chapter 11 CHANGING SPECIAL FUNCTIONS AND USING THE MEMORY SWITCHES

### ■ Memory switches [30] - [3F] (Set using numbers instead of [on] or [oFF])

SW. No.	Setting range	Units	Default	Description
memo-30	1 - 999	X10 ms	10	Timer from after presser foot rises until feed starts operating
memo-31	1 - 4	-	1	Changes the feeding speed (test feed). 1 (High) ↔ 4 (Low)
memo-32	4 - 8	-	4	Changes the allowed speed for the sewing pitch. 4 (High) ↔ 8 (Low)
memo-33	1 - 7	-	3	Thread trimming timing 1 (Early) ← 3 (Standard) → 7 (late)
memo-34	1 - 5	stitch	2	No. of low-speed stitches at the sewing start
memo-35	1 - 5	stitch	2	No. of low-speed stitches at the sewing end
memo-36	-	-	0	-
memo-37	0	-	0	Automatically corrects the gear speed when reading 2DD disks. 0: No automatic correction
memo-38	-	-	-	-
memo-39	0 - 11	-	0	Reference point for enlargement/reduction using the operation panel
memo-3A	-	-	0	-
memo-3b	-	-	0	-
memo-3c	-	-	0	-
memo-3d	-	-	0	-
memo-3E	-	-	0	-
memo-3F	-	-	0	-

memo-39	
Setting 0	Sensor home position
range 1	Center of sewing frame
2	Upper-left of sewing frame
3	Lower-left of sewing frame
4	Upper-right of sewing frame
5	Lower-right of sewing frame
6	Sewing start point
7	Sewing end point
8	Upper-left of sewing pattern
9	Lower-left of sewing frame
10	Upper-right of sewing frame
11	Lower-right of sewing frame

■ Memory Switches [40] - [4F] (Set using numbers instead of [on] or [oFF])

SW. No.	Setting range	Units	Default	Description
memo-40	1 - 10	× 7.5°	5	Changes the X feed timing 1 (Early) ← 5 (Standard) → 10 (Late)
memo-41	1 - 10	× 7.5°	5	Changes the Y feed timing 1 (Early) ← 5 (Standard) → 10 (Late)
memo-42	1 - 9	-	5	Correct sewing speed: low speed data 667L*
memo-43	1 - 9	-	5	Correct sewing speed: low speed data 668L*
memo-44	1 - 9	-	5	Correct sewing speed: low speed data 669L*
memo-45	-	-	0	-
memo-46	-	-	0	-
memo-47	-	-	0	-
memo-48	-	-	0	-
memo-49	-	-	0	-
memo-4A	-	-	0	-
memo-4b	-	-	0	-
memo-4c	-	-	0	-
memo-4d	-	-	0	-
memo-4E	-	-	0	-
memo-4F	-	-	0	-

\* 1 ← 5 → 9  
-400 rpm ← ± 0 rpm → + 400 rpm

■ Memory Switches [50] - [5F] (Set using numbers instead of [on] or [oFF])

SW. No.	Setting range	Units	Default	Description
memo-50	5 - 30	%	15	Power supply voltage: up limit
memo-51	5 - 30	%	15	Power supply voltage: down limit
memo-52	-	-	0	-
memo-53	-	-	0	-
memo-54	-	-	0	-
memo-55	-	-	0	-
memo-56	-	-	0	-
memo-57	-	-	0	-
memo-58	-	-	0	-
memo-59	-	-	0	-
memo-5A	-	-	0	-
memo-5b	-	-	0	-
memo-5c	-	-	0	-
memo-5d	-	-	0	-
memo-5E	-	-	0	-
memo-5F	-	-	0	-

# Chapter 12 ERROR CODE

## DANGER



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

### Note

- If an operation problem occurs, buzzer will sound and an error code will appear on the display screen; if a programmer is connected, an error message will appear on the screen.
- Wait 10 seconds or more after turning the power off before turning it back on again.

code	Cause	Remedy
E. 10	Emergency stop switch was pressed.	Press the emergency stop switch once more to cancel.
E. 11	Emergency stop switch was pressed during sewing.	Press the emergency stop switch once more to cancel. The STEP BACK switch can then be used to resume sewing.
E. 12	Emergency stop switch is activated or its connection is not correct.	Turn off the power and check.
E. 20	Z motor or Z servo amp trouble.	Turn off the power, and then turn the machine pulley to check if the machine has locked up. Check the synchronizer connection. Check if connectors P14, P15 or P16 are disconnected.
E. 22	Needle up stop position error.	Turn the pulley to align the index mark with the needle up stop position. Check the V-belt tension.
E. 30	Data exceeds available sewing area due to resize ratio.	Check the enlargement or reduction ratio setting.
E. 31	Stitch length exceeds 12.7mm due to resize ratio.	Check the enlargement or reduction ratio setting.
E. 32	No end code in sewing data.	Input an end code, or change the program number.
E. 40	Floppy disk is not inserted or operation panel cable is not securely connected.	Insert a floppy disk. If floppy disk is already inserted, turn off the power and check the connection of cords inside the operation panel.
E. 41	Invalid program No., or no data.	Check the floppy disk.
E. 43	Different floppy disk!	Replace with a readable floppy.
E. 4F	Error occurred during floppy disk data reading.	Replace the floppy disk and repeat the operation.
E. 50	Floppy disk is write-protected.	Remove the write-protection.
E. 51	Insufficient available memory on floppy disk.	Use a different floppy disk.
E. 52	Can not format this floppy disk.	Replace the floppy disk and repeat the operation.
E. 5F	Error occurred during data writing on floppy disk.	Repeat the operation.
E. 81	Upper thread has broken.	Thread the upper thread. Re-sewing is possible.
E. A0	Start switch was pressed when there was no sewing available data.	Re-read the sewing data.
E. A1	Can not detect home position.	Turn off the power and check the X-Y feed and the home position sensor connection.
E. A2	Jig pattern sensor error.	Re-read the sewing data.

code	Cause	Remedy
E. c3	X motor or X servo amp trouble.	Check the error code for the servo amplifier. Turn off the power and check if the connector for the motor or servo amplifier is disconnected.
E. c4	Y motor or Y servo amp trouble.	Check the error code for the servo amplifier. Turn off the power and check if the connector for the motor or servo amplifier is disconnected.
E. c6	+X over-travel error.	Turn off the power and check.
E. c7	-X over-travel error.	Turn off the power and check.
E. c8	+Y over-travel error.	Turn off the power and check.
E. c9	-Y over-travel error.	Turn off the power and check.
E. cA	Feed error	Turn off the power and check.
E. d0	Air pressure has dropped.	Turn off the power and check.
E. E1	Control PCB detected communication error.	Turn off the power, wait a while and then turn it back on.

REFERENCE segment LED alphabet

	Panel display	A	b	c	d	E	F	6	H	L	o
	Text display	A	b	c	d	E	F	6	H	L	O

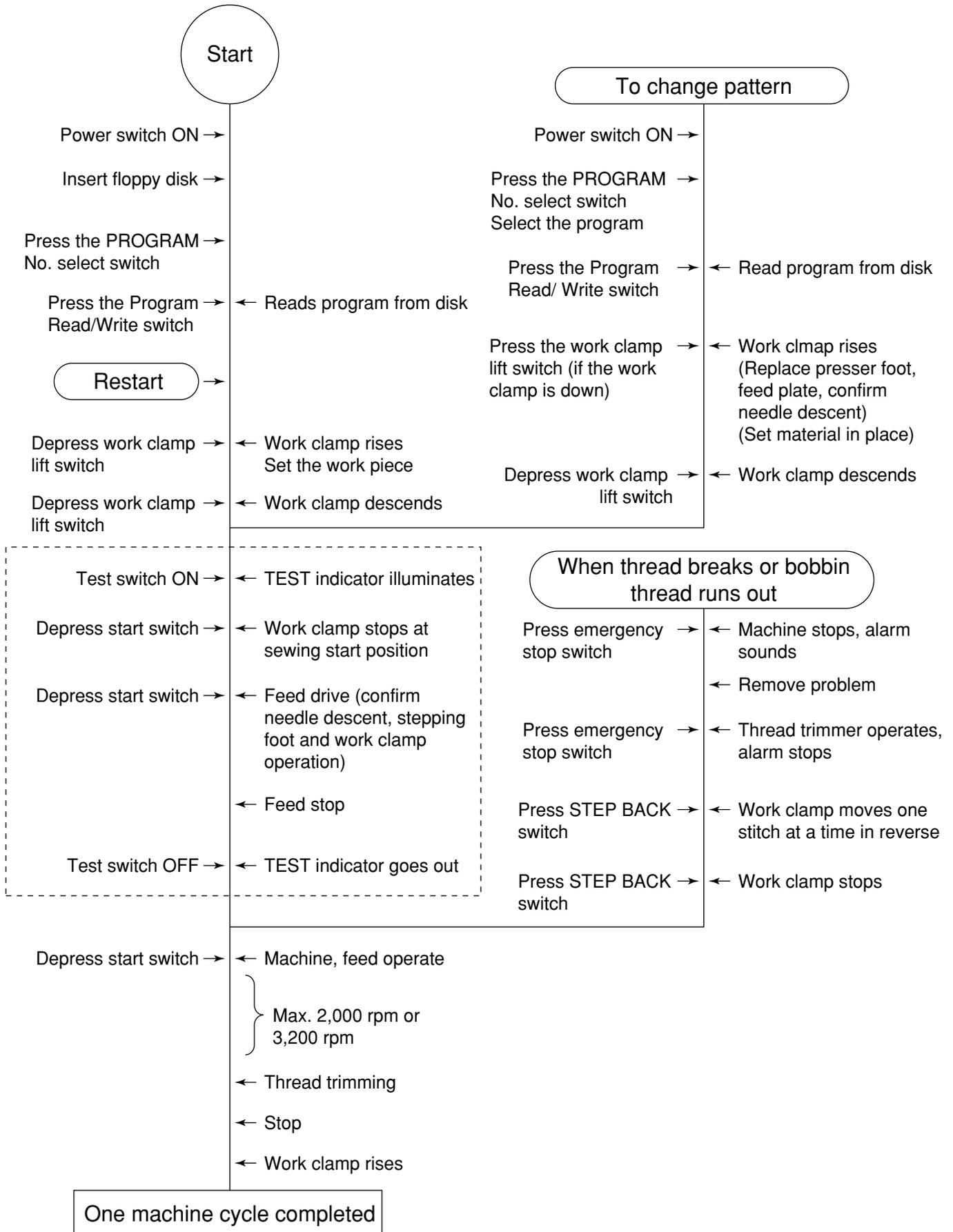
# Chapter 13 TROUBLESHOOTING

## List of adjustments

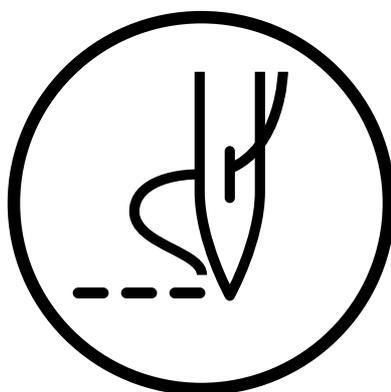
Problem	Check and remedy
Presser foot does not rise.	<ul style="list-style-type: none"> <li>• Is the presser arm stiff? → Apply some grease to the sliding surface of the presser arm.</li> <li>• Is the air hose of the presser lifter cylinder bent or broken? → Straighten the air hose or replace it with a new one.</li> </ul>
Presser foot does not drop.	<ul style="list-style-type: none"> <li>• Is the presser arm stiff? → Apply some grease to the sliding surface of the presser arm.</li> <li>• Is the air hose of the presser lifter cylinder bent or broken? → Straighten the air hose or replace it with a new one.</li> </ul>
Presser foot lift amount is incorrect.	<ul style="list-style-type: none"> <li>• Is the position of the stepping foot connection rod correct? → Adjust the distance from the top of the needle plate to the presser foot while referring to "Adjusting the presser foot lift amount".</li> </ul>
Bobbin thread is wound to one side.	<ul style="list-style-type: none"> <li>• Is the height of the thread tension stud correct? → Adjust the height of the thread tension stud while referring to "Winding the lower thread".</li> </ul>
Bobbin thread winding amount is incorrect.	<ul style="list-style-type: none"> <li>• Is the position of the bobbin presser correct? → Adjust the height of the thread tension stud while referring to "Winding the lower thread".</li> </ul>
Thread pulls out.	<ul style="list-style-type: none"> <li>• Are the differences in thread lengths correct? → Use the sub-tension to adjust the thread lengths while referring to "Thread tension".</li> </ul>
Needle thread breaks.	<ul style="list-style-type: none"> <li>• Is the needle thread tension too weak? → Adjust the needle thread tension while referring to "Thread tension".</li> <li>• Is the needle installed incorrectly? → Install the needle so that it faces correctly, while referring to "Installing the needle".</li> <li>• Is the thread too thick for the needle? → Select a thread which matches the size of the needle.</li> <li>• Are the tension and stroke of the thread take-up spring correct? → Adjust the tension and height of the thread take-up spring while referring to "Thread tension".</li> <li>• Are the rotary hook, needle plate hole or needle damaged or burred? → Grind the parts to make them smooth or replace them.</li> <li>• Is the needle thread (decorative thread) breaking because of heat? → Use the thread cooler.</li> <li>• Is the thread path correct? → Refer to "Threading the upper thread".</li> </ul>
Bobbin thread breaks.	<ul style="list-style-type: none"> <li>• Is the bobbin thread tension too weak? → Adjust the bobbin thread tension while referring to "Thread tension".</li> <li>• Are the rotary hook, needle plate hole or needle damaged or burred? → Grind the parts to make them smooth or replace them.</li> </ul>
Skipped stitches occur.	<ul style="list-style-type: none"> <li>• Is the needle bent or the needle tip broken? → Replace the needle.</li> <li>• Is the needle installed incorrectly? → Install the needle correctly, while referring to "Installing the needle".</li> <li>• Is the thread path correct? → Refer to "Threading the upper thread".</li> <li>• Is the needle and rotary hook timing correct? → Adjust while referring to "Needle and rotary hook timing".</li> <li>• Have any scraps collected near the rotary hook? → Clean around the rotary hook.</li> </ul>

Problem	Check and remedy
Needle breaks.	<ul style="list-style-type: none"> <li>• Is the needle touching the rotary hook? → Adjust while referring to "Needle and rotary hook timing" and "Adjusting the needle clearance".</li> <li>• Is the needle bent or the needle tip broken? → Replace the needle.</li> <li>• Is the needle installed incorrectly? → Install the needle correctly, while referring to "Installing the needle".</li> <li>• Is needle deflection occurring? → Select a needle which matches the material being sewn, or reduce the sewing speed.</li> <li>• Is the needle too thin? → Select a needle which matches the material being sewn.</li> </ul>
Needle thread is not trimmed.	<ul style="list-style-type: none"> <li>• Is the thread trimming timing correct? → Change the thread trimming timing.</li> <li>• Is the fixed knife blunt? → Sharpen the fixed knife or replace it with a new knife.</li> <li>• Is the movable knife picking up the needle thread? → Adjust while referring to " Needle and rotary hook timing ".</li> <li>• Is the tension of the sub-tension correct? → Turn the nut to adjust to a suitable tension.</li> </ul>
Thread is tangling.	<ul style="list-style-type: none"> <li>• Is the needle and rotary hook timing correct? → Adjust while referring to "Needle and rotary hook timing".</li> </ul>
Poor seam finish on underside of material.	<ul style="list-style-type: none"> <li>• Are the threads being separated correctly at the rotary hook holder position? → Adjust while referring to "Adjusting the inner rotary hook bobbin case holder position".</li> <li>• Are the thread lengths correct? → Use the sub-tension to adjust the thread lengths while referring to "Thread tension".</li> </ul>
Poor thread tightening.	<ul style="list-style-type: none"> <li>• Is the needle thread tension too weak? → Adjust the needle thread tension while referring to "Thread tension".</li> <li>• Is the bobbin thread tension too weak? → Adjust the bobbin thread tension while referring to "Thread tension".</li> </ul>
Needle thread lengths are uneven.	<ul style="list-style-type: none"> <li>• Is the tension of the sub-tension correct? → Adjust the sub-tension while referring to "Thread tension".</li> <li>• Is the fixed knife correct? → Sharpen the fixed knife or replace it with a new knife.</li> </ul>

# OPERATION FLOW CHART



**brother**®



INSTRUCTION MANUAL

**BROTHER INDUSTRIES, LTD.**

15-1, Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan. Phone: 81-52-824-2177

Printed in Japan

151-V64,V66,V70,V75  
S93V64-002  
2001.04. H (1)