

BES-1230AC BAS-423A

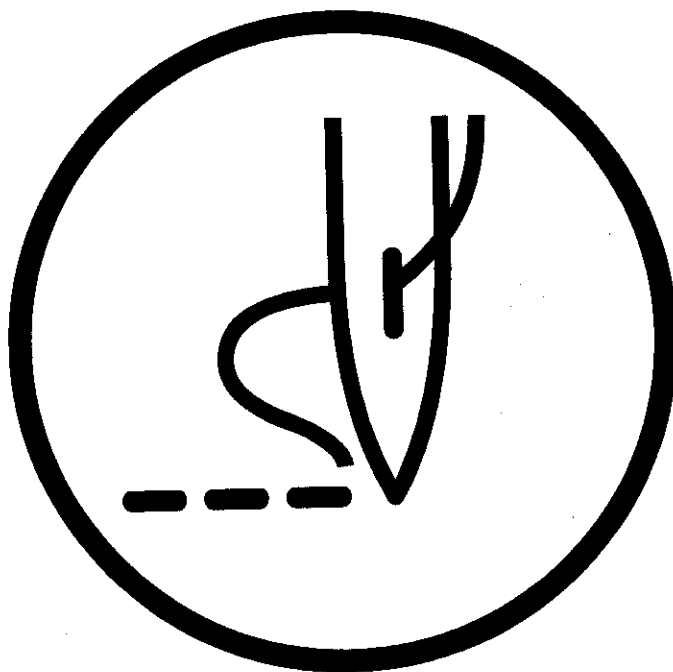
INSTRUCTION MANUAL

BROTHER
EMBROIDERY
SYSTEMS



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

THREE HEAD ELECTRONIC EMBROIDERY MACHINE




brother®










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. Touching areas where high voltages are present can result in severe injury.

CAUTION

Installation

- | | |
|--|--|
|  Machine installation should only be carried out by a qualified technician. |  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. |
|  Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done. | |
|  The sewing machine weighs more than 620 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. |  Avoid setting up the sewing machine near sources of strong electrical noise such as high-frequency welding equipment. If this precaution is not taken, incorrect machine operation may result. |
|  Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock. | |

Sewing

- | | |
|--|--|
|  This sewing machine should only be used by operators who have received the necessary training in safe use beforehand. |  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. |
|  The sewing machine should not be used for any applications other than sewing. | |
|  Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result. |  If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest Brother dealer or a qualified technician. |
|  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. <ul style="list-style-type: none">• When threading the needle• When replacing the bobbin and needle• When not using the machine and when leaving the machine unattended |  If the machine develops a problem, contact your nearest Brother dealer or a qualified technician. |

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

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

Symbols



----- This symbol(\triangle) 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(\otimes) indicates something that you must not do.










----- This symbol(\bullet) 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".)

⚠ CAUTION

Cleaning

- | | |
|--|---|
|  <p>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.</p> |  <p>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.</p> |
|--|---|


Maintenance and inspection

- | | |
|---|---|
|  <p>Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.</p>  <p>Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.</p>  <p>Turn off the power switch and disconnect the power cord 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> <ul style="list-style-type: none">• When carrying out inspection, adjustment and maintenance• When replacing consumable parts such as the rotary hook and knife |  <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>Use only the proper replacement parts as specified by Brother.</p>  <p>If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.</p>  <p>Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.</p> |
|---|---|

3 Warning labels

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

1

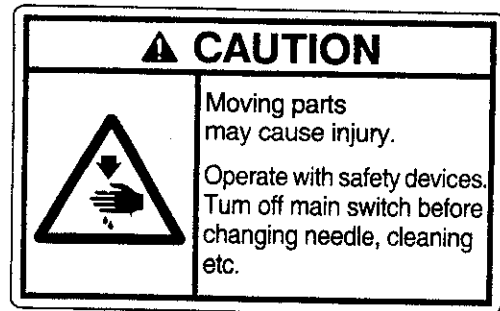
	▲ DANGER	▲ GEFAHR	▲ DANGER	▲ PELIGRO
	Hazardous voltage will cause injury. Turn off main switch and unplug power cord before opening this cover.	Hochspannung verletzungsgefahr! Vor Öffnen des Gehäuses Hauptschalter ausschalten und Netzstecker ziehen!	Un voltage non adapté provoque des blessures. Pour ouvrir cette plaque, couper le contact general de la machine et debrancher le cable d'alimentation.	Un voltaje inadecuado puede provocar las heridas. Antes de abrir esta tapa, desconecte la máquina y desenchufela de la red.

2



Never touch or push the thread take up during operation as it may result in injuries machine.

4



Safety devices: Finger guard, Guard bar, Belt cover, etc.

3

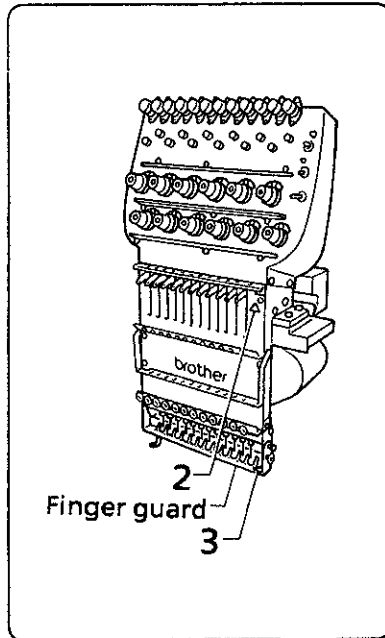


Never touch or push the needle bar during operation as it may result in injuries or damage to the sewing machine.

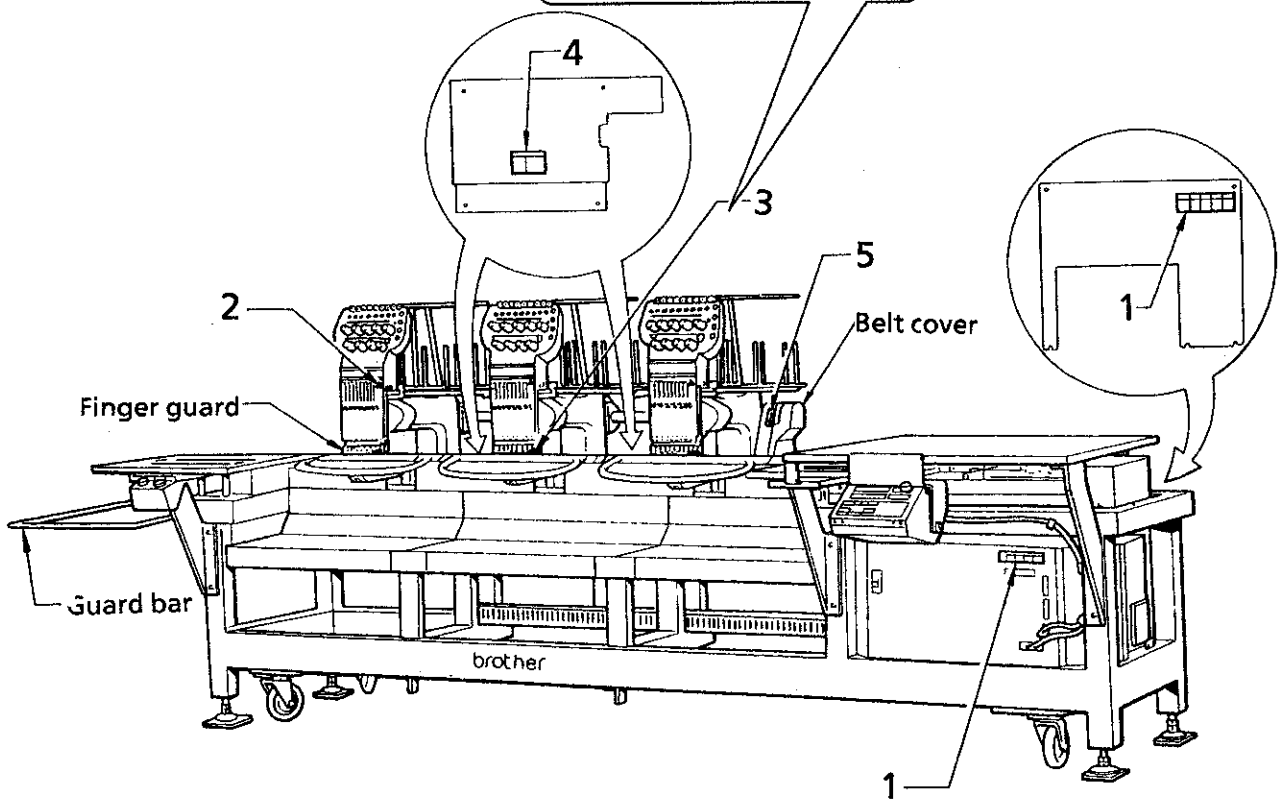
5 Direction of operation



■ BES-1230AC



■ BAS-423A



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Explanation of models

This manual explains two models:

- BAS-423A (9 needles)
- BES-1230AC (12 needles)

Explanation for individual model is provided by identifying the model name. Check the model before using the machine.

Chapter 1. An Introduction of Embroidery Machine

1. Machine features

- Since an extremely accurate pulse motor and a new hoop driving system have been adopted, a hoop can be moved quietly and stably. Sewing speed is 1,000 spm.
- Since the number of presser feet has been decreased to only one, noise has been greatly reduced during operation.
- Easily removable tables contribute to enabling various types of embroidery, from embroidery on cloth to that on ready-made products, such as T-shirts, and caps.
- The machine heads are 600 mm apart. Compared to the previous arm bed, the sewing area has been greatly widened. (W 600 mm x V 300 mm)
- This interactive machine is based on dialogue system and enables even a complete beginner to easily embroider multi-colored patterns.
- By setting a program in advance, thread changing and thread trimming can be done automatically. Up to 99 colors can be put in a pattern and up to 28000 stitches can be stored in the memory as standard use. By running a 2DD floppy disk, up to 240000 stitches can be sewn in a pattern.
- Up to 16 patterns can be entered in the memory. By entering a pattern in advance, it can be sewn anytime.
- If the tape reader (optional) is connected, the tapes of Tajima, Barudan, and Zangs formats (25.4mm width/8 holes), and data contained on floppy disks for Tajima, and Barudan (FDR ver. III or V) and the data received from Brother's editing system can all be used.

NOTE: Brother format data cannot be used.

2. Specifications

■ BES-1230AC

Embroidery machine used	12 needle embroidery machine head (three head embroidery machine)
Application	Pattern embroidery
Sewing speed	Maximum 1000 spm (6 levels)
Sewing area	V 300 mm × H 600 mm (border frame area) V 300 mm × H 480 mm (tubular square hoop area) V 85 mm × H 150 mm (cap frame area)
Feed system	Timing belt, pulse motor drive
Stitch length	0.1 mm - 12.7 mm (minimum pitch 0.1 mm)
Storage medium	3.5 2DD floppy disk in Tajima format 3.5 2HD floppy disk which corresponds to Tajima format Paper tape with 25.4mm width /8 holes (Tajima, Barudan, Zangs) 3.5 2DD floppy disk in Barudan format (restricted to pattern data created in FDR ver. III or V)
Thread trimming	Automatic thread trimmer
Needle thread breakage	Needle thread breakage detector
Power supply	Single phase 200 - 240 V 50/60 Hz 500 VA maximum 750 VA
Weight	620 kg
Dimensions	(Before assembly) 3360 mm W × 760 mm L × 1500 mm H (After setup) 3980 mm W × 1080 mm L × 1500 mm H (Distance between machine heads) 600 mm
Options	Paper tape reader, embroidery hoop in each size, bobbin winder, adjustable table, fixed table, side table, start switch

■ BAS-423A

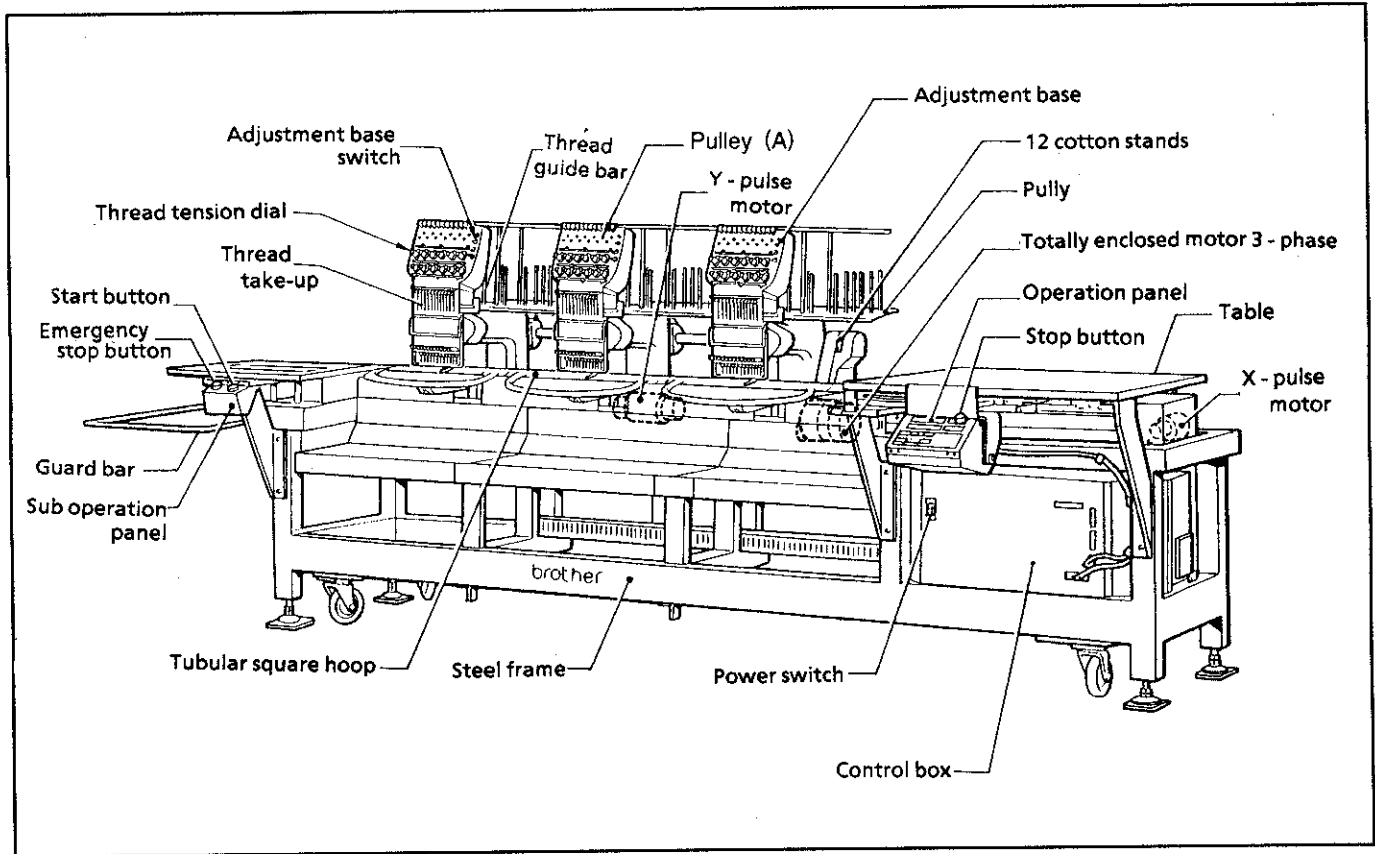
Embroidery machine used	9 needle embroidery machine head (three head embroidery machine)
Application	Pattern embroidery
Sewing speed	Maximum 1000 spm (6 levels)
Sewing area	V 300 mm × H 600 mm (border frame area) V 300 mm × H 480 mm (tubular square hoop area) V 85 mm × H 150 mm (cap frame area)
Feed system	Timing belt, pulse motor drive
Stitch length	0.1 mm - 12.7 mm (minimum pitch 0.1 mm)
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Chapter 2.

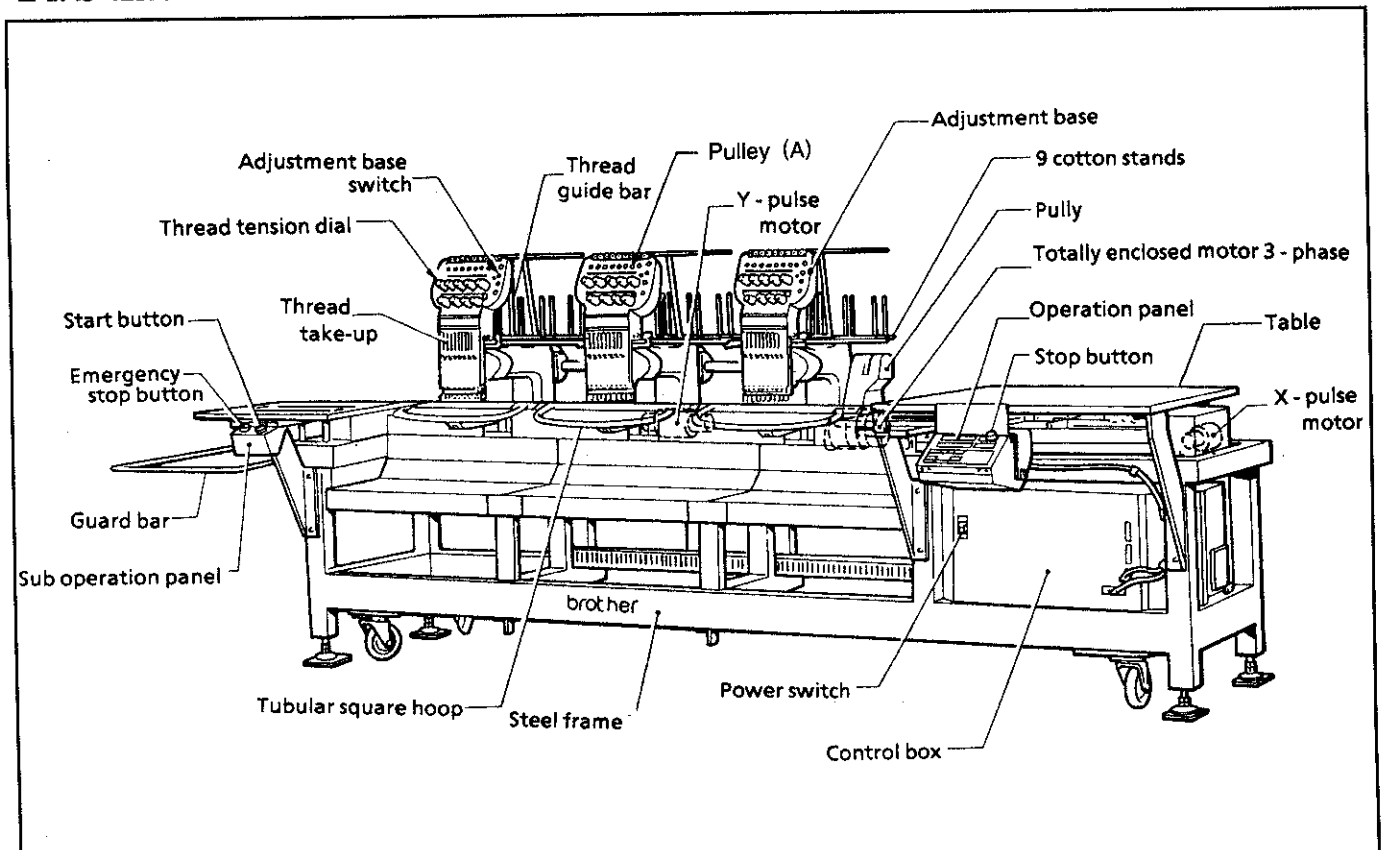
Preparation of Embroidery Machine

1. Names of machine components

■ BES-1230AC



■ BAS-423A



2. Installation

⚠ CAUTION

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 620 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 start 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 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 using the sewing machine near sources of strong electrical noise such as high-frequency welding equipment. If this precaution is not taken, incorrect machine operation may result.

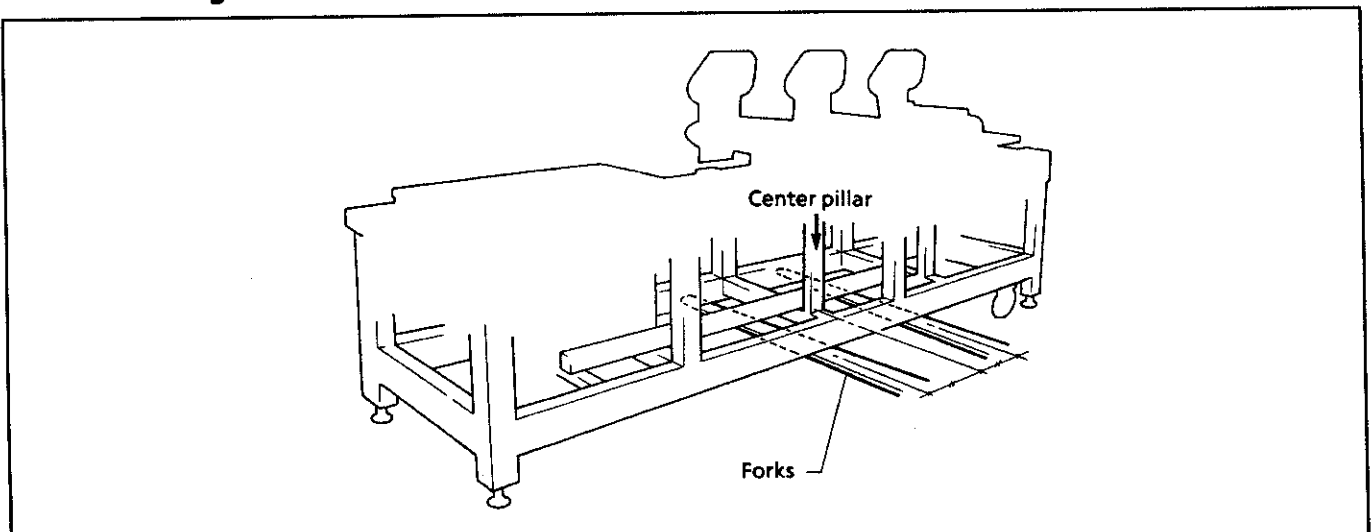
* After installing, get the power supply from a dedicated outlet.

2-1. Carrying the machine

When moving the machine, push the steel frame.

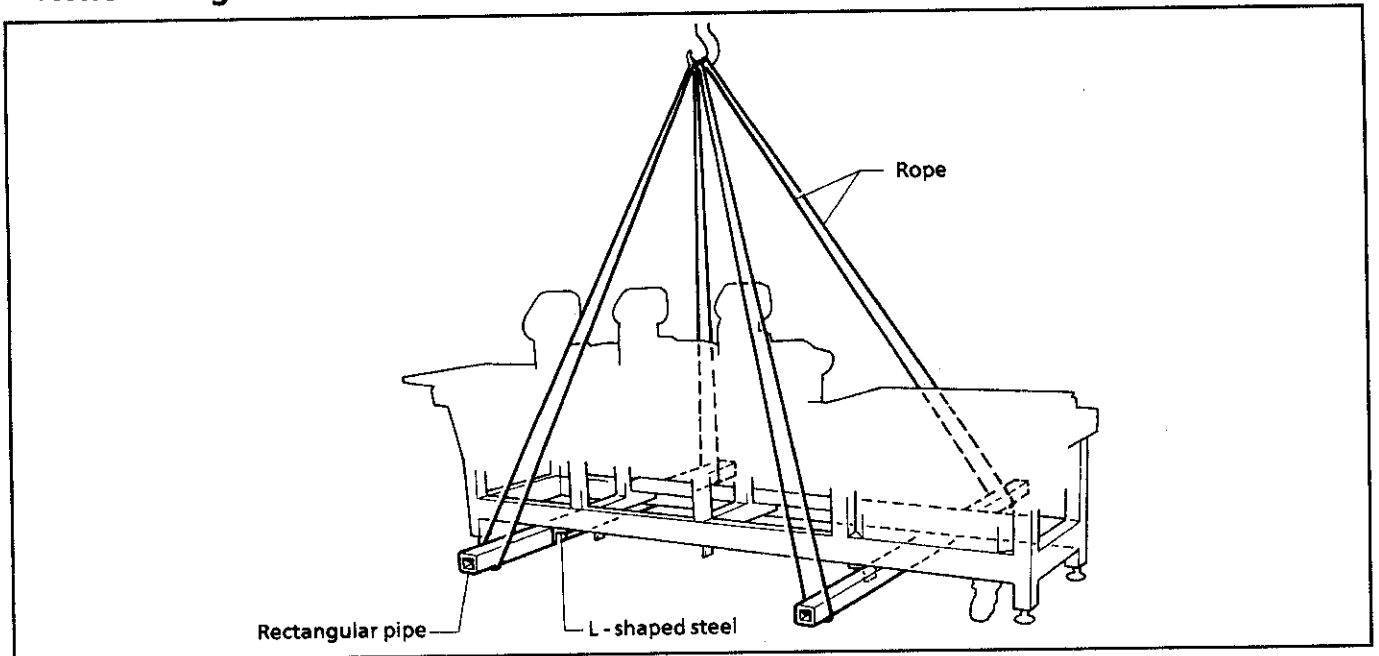
NOTE: Do not push the cover, table support B, and the carriage.

<When using a forklift>



Pass the forks of the forklift under the center of the steel frame from the rear.

<When using a crane>

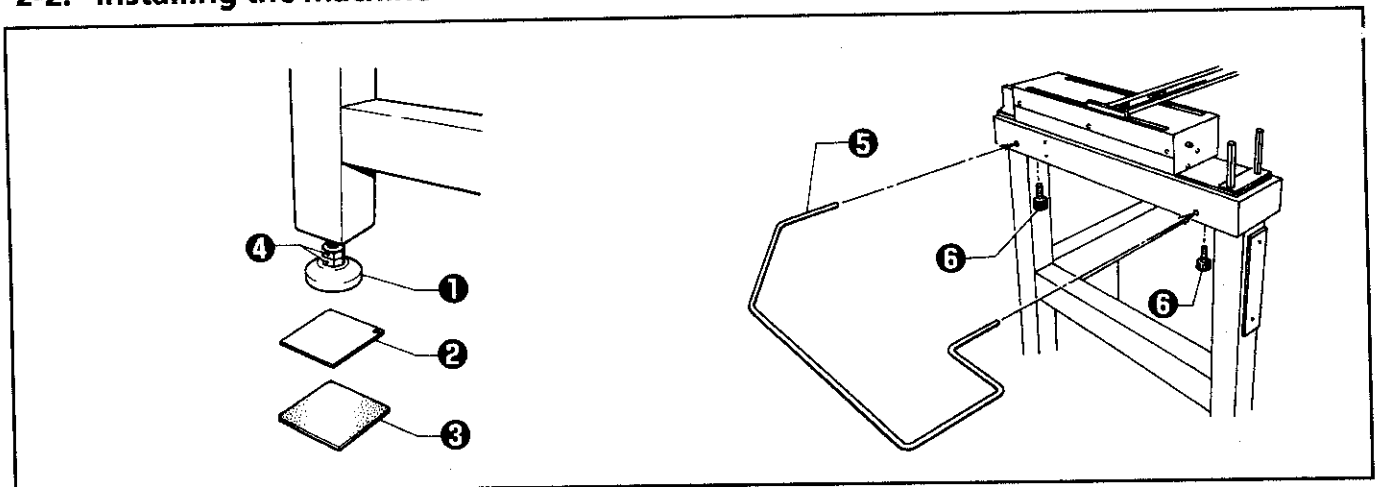


Position the two rectangular pipes at the outside of the four L - shaped steels on the bottom of the steel frame.

Loop four ropes around the pipes, and raise the steel frame using the crane.

NOTE: When raising the steel frame, make sure that the ropes do not contact the machine table or the adjustment base.

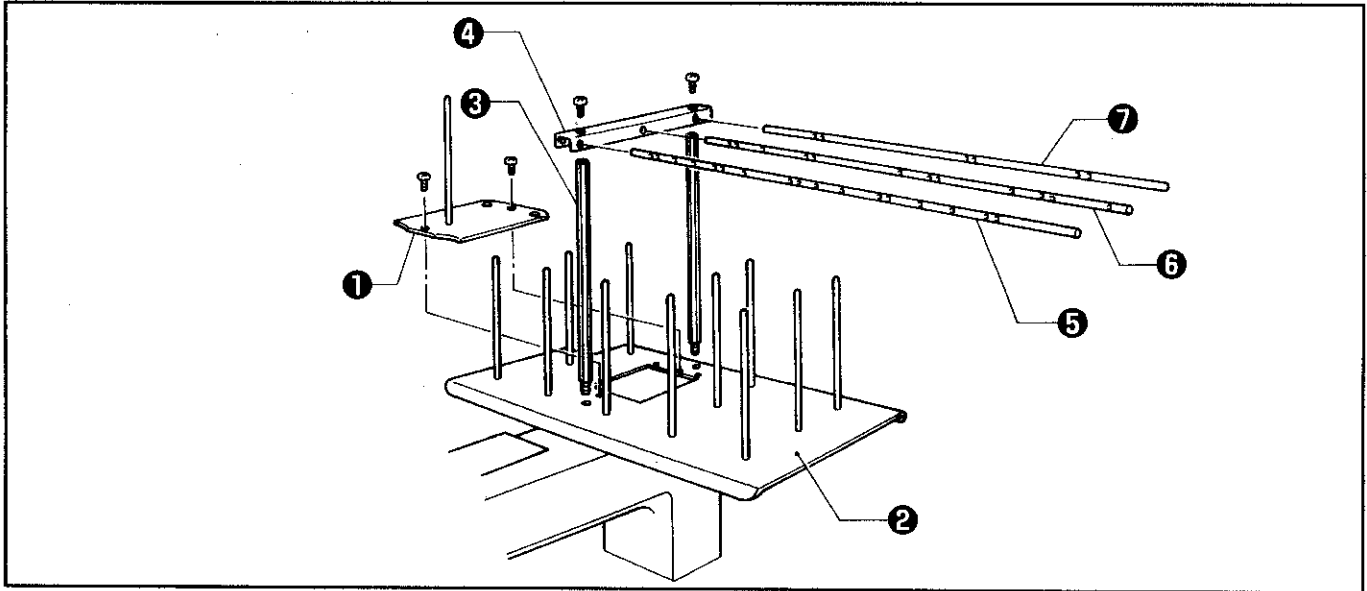
2-2. Installing the machine



1. Place the cushion sheets ② and the level partition plates ③ upon the four level adjusters ①.
The level partition plates ③ should be on the top.
2. Secure the four level adjusters ① using the nuts ④ so that the machine does not move.
3. Insert the guard bar ⑤ into the holes on the side of the steel frame, and secure it using the two bolts ⑥.

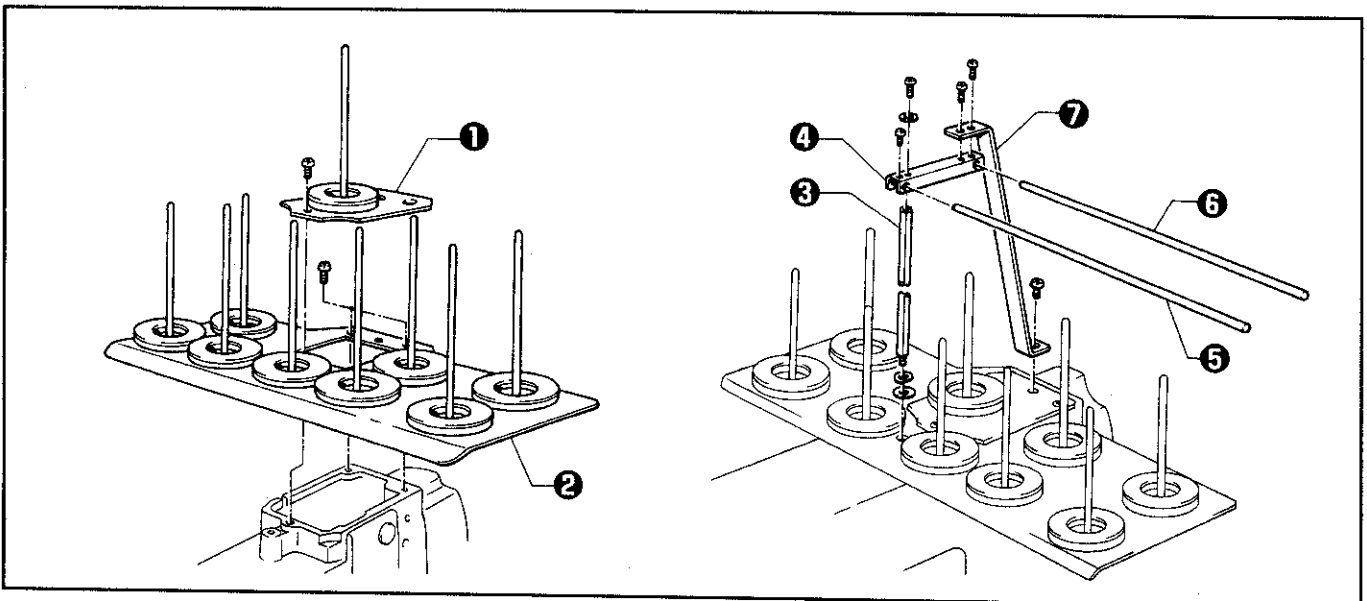
2-3. Attaching the cotton stand

■ BES-1230AC



1. Attach cotton stand S ① to the machine head using the screws. Put cotton stand L ② on the former, and tighten the screws.
2. Attach the thread guide bar ③.
3. Attach the thread guide joint ④ to the thread guide bar ③ using the screw.
4. Pass thread guides A ⑤ and B ⑥, C ⑦ through the holes of the thread guide joint ④, and secure them using the screws.
5. Attach the cotton stand L ② and the thread guide joint ④ using the screws.

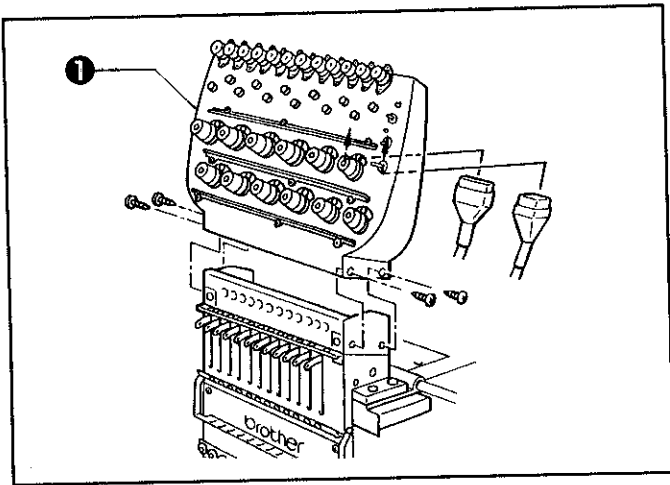
■ BAS-423A



1. Attach cotton stand S ① to the machine head using the screws. Put cotton stand L ② on the former, and tighten the screws.
2. Attach the thread guide bar ③.
3. Attach the thread guide joint ④ to the thread guide bar ③ using the screw.
4. Pass thread guides A ⑤ and B ⑥ through the holes of the thread guide joint ④, and secure them using the screws.
5. Attach the thread guide plate ⑦ to cotton stand L ② and the thread guide joint ④ using the screws.

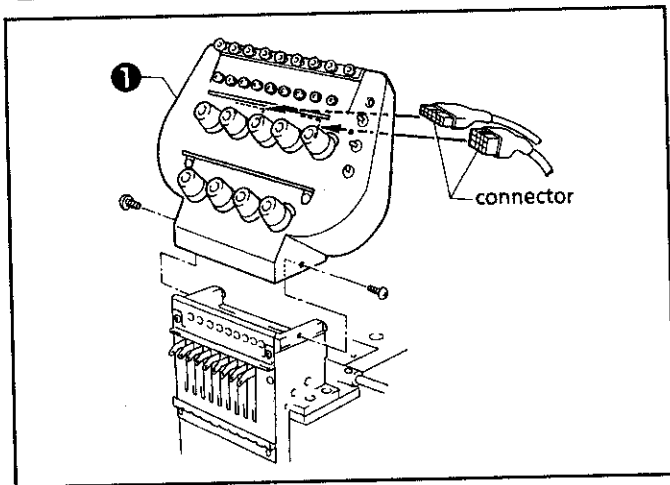
2-4. Attaching the adjustment base

■ BES-1230AC



1. Put the adjustment base ❶ on the machine head, and secure it using the screws.
2. Attach the connector.

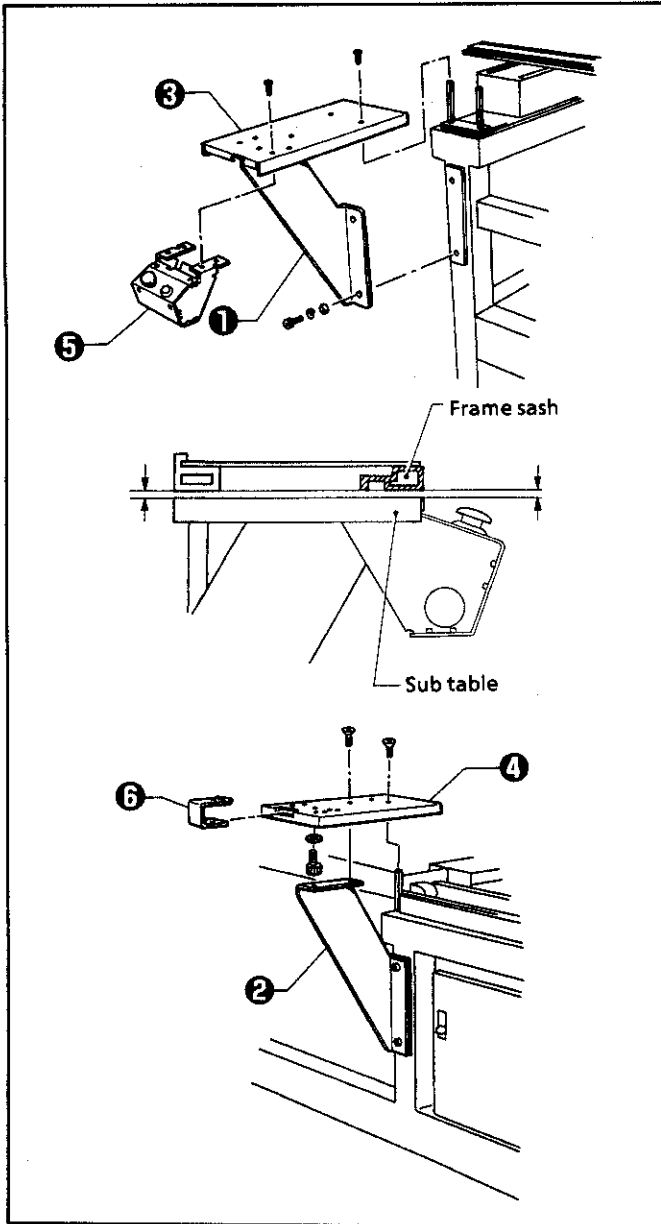
■ BAS-423A



1. Put the adjustment base ❶ on the machine head, and secure it using the screws.
2. Attach the connector.

2-5. Installing the machine table

<Sub table installation procedure>

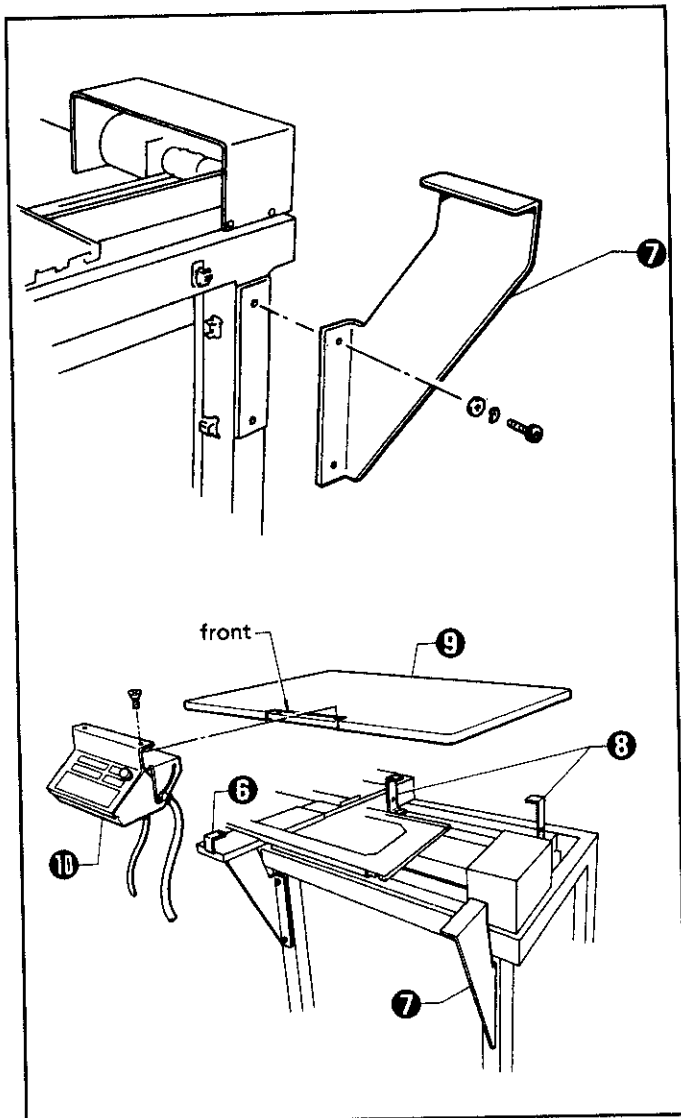


1. Install the two sub tables ③ and ④ with sub table supports ① and ② to the front member of the steel frame.

NOTE: Adjust the height of the sub tables ③ and ④ to the one of the post by changing the height of the sub table supports ① and ②, and secure them so that their tops are horizontal.

NOTE: When pulling the frame sash forward, it should be kept parallel to the sub table.

2. Attach the switch box ⑤ to the left side of the sub table ③ using the four screws. Insert the switch box ⑤ harness and the table steel frame harness into the connector, and attach the ground wire to the switch box ⑤.
3. Attach the table support plate ⑥ to the right sub table ④ using the four bolts.

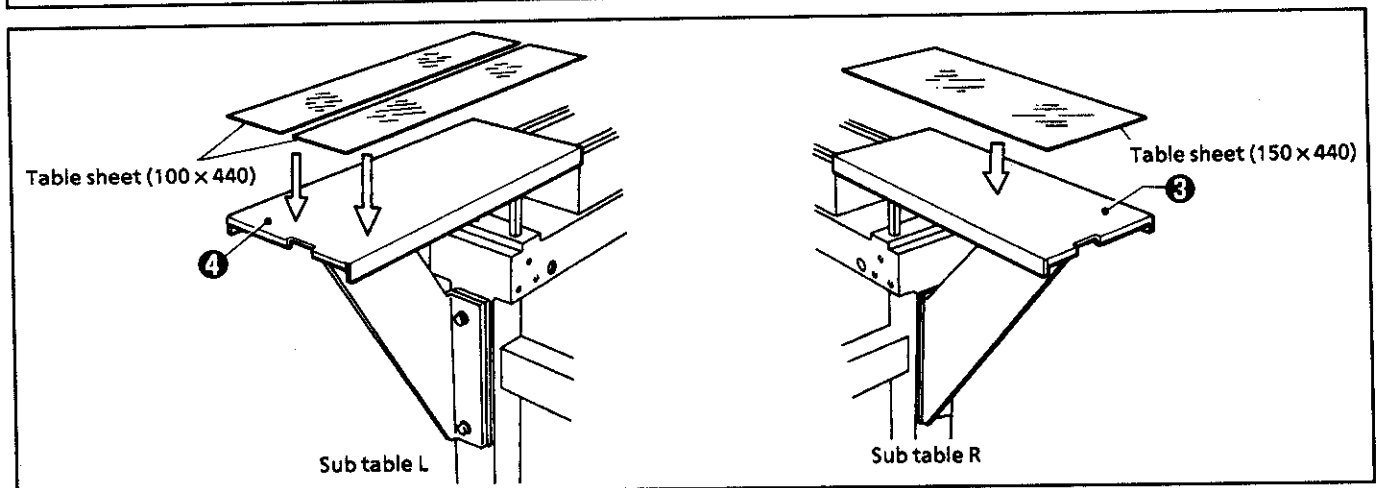


4. Attach table support F ⑦ to the right end of the front member of steel frame using the two bolts.

5. Place the table ⑨ on the table support plate ⑥, and table supports F ⑦ and B ⑧, and secure it using the six bolts.

6. Attach the operation panel ⑩ to the front of the table ⑨ using the two screws.

NOTE: Install the table so that the attaching part of the operation panel faces the front. Insert the operation panel cable into the control box, and attach the earth wire to the operation panel.



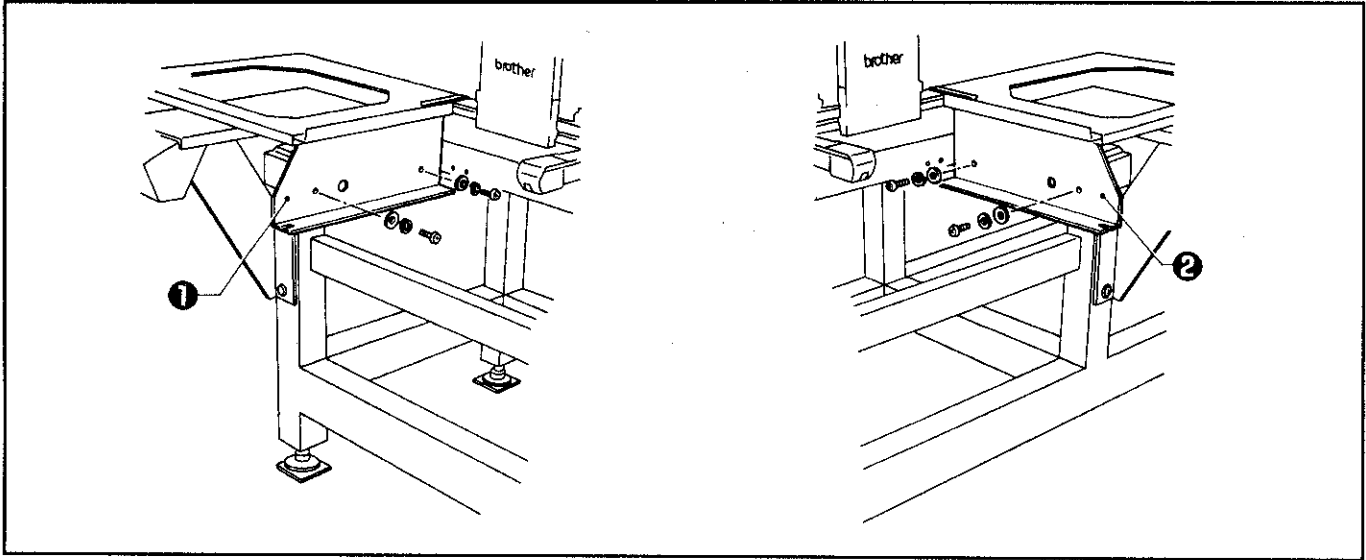
7. Put the table sheets on the sub tables R ③ and L ④. Attach the table sheet (150 x 440) to sub table R ③. Attach the two sheets of table sheet (100 x 440) to sub table L ④.

NOTE:

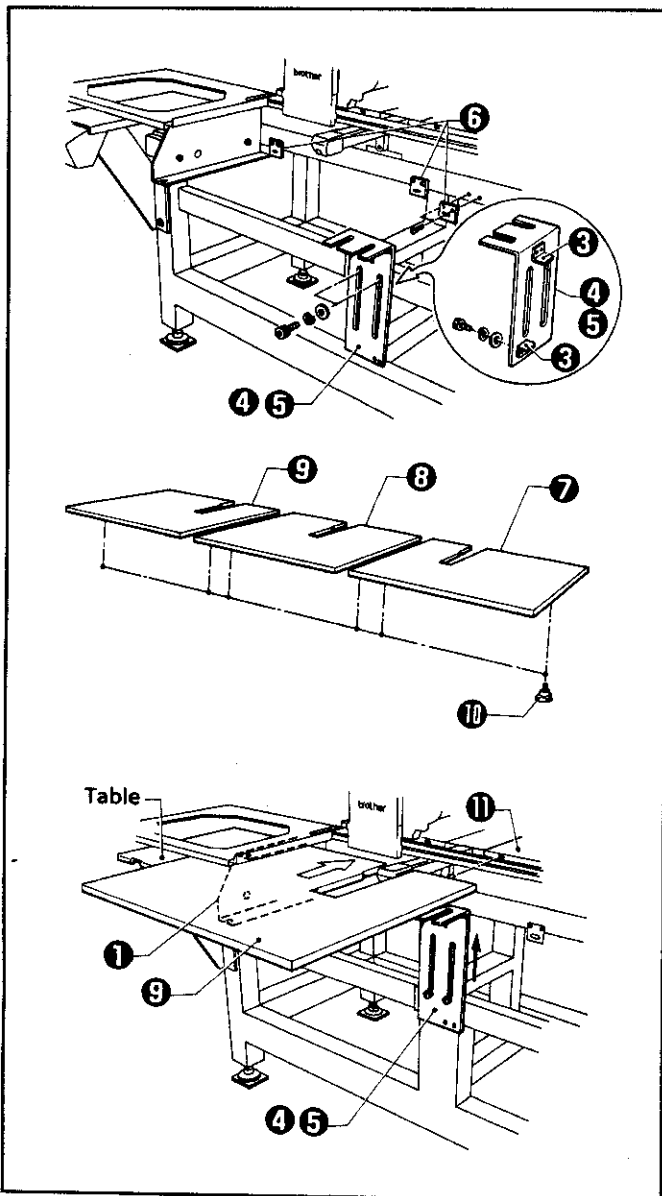
- Before attaching a sheet, clean the table top.
- Stick a sheet on the table starting from one edge.
- After attaching it, completely remove all air bubbles.

< Fixed table (optional) installation procedure >

When table LC or LS is attached, remove it before attaching the fixed table.



1. Temporarily attach fixed table guides L ① and R ② to the table steel frame using the two bolts.

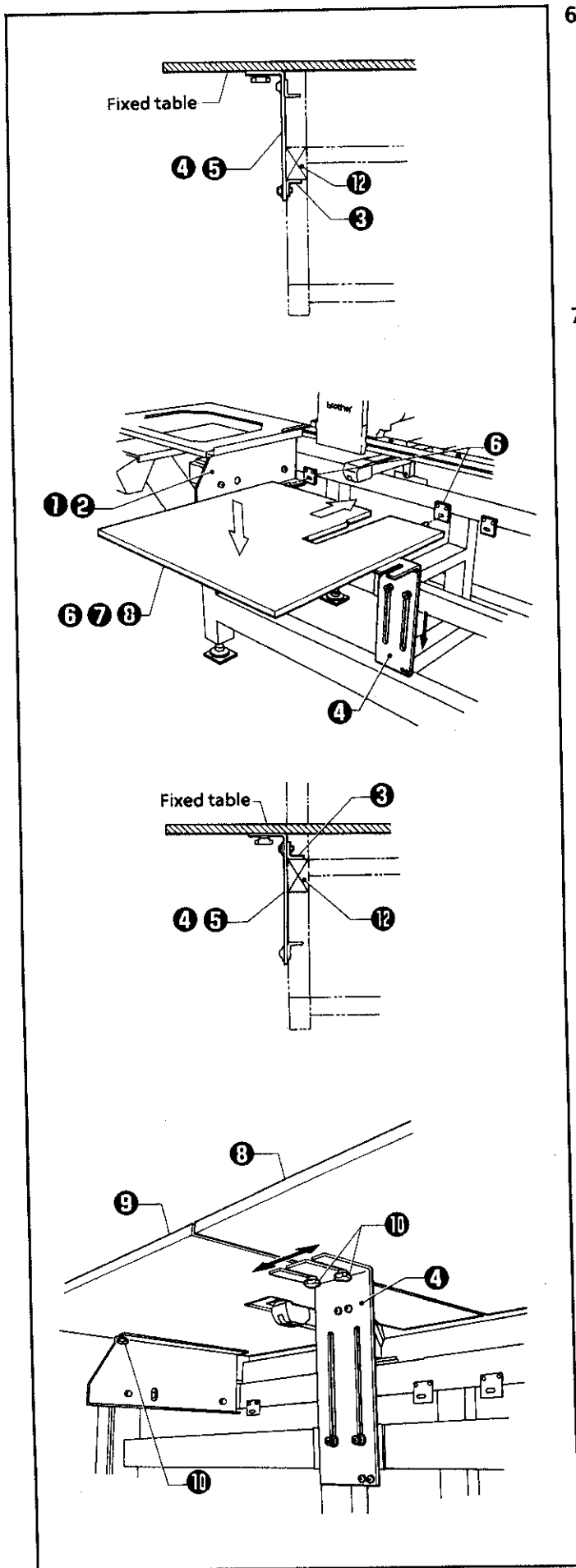


2. Attach fixed table supports L ④ and R ⑤ with location stoppers ③ to the front member of the steel frame, and temporarily tighten the two bolts.

3. Attach the six BL stopper plates ⑥ to the horizontal member of the steel frame.

4. Attach two bolts ⑩ each to the underside of fixed tables R ⑦, C ⑧, and L ⑨.

5. Insert the pins which are attached to the rear of fixed tables R ⑦, C ⑧, and L ⑨, into the holes of the cover ⑪ of the steel frame. Adjust the heights of fixed table guides L ① and R ②, and fixed table supports ④ and ⑤ so that each table top is aligned with the cover top, and secure them.



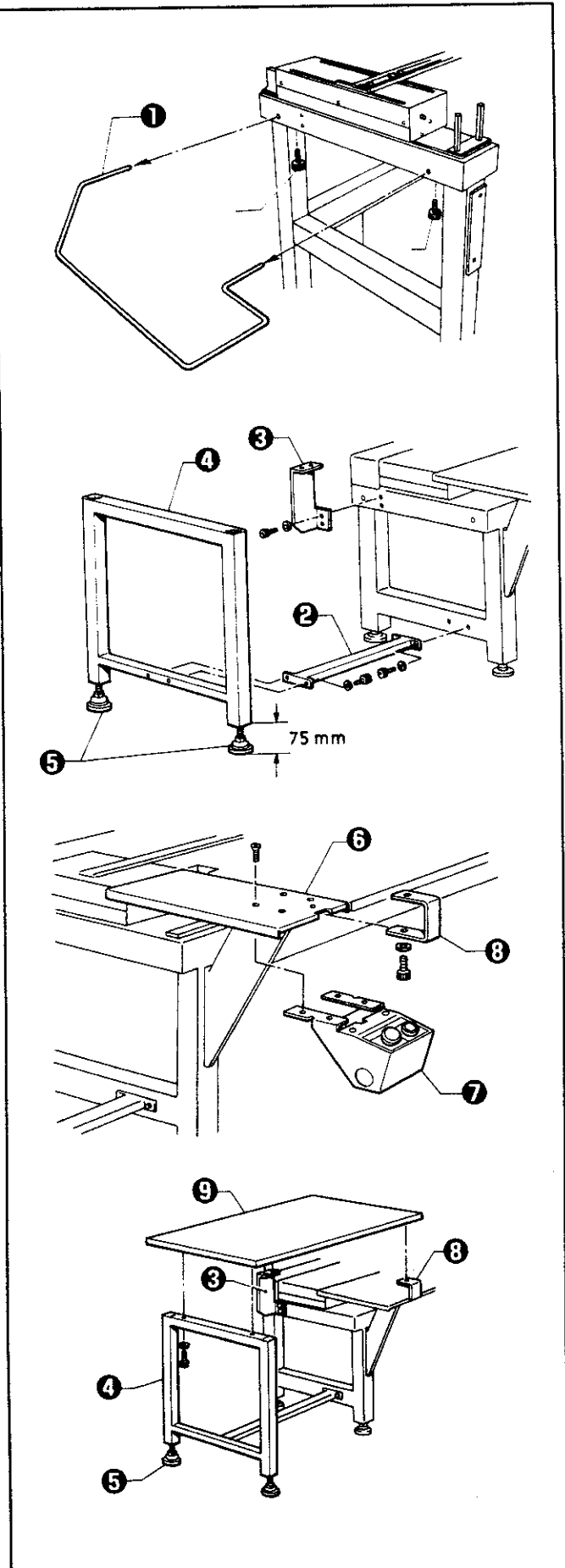
6. Attach the location stoppers ③ to fixed table supports L ④ and R ⑤; move the location stoppers until they touch the bottom of the steel tube ⑫, and secure them.

7. Remove fixed tables R ⑦, C ③, and L ⑨. Lower fixed table supports ④ and ⑤, place fixed tables R ⑦, C ③, and L ⑨ on both fixed table guides L ① and R ② internal bottom surfaces. Secure fixed table supports ④ and ⑤, and insert pins on the rear of fixed tables R ⑦, C ③, and L ⑨, into the holes of the BL stopper plates ⑥.

8. Attach the location stoppers ③ to fixed table stoppers L ④ and R ⑤; move the location stoppers until they touch the top of the steel tube ⑫, and secure them.

9. Make sure that fixed tables R ⑦, C ③, and L ⑨ are secured using the bolts ⑩ on their undersides both when their pins are inserted into the cover holes and when inserted into the holes of the BL stopper plates. If they are not secured, adjust the horizontal positions of fixed table stoppers L ④ and R ⑤ by moving them slightly to the left or right.

<Side table (optional) installation procedure >



1. Loosen the two bolts, and remove the guard bar ① from the table steel frame.

2. Attach the foot joint ② and the side table support ③ to the left side of the steel frame.

3. Attach the two level adjusters ⑤ to the side table foot ④, and attach them to the foot joint ②.
NOTE: The level adjusters ⑤ should project 75 mm beyond the side table foot ④.

4. Remove the switch box ⑦ from the left sub table ⑥, and attach the table support plate ⑧.

5. Reattach the switch box ⑦ to the left sub table ⑥.

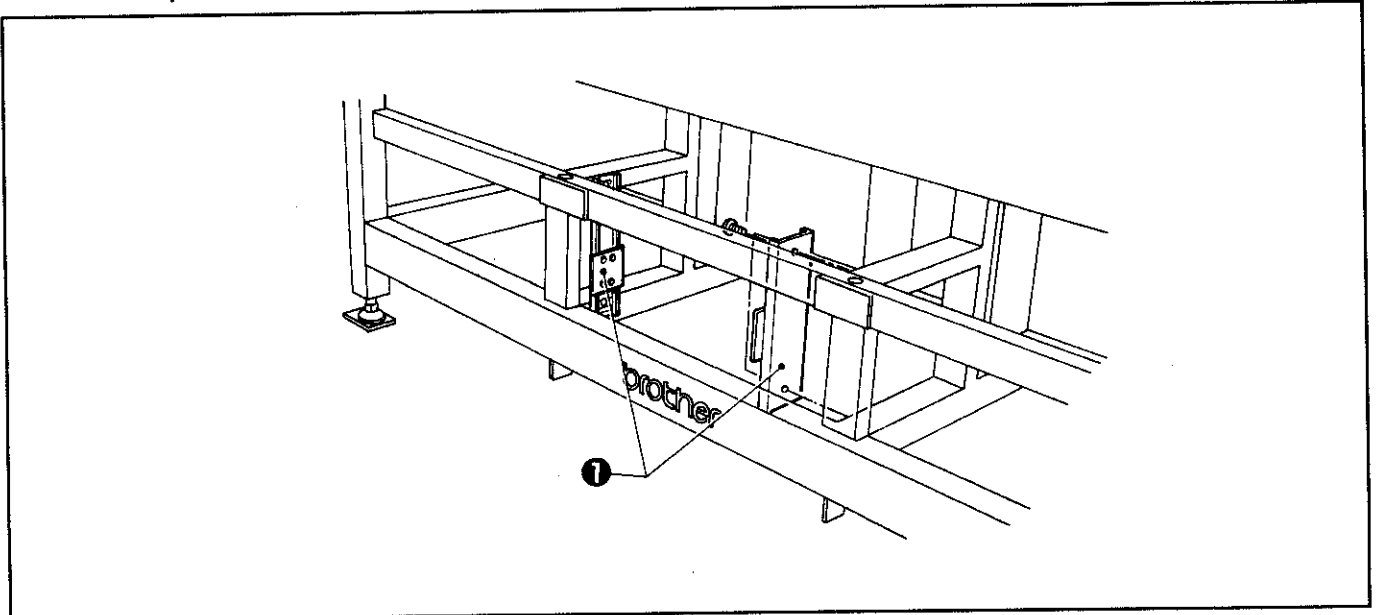
6. Place the side table ⑨ on the side table foot, the side table support, and the table support plate, and secure it using the bolts.
NOTE: Bolts other than those which attach the table support plate should be tightened securely after assembly.

7. Adjust the side table ⑩ height, and secure the level adjusters ⑤ using the nuts so that the side table ⑩ does not move.

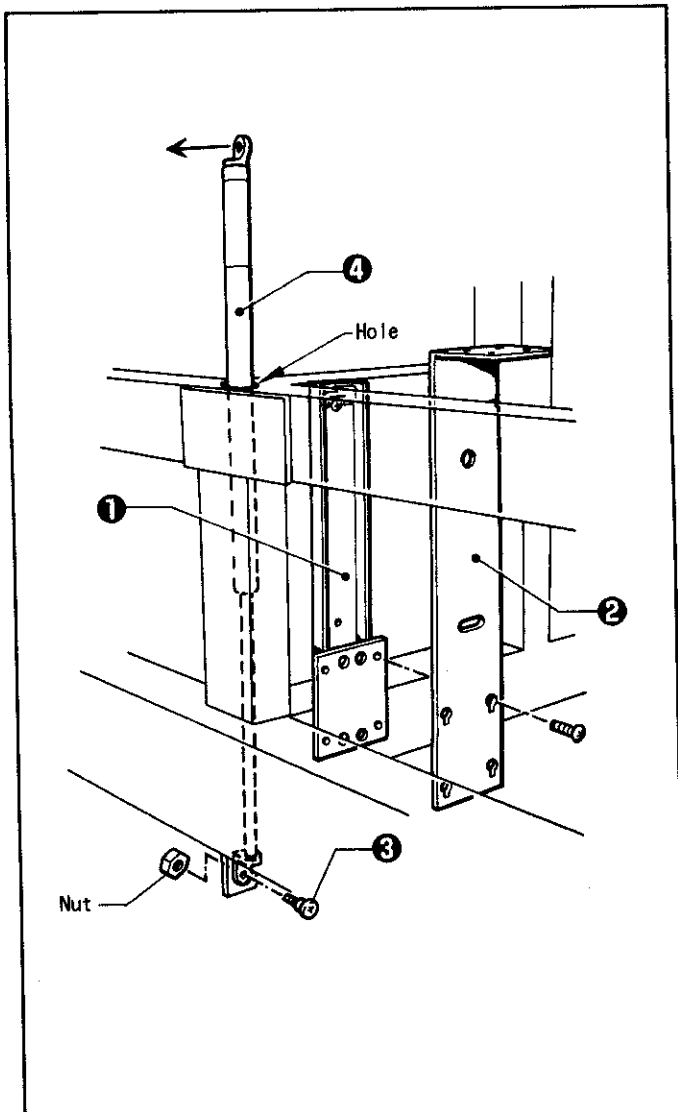
<Adjustable table (optional) installation procedure >

NOTE: Adjustable table weight is approximately 30 kg.

Two persons or more are required for installing the adjustable table on the machine.



1. Secure the two slide packs ① to the table steel frame using the bolts.

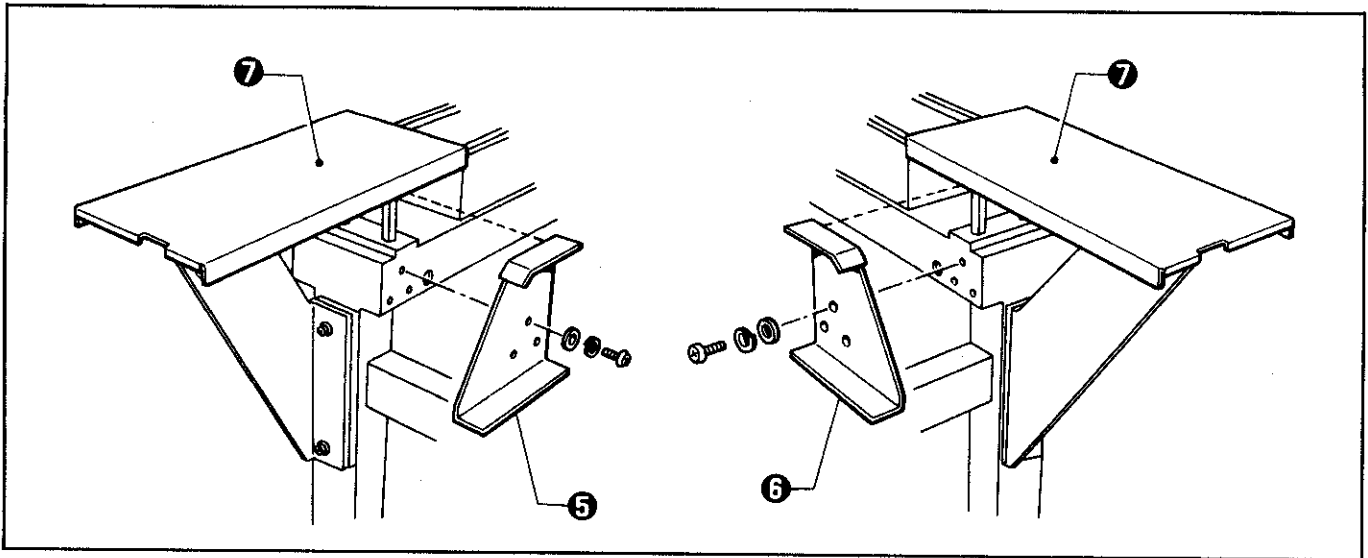


2. Attach the adjustable table supports ② to the slide packs ①.

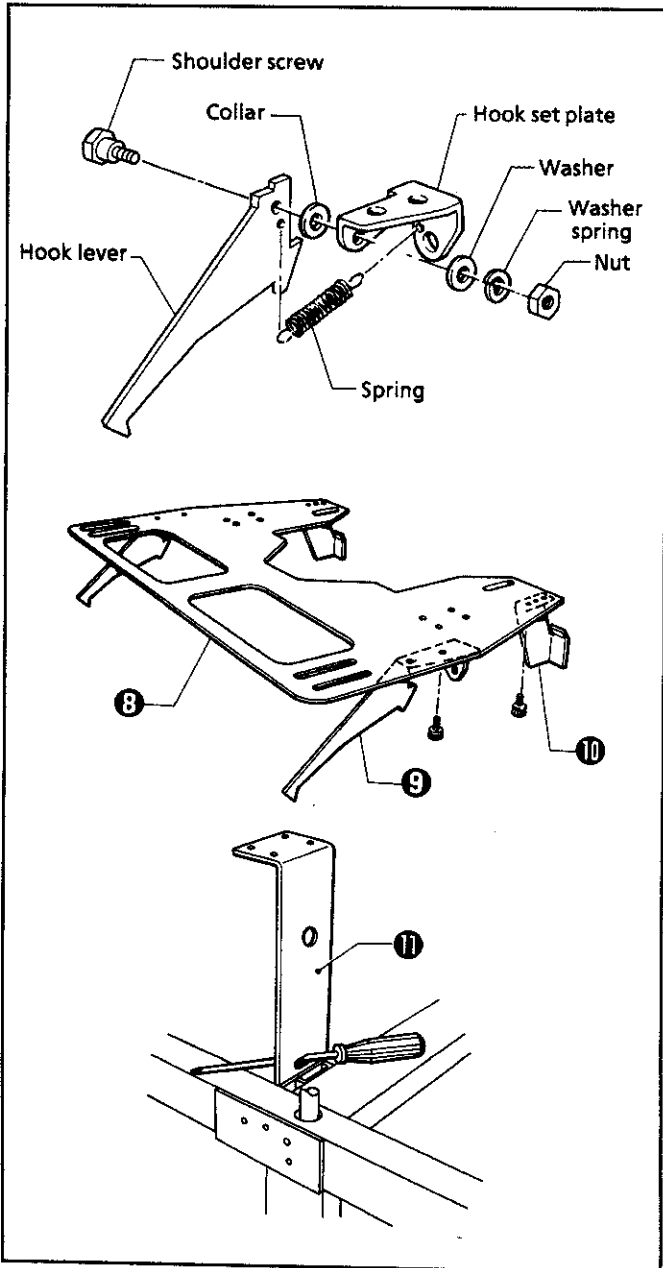
3. Attach the stay damper ④ to the L-shaped steel which is on the bottom of the steel frame, using the shoulder screw ③ and the nut.

NOTE: • The hole on the stay damper ④ should face the front. If it does not, turn the stay damper ④ to have the hole face the front.

- The stay damper ④ should be centered in the hole on the steel frame. Adjust the shoulder screw ③ position using the nut.



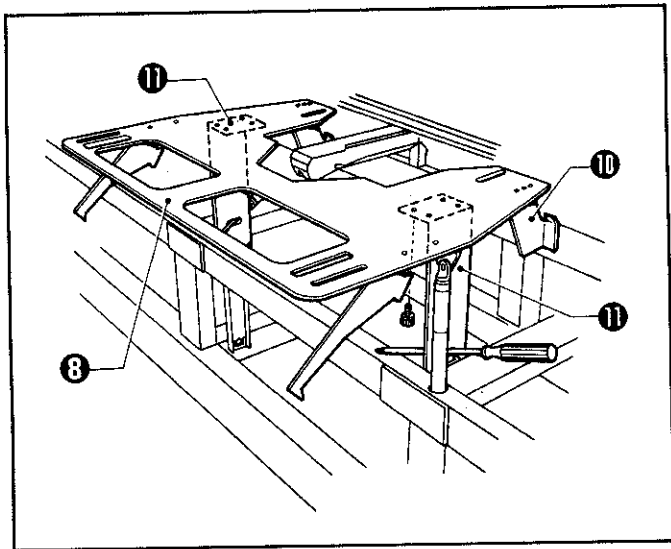
4. Align table guides L ⑤ and R ⑤ with the edges of the sub table ⑦, attach them to the steel frame, and temporarily tighten the bolts.



• Attach the hook set plate as shown in the figure.

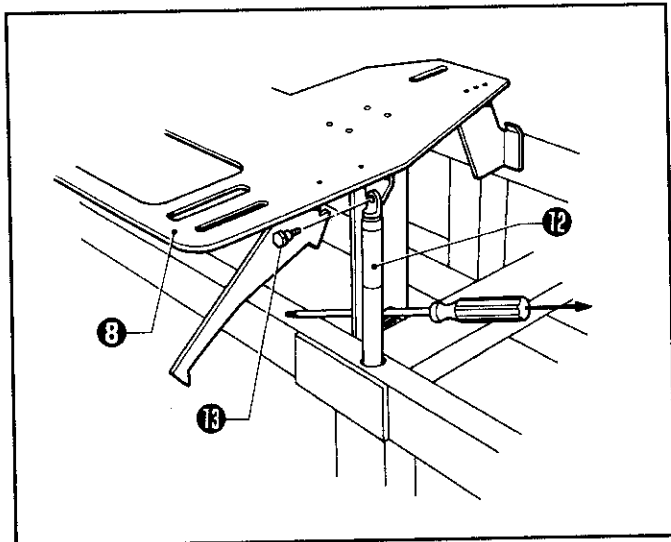
5. Attach the two hook set plates ⑥ to the adjustable table support plate ③ using the two bolts, and the two prevention plates ⑩ to the adjustable table support plate ③ using the three bolts. (Temporarily tighten the prevention plates ⑩.)

6. Insert a screwdriver into the slot of the adjustable table support ⑩, and support the latter with the screwdriver resting on the steel tube.



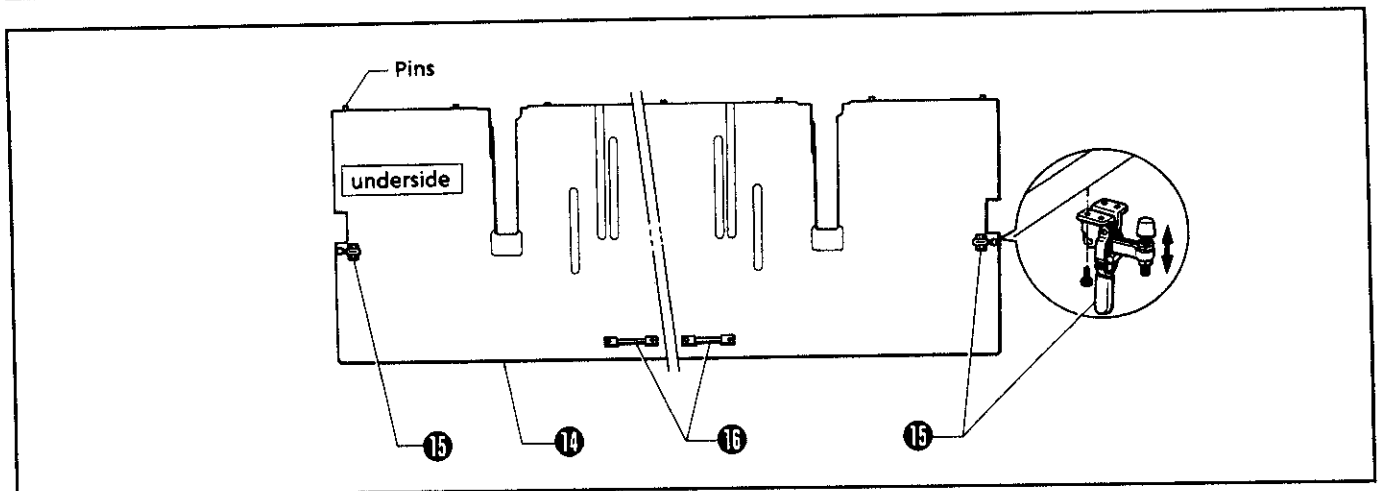
7. Attach the adjustable table support plate 8 to the adjustable table support 11 using the four bolts. Secure the prevention plates 10 to the steel frame using the three bolts.

NOTE: Tighten the bolts for the adjustable table support so that the stay damper is centered in the steel tube hole.

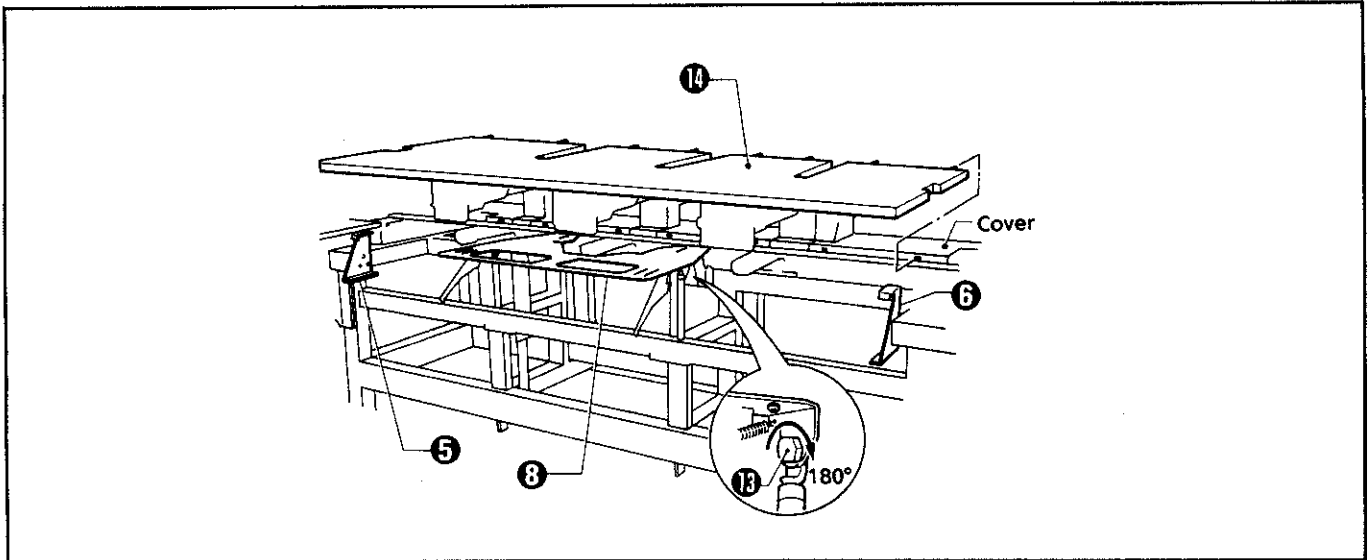


8. Attach the adjustable table support plate 8 and the stay damper 12 using the shoulder screw 13, and temporarily tighten the shoulder screw 13.

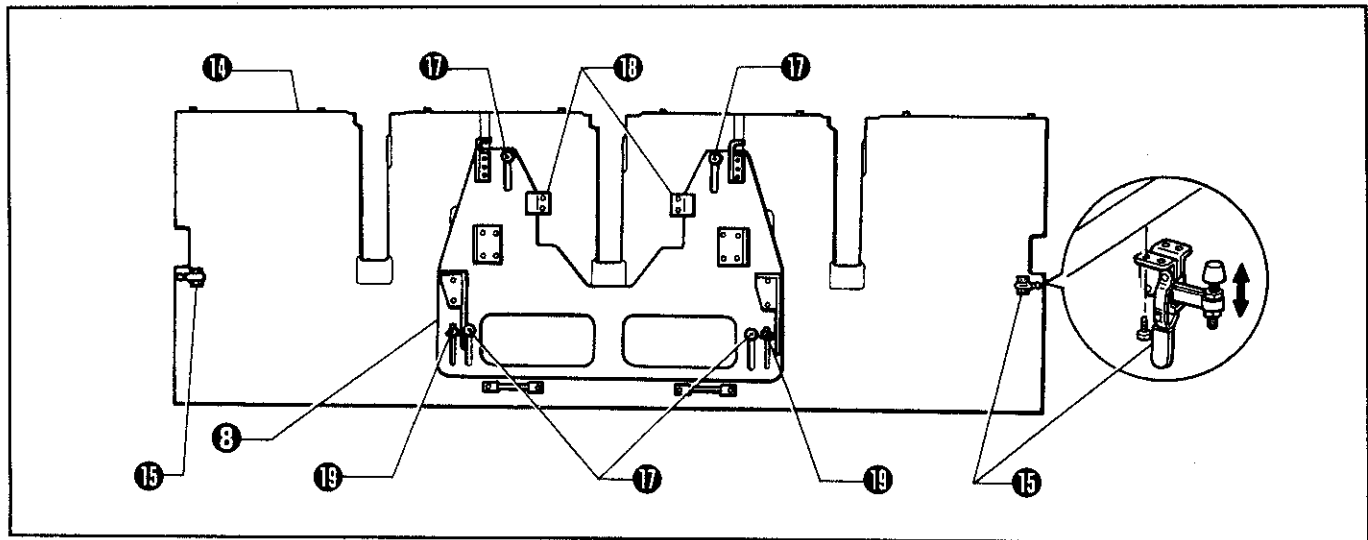
NOTE: Pull out the screwdriver after tightening the bolt.



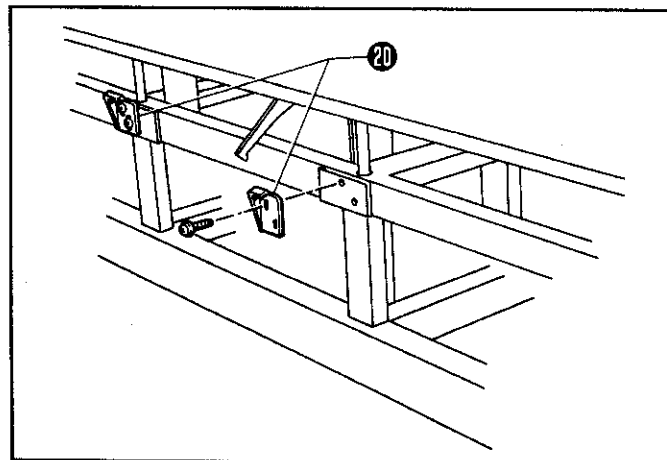
9. Attach the two toggle clamps 15 to the underside of the adjustable table 14.
 10. Attach the slide clip 16 and the pins to the rear of the adjustable table 14.



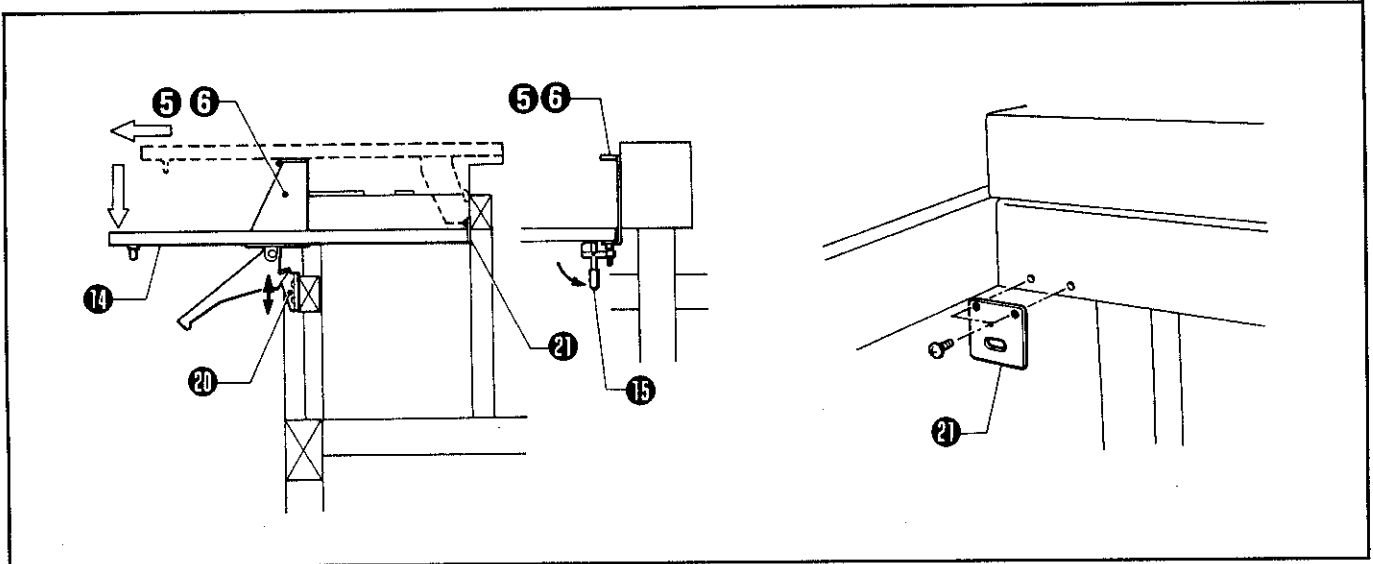
11. Place the adjustable table ⑭ on the adjustable table support plate ⑧ and table guides L ⑤ and R ⑥. Insert the adjustable table ⑭ until the pins of the adjustable table ⑭ reach the holes of the cover, and secure it by rotating the shoulder screw ⑬ 180°.



12. Attach the adjustable support plate ⑧ to the underside of the adjustable table ⑭, and put the four slide pins ⑰, the two slide plates ⑱, and the two bolts ⑲ on the adjustable table support plate ⑧.
13. Adjust the length of the toggle clamps ⑮ by tightening them so that the adjustable table ⑭ does not move.



14. Attach the two stoppers ⑳ to the front members of the steel frame.
NOTE: The stoppers should be centered in the slot.



15. Pull the adjustable table ⑭ forward, and press it down until it touches the table guides L ⑤ and R ⑥ internal bottom surfaces. Attach the two BL stopper plates ⑳ to the members of the steel frame when the pins on the rear of the adjustable table ⑭ are inserted into the holes of the BL stopper plates.

NOTE: Secure the adjustable table ⑭ to table guides L ⑤ and R ⑥ using the toggle clamps ⑮.

16. If the stoppers ㉑ do not operate, adjust their heights so that they operate when the adjustable table ⑭ is lowered.

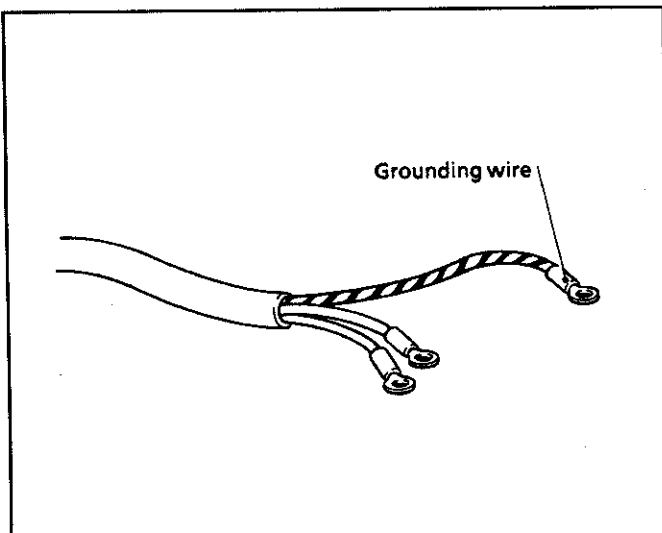
2-6. Power supply

⚠ DANGER



Establish grounding as designated. Improper grounding may result in an electric shock.

- When the power supply cord is connected, be sure to connect the grounding wire (stripe of yellow and green) as illustrated in the figure below.
- Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock.



3. Preparation of machine

3-1. Confirm the following before switching on the machine

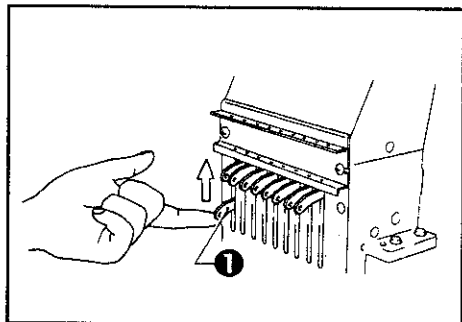
1. THREAD	2. EMBROIDERY HOOP	3. NEEDLE THREAD POSITION
<ul style="list-style-type: none">① The needle thread is set?② Threading is proper?③ The needle is threaded?④ The bobbin thread is set?	<ul style="list-style-type: none">① The embroidery hoop increases the tension of the material?② The embroidery hoop securely clamps?	<ul style="list-style-type: none">① The needle thread take-ups form a line?② The needle bar is at its highest position?

When the power switch is on, the message, "CAUTION MOVING!" is displayed and the buzzer sounds 'beep'. Then, the embroidery hoop automatically moves to the center of carriages X and Y.

The hoop may move to the end, then to the center according to the hoop position when the power is turned on.

At this time, check that there is nothing on the hoop which runs against the point of the needle or the presser foot.

3-2. When turning on the power of the machine



NOTE: When the needle bar and the pulley are not in the stop position or if even one of the needle thread take-ups is not in line, lift the needle thread take-up ① with a finger. The needle thread take-ups form a straight line at the top of the guide plate.
(The illustration at left shows the BAS-423A.)

If the following are displayed

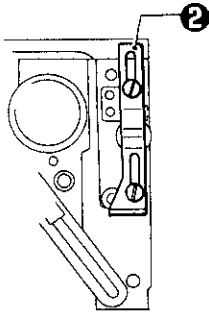
Needle N o. 1
N _ Case POS. Error

The machine will beep intermittently, and the message will appear as shown on the left.

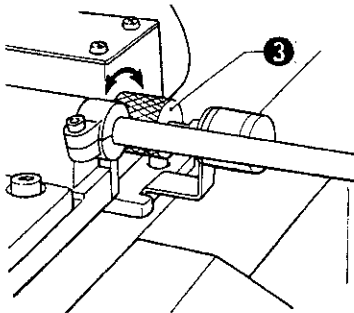
This message shows that the needle bar case is not aligned with the needle hole of the needle plate. The machine cannot operate under this condition.

1. First of all, check that the needle bar stop position is correct.

When the cam plate ② is in its upper position, it is in the automatic jump condition. This is the normal position.



■ BAS-423A

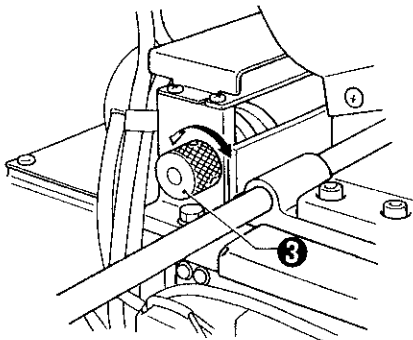


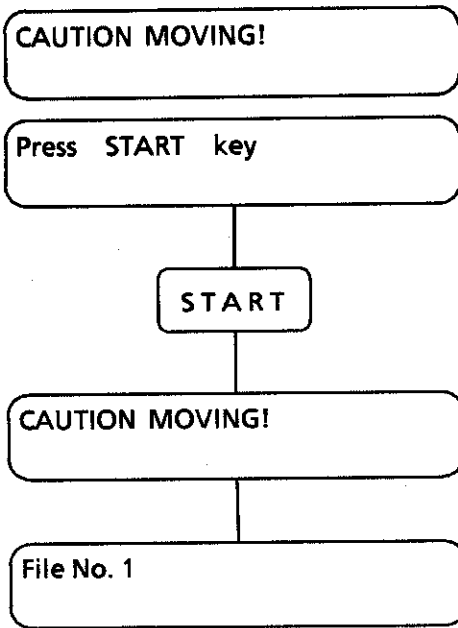
2. Turn the shaft ③ slowly.

If it is unusually heavy or does not turn, the needle thread take-up ① or the needle bar is not in the proper position. Check again and adjust it.

NOTE: Do not turn the shaft forcefully.

■ BES-1230AC





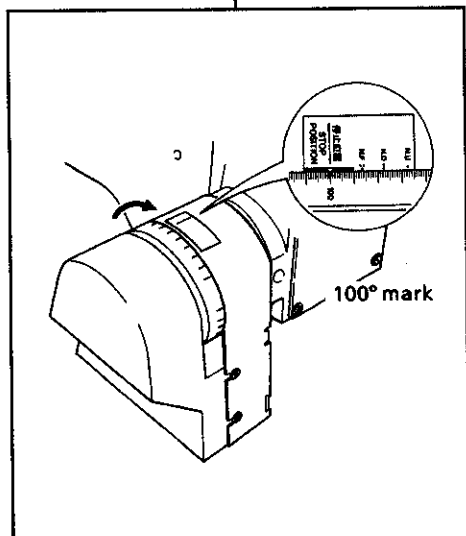
3. When the needle bar case comes to the proper position (in the middle of the undetected area where the needle bar case does not move although the shaft Ⓢ is turned), the buzzer sounds 'beep' and the messages, "CAUTION MOVING!" and "Press START key" are displayed alternately.

4. Press the <START> key.

The message, "CAUTION MOVING!" will appear along with four beeps, and the X and Y carriages will move to the center of the hoop bracket or the same place as when the power was previously turned off.

5. The main menu is displayed.

Needle POS. Error
Turn Pulley



CAUTION MOVING!

Press START key

START

CAUTION MOVING!

File No.01

The needle bar is not in the proper position. Under this condition, it is impossible to move the needle bar to the proper position.

When the needle bar stop position is not proper :

1. Align the 100° mark indicated on the pulley with the stop mark on the belt cover.

2. When the needle bar comes to the proper position, the buzzer sounds 'beep' intermittently, and the messages, "CAUTION MOVING!" and "Press START key" are alternately displayed.

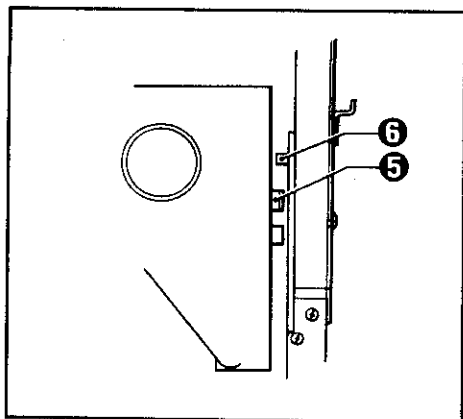
NOTE: Check that the needle bar does not go down.
If it does, set the needle bar in the proper needle bar stop position.
Refer to page 22 "* The proper needle bar stop position".
The mending LED of the first machine head will be lit.

3. Press the <START> key.

The message, "CAUTION MOVING!" will appear along with four beeps, and carriages X and Y will move automatically to the home position of the embroidery area.

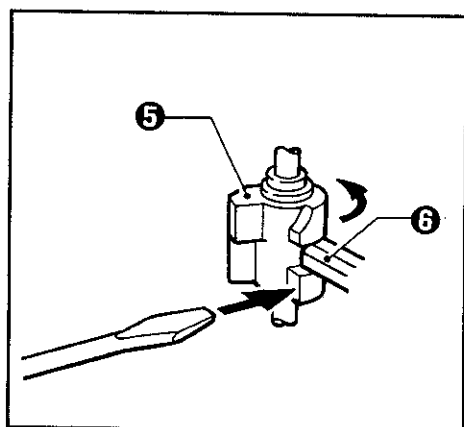
4. The main menu is displayed.

* The proper needle bar stop position



Looking into the inside from the gap, each needle bar is in the jump condition and at its highest point as in the left figure, the needle bar elevating block ⑤ is below so as not to run against the needle bar clamp ⑥.

All the needle thread take-ups are in a horizontal line.



NOTE: Check that the needle bar stop position is proper when turning on the power and when reopening to sew during standstill or pause.

- The needle thread take-ups should form a horizontal line.
- All the needle bars, including the needle bar in the sewing position, should line up at the highest position. If the needle bar in the sewing position is down, it must be disengaged from the needle bar elevating block ⑤ and returned to the highest position. To separate them, insert a screw driver in the left clearance of the needle bar case according to the diagram, then push and rotate. Once separated, the needle bar moves to the highest point by a spring.

If carriages X and Y operate unusually (Clearing and resetting memory)

- When turning on the power not during restarting, carriages X and Y move to an abnormal position after returning to the home position (the center of the embroidery area).
- After having exchanged the P-ROM on the main printed circuit board of the machine. (The power switch should be off in exchanging.)

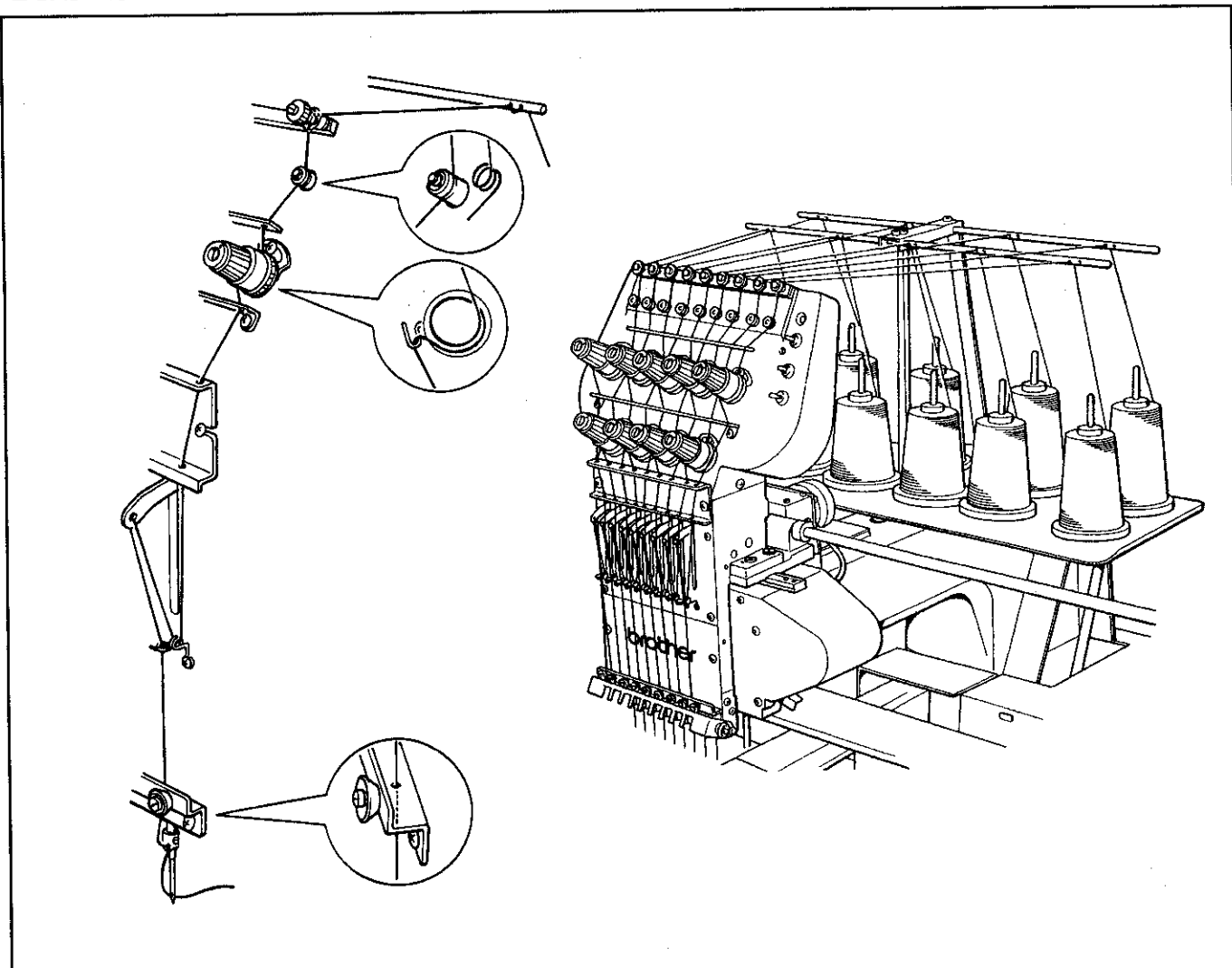
<Procedures in clearing and and resetting memory>

1. Turn off the power.
2. While pressing the <CLEAR> key, turn on the power.
3. The inside memory storage is reset. Carriages X and Y return to the ordinary operation after turning on the power.

4. Preparation for embroidering

4-1. Upper threading

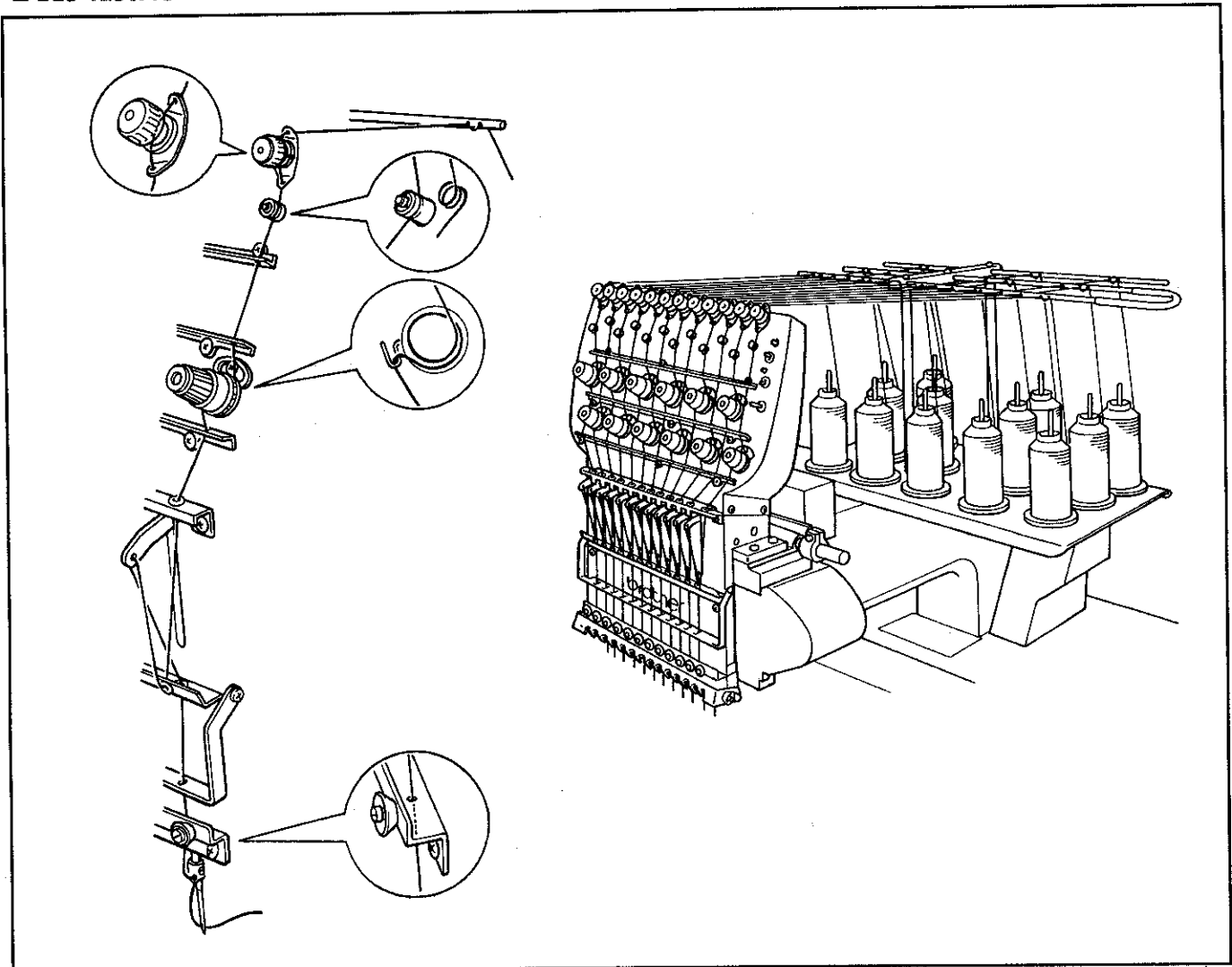
■ BAS-423A



Procedures

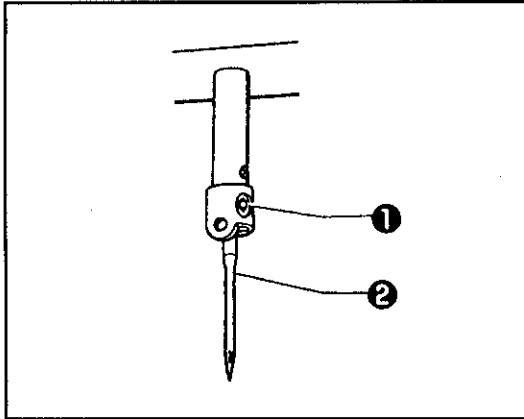
1. Pass the thread up through the hole of the thread guide from the stand spool. Then, pass the thread over around and up through the second hole of the thread guide according to the diagram.
2. Pass the thread under the thread guide by lifting it with a finger, and then wind it onto the pulley twice.
3. Pass the thread through the hole of the upper thread guide (U), wind it into the tension disk clockwise once, and place it on the spring.
4. Pass the thread through each hole of the upper thread guide (C) and the thread guide (U).
5. After passing the thread through the hole of the thread guide (U), insert the thread into the right hole of the inner thread guide, and pass it through the hole of the thread take-up.
6. Bring the thread to the inner thread guide again to insert it into the left hole, and pass it through the hole of the lower thread guide.
7. Pass the thread through the hole of the needle bar thread guide, then pass it through the needle eye without passing it through the presser foot.

■ BES-1230AC



1. Pass the upper thread from the cotton stand through the hole of the thread guide right above each cotton stand bar from the lower side.
2. Pass the thread under the thread guide tension disk by lifting it with a finger, and then wind it onto the pulley twice.
3. Pass the thread through the hole of the upper thread guide (U), wind it into the tension disk clockwise once, and place it on the spring.
4. Pass the thread through each hole of the upper thread guide (U) and the thread guide (C) .
5. After passing the thread through the hole of the thread guide (U), insert the thread into the right side of the inner thread guide, and pass it through the hole of the thread take-up.
6. Bring the thread to the inner thread guide again to insert it into the hole from the upper section, then into the lower thread guide.
7. Pass the thread through the hole of the needle bar thread guide, then pass it through the needle eye, without passing it through the presser foot.

4-2. Replacing and selecting needle



1. Removing needle

Loosen the thumb screw ❶ and remove the needle ❷.

2. Attaching needle

With the flat side facing the front, insert the needle all the way until it meets the end of the needle bar. Tighten the thumb screw ❶ firmly.

NOTE: • Set the needle so that the notched part comes on the rotary hook side.

- The needle should not be angled to the left (when looking from the front).

Materials and needle selection

Fabric type	Needles	Needle numbers
Denim Leather	DB x K5	#14, #16, #18
Handkerchief		#9, #10
Shirt Towel		#11, #12, #13

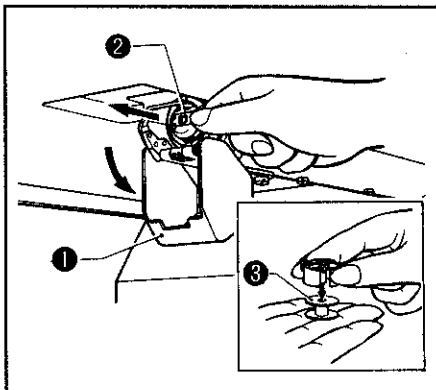
- When using special threads such as the gold, silver and ramé yarn, use a heavy-duty needle (#11 - #16). For better finishing, paste the waxed paper on the back of the material.

- For general materials, use DB x K5 #11 or #18 according to the thickness of the material. For knitted materials, use DB x K23 #11. Its round end prevents the knit thread from breaking.

4-3. Replacing of bobbin

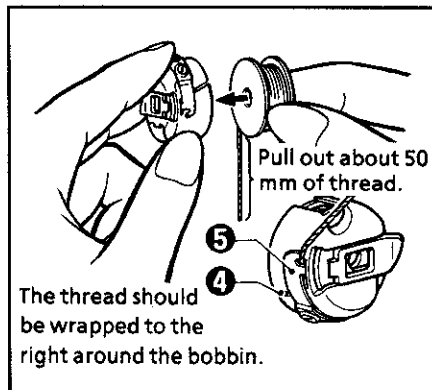
Remove dust from the bobbin case before using it.

■ Removing bobbin case



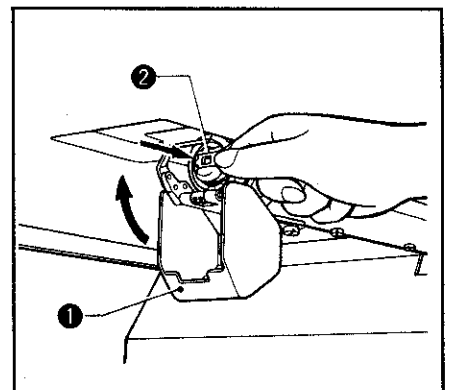
1. Open the rotary hook base cover ❶.
2. Hold the knob ❷ and remove the bobbin case.
3. Close the knob and remove the bobbin ❸.

■ Replacing bobbin



1. Put the bobbin in the bobbin case.
2. Slide the thread under the tension spring ❸ through the notch ❹.
3. Pull out the thread from the hole of the tension spring ❸.
4. Pull out the thread about 50mm.

■ Attaching bobbin case

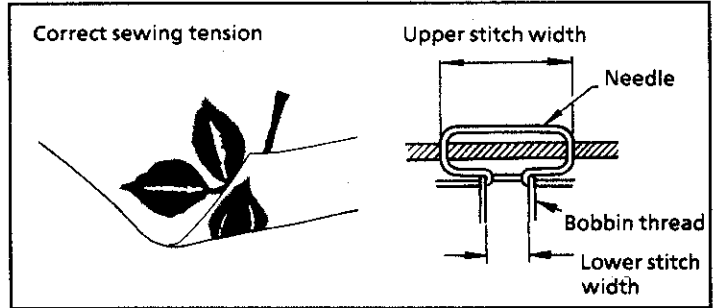
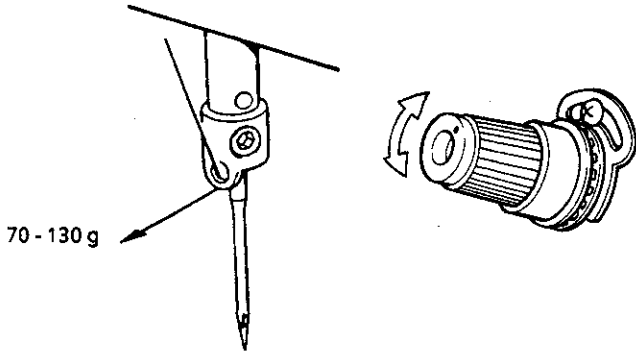


1. Hold the knob ❷ and attach the bobbin case.
2. Close the cover ❶.

4-4. Thread tension

Needle thread tension

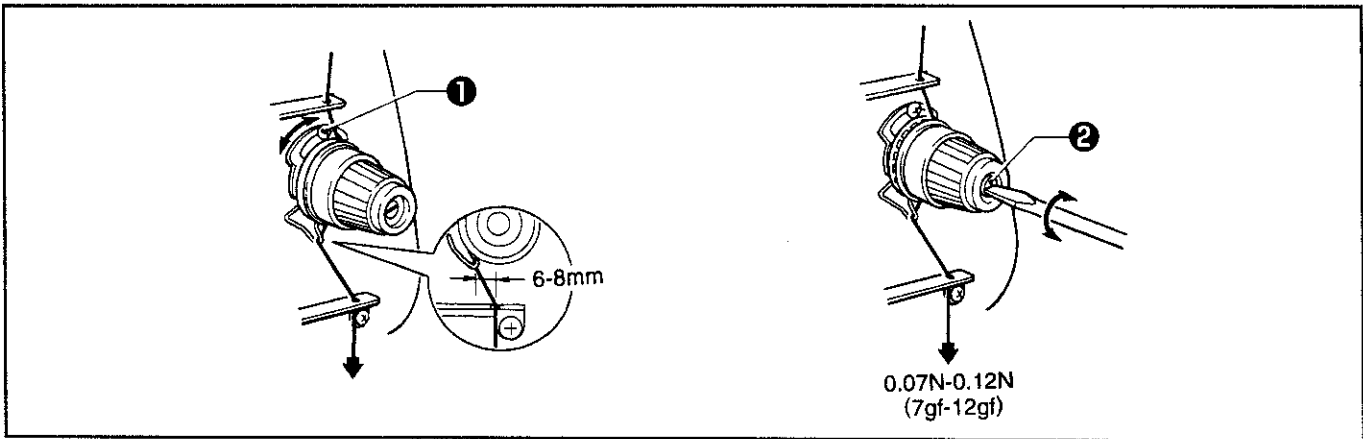
The needle thread tension should be 70 - 130 g when the needle thread is pulled at the needle bar thread guide.



Adjust the tension dial so that the needle thread is pulled to the back of the material, and the lower stitch width is about 1/3 of the upper stitch width.

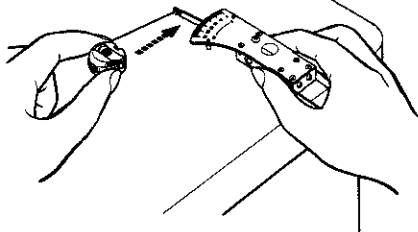
Adjusting the spring

- * The standard operation range of the thread take-up spring is about 6 - 8 mm. The standard tension at this time is about 0.07 N - 0.12 N (7 gf - 12 gf).
- * To adjust the operation range of the thread take-up spring, loosen the screw ①, and turn the upper thread tension assembly.
- * To adjust the tension of the thread take-up spring, fit a screwdriver into the slot, and turn the tension stud ② as appropriate.



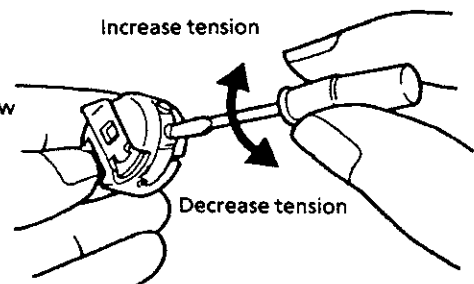
Bobbin thread tension

Correct bobbin thread tension (20 - 30 g)



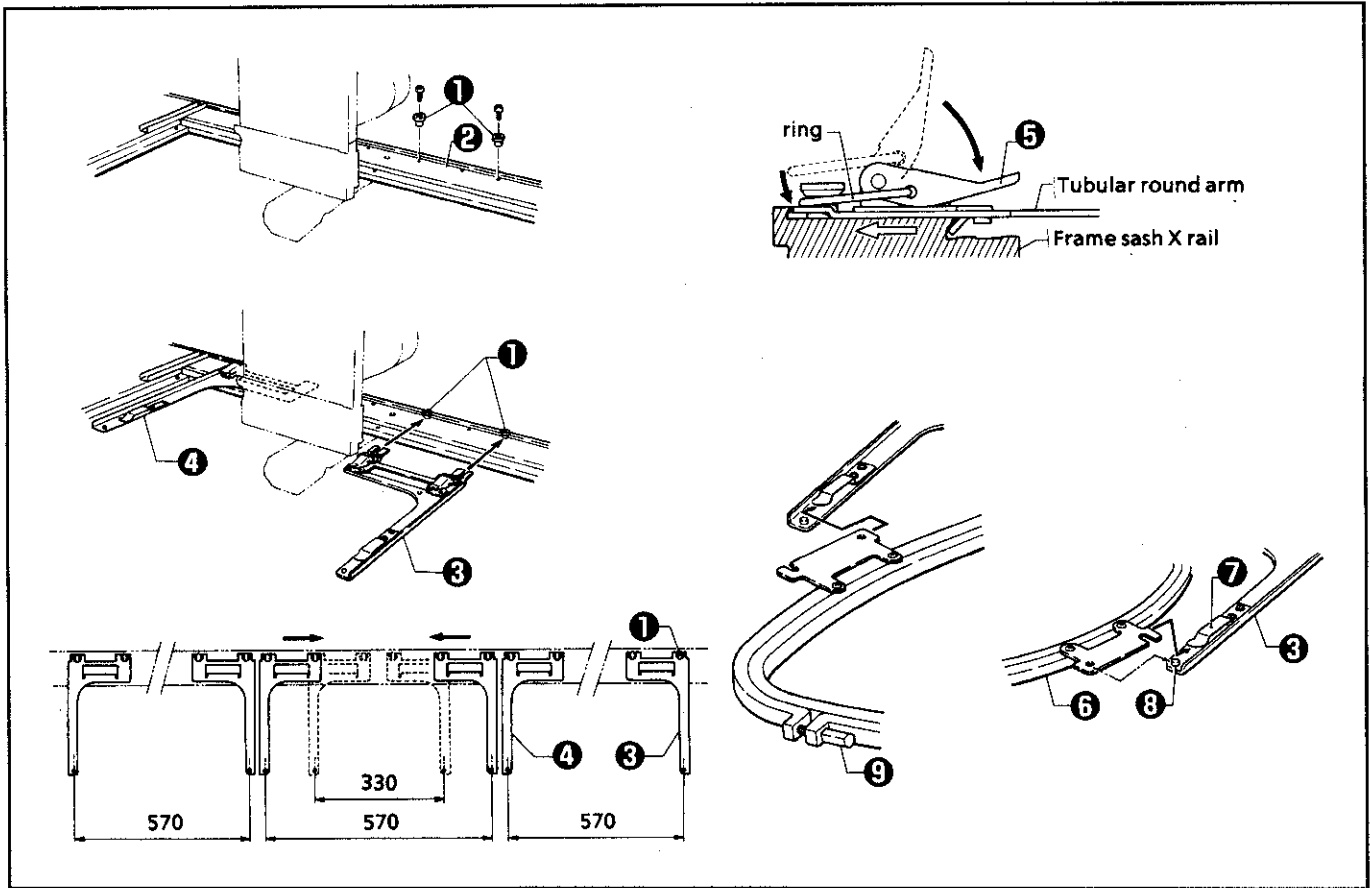
Use a tension gauge to adjust.

- * The standard tension of the bobbin thread should be about 20 - 30g. (Approximately the resistance to allow the suspended bobbin case to slowly and smoothly fall.)



4-5. Attaching embroidery hoop to holder base

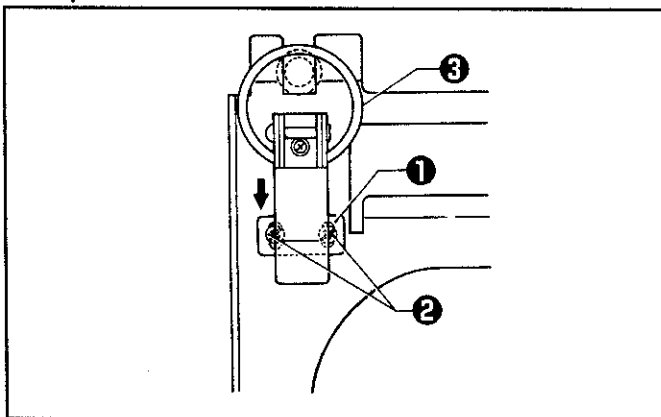
<Attaching the tubular square hoop>



1. Attach the 18 pins ❶ to the frame sash X rail ❷.
NOTE: Pins should be inserted in every other hole on each side of the reference hole.
2. Attach tubular round arms R ❸ and L ❹ to the pins ❶.
* The length between tubular round arms R ❸ and L ❹ is usually 570 mm. When they are attached to the next pin in on both sides, the length is 330 mm.
3. Hook the ring of the snap lock ❺ over the pins ❶, and lower the snap lock ❺.
4. Slide the metal fittings on both sides of the tubular square hoop ❻ under the plate spring ❼, and fit the protrusions ❸ of tubular round arms R and L in the holes of the hoop.
5. Improper setting of the material in the tubular square hoop may cause skipped stitches, thread breakage or puckering. Use the screw ❾ for adjustment.

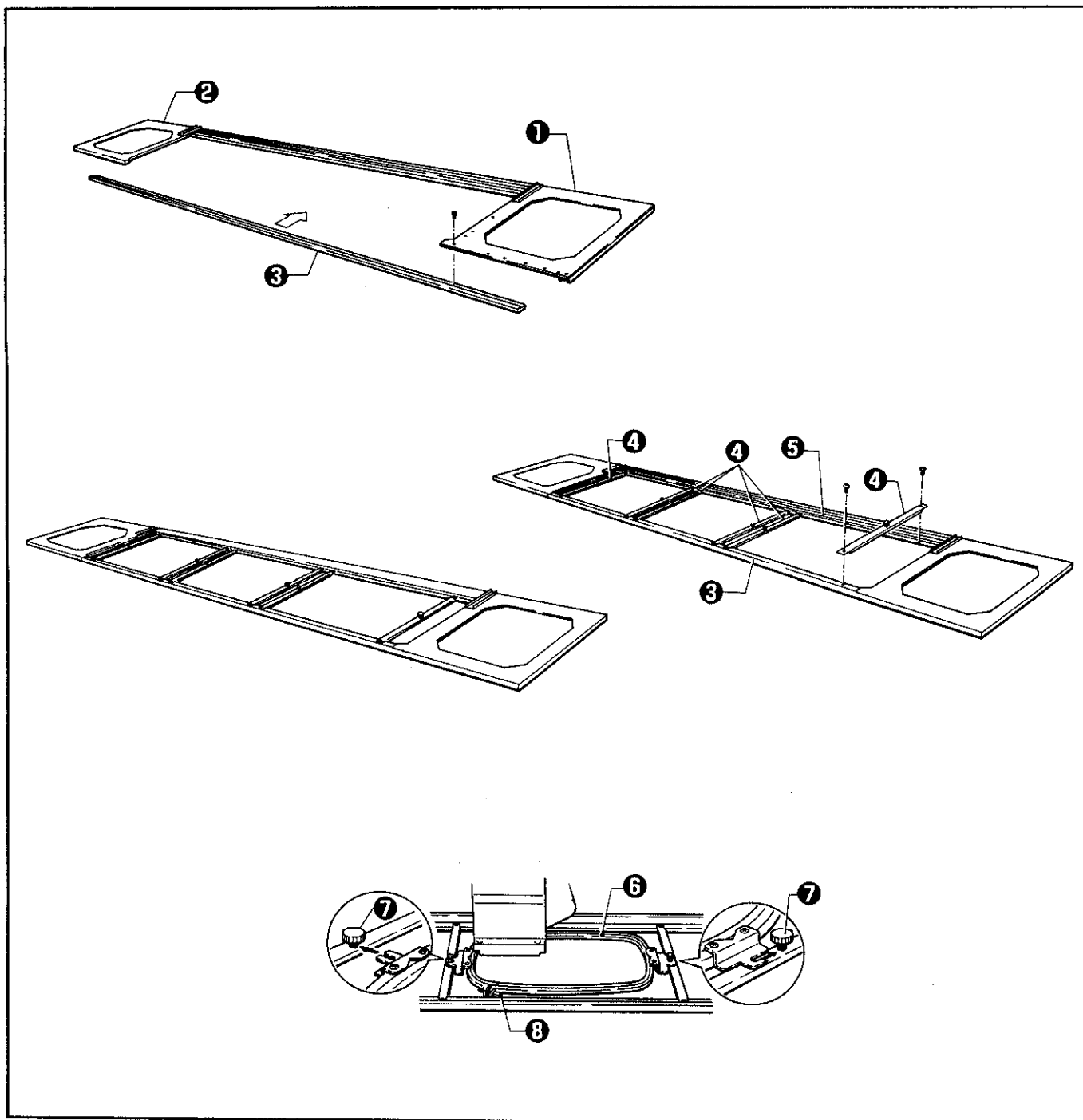
Adjusting tubular round arms L and R

If the end of the tubular round arm moves to the left and right after it is installed, adjust the tubular round arm position as follows:



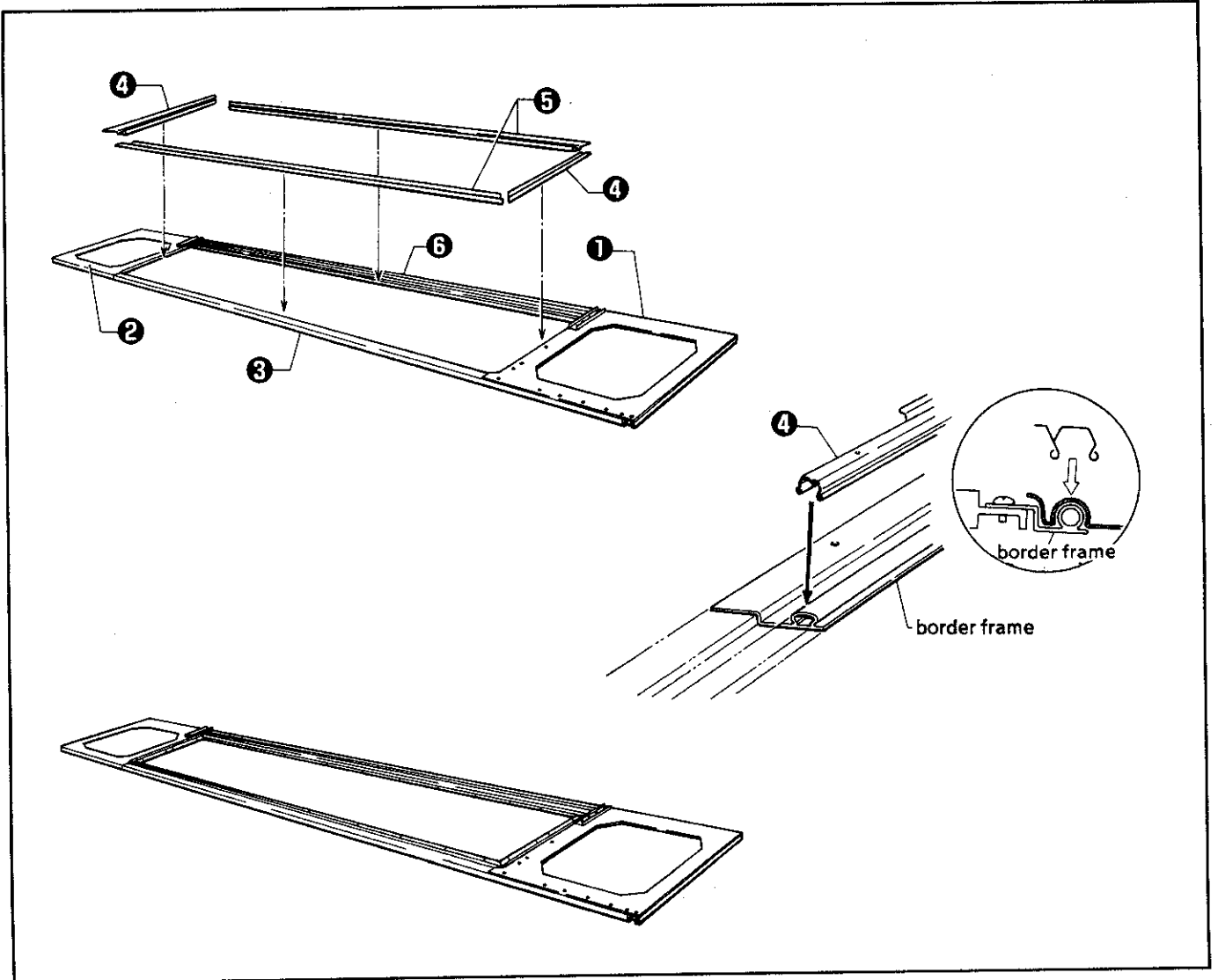
1. Loosen the two screws ❷ securing the adjusting plate ❶.
2. Slightly slide the adjusting plate ❶ in the direction of the arrow, and tighten the two screws ❷.
3. After adjustment, tighten the snap lock ❸.
If the adjusting plate ❶ is slid too much, the snap lock ❸ may be difficult to be tightened.

<Attaching the holder base>

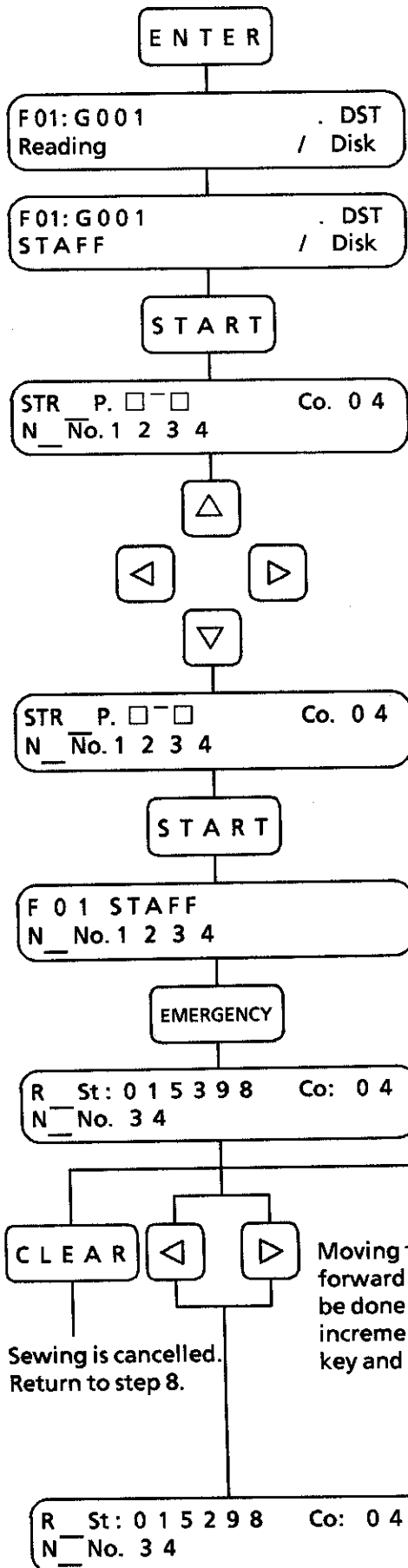


1. Adjust the table (either fixed table or adjustable table) to the height of the bed .
If the table is below the bed, the holder base set frame may interfere with the needle plate.
2. When replacing the tubular square hoop with the holder base, attach frame sash XD ⑥ to frame sash plates R ① and L ② by inserting it from the front, and secure it using the screws.
3. Attach holder base set frame ④ to frame sash XD ③ and the frame sash X rail ⑤.
According to the hoop size, you can change the position for attaching the holder base set frame ④.
4. Slide the holder base ⑥ so that the left metal fitting's slot is centered over the hole in the holder base set frame ④; then slide the holder base ⑥ so that the right metal fitting's slot is centered over the hole in the opposite holder base set frame ④, and secure the holder base ⑥ using the two screws ⑦.
5. Improper setting of the material in the holder base may cause skipped stitches, thread breakage, or puckering. Use the screw ⑧ for adjustment.

<Attaching the border frame> (optional)



1. Adjust the table (either fixed table or adjustable table) to the height of the bed .
2. Attach frame sash XD ③ to frame sash plates R ① and L ② by inserting it from the front, and secure it using the screws.
3. Attach the two vertical and horizontal border frames ④ and ⑤ each to the inner sides of all the frame sash XD ③, the frame sash X rail ⑥, and frame sashes R ① and L ②.
4. Set the material on the border frame, and place the 14 clips on all sides of the border frame.



6. Press the <ENTER> key to read data.

"Reading" is displayed on the lower row of the display.

When reading data is finished, its pattern name (STAFF) is displayed on the lower row of the display.

7. Press the <START> key to enter the sewing mode.

8. Move the hoop to set sewing start point with the <△>, <◀>, <▽> and <▶> keys.

9. Press the <START> key to start sewing.

10. If the <EMERGENCY> key is pressed, sewing is suspended.

CLEAR

Sewing is cancelled.
Return to step 8.

Moving the hoop forward or backward can be done by 1 stitch increment with <<▶> key and <▶> key.

MODE

MODE

If the <MODE> key is pressed, the hoop is moved backward or forward in 100 stitch increments.

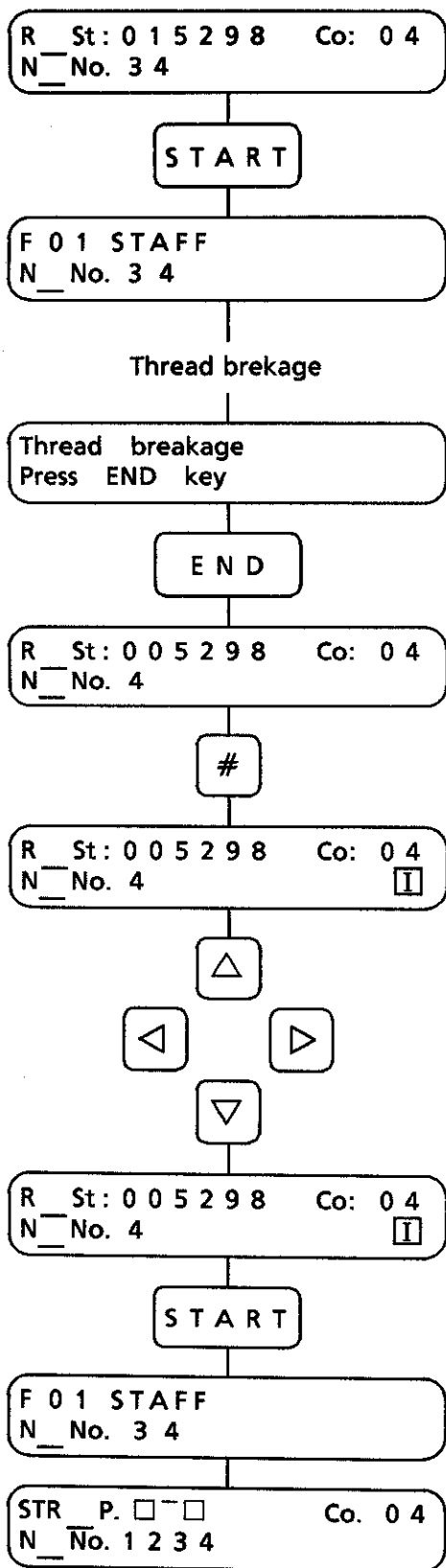
If the <MODE> key is pressed twice, the hoop is moved backward or forward for every color change.

NOTE:

- Refer to page 80 "Switching the mode".

R St: 0 1 5 2 9 8 Co: 0 4
N_ No. 3 4

R St: 0 1 5 0 9 8 Co: 0 4
N_ No. 3 4 C



11. Press the <START> key. Sewing will resume.

12. If thread breakage occurs, sewing is suspended and the error message is displayed.

NOTE: Pass the thread again.

13. Press the <END> key. The error is cancelled and the machine suspends.

When the hoop is moved forcibly (Inching mode)

14. When the <#> key is pressed, the hoop can be moved forcibly.

15. By pressing the <△>, <◀>, <▽> or <▶> key, the hoop is moved in the direction of pressed key by 0.1 mm increment.

NOTE: When the hoop is moved forcibly, sewing left unperformed will slip for its hoop movement distance. Pay attention to this usage.

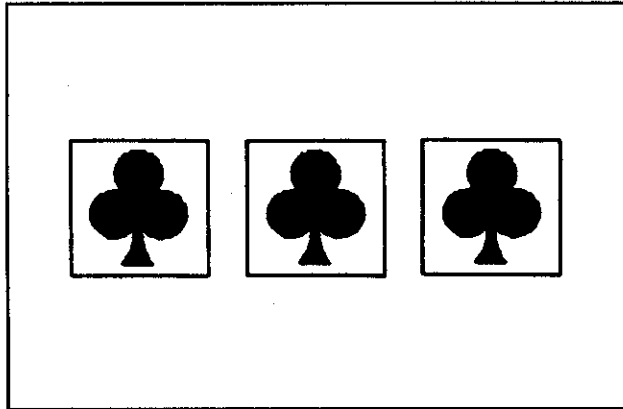
If the hoop and the material do not match properly, correction can be done by pressing the <▶>, <△>, <◀>, and <▽> keys.

16. Press the <START> key. Sewing will resume.

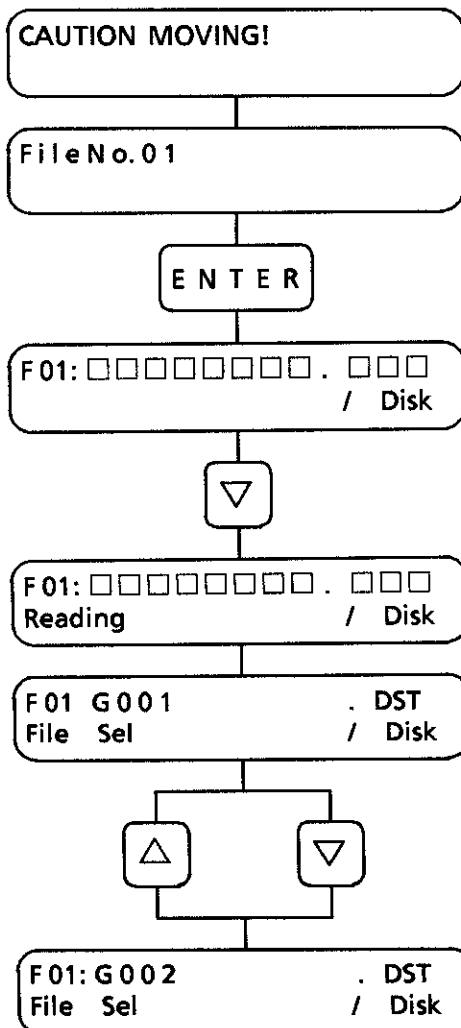
17. After sewing is completed, the machine will return to step 8.

2. Repeat sewing

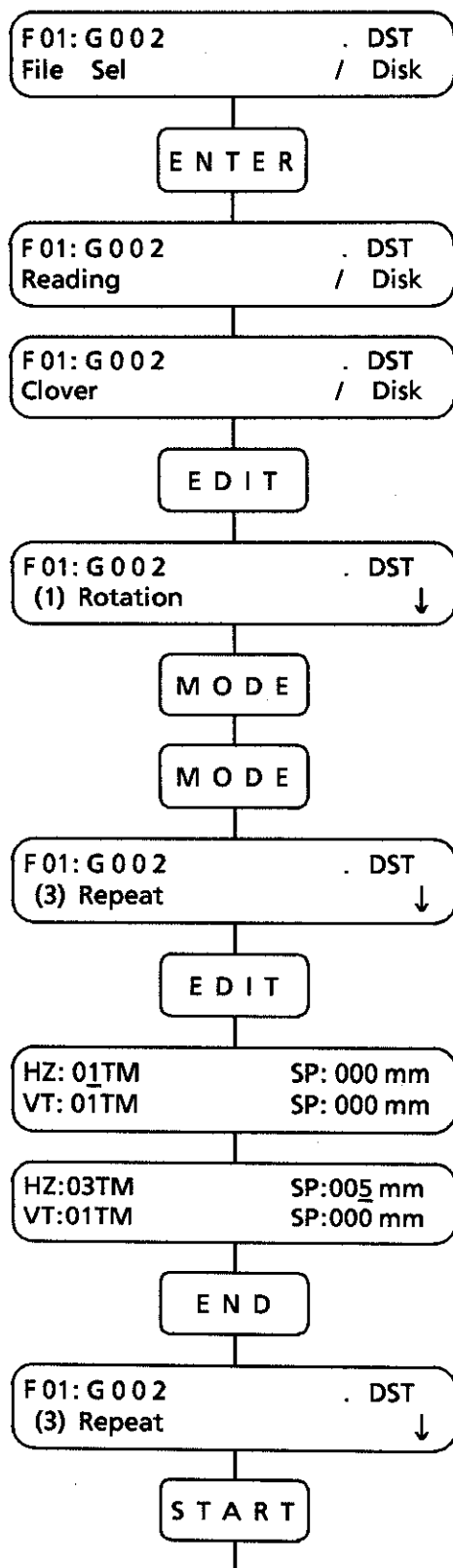
Following is a procedure of repeatedly sewing pattern entered in the floppy disk.



Embroider the pattern above repeatedly. (six-colored, file name :G002)



1. Turn on the power.
2. Insert the design floppy disk.
3. Press the <ENTER> key to go into the data entry mode.
4. Press the <▽> key.
5. Select the file name, "G002" with the <△> key and <▽> key.



6. Press the <ENTER> key to read data.

"Reading" is displayed on the lower row of the display.

7. Press the <EDIT> key to enter the editing mode.

8. Press the <MODE> key twice to select the repeat sewing setting mode.

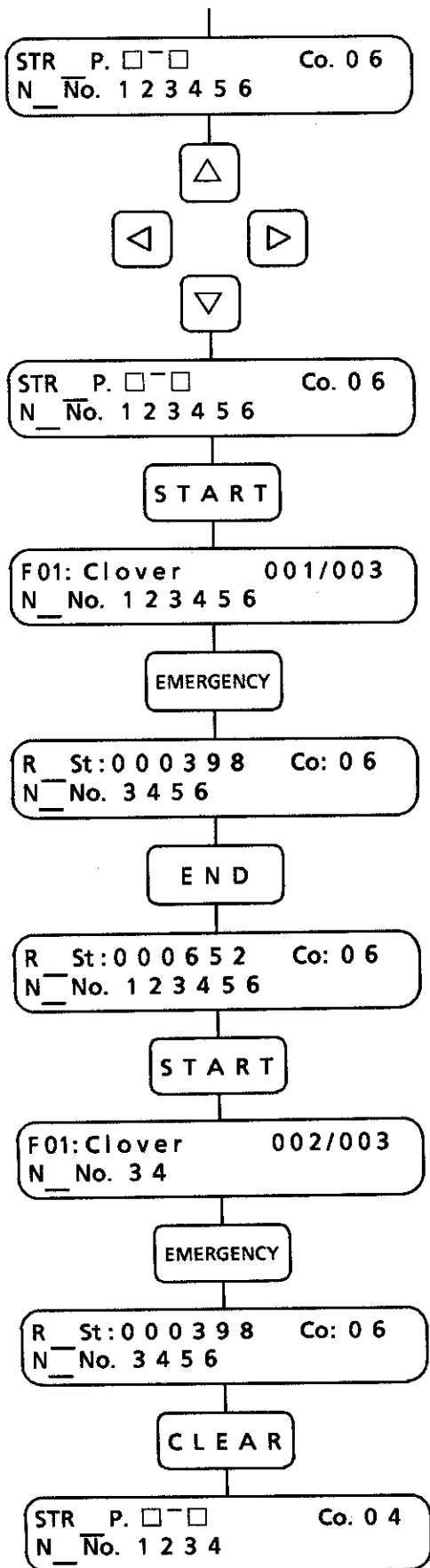
9. Press the <EDIT> key to enter the repeat sewing setting mode.

10. Press the <FORWARD> key to move the cursor.

11. Set value using a number key.
* Refer to page 69, "Setting repeat sewing".

12. Press the <END> key to exit from the repeat sewing setting mode.

13. Press the <START> key to enter the sewing mode.



14. Move the hoop to set the sewing start point with the <△>, <◀>, <▶>, and the <▽> keys.

15. Press the <START> key to start sewing.

16. If the <EMERGENCY> key is pressed, sewing is suspended.

17. Press the <END> key. Sewing the first pattern will be cancelled and the machine will be ready for sewing the second repeated pattern. When the <END> key is pressed with the second pattern or later selected.

B. Pattern>BACK
N. Pattern>FWD will appear.


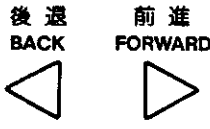







You can select to see ei the sew (either).

18. Press the <START> key. Sewing will start.







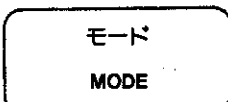
19. If the <EMERGENCY> key is pressed, sewing is suspended.

20. When the <CLEAR> key is pressed, all the repeat sewing is canceled. The machine will return to step 13 and be ready for sewing the first pattern.

■ The following keys are available in the sewing mode:

Available key	Function
	<ul style="list-style-type: none"> • To move hoop in setting sewing start point • Inch hoop by 0.1 mm in inching mode when sewing is suspended • To select data stored in the floppy disk
	<ul style="list-style-type: none"> • To move hoop in setting sewing start point • To move hoop backward or forward by 1 stitch, 100 stitches at a time, or color change when sewing is suspended • Inch hoop by 0.1 mm in inching mode when sewing is suspended
	<ul style="list-style-type: none"> • This is invalid in setting sewing start point • To switch inching mode or hoop jump mode when sewing is suspended
	<p>To trace mask line of pattern in setting sewing start point</p>
	<ul style="list-style-type: none"> • This is invalid in setting sewing start point • To cancel sewing when sewing is suspended and to clear error message
	<ul style="list-style-type: none"> • To enter data entry mode in setting sewing start point • This is invalid when sewing is suspended
	<p>To start sewing</p>
	<ul style="list-style-type: none"> • To return to main menu in setting sewing start point • To cancel current sewing pattern when repeat sewing is suspended
	<ul style="list-style-type: none"> • To enter editing mode in setting sewing start point • To check set values of a pattern when sewing is suspended.

■ The following keys are available in the sewing mode:

Available key	Function
 <p>針棒設定 NEEDLE SET</p>	To enter needle bar setting mode
 <p>針棒選択 NEEDLE SELECT</p>	To enter needle bar selecting mode
 <p>糸切れセンサ THREAD SENSOR</p>	To set thread sensor to ON/OFF for each machine head.
 <p>糸切り THREAD TRIMMING</p>	To trim thread
 <p>枠送り HOOP FEED</p>	To feed hoop or enter hoop feed mode
 <p>カウンター COUNTER</p>	To set B.T.counter value or thread end length after thread trimming.
 <p>モード MODE</p>	Pressed one time, it is in 100 stitch jump mode. Pressed twice, it is in color change jump mode.

3. Restarting

In the following cases, sewing can be resumed.

When the power of the machine is cut off because of a power loss during sewing, or if the power switch is turned on after having been turned off during suspension or sewing:

Turning off the power : When the machine is suspended during sewing.
 After the <EMERGENCY> key has been pressed.
 When the machine is automatically suspended because of needle thread breakage, and so on.

Calculating now

CAUTION MOVING!

R St: □ □ □ □ □ □ Co: □ □
 N No. □ □ □ □ □ □ □ □ □ □

CLEAR

START

STR P. □ □ □ □ Co. □ □
 N No. □ □ □ □ □ □ □ □ □ □

Sewing

1. Turn on the power.
 The embroidery hoop is automatically returned to the position where sewing was suspended before and the machine is suspended during sewing.

2. Pressing the <START> key, sewing resumes.
 Pressing the <CLEAR> key will cancel sewing.

In case the power of the machine was cut off because of a power loss

Restart > START
Sew. Cancel > END

1. Turn on the power.
The messages, "Restart" and "Sew. Cancel" are displayed.

START

2. (The embroidery hoop is returned to the position where sewing was suspended.)

END

(The needle will move to the sewing start position, and the main menu will appear.)

FileNo. 01
* [E] * * * [D] * * *

CAUTION MOVING!

3. The message, "CAUTION MOVING!" will appear, the machine will beep four times, and the hoop will be set to the center.

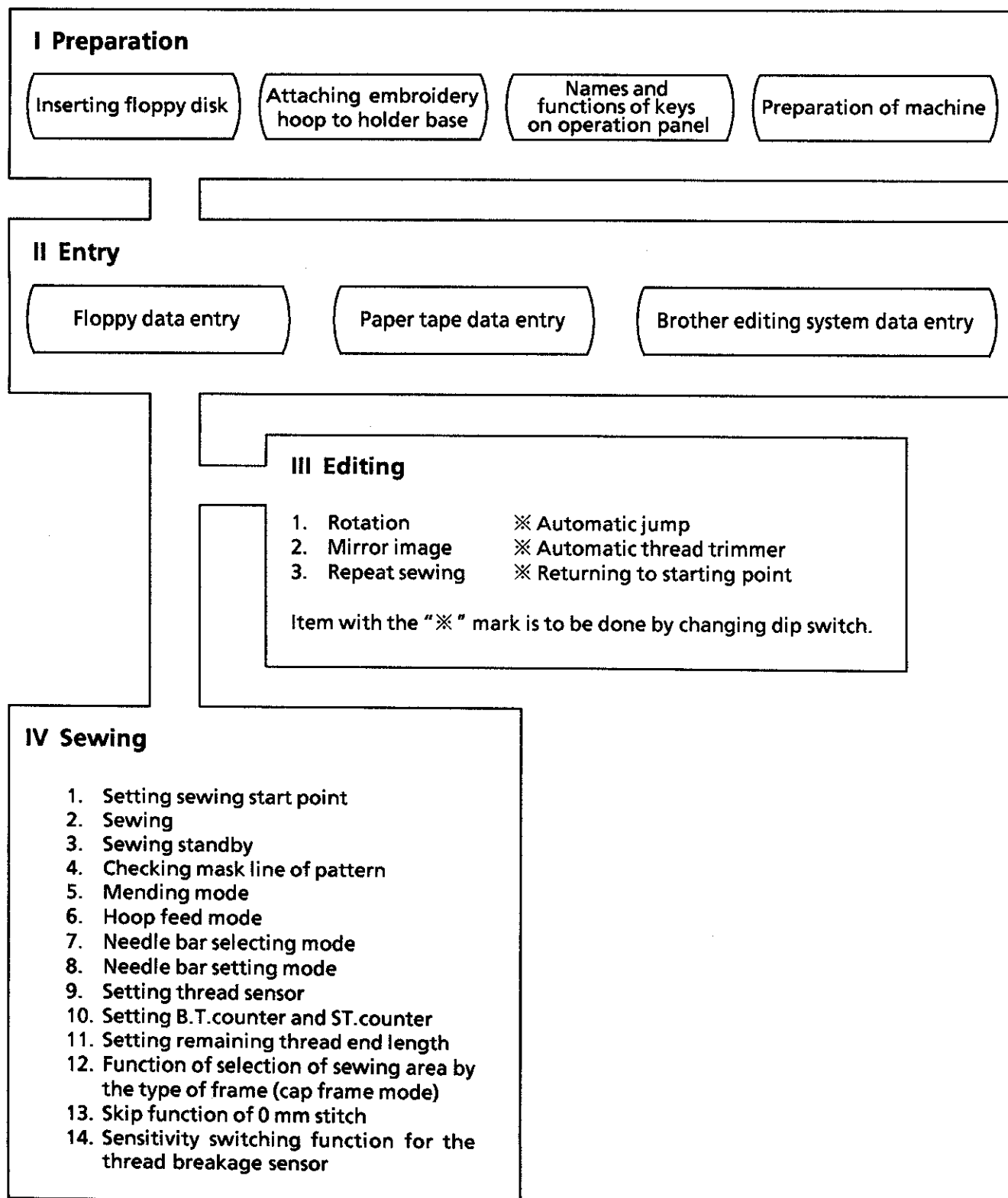
R St: 0 1 5 3 9 8 Co: 0 4
N No. 3 4

4. The machine is standing by.

Chapter 4.

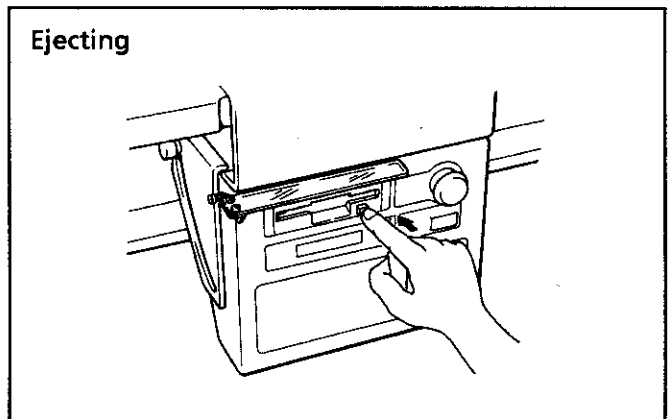
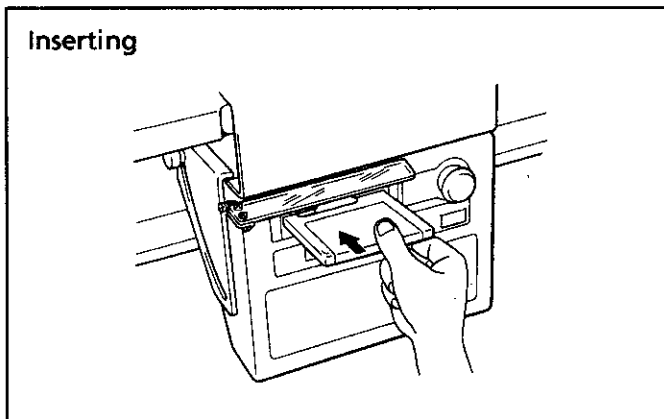
Embroidering Procedures

1. Flow chart



2. Inserting floppy disk

Be sure to raise the cover before inserting or ejecting a floppy disk.



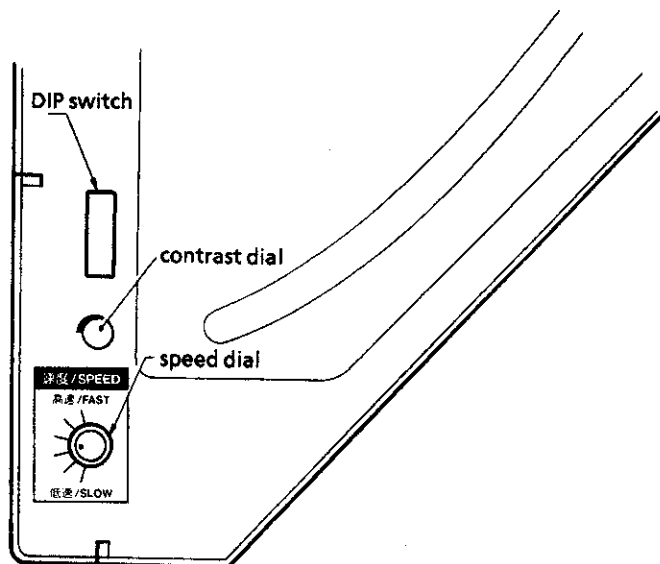
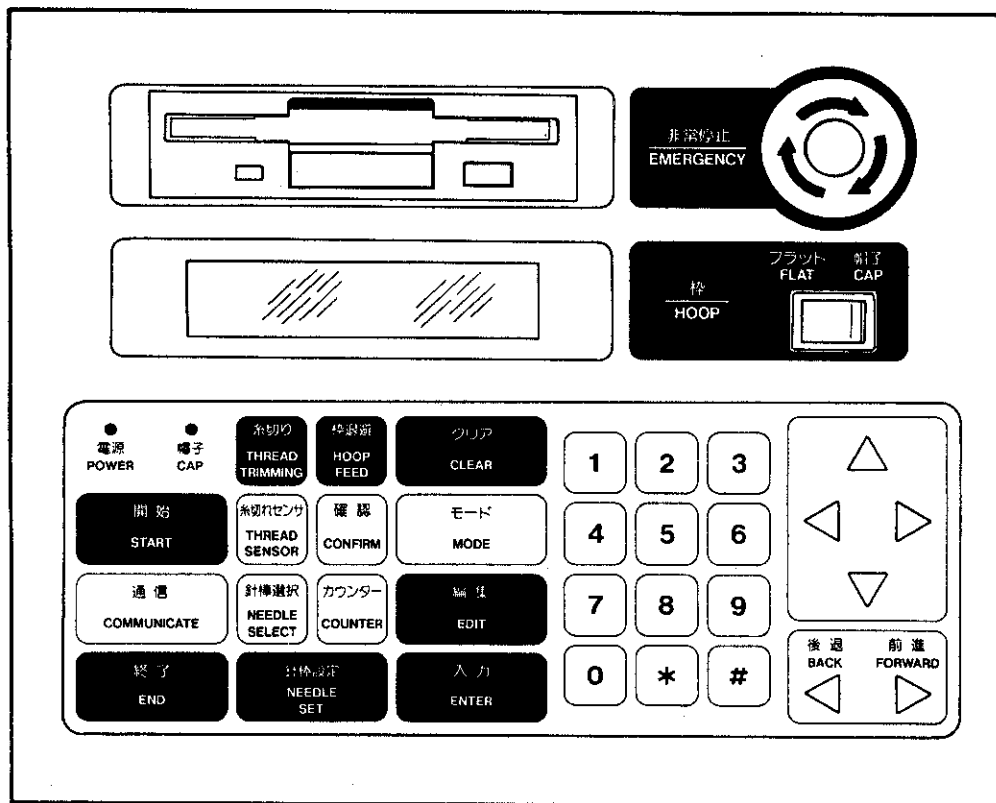
- NOTE:**
- If the floppy disk is not properly inserted, the data will not be read.
 - Keep the floppy disk away from magnets and televisions, for the data on the disk can be damaged by magnetism.
 - Insert the floppy disk into the disk drive with the label facing upward.
(Insert it until it clicks into place.)

Press the eject button to take out the floppy disk.
Do not eject the disk while the drive indicator is on.

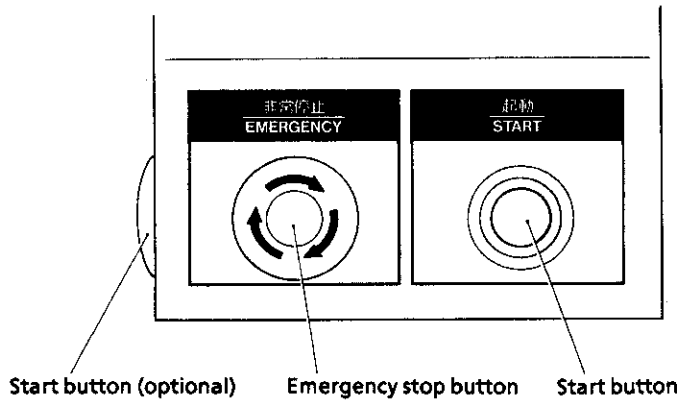
3. Names and functions of keys on operation panel

3-1. Names

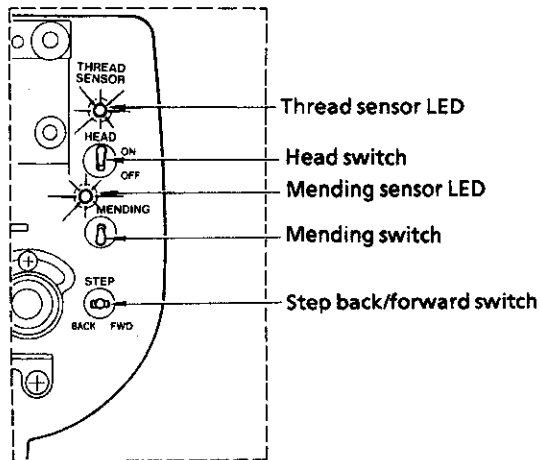
Operation panel



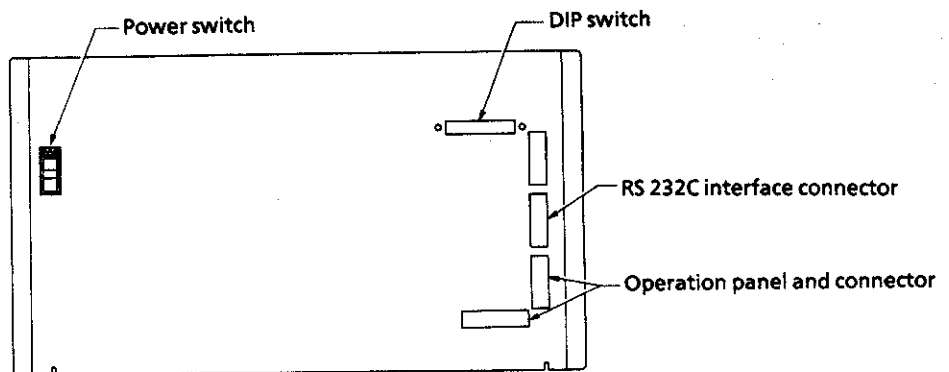
Sub operation panel



Switches on the adjustment base



Control box



3-2. Function of keys on operation panel

Function of keys on operation panel

開始
START

Use this key to;

- Embroider the data.
- Restart in the sewing mode during suspension.
- Start after the carriage moved to sewing start point.

終了
END

Use this key to;

- Exit from each mode after floppy disk data entry, paper tape data entry or editing system data entry .
- Exit from the editing menu (after setting rotation, mirror or repeat sewing) and to exit from editing mode.
- Exit from the needle bar setting mode and needle bar selecting mode.
- Exit from setting THREAD SENSOR or bobbin thread counter.
- Exit from the sewing mode.
- Cancel error during sewing.

入力
ENTER

Use this key to;

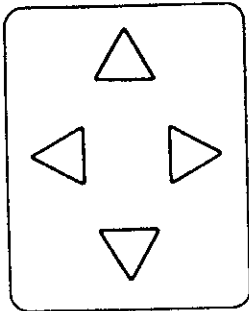
- Enter data entry mode (from floppy disk, paper tape reader, editing system).
- Read a pattern data of file name displayed on the upper row from floppy disk, paper tape reader or editing system. (This is invalid when data is already registered in selecting number.)
- Enter current needle location as hoop feed point and to display its coordinates.
- If data is not registered, read pattern data of the file name displayed on the upper row from floppy disk, paper tape reader, or editing system and to start automatic sewing.

クリア
CLEAR

Use this key to;

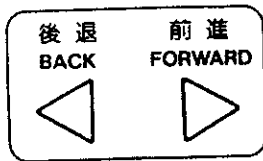
- Clear file data displayed on the upper row and the screen.
- Cancel error.
- Return set values of the registered number displayed on the upper row to default.
- Return selecting needle number to default value.
- Set hoop feed point in the home position of the area in hoop feed mode.
- Change current counter number to set value in setting bobbin thread counter.
- Clear the back-up memory when the power is turned on.

Function of keys on operation panel



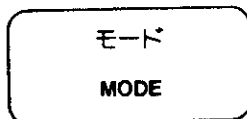
Use this key to;

- Scroll file names registered in floppy disk or editing system.
- Move needle location to the desired hoop feed point.
- Feed hoop just after entering sewing mode.
(This is invalid in sewing mode during suspension.)
- Inch hoop to the desired position by 0.1 mm in inching mode.



Use this key to;

- Select color order in selecting needle bar.
- Move hoop after entering the sewing mode and to move hoop back or forward along stitch line on data when sewing is suspended.
- Inch hoop to the desired position by 0.1 mm in inching mode.
- Change the cursor position on the number in setting repeat sewing.
- Decide mirror image (Image J → L → r → l) and rotation angle (0° → 90° → 180° → 270°).
- Select registered number of input data from floppy disk, paper tape or editing system.
- Move the hoop backward or forward during suspension, by 1 stitch or 100 stitches at a time, or every color change.



Use this key to;

- Select paper tape type (from Tajima, Barudan, Zangs).
- Scroll editing menu items.
- Enter jump mode in sewing suspension.
- Enter paper tape data reading mode in setting floppy data entry.
- Enter editing system data reading mode in setting paper tape data entry.
- Enter floppy disk data reading mode in setting editing system data entry.
- Decide automatic hoop feed after sewing mode or not.
* " [S] " (set) mark is displayed alternately.
- Decide automatic stop in setting needle bar or not. (" [S] " (set) mark is displayed alternately.)

Function of keys on operation panel



Use this key to;

- Edit in main menu.
- Edit after data input from floppy disk, paper tape or editing system.



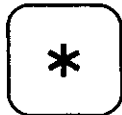
Use this key to;

- Set needle order after reading data in each mode (main menu mode, floppy disk data entry mode, paper tape data entry mode, editing system data entry mode) and entering sewing mode.
- Set the desired order of needle bars. (The maximum number of color changes is 99.)

Also, determine whether or not the automatic stop function is set every color change.



Use this key to enter bobbin thread counter setting mode from each mode (main menu mode, floppy disk data entry mode, paper tape data entry mode, editing system data entry mode).



Use this key to enter test mode from main menu mode.



Use this key to;

- Enter hoop feed mode from each mode (main menu mode, floppy disk data entry mode, paper tape data entry mode, editing system data entry mode, sewing mode after selecting editing menu).
- Exit from this mode after returning from hoop feed point in hoop feed mode.



Use this key to select needle bar in each mode; main menu mode, floppy data entry mode, paper tape data entry mode, editing system data entry mode, sewing mode after selecting editing menu.



Use this key to trim thread regardless of sewing.



Use this key to;

- Display pattern name of the file name displayed on the upper row when data is entered from floppy disk or editing system.
- Check set values of registered number that was selected on the upper row in editing menu or to check set values of sewing data in sewing mode.
- Perform trial feeding just after entering sewing mode.

Function of keys on operation panel



Use this key to;

- Set needle select number as long as the receive data from editing system is entered.

NOTE: For floppy disk data and paper tape data, this key is invalid.



Use this key to;

- Set the B.T.counter, ST.counter, or the remaining thread end length after thread trimming.



Use this key to;

- Stop the machine during sewing.



Use this key to;

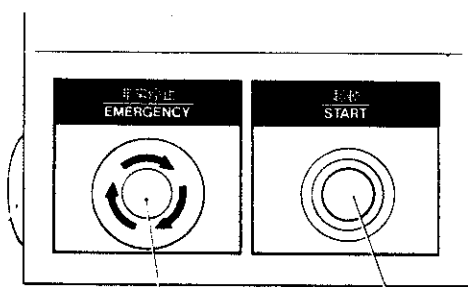


Use this key to;

- Switch FLAT/CAP mode.

NOTE: The power should be turned off. (Never switch mode while the power is turned on.)

Functions of keys on sub operation panel



Emergency stop button

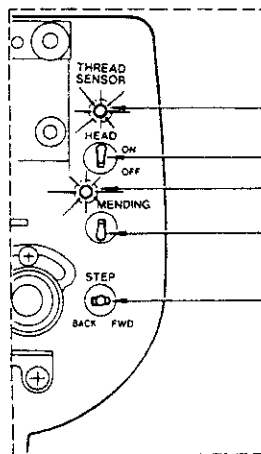
Used to stop the machine during sewing.

Start button

Used to start sewing.

Start button (optional) Emergency stop button Start button

Functions of switches on adjustment base



Thread sensor LED

Head switch

Mending sensor LED

Mending switch

Step back/forward switch

Head switch

Used to move the needle bar vertically or stop it for each machine head.

* When this is set to ON, the needle bar will move up and down; when set to OFF, it will stop.

Mending switch

Used to pause a machine head while other head whose needle thread has broken is resewing.

Step back/forward switch

Used to move the hoop backward or forward without moving the needle bar when sewing is suspended.

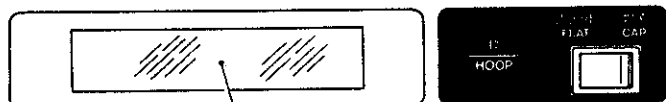
* When the switch is kept set to either BACK or FORWARD, the hoop will move backward or forward; when released, it will stop.

Thread sensor LED

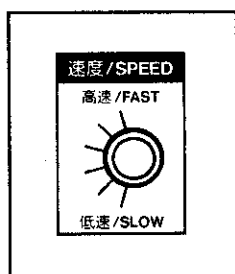
While this is lit, the thread sensor detects thread breakage.

While this is turned off, the thread sensor does not operate.

Operation panel display



The operation step, data registered number (with file name), editing information and error messages are displayed here.
One line has 16 letters and up to two lines can be displayed.

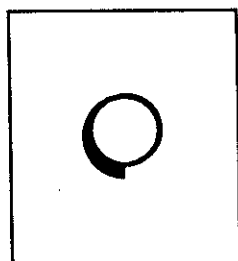


The speed dial is used to select one of the 6 sewing speeds, according to the chart below.

The levels are set according to the stitch length in the FLAT mode. (not changeable)

stitch length range	0.1 - 5.0 [0.1 - 4.5]	5.1 - 8.0 [4.6 - 7.2]	8.1 - 12.7 [7.3 - 12.7]
1	1000 (spm) (800)	750 (650)	550 (500)
2	800	650	500
3	650	650	500
4	550	550	500
5	450	450	450
6	350	350	350

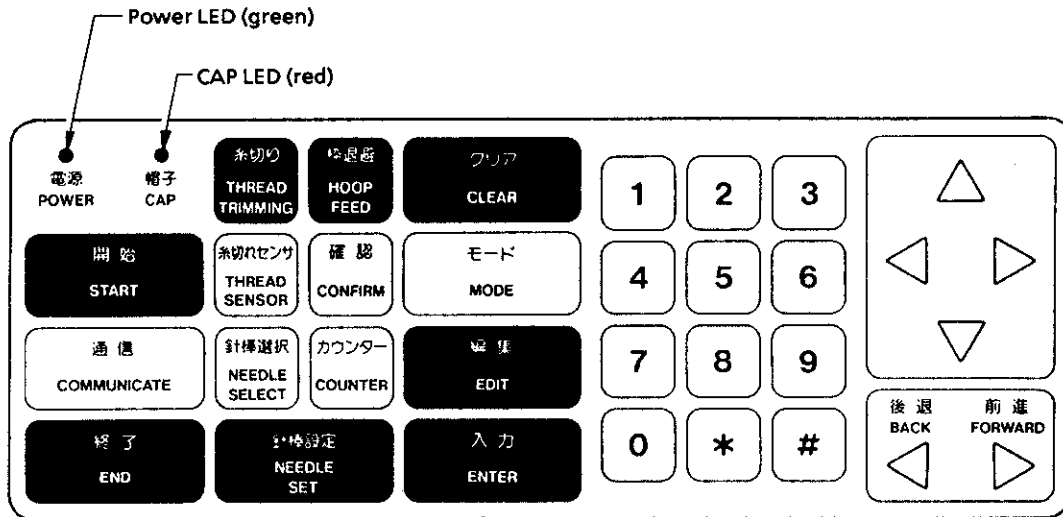
- NOTE:
- In the CAP mode, sewing speeds on range 1 are the same as the ones on range 2.
 - The value in the [] shows the pitch when DIP SW 2 - 1 is set to ON.
 - Specification may be changed without notice for future versions.



The contrast dial of liquid crystal display is used to adjust the darkness of the display.

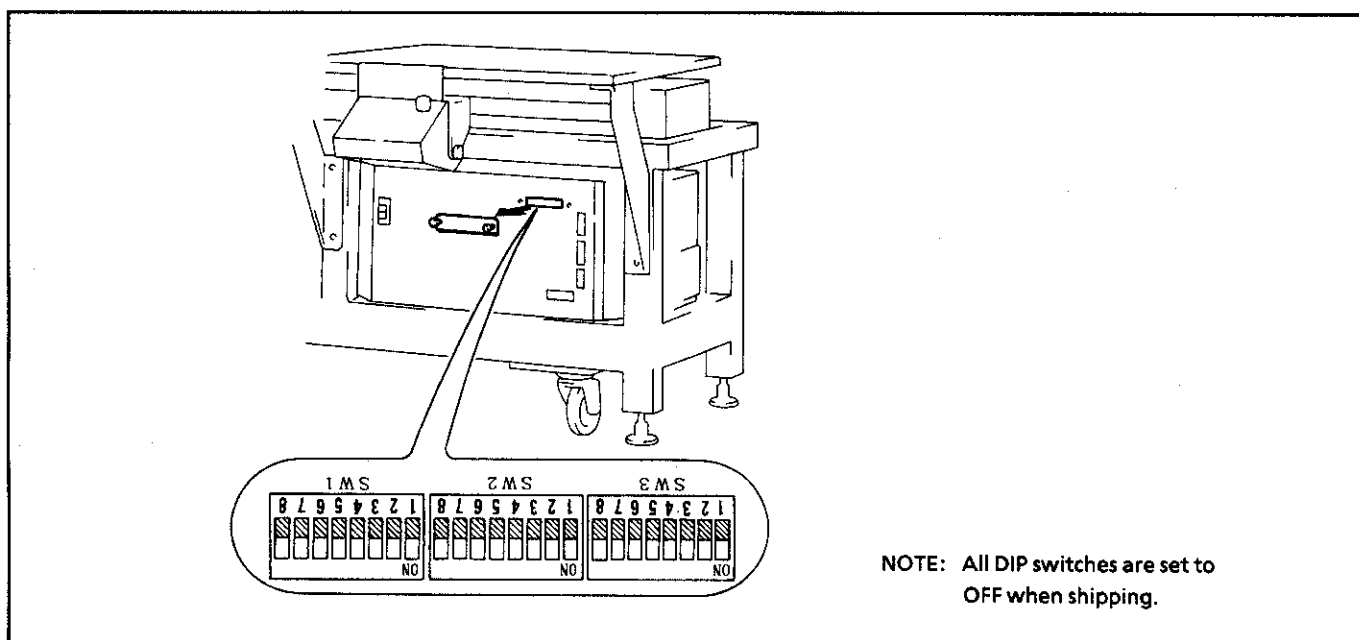
LED

1. Power LED
This LED is lit when the power is turned on.
2. CAP LED
This LED is lit when the CAP mode is set.



4. DIP switch functions

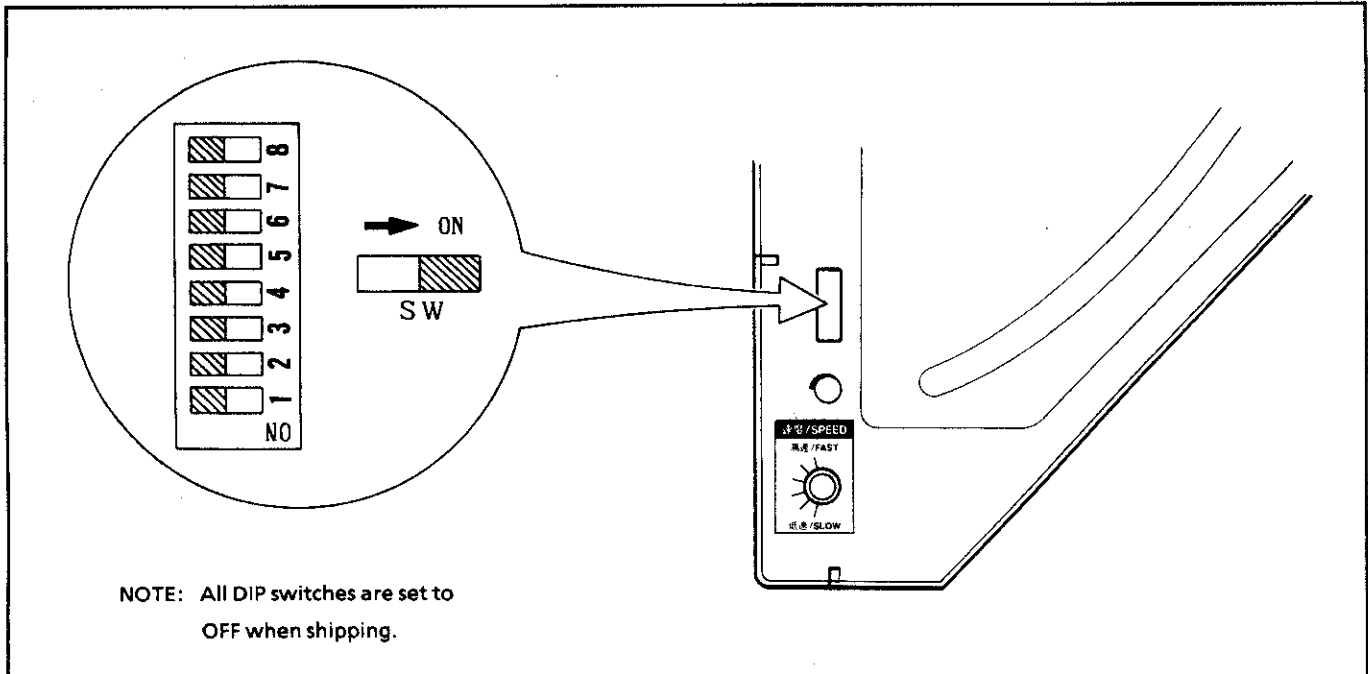
4-1. DIP switch functions on main printed circuit board



		DIP switch functions	
		OFF	ON
S W 1	1	To display Japanese	To display English
	2	To sew pattern whose data is stored in the memory	To sew pattern while machine is reading relevant data from floppy disk. (Data is not stored in the memory.)
	3	If another floppy disk is inserted while sewing pattern while reading relevant data from floppy disk, machine will stop sewing to check floppy disk data.	If another floppy disk is inserted while sewing pattern while reading relevant data from floppy disk, the machine will continue sewing.
	4	To indicate pattern name being sewn	To indicate current sewing speed
	5	To set inching after thread trimming	To cancel inching after thread trimming
	6	To set baud rate between	: OFF : ON : OFF : ON
	7	paper tape reader and editing system.	: OFF 9600 : OFF 4800 : ON 38400 : ON 19200
	8	Spare (Use with OFF)	
S W 2	1	Pitch range (0.1 - 5.0 · 5.1 - 8.0 · 8.1 - 12.7)	Pitch range (0.1 - 4.5 · 4.6 - 7.2 · 7.3 - 12.7)
	2	X - Y feed power saving mode	X - Y feed power increase mode
	3	Disc tension adjustment base mode	Rotary tension adjustment base mode
	4	Mask checking and outline tracing activated	Mask checking and outline tracing deactivated
	5	∕	
	6	∕	
	7	∕	
	8	∕	
S W 3	1	To set thread sensor of first machine head to ON	To set thread sensor of first machine head to OFF
	2	To set thread sensor of second machine head to ON	To set thread sensor of second machine head to OFF
	3	To set thread sensor of third machine head to ON	To set thread sensor of third machine head to OFF
	4	Standard cap frame mode	Wide cap frame mode
	5	Spare (Use with OFF)	
	6	Should be set to OFF	
	7	Should be set to OFF	
	8	Should be set to OFF	

- NOTE:
- The power of the machine should be turned off before changing switch. If the power is not turned off, functions do not change.
 - Do not take out the floppy disk from the floppy disk drive during data reading and sewing. It may occur errors or hinder correct sewing.
 - When communication baud rate is set to 9600, set both DIP SW 1-6 and 1-7 to OFF.

4-2. DIP switch functions on operation panel



		DIP switch functions			
		OFF		ON	
1	To jump stitch after	: OFF	: ON	: OFF	: ON
2	thread trimming	: OFF more than 8 stitches	: OFF more than 5 stitches	: ON more than 3 stitches	: ON without thread trimming
3	To set boring mode to OFF	To set boring mode to ON			
4	To set boring shift to OFF (when DIP SW3 is set to ON)	To set boring shift to ON (when DIP SW3 is set to ON)			
5	To return to sewing start point after sewing	Not to return to sewing start point after sewing			
6	Without frame sash XD	With frame sash XD			
7	To set sewing start point of editing system data to first stitch	To set sewing start point of editing system data to center of mask			
8	Spare (Use with OFF.)				

- NOTE:
- The power of the machine should be turned off before changing switch. If the power is not turned off, functions do not change.
 - To jump more than 8 stitches after thread trimming, set both DIP SW 1 and 2 to OFF.
 - DIP SW 6 can be set after cleaning and resetting memory (page 41) or after changing the CAP mode to the FLAT mode. (This setting can not be changed after the power is turned on.)
 - DIP SW 6 is set to OFF in the CAP mode. The function of DIP SW 6 can be changed using the MODE key when setting the sewing start point.

Chapter 5. Entering Embroidery Date

Data available in BAS-423A · BES-1230AC

Possible data format

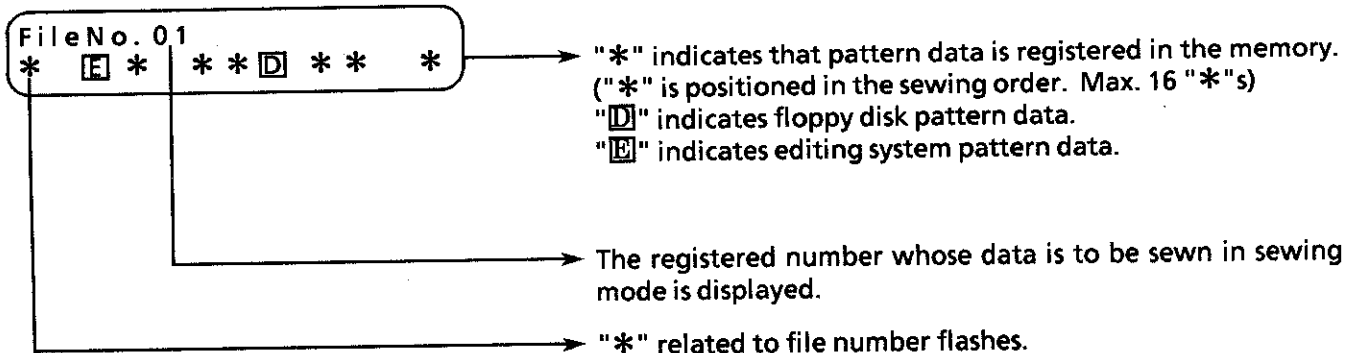
Media type	Data format	Data size per pattern (max.)
Tajima format 3.5 2DD	Tajima format Barudan format Zangs format	240,000 stitches (See note.)
3.5 2HD which corresponds to Tajima format	Tajima format Barudan format Zangs format	400,000 stitches (See note.)
Barudan format 3.5 2DD (Barudan FDR ver. III or V)	Barudan format (1 stitch data)	210,000 stitches
Paper tape with 25.4 mm width 8 holes	Tajima format Barudan format Zangs format	30,000 stitches in one reel
Receive data from editing system	Brother stitch by stitch sewing format	1,000,000 stitches (See note.)

- NOTE:
- It is possible to sew patterns that exceeded stitch numbers that can use in mounted memory, but its data cannot be registered in the memory, and back-up functions for data cannot be used.
Sewing, however, can be resumed after the power is cut off.
 - Up to 280,000 stitches can be stored in the memory. (These stitches are kept in the memory even if the power is turned off.)
 - Barudan FDR format data can not be used unless it is stored in the memory.
In this case, register data in the memory.

Summary of main menu

When the power is turned on, the needle and needle bar positions will be checked. Then the embroidery hoop position will be reset along with the four beeps, and the main menu will appear.

The main menu



(When the main menu is displayed, pressing the following key will select its mode.)

Available key	Function	Available key	Function
	To move hoop.		To enter needle bar selecting mode
			To set thread sensor to ON/OFF for each machine head.
	To select data registered number of machine side.		To trim thread
	To enter data entry mode from floppy disk, paper tape or editing system		To feed hoop (To enter hoop feed mode.)
	To enter sewing mode Either "*", "E", or "D" appears at cursor position.		To set B.T.counter value or thread end length after thread trimming.
	To enter editing mode		To enter test function.
	To enter needle bar setting mode		

1. Entering floppy disk data

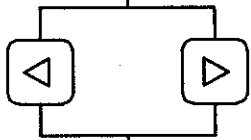
■ Input possible floppy disk

Restricted to Tajima format 3.5 2DD floppy disk (TFD) or 3.5 2HD floppy disk which corresponds to Tajima format, or Barudan format 3.5 2DD floppy disk (Barudan FDR III, V).

Ex. When entering file name (G0004) and data name (rose)

CAUTION MOVING!

File No. 01
 E * * * D * * *



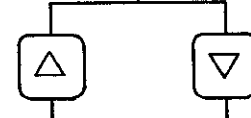
ENTER

F01: □□□□□□□□ . □□□
 □□□□□□□□ / Disk



F01: □□□□□□□□ . □□□
 Reading / Disk

F01: G011 . DST
 File Sel / Disk



F01: G004 . DST
 File Sel / Disk

ENTER

1. Turn on the power.
2. Using the <◀> key or <▶> key, select the registered number (file number) of the machine side.

 Either of the following marks will appear at the position corresponding to a file number entered on the bottom line of the operation panel.
 "*" indicates pattern data stored in the memory.
 "D" indicates pattern data on the floppy disk.
 "E" indicates pattern data in the editing system.
3. Press the <ENTER> key. The machine will enter the data entry mode.
 * Up to 16 patterns can be registered.
4. Insert the floppy disk.
5. Press the <△> or <▽> key to read data from floppy disk.

"DST" will appear when data is of Tajima format.

6. Using the <△> key or <▽> key, select the file name, G0004.

F01: G 0 0 4 . DST
Reading / Disk

F01: G 0 0 4 . DST
rose / Disk

S T A R T

STR P. Co. 0 6
N_ No. 1 2 3 4 5 6

7. Press the <ENTER> key.
The display message on the lower row will change "Reading" to "rose".
(When data has already been registered to the selected registered number, it can not be read.)

8. Press the <START> key.
The machine will enter sewing start position setting mode.

NOTES: Repeat sewing cannot be set during floppy disk data reading or sewing (when 'D' is displayed).
Data on the Barudan format floppy disk can not be used unless it is stored in the memory.

■ Error messages

If the following error message is displayed, press the <CLEAR> key to clear the message and cancel the error.

- When no pattern is registered on the floppy disk
















F01: .
No File / Disk

- When the floppy disk is not set or it is defective

F01: .
Disk ERR. / Disk

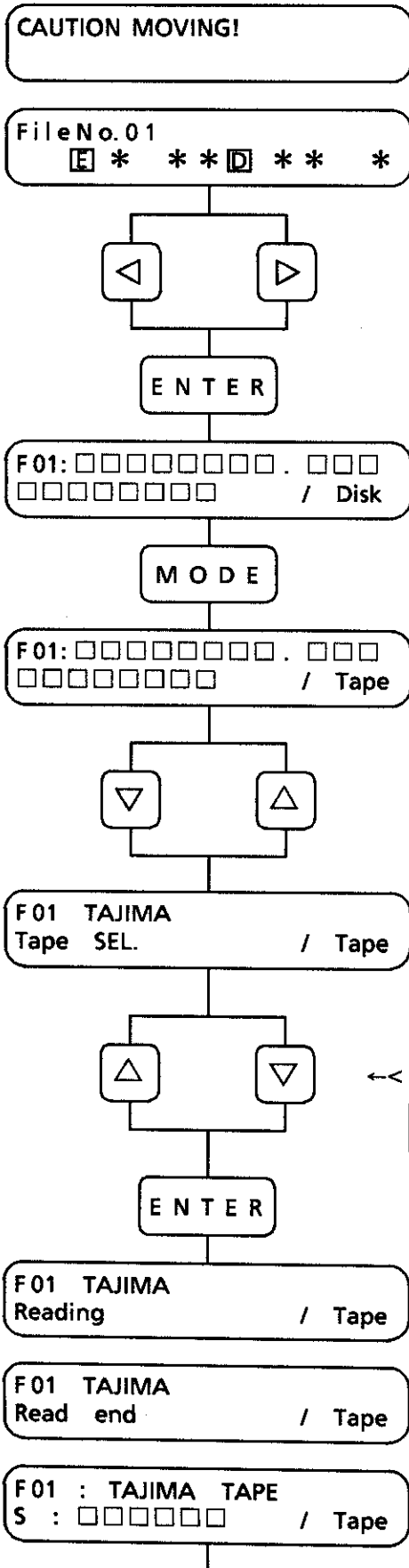
NOTE: Refer to page 121 "Troubleshooting" for details.

■ The following keys are available during floppy data entry:

Available key	Function
	To scroll file names registered in floppy disk
BACK FORWARD 	To select registered number of machine side When data has been input to registered number, its filename and data name will appear as well.
 クリア CLEAR	To clear file data displayed on upper row and screen To clear error indication or stop buzzer
 入力 ENTER	To read pattern data of file name displayed on upper row from floppy disk (This key is invalid when data is already registered in selecting number.)
 開始 START	To enter sewing start position setting mode if data is registered
	To indicate remaining memory capacity as stitch number (with 100 stitch increments) for two seconds.
 編集 EDIT	To enter editing mode
 針棒設定 NEEDLE SET	To enter needle bar setting mode
 針棒選択 NEEDLE SELECT	To enter needle bar selecting mode
 糸切れセンサ THREAD SENSOR	To set thread sensor to ON/OFF for each machine head
 終了 END	To return to main menu
 糸切り THREAD TRIMMING	To trim thread
 枠退避 HOOP FEED	<ul style="list-style-type: none"> • To feed hoop (To enter hoop feed mode) • When no data is input, message "No inptted Data" appears, and machine returns to previous condition.
 カウンター COUNTER	To set B.T.counter value and thread end length after thread trimming.
 モード MODE	To enter paper tape data input/deletion mode or editing system data input/deletion mode.

2. Entering data from paper tape

Paper tape whose data input is possible



1. Turn on the power.
Turn on the power of paper tape reader. Put the paper tape through the paper tape reader.

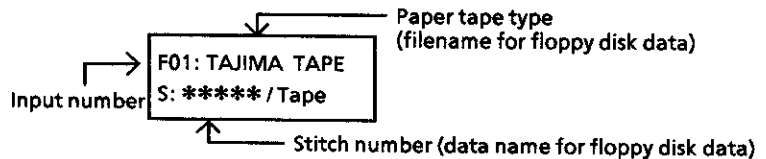
2. Press the <▷> key or <◁> key. Select the number of machine side.

3. Press the <ENTER> key. The machine will go into the data entry mode.
* Up to 16 patterns can be registered.

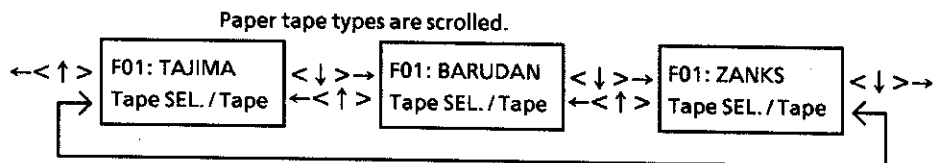
4. Press the <MODE> key to select the paper tape.

* This is the initial indication when there is no input data.

* This is the indication when there is an input data.



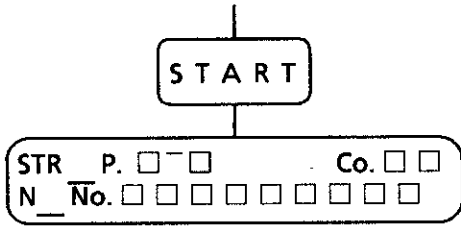
5. Press the <△> key or <▽> key to select paper tape type from TAJIMA, BARUDAN and ZANGS.



6. Press the <ENTER> key.

7. After reading is completed, the buzzer sounds 'beep'.

* S: shows the stitch number of paper tape data.



8. Press the <START> key.
The machine will enter sewing start position setting mode.

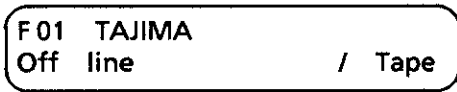
■ Error messages

If the following error message is displayed, press the <CLEAR> key to clear the message and cancel the error.

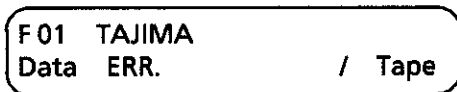
- If paper tape is not set on the reader



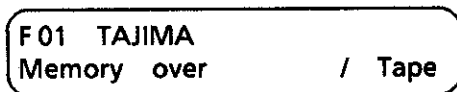
- If the power of paper tape reader is turned off, or communication line is not connected correctly



- If the paper tape data being attempted to be read using the reader is of a different format type


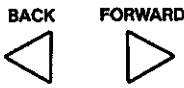












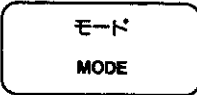


- If data can not be stored in the memory due to insufficient memory capacity



NOTE: While error message is displayed, the buzzer sounds 'beep' continuously.
Refer to page 118 "Error messages" for details.

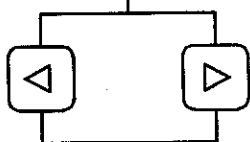
■ The following keys are available during inputting floppy data:

Available key	Function
	To select paper tape type from (TAJIMA, BARUDAN, ZANGS)
	To select registered number of machine side When data is registered to the input number, filename and data name will appear.
	<ul style="list-style-type: none"> To clear file data displayed on upper row and clear screen To delete error indication or stop buzzer if error occurs
	To read data from paper tape reader (This is invalid when data is already registered in selecting number.)
	To enter sewing start position setting mode if data is registered
	To indicate remaining memory capacity as stitch number for two seconds.
	To enter editing mode
	To enter needle bar setting mode
	To enter needle bar selecting mode
	To set thread sensor to ON/OFF for each machine head
	To return to main menu
	To trim thread
	<ul style="list-style-type: none"> To feed hoop When no data is input, message "No inputted Data" appears temporarily, and machine returns to previous condition.
	To set B.T.counter value and thread end length after thread trimming.
	To enter editing system data input/deletion mode or floppy disk data input/deletion mode.

3. Entering data from editing system

CAUTION MOVING!

File No. 01
 [E] * * * [D] * * *

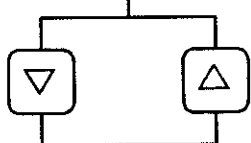


ENTER

F01: □□□□□□□□ . □□□
 □□□□□□□□ / Disk

MODE

F01: □□□□□□□□ . □□□
 □□□□□□□□ / Editor



F01: □□□□□□□□ . □□□
 On line / Editor

F01 □□□□□□□□ . □□□
 File Sel / Editor

ENTER

F01: □□□□□□□□ . □□□
 On line / Editor

F01: □□□□□□□□ . □□□
 Reading / Editor

F01: □□□□□□□□ . □□□
 Read end / Editor

1. Turn on the power.
Turn on the power of the editing system to enter communication mode.
2. Press the <◀> key or <▶> key to select the registered number of machine side.
3. Press the <ENTER> key. The machine will go into the data entry mode.
4. Press the <MODE> key twice to select editing system.
5. Press the <▲> key or <▼> key to select the file name registered in the editing system.
6. After selecting the file name, press the <ENTER> key.

} * These indications will appear alternately according to data size.

* After reading data is completed, the buzzer sounds 'beep' during fixed time.

START

STR P. □ □
N No. □ □ □ □ □ □ □ □ □ □
Co. □ □

7. Press the <START> key.
The machine will enter sewing start position setting mode.

■ Error messages

If the following error message is displayed, press the <END> key to clear the message and cancel the error.

- If the communication line is not in a normal condition or the editing system is not prepared for communication

F01: □ □ □ □ □ □ □ □ . □ □ □
On line / Editor

END

F01: □ □ □ □ □ □ □ □ . □ □ □
Line ERR. / Editor

Press the <END> key.

NOTE: The machine receives only the function of <END> key.

- If the communication line is not normal

F01: □ □ □ □ □ □ □ □ . □ □ □
Line Busy / Editor
















F01: □ □ □ □ □ □ □ □ . □ □ □
Line ERR. / Editor

F01: □ □ □ □ □ □ □ □ . □ □ □
Off line / Editor

NOTE: While the error message is displayed, the buzzer sounds 'beep'.
Refer to page 118 "Error messages" for details.

- * When reading or sewing the editing system data ('E' is displayed), setting repeat sewing cannot be done.

■ The following keys are available during reading data from editing system:

Available key	Function
	To scroll file names registered in editing system
BACK FORWARD 	To select registered number of machine side
	<ul style="list-style-type: none"> To clear file data displayed on upper row and clear screen To delete error indication or stop buzzer if error occurs
	To read pattern data of file name displayed on upper row from editing system (This is invalid when the data is already registered in selecting number.)
	To enter sewing start position setting mode if data is registered
	To indicate remaining memory capacity as stitch number for two seconds
	To enter editing mode
	To enter needle bar setting mode
	To enter needle bar selecting mode
	To set thread sensor to ON/OFF for each machine head
	To return to main menu To use when communication line is not in a normal condition or when buzzer sounds since editing system is not prepared for communication
	To trim thread
	<ul style="list-style-type: none"> To feed hoop When no data is input, message "No inptted Data" appears temporarily, and machine returns to previous condition.
	To set B.T.counter value and thread end length after thread trimming
	To enter editing system data input/deletion mode or floppy disk data input/deletion mode

4. Deleting the registered data

FileNo.01
* **E** * * * **D** * * *

ENTER

F01: □□□□□□□□ . □□□□
□□□□□□□□ /*****

BACK

FORWARD

CLEAR

F01: /*****

1. Press the <ENTER> key in the main menu.

2. The machine will enter either input/deletion mode for the following; the floppy disk data, the paper tape data, or the editing system data.

Disk, Tape, Editor

3. Press the <BACK> or <FORWARD> key to display the filename you want to delete.

4. Press the <CLEAR> key.

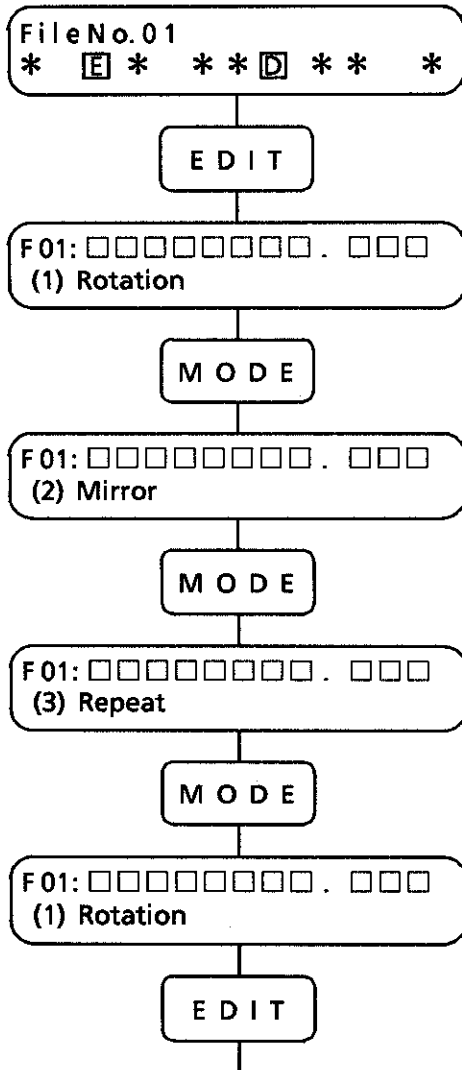
5. The data will have been deleted, and its filename will disappear.

Chapter 6.

Editing Embroidery Date

1. Selecting the editing item

Press the <MODE> key to change editing item, and press the <EDIT> key.















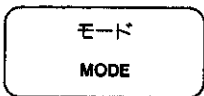

1. Press the <EDIT> key. The machine will enter editing mode.

2. Press the <MODE> key to display the three items of the editing menu.

* The editing menu items will be scrolled.

3. After selecting editing item, press the <EDIT> key. The machine can enter the selected editing mode.

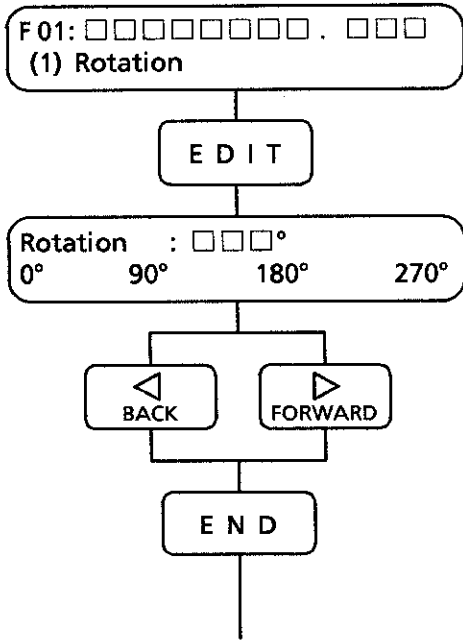
■ The following keys are available in the editing menu:

Available key	Function
BACK FORWARD  	To select registered number of machine side
	To clear set values of registered number selected with above key (To return to default value)
	To enter editing mode of editing item selected
	To enter entry mode
	To enter sewing mode
	To return to main menu
	To enter needle bar setting mode
	To enter needle bar selecting mode
	To enter thread sensor and bobbin thread counter setting mode
	To trim thread
	To feed hoop (To enter hoop feed mode)
	To scroll editing menu screen
	To set B.T.counter value and thread end length after thread trimming





2. Editing function

2-1. Rotating

The four type angles can be set every registered pattern. (0°, 90°, 180°, 270°)

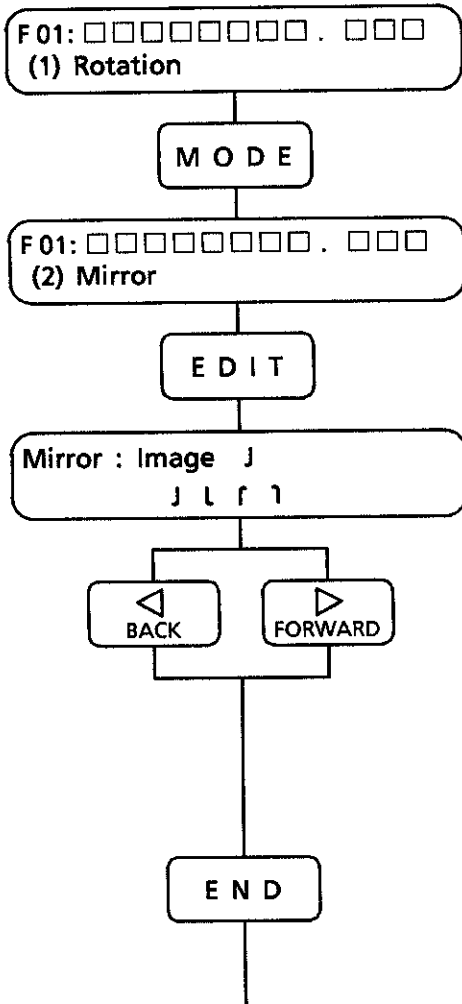


1. After selecting the editing menu, press the <EDIT> key.
2. Information of rotation angles is displayed and the rotation angle can be set using the <BACK> key and <FORWARD> key.
3. After setting rotation angle, press the <END> key.

Available key	Function
前進 FORWARD 	To decide rotation angle counterclockwise (0° → 270°)
後退 BACK 	To decide rotation angle counterclockwise (270° → 0°)
	<ul style="list-style-type: none"> • FLAT mode To select 0° angle (default value) • CAP mode To select 180° angle
	To return to editing menu after setting rotation angle

2-2. Setting mirror image

Three kinds of mirror image processes -- of X axis symmetry, Y axis symmetry and origin symmetry -- can be set every registered pattern.







1. Using the <MODE> key, select editing menu.

2. After selecting editing menu, press the <EDIT> key.

3. The mirror image information is displayed. Select the desired mirror image with the <BACK> key and <FORWARD> key.



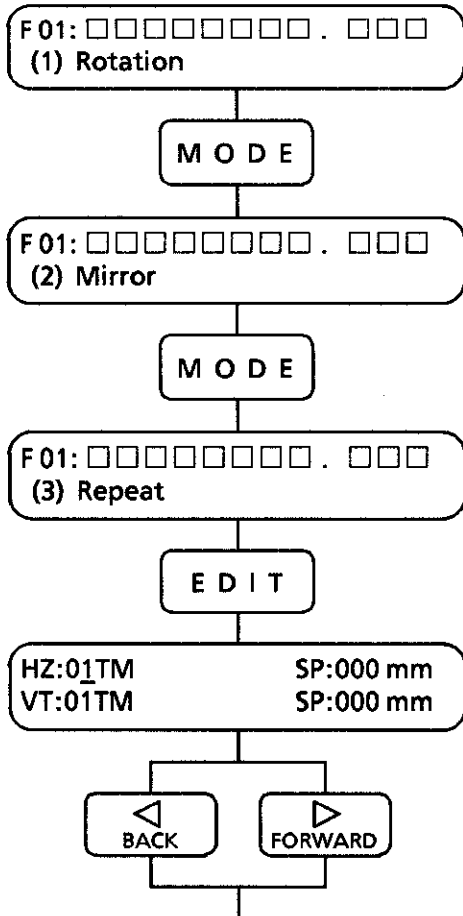
4. After selecting mirror image, press the <END> key.

Available key	Function
前進 FORWARD 	To decide mirror image (Image J to l)
後退 BACK 	To decide mirror image (Image J to 1)
	To select mirror image J (default value)
	To return to editing menu after selecting mirror image

2-3. Setting repeat sewing

A pattern can be set horizontally or vertically up to 9 times (it can be set a total 9801 times per sewing area). Also, space length between patterns can be set in the range from 0 mm to 600 mm horizontally or vertically. If you set pattern beyond the sewing area, the error message, "Area Over" will appear at the start of sewing.

These settings can be changed for every registered pattern.



1. Select "(3) Repeat" in the editing menu using the <MODE> key.

2. After selecting, press the <EDIT> key.

3. Information on repeat sewing will appear. Change the number of times of repeat sewing or space length using the <<> or <>> key.

E.g. When a pattern is repeated 5 times horizontally with a 10 mm spacing and 3 times vertically with a 20 mm spacing

< Entering the number of times for horizontal repetition >

HZ:01TM SP:000 mm
VT:01TM SP:000 mm

0

5

HZ:05TM SP:000 mm
VT:01TM SP:000 mm

▶
FORWARD

1. Press the <0> and <5> keys to set the horizontal repetition to 5 times.

5 will appear in the horizontal repetition area.

2. Press the <FORWARD> key to move the cursor to the vertical spacing area.

< Entering the horizontal spacing >

HZ:05TM SP:000 mm
VT:01TM SP:000 mm

0

1

0

HZ:05TM SP:010 mm
VT:01TM SP:000 mm

▶
FORWARD

The cursor will appear on the value of horizontal spacing area.

3. Press the <0>, <1>, and <0> keys to set the horizontal spacing to 10 mm.

The horizontal spacing will be set to 10 mm.

4. Press the <FORWARD> key to move the cursor to the vertical repetition area.

<Entering the number of times for the vertical repetition >

HZ:05TM SP:010 mm
VT:01TM SP:000 mm

The cursor will appear in the vertical repetition area.

0

5. Press the <0> and <3> keys to set the vertical repetition to 3 times.

3

HZ:05TM SP:010 mm
VT:03TM SP:000 mm

3 will appear in the vertical repetition area.

▶
FORWARD

6. Press the <FORWARD> key to move the cursor to the vertical spacing area.

<Entering the vertical spacing >

HZ:05TM SP:010 mm
VT:03TM SP:000 mm

The cursor will appear on the value of vertical spacing area.

0

7. Press the <0>, <2>, and <0> keys to set the vertical spacing to 20 mm.

2

0

HZ:05TM SP:010 mm
VT:03TM SP:020 mm

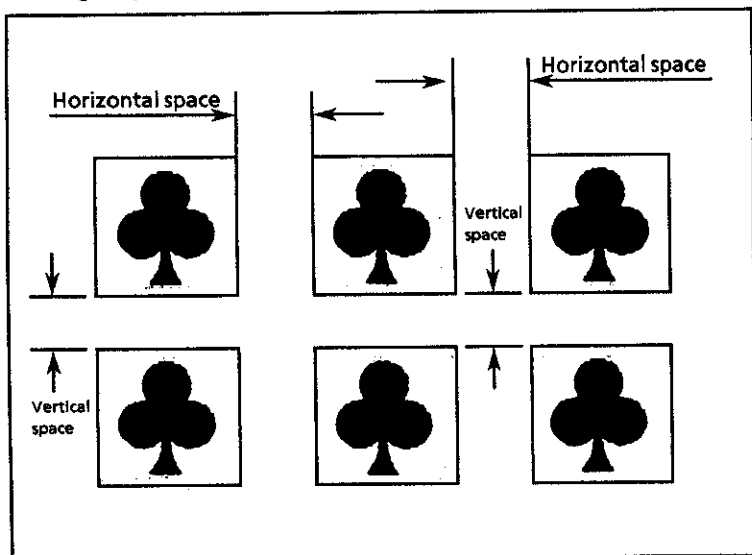
The vertical spacing will be set to 20 mm.

* Procedures 1 to 7 make the example setting complete. When changing a value, press the <FORWARD> key to move the cursor to the desired item position, and enter a value.





END

8. Press the <ENTER> key to exit from the setting mode.

Setting repeat sewing and spacing

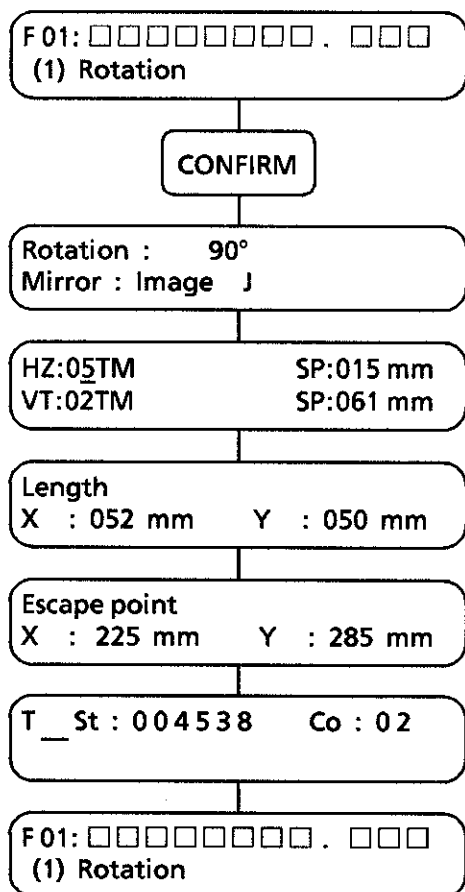


* Patterns are sewn from the left up to the right bottom.

Available key	Function
前進 FORWARD 	To move cursor to horizontal repetition area, horizontal spacing area, vertical repetition area, and vertical spacing area in this order.
後退 BACK 	To move cursor to horizontal repetition area, vertical spacing area, vertical repetition area, and horizontal spacing area in this order.
	To return to default values <div style="border: 1px solid black; padding: 5px; display: inline-block;"> HZ:01TM SP:000 mm VT:01TM SP:000 mm </div>
	To return to editing menu after setting repeat sewing conditions.

NOTE: For the floppy disk data or the editing system data, setting repeat sewing cannot be done in the reading or sewing mode (when 'D' or 'E' is displayed).

2-4. Checking editing information



· If the <CONFIRM> key is pressed in the mode displaying editing menu, screens are each displayed in sequence for two seconds so that the set values can be checked.

· Press the <CONFIRM> key again to scroll the screens rapidly.
(The following screen will appear without waiting for two seconds.)

* If total X or Y length is over 999 mm, it will be indicated as " _ _ _ ".

After displaying is completed, the machine will return to editing menu mode.

Default value

- Rotation: 0° (180° in CAP mode)
- Mirror image: "J" (non-reversed mirror image)
- Repeat sewing: once, horizontally (non-repeat sewing) spacing 0 mm

When the <CLEAR> key is pressed, above edit items are set to default values.

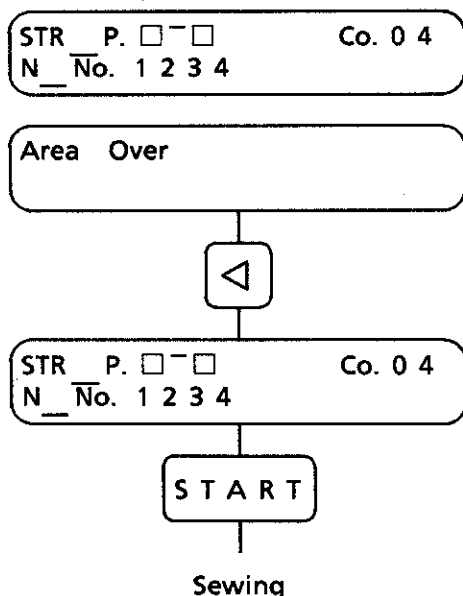
Chapter 7.

Sewing Function

1. Setting the sewing start point

- Sewing start point can be set.
- When the message "Area Over" appears, sewing cannot be started.
- When the <CLEAR> key is pressed even if the above message appears, sewing can be started compulsorily.

When pattern is beyond the possible sewing range



These messages will appear alternately while the buzzer sounds continuously.

- * The buzzer will keep beeping until the machine exits from the sewing start point setting mode.

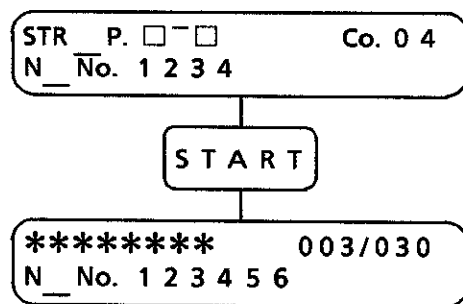
Move the hoop in the opposite direction to the indication using the jog key. (The hoop moves slowly at first, then moves quickly from halfway.)

The machine returns to the sewing start mode.

NOTE: When the <CLEAR> key is pressed while the message "Area Over" appears, it can be canceled forcibly.

(Sewing can be started without checking the possible sewing range. Be careful when using the <CLEAR> key.)

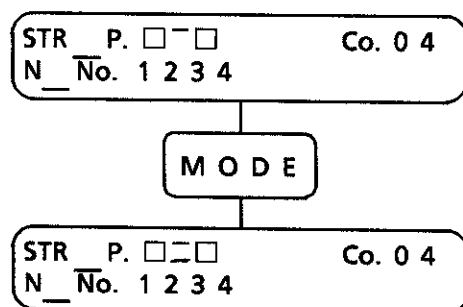
When pattern is within the possible sewing range



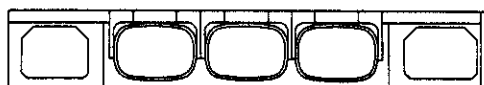
Sewing start point setting mode

Press the <START> key. Sewing will start.

When selecting whether frame sash XD is installed or not

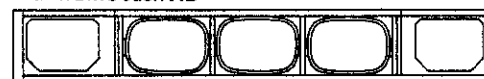


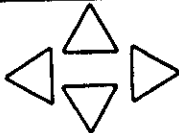












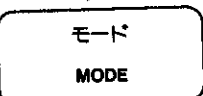
- with out frame sash XD



Press the <MODE> key.
You can install frame sash XD.

- with frame sash XD

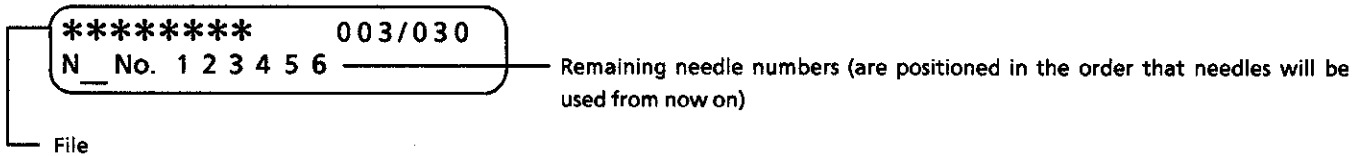


Available key	Function
	To move hoop (Hoop moves slowly at first, then moves quickly from halfway.)
	To check possible sewing range
	To enter sewing mode when "Area Over" message does not appear
	To input data from floppy disk
	To enter editing mode of editing item selected
	To return to main menu
	To delete "Area Over" message forcibly if it appears Machine keeps sounding buzzer for caution.
	To trim thread
	To enter hoop feed mode (Hoop moves to set hoop feed point.)
	To set thread sensor to ON/OFF
	To enter needle bar setting mode
	To enter needle bar selecting mode
	To enter B.T. and ST. counters setting mode
	To select whether frame sash XD is installed or not. (Machine can control material feeding according to hoop shape.)

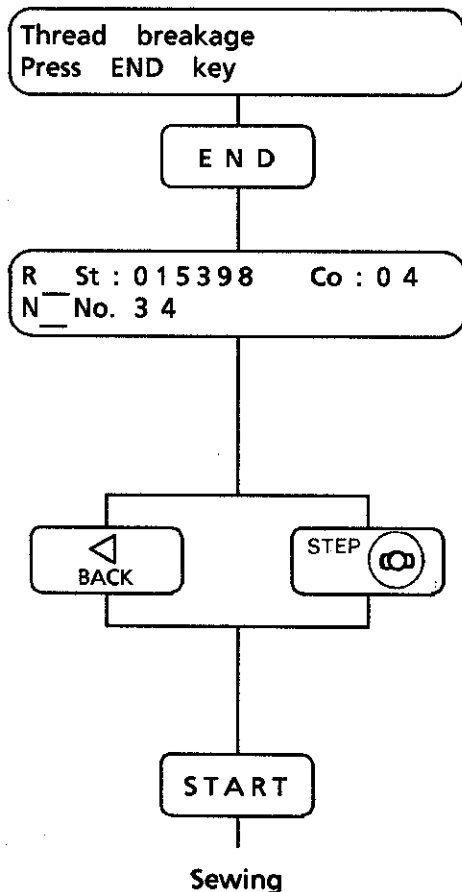
2. During sewing

- The needle bar of a machine head whose head switch on adjustment base is set to ON, will move up and down to sew pattern.
The needle bar of a machine head whose head switch is set to OFF, will not move up and down to perform sewing because the jump mechanism operates.
- When thread has broken or the <EMERGENCY STOP> button is pressed during sewing, sewing will be suspended.

<Indication during sewing>

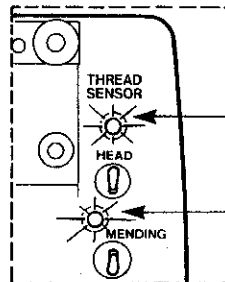


<When needle thread has broken with thread sensor being set to ON>



• The error message will appear with intermittent buzzer sounds, and the thread sensor LED will blink.

1. Press the <END> key or press the step switch on the adjustment base to the BACK position.



The thread sensor LED of a machine that a needle thread has broken will be lit.

The mending LED of a machine head that a needle thread has broken will be lit.

2. Press the <BACK> key on the operation panel or press the step switch on the adjustment base to the BACK position to move the hoop to the position where the needle thread was broken.

3. Press the <START> key on the operation panel or the <START> button on the sub operation panel to resume sewing.

* When finishing sewing, press the <CLEAR> key.

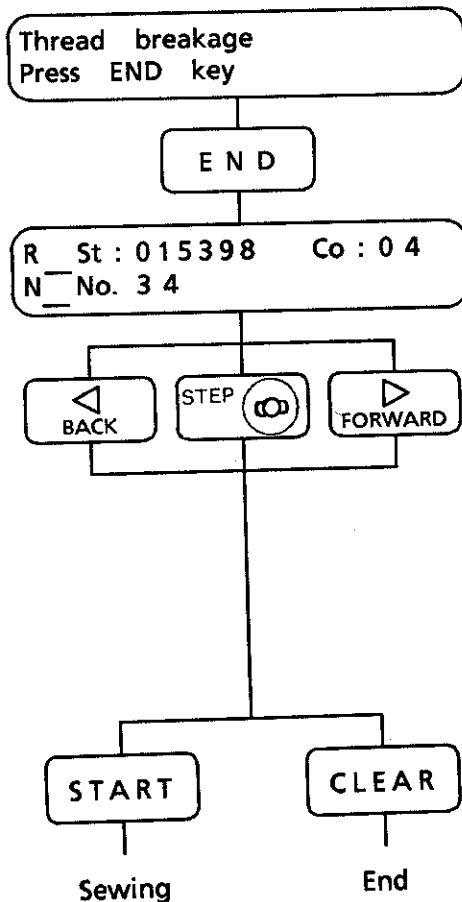
<When thread sensor is set to OFF>

Sewing will continue.

3. Sewing standby

- When sewing is suspended due to thread breakage, the machine will be standing by for sewing.
- While sewing is suspended, you can select any of the following; restarting sewing, finishing sewing, or moving the hoop backward or forward.

<Thread breakage>



1. Press the <END> key to clear error indications, and rethread a needle.
2. Press the <BACK> or <FORWARD> key on the operation panel or set the step switch of the adjustment base to BACK or FORWARD position to move the hoop to the position where thread breakage occurred.
NOTE: When step switch is set to left position, it will operate in the same way as when the <BACK> key on the operation panel is pressed; when set to right position, it will operate in the same way as when the <FORWARD> key on the operation panel is pressed. (The hoop will be moved while the step switch is kept pressed.)
3. Press the <START> key on the operation panel or the <START> button on the sub operation panel to resume sewing.
* When finishing sewing, press the <CLEAR> key.

3-1. Adjusting the position for resuming sewing

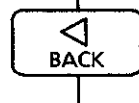
R St : 015398 Co : 04
N No. 34



When the <BACK> key is pressed with no indication at the right bottom area of the display

- The hoop will move backward in 1 stitch increments without moving the needle.
At this time, the remaining stitch number will change.
If the key is kept pressed, the hoop will move backward until the emergency stop button is pressed, even if the key is released.
- When changing a color, the remaining needle number will change.

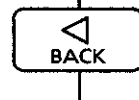
R St : 015398 Co : 04
N No. 34 J



When the <BACK> key is pressed with J indication at the right bottom area of the display

- The hoop will move backward in 100 stitch increments without moving the needle.
At this time, the remaining stitch number will change.
- When changing a color, the remaining needle number will change.

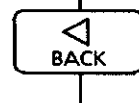
R St : 015398 Co : 04
N No. 34 C



When the <BACK> key is pressed with "C" indication at the right bottom area of the display

- Without moving a needle, the hoop will move backward in every color change.
At this time, the remaining stitch number will change.
- The remaining needle number will change.

R St : 015398 Co : 04
N No. 34 T



When the <BACK> key is pressed with "T" indication at the right bottom area of the display

- Sewing will be restarted from the first stitch. (Only when DIP SW 1 - 2 is set to OFF.)
At this time, the remaining stitch number will change.
- The remaining needle number will change.
- When changing a color, the remaining needle number will change.
- The hoop may not be able to move backward to the first stitch in the floppy reading or sewing mode.

* When "I" appears at the right bottom of the display, the <BACK> key is not acceptable.

* Press the <MODE> key to display "J", "C", or "T". Refer to page 80, "Switching the mode".

R St : 015398 Co : 0 4
N No. 3 4



When the <FORWARD> key is pressed with no indication at the right bottom area of the display

- The hoop will move forward in 1 stitch increments without moving the needle.
When the key is kept pressed, the hoop will move forward until the emergency stop button is pressed, even if the key is released.
At this time, the remaining stitch number will change.
- When changing a color, the remaining needle number will change.

R St : 015398 Co : 0 4
N No. 3 4 J



When the <FORWARD> key is pressed with J indication at the right bottom area of the display

- The hoop will move forward in 100 stitch increments without moving the needle.
At this time, the remaining stitch number will change.
- When changing a color, the remaining needle number will change.

R St : 015398 Co : 0 4
N No. 3 4 C

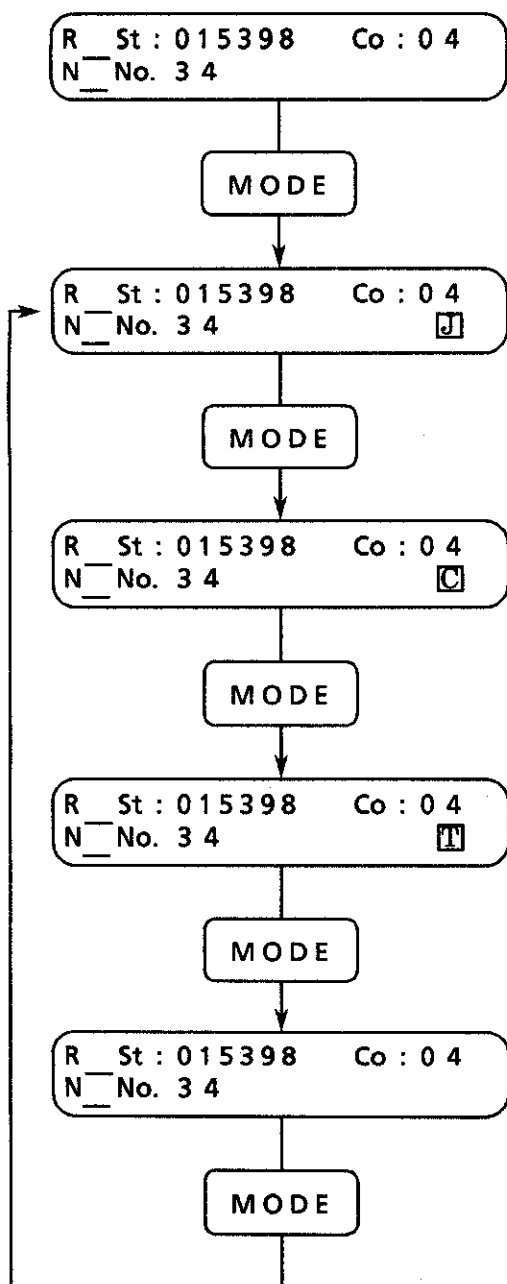


When the <FORWARD> key is pressed with C indication at the right bottom area of the display

- The hoop will move forward for every color change without moving the needle.
At this time, the remaining stitch number will change.
- The remaining needle number will change.

* While "T" or "I" appears at the right bottom of the display, the <FORWARD> key is not acceptable.

3-2. Switching the mode



While the machine is standing by for sewing

Press the <MODE> key.

"J" will appear at the right bottom of the display, and the hoop can move backward or forward in 100 stitch increments.

"C" will appear at the right bottom of the display, and the hoop can move backward or forward in every color change.

"T" will appear at the right bottom of the display, and the hoop can move backward to the sewing start point.

When there is no indication at the right bottom of the display, the hoop can move forward or backward in 1 stitch increments.

- NOTE:
- When the <#> key is pressed without I indication, "I" will appear. When the <#> key is pressed with I indication, "I" will disappear.
 - While "I" disappears, the jog keys <◀>, <▶>, <△>, and <▽> are not acceptable. While "I" appears, the hoop can be moved in 0.1 mm increment using the jog keys.

3-3. Restarting sewing

***** 003/030
N No. 1 2 3 4 5 6

START

Sewing

[When all mending LEDs are turned off]

Press the <START> key. Sewing will restart from the current needle position.

3-4. Indicating the next stitch type

When the machine is ready to sew and standing by, you can view information on the next stitch type.

<When the next stitch is either regular or feed stitch >

R St : 015398 Co : 04
N No. 34

*

Press the <*> key.

Data type = Stitch
X = +02.5 Y = -10.2

When the next stitch is feed stitch, "Feed" will appear on the display.

Directional movement (-12.7 to +12.7)

END

* When the needle moves in the direction of the arrow in this hoop, it is regarded as being in the positive direction.

<When a color is changed for the next stitch >

R St : 015398 Co : 04
N No. 34

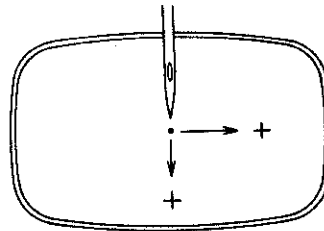
*

Press the <*> key.








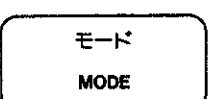
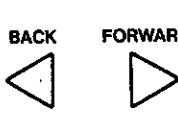

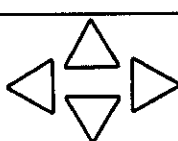


Data type = Color
X = - - - - - Y = - - - - -

END

Press the <END> key to return to the previous display.



■ The following keys are available during sewing standby:

Available key	Function
	To enter needle bar setting mode
	To enter needle bar selecting mode
	To set THREAD SENSOR to ON/OFF for each machine head
	To trim thread
	<ul style="list-style-type: none"> To feed hoop When no data is input, message "No inputted Data" appears temporarily, and machine returns to previous condition.
	To enter B.T. and ST. counters setting mode
	To enter editing mode
	To change mode of J, C, and T
	<ul style="list-style-type: none"> To move hoop in setting sewing start point. To move hoop 1 stitch or 100 stitches backward or forward during sewing suspension To move hoop 0.1 mm in inching mode and during sewing suspension
	<p>To display "I" indication when it does not appear</p> <p>To delete "I" indication when it appears</p>
	To move hoop in 0.1 mm increments while "I" appears
	To end sewing function and enter sewing start point setting mode
	To enter sewing mode

4. Checking the mask line of pattern

The mask line of pattern to be sewn can be traced.

STR P. Co. 0 4
N No. 1 2 3 4

CONFIRM

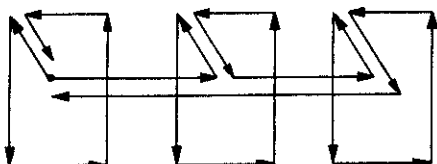
Press the <CONFIRM> key.

***** File
Needle No. 3 115/120

Repeat sewing

This indication means that the trace for the 115th pattern of 120 patterns you set is performed.
As tracing proceeds, the numerator will change 1 to 120.
A number greater than 999 will be indicated as " - - -".

The current needle number when needle comes to the needle hole will be indicated.



E.g. 1 When a pattern is repeated horizontally 3 times

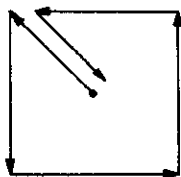
EMERGENCY

Press the <EMERGENCY STOP> button to finish tracing halfway.

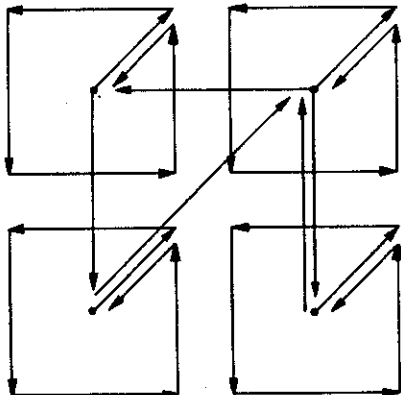
Restart Trace?
Yes > START No > CLR

Press the <START> key to continue tracing.
Press the <CLEAR> key to advance the sewing start point setting.

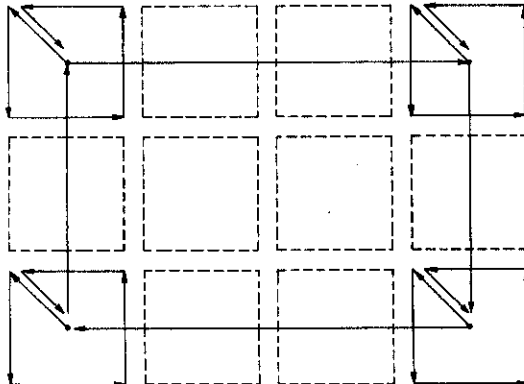
E.g. 2 When a pattern is traced once



E.g. 3 When patterns are traced vertically and horizontally



E.g. 4 When only four corner patterns of all patterns are traced

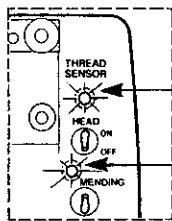


5. Mending mode

When a needle thread has broken, the mending LEDs of machine heads other than that whose needle thread has broken will be turned off. At this time, only the machine head whose mending LED is lit will perform resewing from the position where the needle thread broke to the current needle position. (Other heads will wait until resewing is completed.) When resewing is finished, all machine heads will continue normal sewing.

<When the needle thread broke >

Thread breakage
Press END key



The thread sensor LED of a machine head whose needle thread has broken will blink.

The mending LED of a machine head whose needle thread has broken will remain lit, and other heads LEDs will be turned off.

END

R_St : 015398 Co : 04
N_No. 34

BACK

R_St : 015438 Co : 04
N_No. 34

START

***** Co : 04
N_No. 34

1. Press the <END> key to delete the error indication.

2. Press the <BACK> key to move the hoop backward to the position where thread breakage occurred without moving the needle.

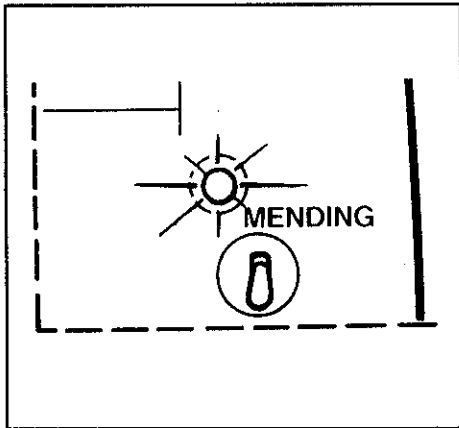
3. Press the <START> key on the operation panel or the <START> button on the sub operation panel to re sew.

* The machine head whose mending LED is lit will re sew from the position where thread breakage occurred, and the others (whose mending LEDs are not lit) will pause without moving their needles.

As resewing proceeds to the position where sewing stopped, all machine heads will continue normal sewing.

< Manual operation >

If the thread sensor did not detect thread breakage, or if the stitches were irregular, the mending start and end positions can be set for each machine head using the mending switch while machine is standing by after the <emergency stop> button has been pressed. When sewing is suspended using the <emergency stop> button, the mending LEDs will be turned off.



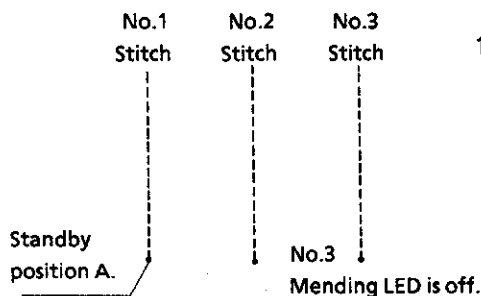
The mending LED will be lit when the mending switch of each machine head is lifted up during sewing standby.

While a machine head whose mending LED is lit resews from the current stitch position to the position below the needle after the hoop has moved back, the others will wait.

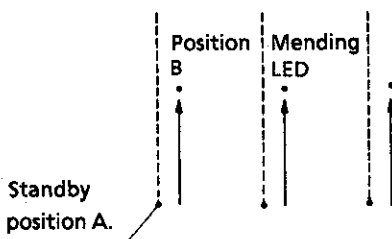
When the mending switch is lifted up again, the mending LED will be turned off.

- NOTE:
- The mending end position can not be set for each machine head. When all mending LEDs are turned on, the mending end position will be set as the position where the first LED is turned off.
 - The mending end position is not canceled unless all mending LEDs are turned on.

E.g. When stitching of the third machine head is to be mended



1. Turn off the No. 3 mending LED at standby position A. (Position A should be the mending end position.)



2. Press the <BACK> key to move the hoop backward. Also, turn off the No. 2 mending LED at standby position B. (Position B does not become the end position; position A is still end position.)

- NOTE:
- When the mending switch of a machine head whose LED is off is pressed, the mending LED of that machine head will be lit, and the mending end position will be set to the current needle position.
 - When the mending switch of a machine head whose LED is lit is pressed, the mending LED of that machine head will be turned off, and the mending end position information will disappear.

6. Setting hoop feed point

- To make the removal and attachment of the embroidery hoop easier, besides current needle position, a new position can be set as a hoop feed point in range of movable area.
- To make an operation such as material attachment smooth while the machine suspends, pressing the <HOOP FEED> key can move the hoop to the hoop feed point anytime.
- It is possible to set or not automatic hoop feed after sewing. (This cannot be set every registered pattern.)

A feed hoop point can be set every registered pattern.

STR P. □ □ Co. □ □
N No. □ □ □ □ □ □ □ □

(Sewing start point setting mode)

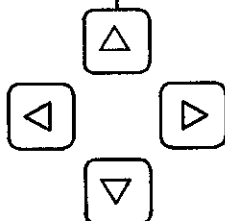
R St: □ □ □ □ □ □ Co: □ □
N No. □ □ □ □ □ □ □ □

(Sewing standby mode)

HOOP
FEED

1. Press the <HOOP FEED>key in sewing mode or during suspension.

Return > Hoop Feed
Hoop Feeding



2. Set the hoop feed point by pressing the jog key.

Hoop Feed P. > ENT

ENTER

3. Decide hoop feed point by pressing the <ENTER> key.

Return > Hoop Feed
Hoop Feeding

or

Hoop Feed P. > ENT
X : 100 mm Y : 150 mm

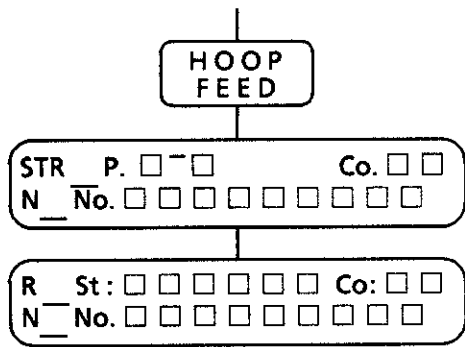
* The coordinates of X and Y axes will be displayed.

MODE

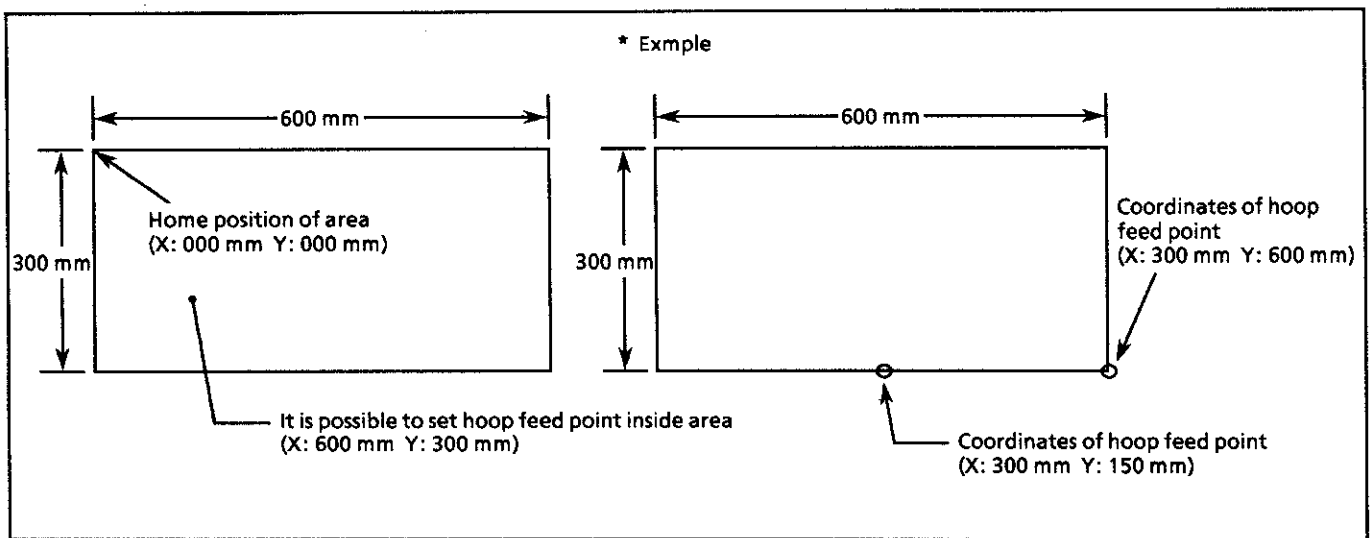
4. Press the <MODE> key to set whether or not the hoop feed is automatically performed at the end of sewing. (When [S] appears, the automatic hoop feed is set.)

Return > Hoop Feed [S]
Hoop Feeding

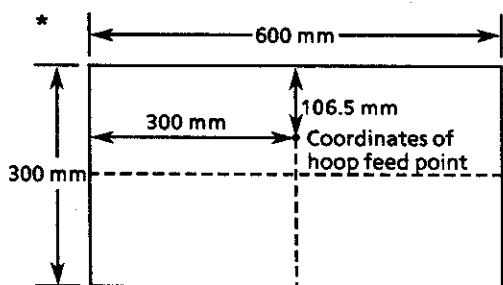
Hoop Feed P. > ENT [S]
X : 100 mm Y : 150 mm



- After setting coordinate value, press the <HOOP FEED> key. The machine will return to sewing mode. The machine will return to the sewing start point setting mode or the sewing standby mode.



Available key	Function
	To move needle position to desired hoop feed point
	To decide automatic hoop feed after sewing or not
	To enter current needle position as hoop feed point and display its coordinates
	* To set hoop feed point in center of area
	To return from hoop feed point and exit from this mode



7. Needle bar setting

The needle selected can be set to any number from 1 to 9 (for the BAS-423A) or to any number of letter from 1 to 9 and A to C (for the BES-1230AC). A maximum of 99 needle changes can be set when changing colors. Also, automatic sewing stops can be turned on or off for each color change.

STR	P.	□	□	Co.	□	□
N	No.	□	□	□	□	□

(Sewing start point setting mode)

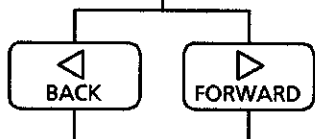
or

R	St.	□	□	□	□	□	□	Co.	□	□
N	No.	□	□	□	□	□	□	□	□	□

(Sewing standby mode)

NEEDLE SET

C	No.	0	1	5	Co.	9	9				
N	No.	:	2	4	3	5	3	4	5	6	#



1. Press the <NEEDLE SET> key in sewing mode or during suspension.
"S" will appear when automatic sewing stop for a color change is set.
"#" will appear when data is received from the editing system.
2. Set color order number with the <BACK> key and <FORWARD> key.

* Press the <FORWARD> key to display the following color order number.

(E.g.) When the key is pressed when the color order number is 11 during sewing a pattern with 18 colors;

C	No.	11	Co.	18						
N	No.	:	2	3	4	5	6	1	2	3

→

C	No.	12	Co.	18					
N	No.	:	3	4	5	6	1	2	3

Press the <FORWARD> key.

* Press the <BACK> key to redisplay the previous color order number.

(E.g.) When the key is pressed when the color order number is 12 during sewing a pattern with 18 colors;

C	No.	12	Co.	18					
N	No.	:	3	4	5	6	1	2	3

→

C	No.	11	Co.	18						
N	No.	:	2	3	4	5	6	1	2	3

Press the <BACK> key.

C	No.	1	2	Co.	1	8			
N	No.	:	3	4	5	6	1	2	3

5

C	No.	1	2	Co.	1	8			
N	No.	:	5	4	5	6	1	2	3



C	No.	1	2	Co.	1	8			
N	No.	:	A	4	5	6	1	2	3

3. Press a number key to set needle number.
(E.g.) Press <5> key.
4. Use the <▽> and <△> keys to select the needle number.

(The BAS-423A shows a scrolling display of numbers from 1 to 9.)

(The BES-1230AC shows a scrolling display of numbers and letters from 1 to 9 and A to C.)

Alphabetical display

The corresponding needle numbers are A = 10, B = 11, C = 12.

C_No: 1 2 Co: 1 8
 N_No.: 3 4 5 6 1 2 3

5

C_No: 1 2 **S** Co: 1 8
 N_No.: 5 4 5 6 1 2 3

C_No: 1 2 Co: 1 8
 N_No.: 3 4 5 6 1 2 3

4

C_No: 1 2 Co: 1 8
 N_No.: 4 4 5 6 1 2 3

END

STR P. □ □ Co. □ □
 N_No. □ □ □ □ □ □ □ □

However, when the input needle number is the same as the previous needle number, the automatic stop will be set for input needle number, and "S" will appear on the right of the color number area.

E.g.1 When the previous needle number is 5, <5> key is pressed

C_No: 12 Co: 18 C_No: 12 **S** Co: 18
 N_No.: 3456123 N_No.: 5456123

Press <5> key.

The 11th needle number: 5 (This does not appear on the panel.)

Also, when the input needle number is the same as the following needle number, the automatic stop will be set for the following needle number.

E.g.2 When the previous needle number is 4, <4> key is pressed

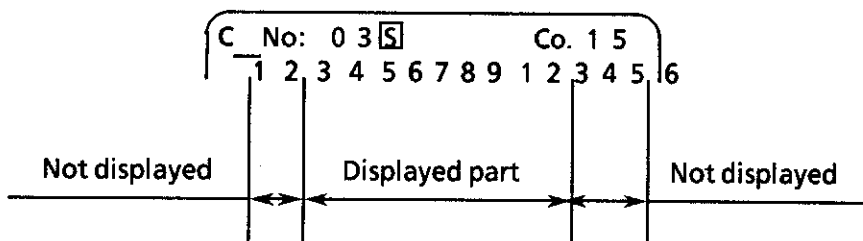
C_No: 12 Co: 18 C_No: 12 Co: 18
 N_No.: 3456123 N_No.: 4456123










Press <4> key.

Automatic stop function is set for the latter needle number, "4" (13th color number).

4. After setting needle bar, press the <END> key to exit this mode. The machine will return to sewing mode.

Example) When the third color number of the fifteen colors in all is set



Available key	Function
BACK FORWARD  	To set color order number Press <FORWARD> key to display following color order number. Press <BACK> key to redisplay previous color order number.
	To decide automatic stop or not
	To use needle number set in data regardless of machine side data as long as receive data from editing system is input (This is invalid for floppy disk data and paper tape data.)
	To set selecting needle number to default value (The numbers 1 to 9 are selected cyclically.)
	To exit from needle bar setting mode
  	To select needle number (The BAS-423A shows a scrolling display of numbers from 1 to 9.) (The BES-1230AC shows a scrolling display of numbers and letters from 1 to 9 and A to C.) Alphabetical display The corresponding needle numbers are A = 10, B = 11, C = 12.

8. Selecting needle bar

A needle bar can be moved to the possible sewing position.

STR P. □ □ Co. □ □
N No. □ □ □ □ □ □ □ □

(Sewing start point setting mode)

or

R St: □ □ □ □ □ □ Co: □ □
N No. □ □ □ □ □ □ □ □

(Sewing standby mode)

NEEDLE
SELECT

Needle No. 1 N

1 — 9




END

STR P. □ □ Co. □ □
N No. □ □ □ □ □ □ □ □

or

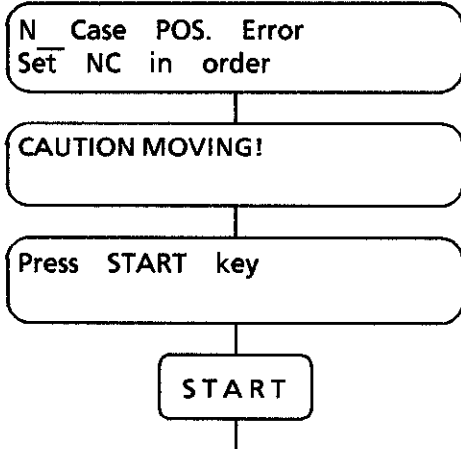
R St: □ □ □ □ □ □ Co: □ □
N No. □ □ □ □ □ □ □ □

1. Press the <NEEDLE SELECT> key in sewing mode or during suspension.
2. Select the needle number using a number key.
The selected needle will move to above the hole of the needle plate.
 - To select needle number
(The BAS-423A shows a scrolling display of numbers from 1 to 9.)
(The BES-1230AC shows a scrolling display of numbers and letters from 1 to 9 and A to C.)
Alphabetical display
The corresponding needle numbers are A = 10, B = 11, C = 12.
 - "N": Indicates that the needle bar selection position is normal.
 - "O": Indicates that there is a problem with the needle bar selection position.
3. After selecting needle number, press the <END> key. The machine will return to the sewing start point setting mode or the sewing standby mode.

Available key	Function
	To cancel error
	To exit from needle bar selecting mode
	To input needle number to the standard value (1 to 9 for the BAS-423A, 1 to 9 and A to C for the BES-1230AC)

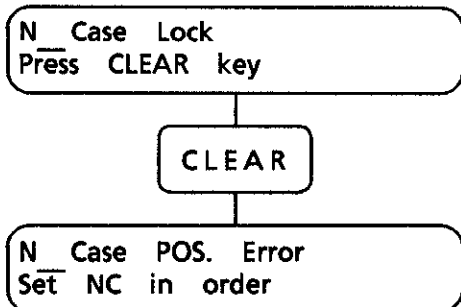
<Error indications>

■ When needle bar case position is not correct



1. The machine will warn you with intermittent buzzer sounds that the needle bar case position is not correct.
2. Correct the needle bar case position manually. This messages will appear when the needle bar case is positioned correctly. Refer to page 21 for correction.
3. Press the <START> key. The needle bar number will appear.

■ When needle bar case is locked

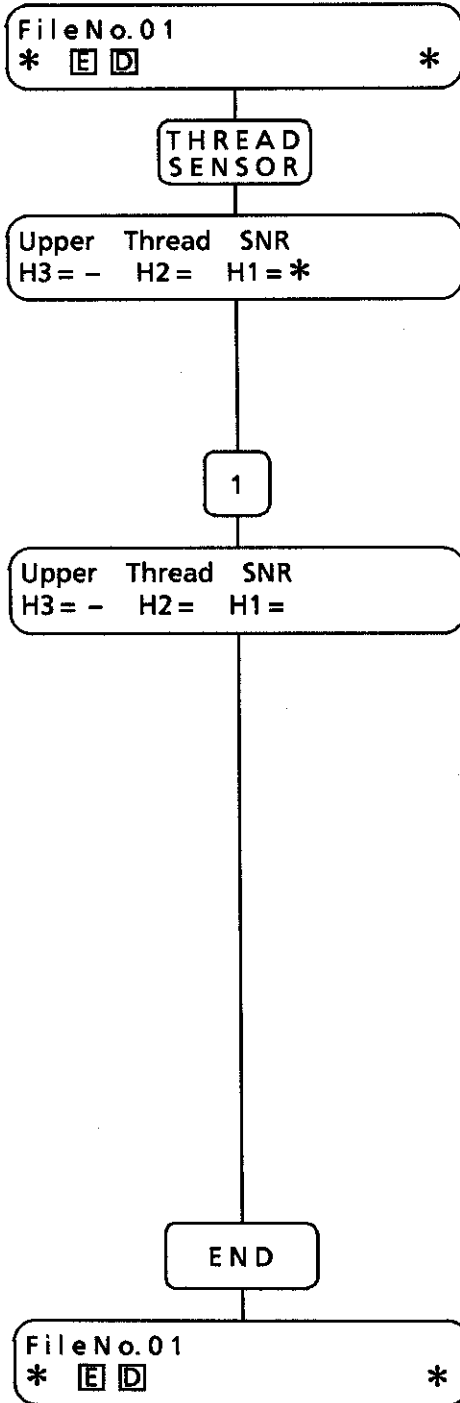


The machine will warn you with intermittent buzzer sounds that the needle bar case is locked.

Press the <CLEAR> key to cancel error.
The message that shows the needle bar case position is not correct will reappear.

9. Setting the thread sensor

The thread sensor detects thread breakage during sewing. Also, a function that stops sewing automatically when thread has broken can be set for each machine head.



Press the <THREAD SENSOR> key in the input mode.

"*" will appear on the operation panel of a machine with the thread sensor activated.

E.g. When the thread sensor on the first machine head (H1) is activated or deactivated

Press the <1> key to switch the thread sensor of the first machine on or off.

- When "*" is displayed to the right of H1, the thread sensor is activated, when it is not, it is not activated.
- When "-" appears on the right of the H1
No key is acceptable.
* "-" will appear on the right of the head number when the thread sensor of that machine head is deactivated using the DIP switch on the main PCB or the head switch on the adjustment base.

After setting thread sensor, press the <END> key.

The machine will return to the previous mode.

10. Setting bobbin thread counter and stitch counter

- The display is based on counter system which the number is decreased after sewing one pattern is completed or is canceled. After counting is completed, it can show the messages with beep sound when starting next sewing. The counter number can be set from 0 to 99. Also, ON/OFF of thread breakage detection can be switched.
- The bobbin thread counter can be set before data entry, during data input, and after data input.

STR P. □ □ Co. □ □
N No. □ □ □ □ □ □ □ □

(Sewing start position setting mode)

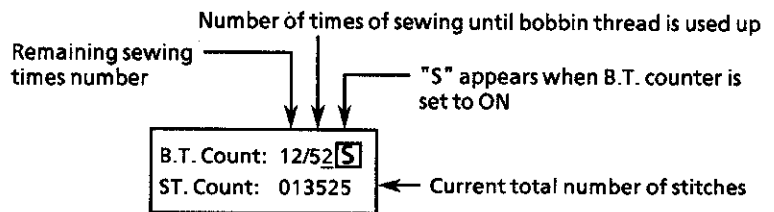
R St: □ □ □ □ □ □ Co: □ □
N No. □ □ □ □ □ □ □ □

(Sewing standby mode)

COUNTER

B. T. Count : 12/52 [S]
ST. Count : 013525

1. Press the <COUNTER> key in sewing mode or during suspension.



When B.T.counter value (the number of times of sewing) is set to 38

3

2. Press the <3> key.

B. T. Count : 23/23 [S]
ST. Count : 013525

8

3. Press the <8> key.

MODE

4. Press the <MODE> key to set the B.T.counter to ON/OFF.
 - * When "S" appears on the panel, press the <MODE> key to delete "S" indication, and set the B.T.counter to OFF.
 - * When "S" does not appear on the panel, press the <MODE> key to indicate "S", and set the B.T.counter to ON.

B. T. Count : 38/38 [S]
ST. Count : 013525

END

5. Press the <END> key after entering number of times.

STR P. □ □ Co. □ □
N No. □ □ □ □ □ □ □ □

The machine will return to the previous mode.

B. Thread empty






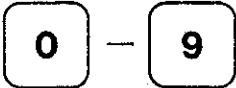
NOTE: When the B.T.counter value becomes 0 at the start of sewing, the buzzer will sound intermittently, and these messages will appear alternately.

Press START / END
N_No. : 1 2 3 4

Press the <START> key to enter sewing mode.
Press the <END> key to enter the sewing start point setting mode.

■ ST. Count :

Total stitch number is displayed here until it is cleared. It can be stored even though the power is turned off.

Available key	Function
	To reset the remaining number of times of sewing to the same times as the set sewing times until the bobbin thread is used up
	To exit from this setting
	To clear stitch number counter
	To enter thread end length setting mode
	To switch the B.T.counter ON or OFF
	To enter values for B.T. counters

11. Setting the remaining thread end length

The remaining thread end length after thread trimming can be set.

B. T. Count : 12/52 **S**
ST. Count : 013525

COUNTER

T TRM (0 < -3 - > 5) : 2
Short < - > Long

← A number 0 to 5 corresponding to thread end length will appear.
The greater a number is, the longer the remaining thread end length is.

E.g. When the remaining thread end length is set to 4

Press the <4> key.

NOTE: The number greater than 5 is not acceptable.

4

T TRM (0 < -3 - > 5) : 4
Short < - > Long

END

After setting, press the <END> key.

B. T. Count : 12/52 **S**
ST. Count : 013525

The machine will return to the B.T. and ST. counters setting mode.

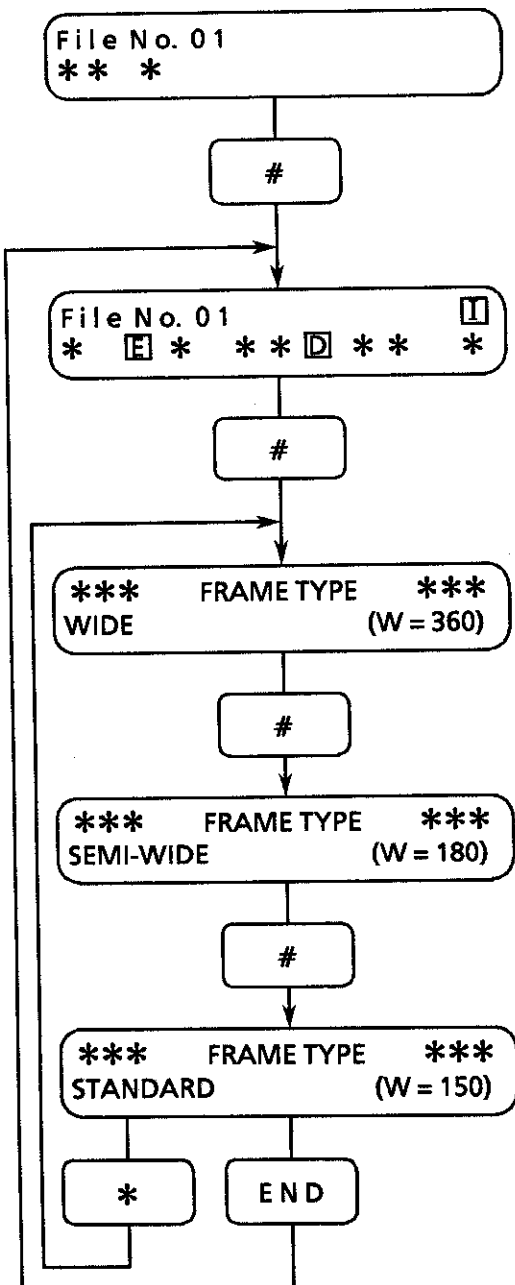
Available key	Function
0 — 5	To input value for thread end length 3 is default valve
終了 END	To end setting of thread end length

12. Function of selection of sewing area by the type of frame (cap frame mode)

It is possible to make selection on the operation panel out of the 3 different types of frame, where the area of needle transfer at time of sewing start and the area of area check have been already set. One type of frame will be selected on the panel menu out of the 3 different types according to the situation of SW in the following item 2.

- Control box SW No.3 - 4 (the type of frame)
 - SW No.3 - 4 = ON wide cap frame mode
 - SW No.3 - 4 = OFF standard cap frame mode
(not possible to select the cap frame type)
- Cap frame SW = ON (cap frame mode)

The way of operation



Main menu display

1. After pressing <#> key, enter into inching mode.

2. When <#> key is pressed, there appears on the display to change the frame type.

* The presently set cap frame type will appear on the display.

3. When <#> key is pressed, the cap frame type will change.
NOTE: The selection is possible only in the case of cap frame type where the present needle location is within the area of that frame. If the cap frame type is selected that is not possible to select, the machine will return to inching mode. At that time, move the needle location to be within the area of the frame type to be selected.

4. When <END> key is pressed, the machine will return to inching mode.

■ The relation between SW at time of power on and sewing area

Control box DIP SW = No.3 - 4	Cap frame SW	Selection of frame type on operation panel
OFF (Maximum area)	Flat frame mode	Not possible to select frame type <u>Maximum (600 × 300) (When the power is turned on to clear and reset the memory.)</u>
ON (Maximum area)	Flat frame mode	Not possible to select frame type <u>Maximum (600 × 300) (When the power is turned on to clear and reset the memory.)</u>
OFF (Standard cap area)	Cap frame mode	Not possible to select frame type <u>Standard (W = 150) (When the power is turned on to clear and reset the memory.)</u>
ON (Wide cap area)	Cap frame mode	<u>Wide (W = 360) (When the power is turned on to clear and reset the memory.)</u> Semi wide (W = 180) Standard (W = 150)

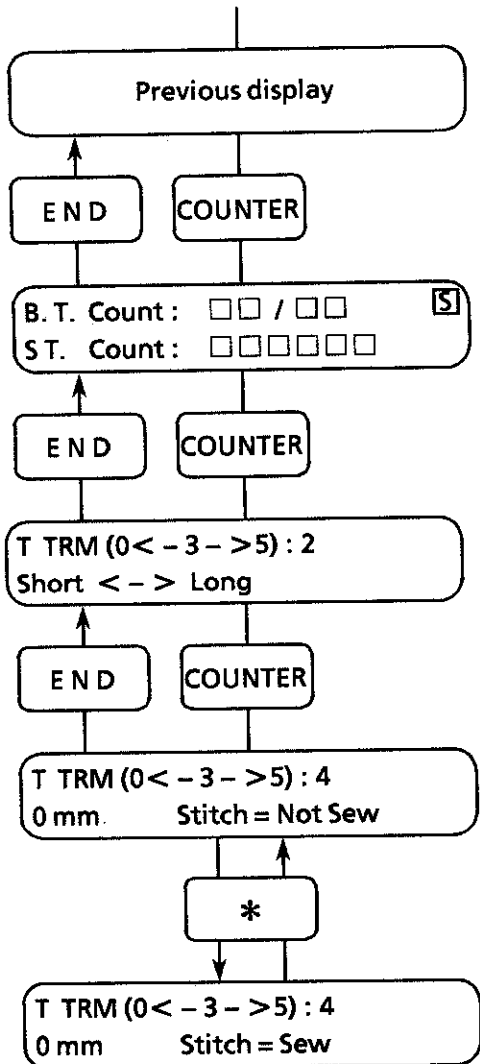
NOTE:

- When cap frame SW is not installed, the machine will automatically enter into flat frame mode.
- For the BES-1230AC · BAS-423A, refer to page 22 of the BES-1230AC · BAS-423A Instruction Manual as how to clear and reset the memory.

13. Skip function of 0 mm stitch

It is possible to select on the operation panel whether to sew 0 mm stitch or not, which exists in the sewing data. (At the time of power having been input, the machine is always set to "sew".)

The way to operation



1. Press <COUNTER> key.

Bobbin thread counter, thread breakage sensor setting mode display

2. Press <COUNTER> key.

3. Press <COUNTER> key.

4. Press the <*> key to turn sewing on or off.
* The setting switches between ON and OFF each time the <*> key is pressed.

Available key	Function
*	To change the 0-mm stitch sewing setting to ON or OFF.

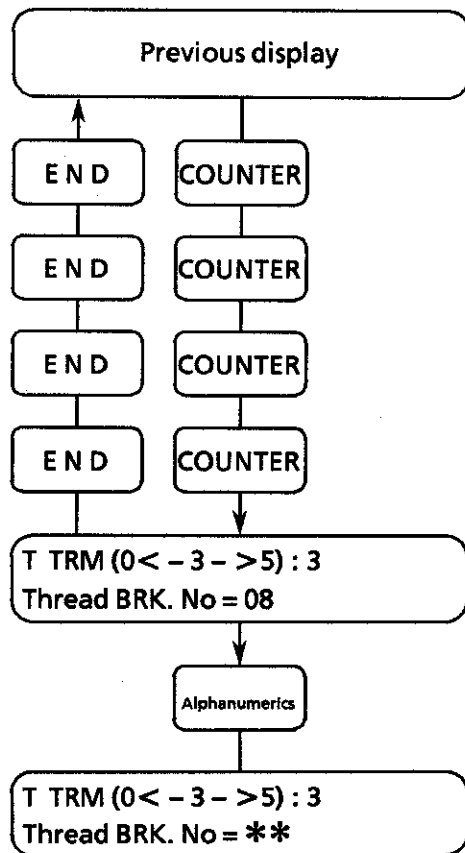
14. Sensitivity switching function for the thread breakage sensor

The sensitivity for stopping the machine during sewing because of a thread breakage can be set on the operation panel in units of the number of stitches sewn before stopping.

The setting range is 0 - 99.

NOTE: The sensitivity at the sewing start will be greater than the number of stitches actually set.

The way to operation



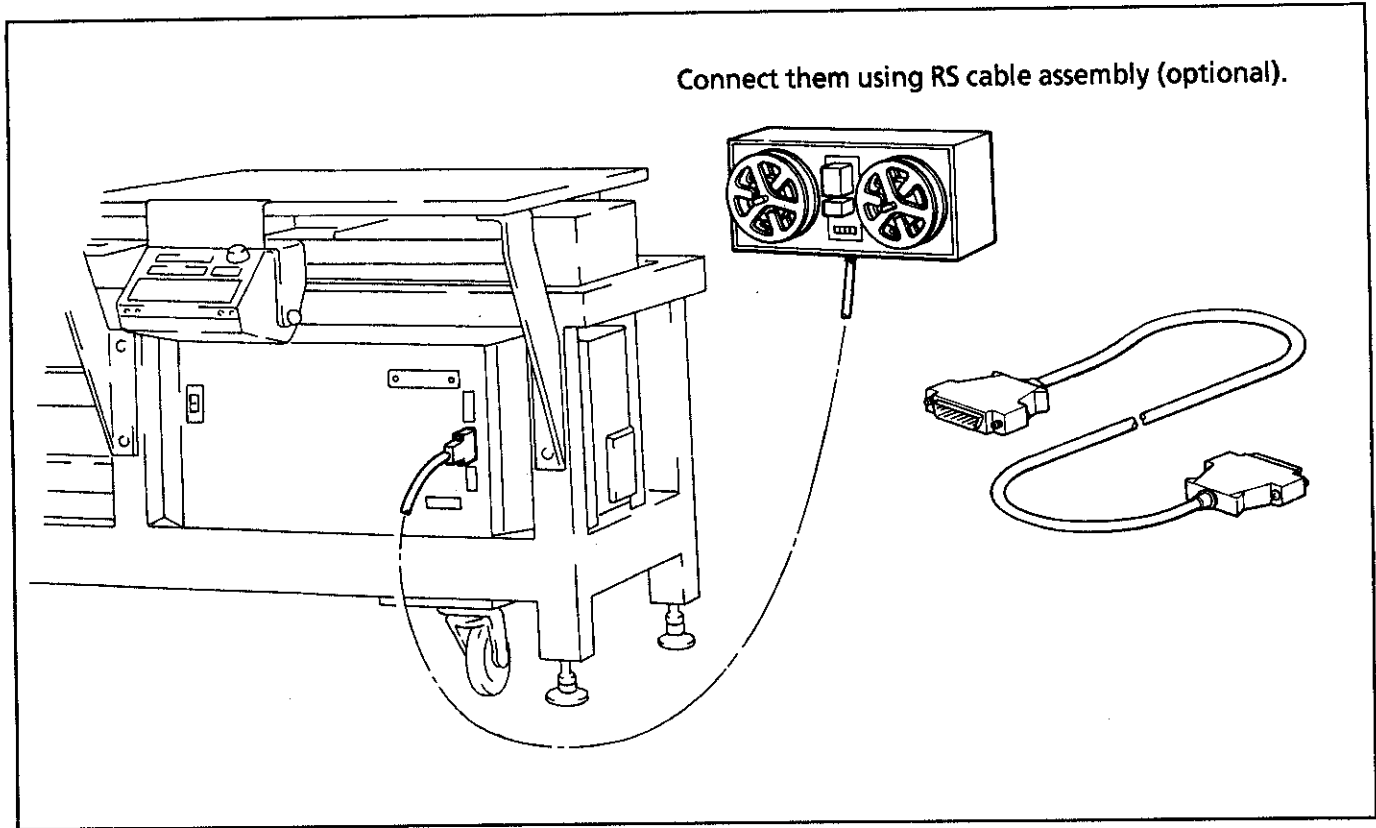
1. After setting is completed, press the <COUNTER> key four times.

2. Use the numeric keys to set the number of stitches to be detected. (0 - 99)

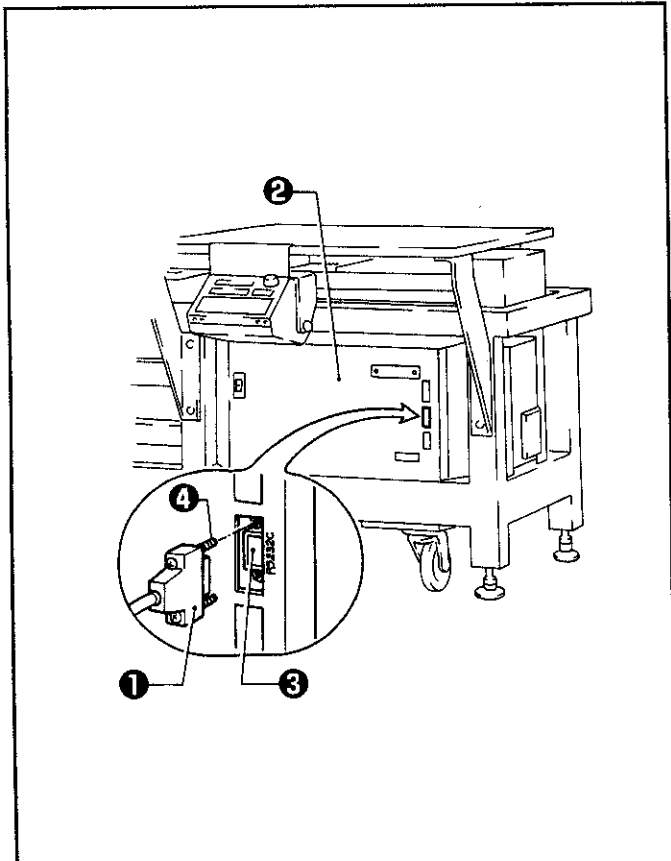
Chapter 8.

Connection and Installation Optional Equipment

1. Tape Reader

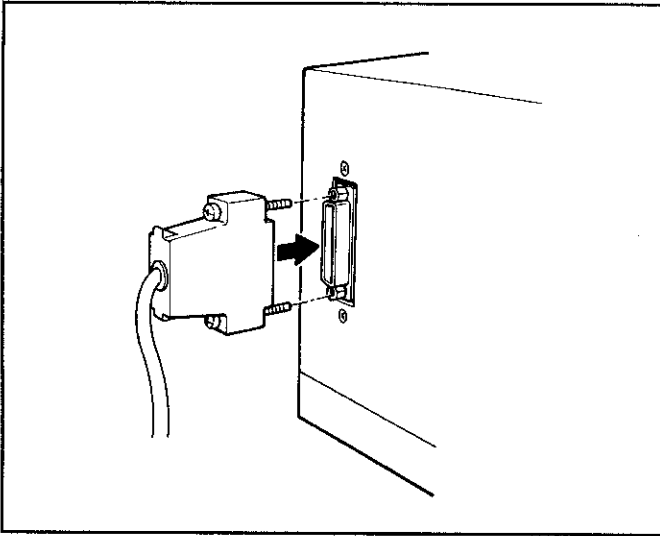


■ Connecting the cable with the machine



1. Attach the connector (either of the two may be used) of the RS cable assembly ① (optional) to the center connector ③ of three connectors on the right of the control box ②.
2. Secure it using the two screws ④.

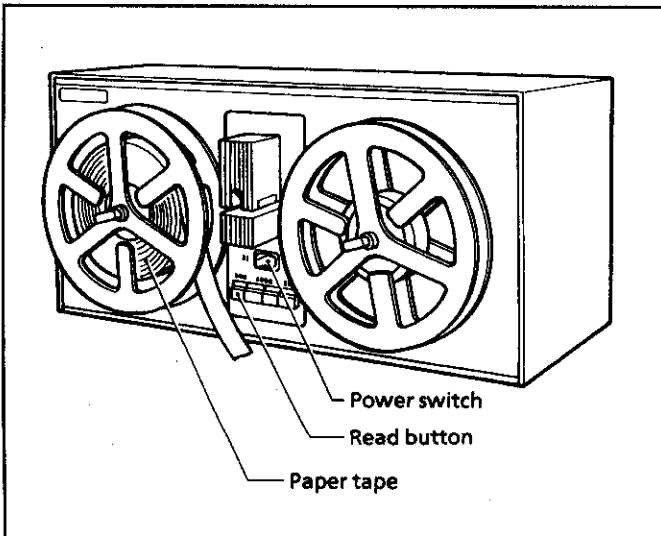
■ Connecting the cable with the paper tape reader



Attach the connector of the RS cable assembly (optional) to the RS 232C connector of the paper tape reader, and secure it using the two screws.

■ Operating and preparing paper tape reader

Prepare the machine. (Turn on the power and select "paper tape" in the paper tape input mode.)



1. Turn on the power of the paper tape reader.
2. Thread the paper tape to the paper tape reader.
 - For GNT27:
Turn the "READ" button ON (indicator lights).
 - For GNT4604:
Turn the "READER" button ON and set the mode switch on the operation panel to "LINE".
 - For NPR-5200:
Turn the "LINE" button ON (indicator lights).
 - For GNT2910:
Turn the power ON.
3. Now that the paper tape reader is ready:
Press the <ENTER> key of the machine to begin.

<ERROR MESSAGES when receiving data from paper tape reader>

If the following error messages are displayed when tape is read:

F 01 TAJIMA
Error / Tape



(CAUSE)

- Communication cable breakage during receiving.
- Paper tape breakage
- Paper tape reader is turned off.
- Improper baud rate

F 01 TAJIMA
Off line / Tape



(CAUSE)

- The connection between the paper tape reader and the machine is not good.
- Paper tape reader is turned off.
- Communication cable breakage

CLEAR

1. Press the <CLEAR> key to clear the message above.

ENTER

2. Through the paper tape.
Press the <ENTER > key to re-start.

F 01 TAJIMA
/ Tape



(CAUSE)

Data from paper tape has been attempted to be read when memory capacity is insufficient since other data has been input.

CLEAR

1. Press the <CLEAR> key to clear the error message.
Delete other entered data, and read data again.

ENTER

2. Press the <ENTER> key after deleting data.

<Notes for paper tape reader>

NOTE: Use only the paper tape readers in the table below for BES-1230AC · BAS-423A.
Do not use other paper tape readers. Others may not interface with BES-1230AC · BAS-423A or cause trouble.

Maker	Production code	Interface specification (Connector type)	RS cable type (optional)
GN Data Com	GNT27	RS232C interface (female)	GNT 27 RS cable assembly Code: S17064-001 and RS cable assembly Code: S15406-001
	GNT4604	RS232C interface (DCE connector female)	RS cable assembly Code: S15406-001
		RS232C interface (DCE connector male)	GNT4604 cable assembly Code: S18957-001 and RS cable assembly Code: S15406-001
	GNT2910	RS232C interface (pin 9 male)	GNT2910 cable assembly Code: S21660-000 and RS cable assembly Code: S15406-001

- Set the paper tape reader switches as follows for BES-1230AC · BAS-423A.

- ① Character length 8 bit
- ② Stop bit length 1 bit
- ③ Baud rate 9,600 baud (for 4,800 baud-paper tape reader, refer to page 51, "Dip switch functions on main printed circuit board").

- Among paper tape readers that can be connected with the BES-1230AC · BAS-423A, BROTHER deals in the following paper tape reader as an option. (Contact Brother's shop for details.)

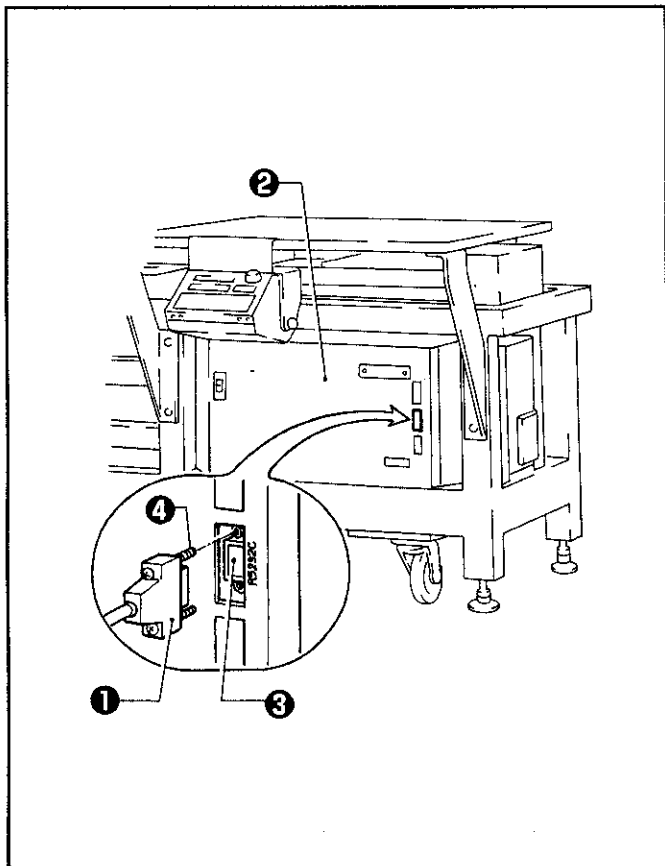
maker	type	name	part code	Vol. Spec.
GN Data Com	GNT27	GNT27-100V assembly	S18444-000	AC120V-area or 240V-area AC220 - 240V-area (in Europe)

NOTE: • When you purchase above paper tape reader GNT27;
GNT27RS cable assembly (S17064-001)
comes with it.

- Three switches on the paper tape reader, ①②③, are already set at shipping.
- Of the set points ①, ② and ③, only ③ (baud rate) can be changed on the machine. Refer to page 51 "Dip switch functions" for details.

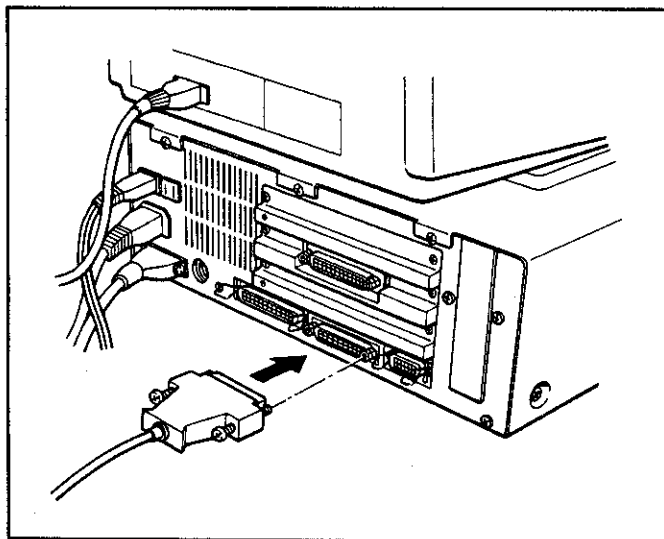
2. Connecting the editing system with the machine

■ Connecting the cable with the machine



1. Attach the connector (either of the two may be used) of the RS cable assembly ① to the middle connector ③ of three connectors on the right of the control box ②.
2. Secure it using the two screws ④.

■ Connecting the cable with the editing system



- Be sure to attach the connector of the RS cable assembly to RS 232C connector of the editing system, and secure it using the two screws.

<ERROR MESSAGES when receiving data from editing system >

F01: □□□□□□□□ . □□□
Off line / Editor



(CAUSE)

- The machine is not connected to the editing system.
- The editing system is not in the communication mode.
- The editing system is turned off.
- Cable disconnection between the editing system and the machine
- The editing system is in communication with the other machine.

F01: □□□□□□□□ . □□□
Line Busy / Editor



(CAUSE)

- Breakdown in entire editing system

(CURE)

- Reset the editing system to enter communication mode.
- Repair the breakdown part.

(This message is displayed when the communication does not start while the line between the editing system and the machine is connected.)

F01: □□□□□□□□ . □□□
Line ERR. / Editor



(CAUSE)

- Data error during communication
- Cable disconnection during communication
- The editing system is turned off during communication.

CLEAR

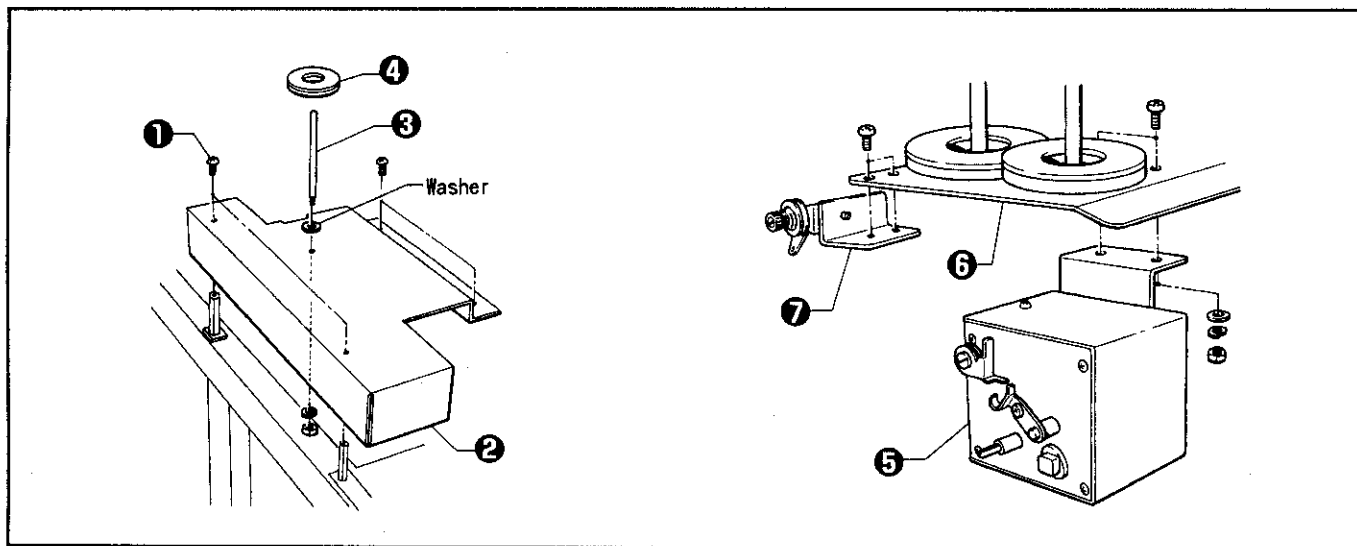
1. Press the <CLEAR> key to clear the error messages above.

ENTER

2. Press the <ENTER > key to re-start.

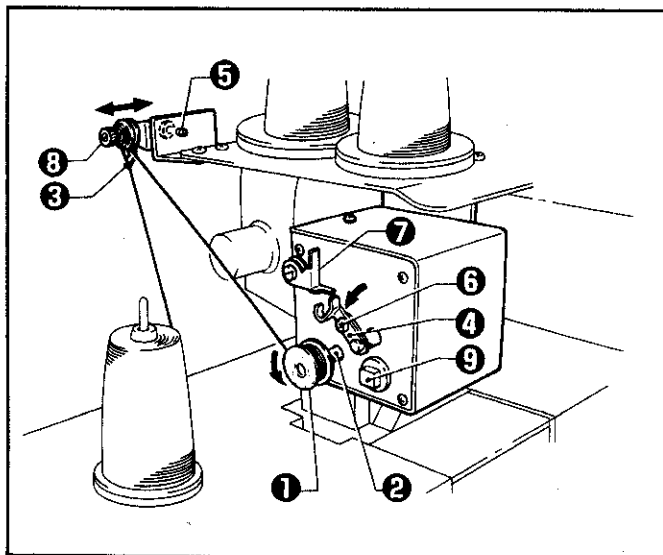
3. Using the bobbin winder

■ Attaching the bobbin winder



1. Remove the four screws ①, and table cover (L) ②.
2. Insert spool shaft (B) ③ into the hole of table cover (L) ②, and secure it using the nut and the spring washer.
Place spool mat (A) ④ on spool shaft (B) ③.
3. Attach table cover (L) ② using the four screws ①.
4. Attach the bobbin winder ⑤ to cotton stand L ⑥ using the screws.
5. Attach the thread guide ⑦ to cotton stand L ⑥ using the screws.

■ Winding the bobbin thread



1. Turn on the power.
2. Press the bobbin ① on the bobbin winder shaft ②.
3. Pass the thread through the thread guide ③.
4. Wind the thread on the bobbin ① several times in the direction of the arrow.
5. Press the bobbin presser ④.
NOTE: If the thread is not wound evenly on the bobbin, loosen the screw ⑤ and move the thread guide ③ right and left. When winding more thread on the bobbin, loosen the screw ⑥, then move the bobbin presser ④.
6. When winding is finished, remove the bobbin from the bobbin winder shaft and trim the thread with the thread trimmer ⑦.
NOTE:
 - If the thread comes out from the tension disk ⑥, loosen the knob ⑧. If the thread is wound too loose, tighten the knob ⑧.
 - The thread winder motor does not operate if the circuit protector activated.
In that case, leave the protector until it's cooled off. Then, press the protector switch ⑨.
If the protector is not cooled off, the switch does not work.

Chapter 9.

Maintenance

1. Lubrication

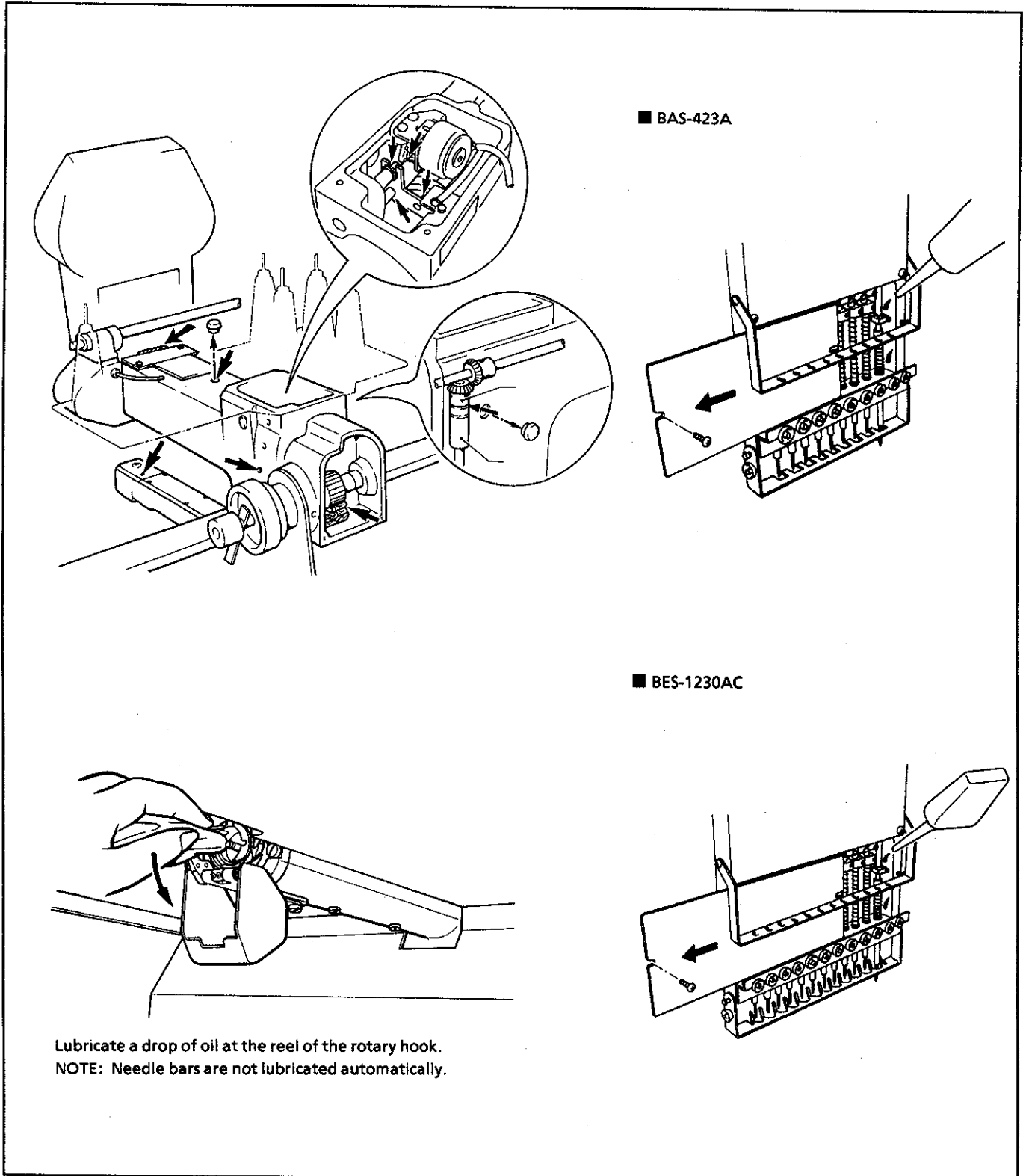
Lubrication is necessary for keeping the machine in good condition.

BAS-423A · BES-1230AC has the lubrication system using wicks and an oil tank. Everyday before using the machine, refill the oil tank with new oil if the oil level falls viewing through the oil window.

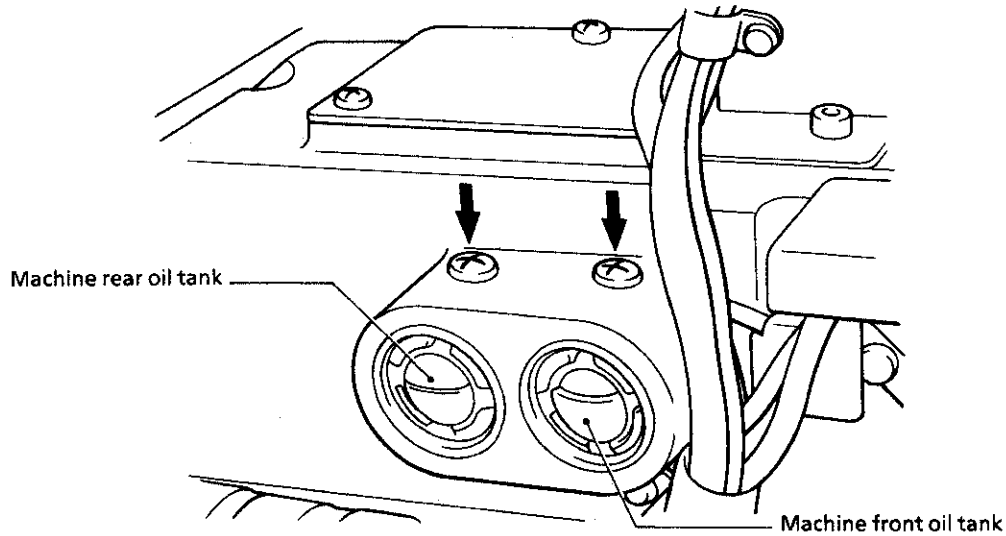
NOTE:

- Be sure to use the Brother-specified sewing machine oil for lubrication.
- Supplying too much oil may cause it to drip onto the material.

1. Lubricate each point indicated with the arrow when the machine is used for the first time after unpacking or if left machine unused for along period of time.

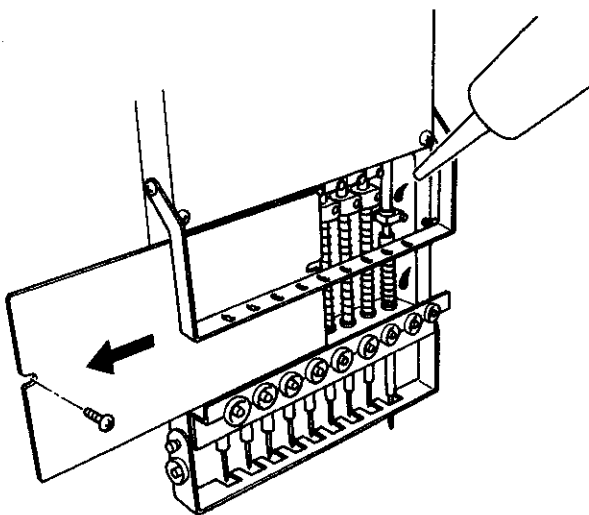


2. Every day before using the machine, add 1-2 drop(s) of oil at the points indicated by each arrow in the figure.
- Oil may run out in the tank after one or two hours of operation, but a part that can keep extra oil is incorporated into the machine front oil tank, so that even with no oil tank, oil can be supplied from this part little by little.

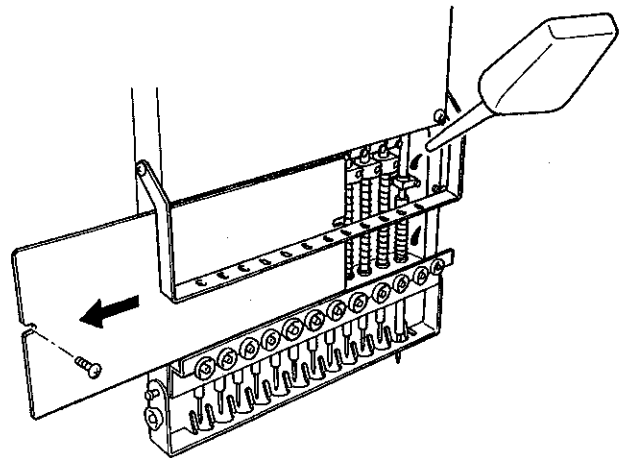


■ BAS-423A

■ BES-1230AC



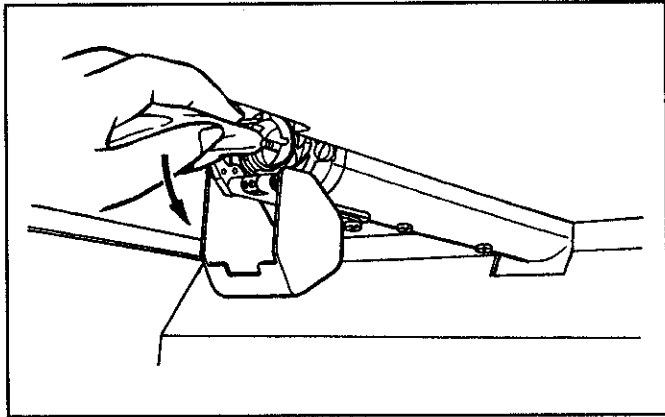
Supply oil to the needle bars (18 positions)
once a day as shown on the left.



Supply oil to the needle bars (24 positions)
once a day as shown on the left.

2. Cleaning

Keep the machine clean and unclogged to prevent machine trouble.



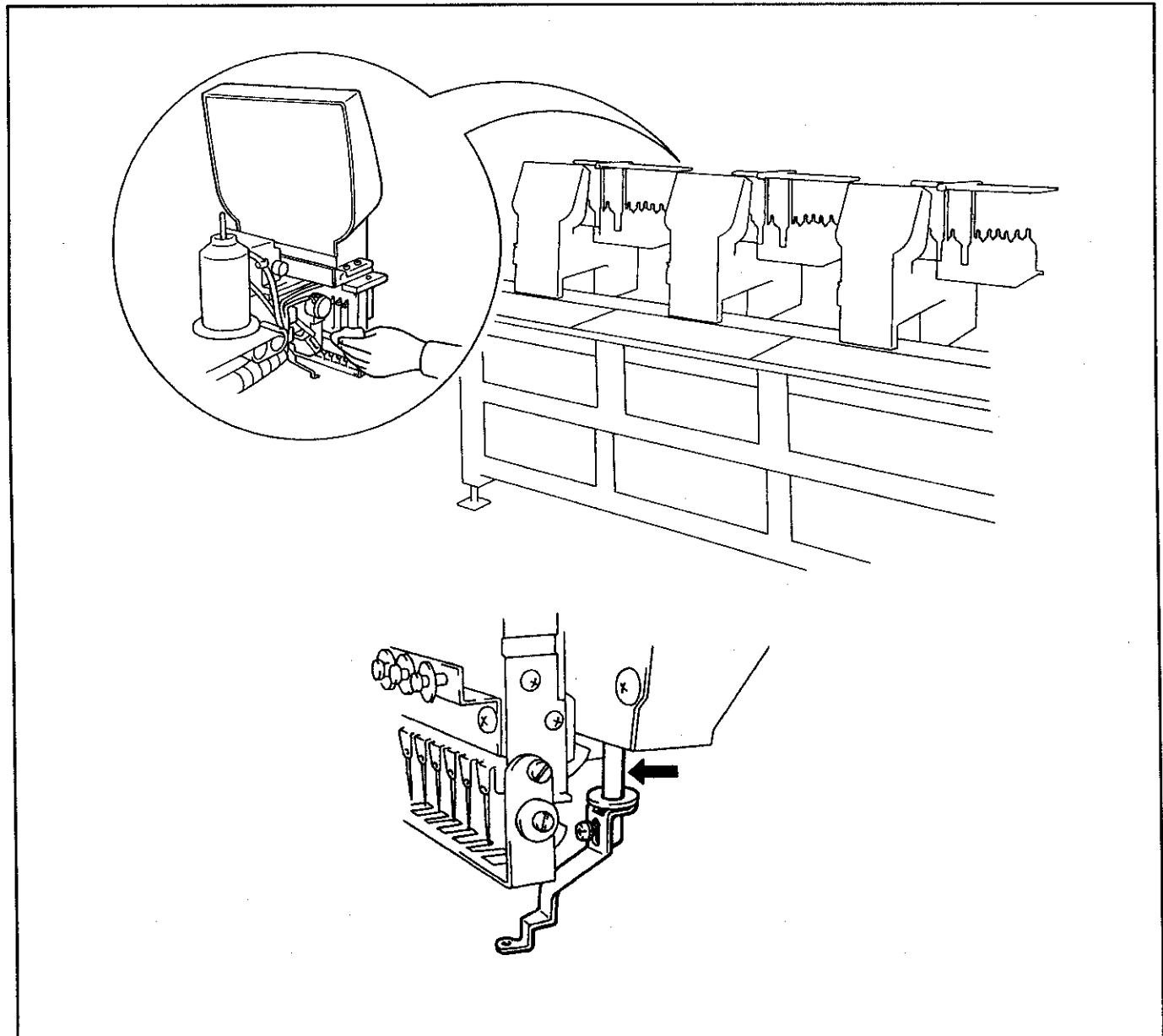
Keep the machine clean:

Remove dirt with a soft, dry cloth. If necessary, clean with the detergent-soaked cloth, then wipe off the detergent with a cloth dampened with (hot) water.

Caution:

Do not clean with benzene, thinner, or other volatile solvents.

Before working the machine, move the needle bar case all the way to the right and left, and remove oil and dirt around the needle bar guide rail and the shaft of the presser foot from the back of the needle bar case using a cloth.



Chapter 10.

Standard Adjustment

⚠ CAUTION



Turn off the power switch and pull out the plug before starting adjustment. Failure to do so may start the machine unintentionally through an accidental activation of the START switch, resulting in bodily injuries.

- Adjustment

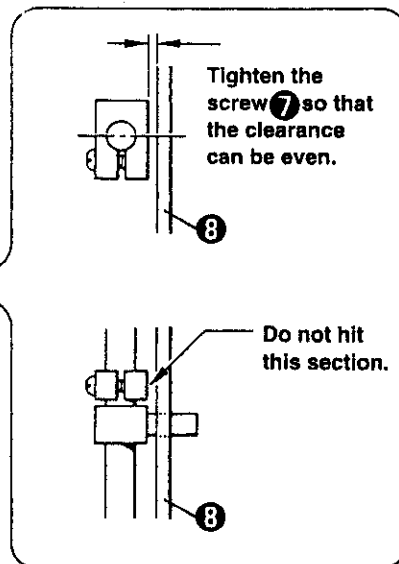
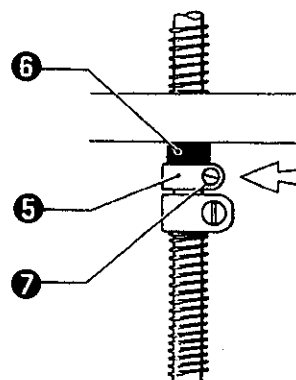
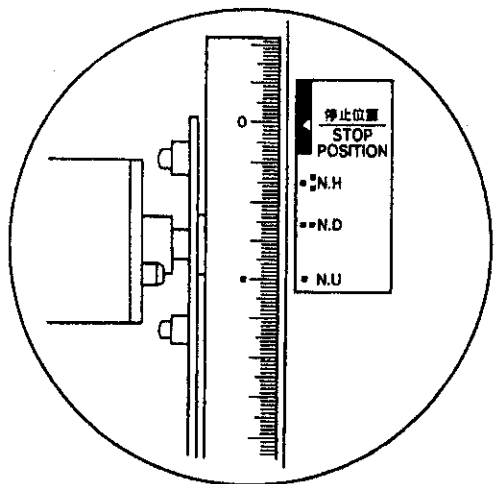
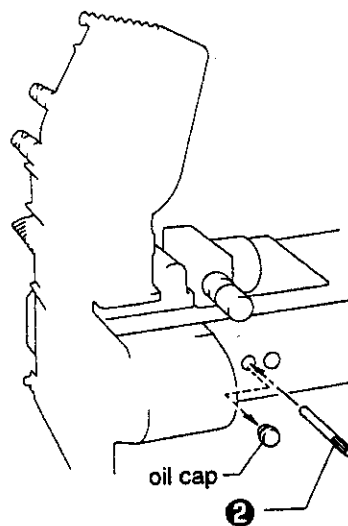
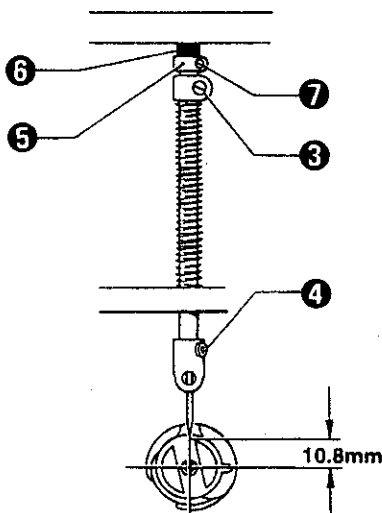
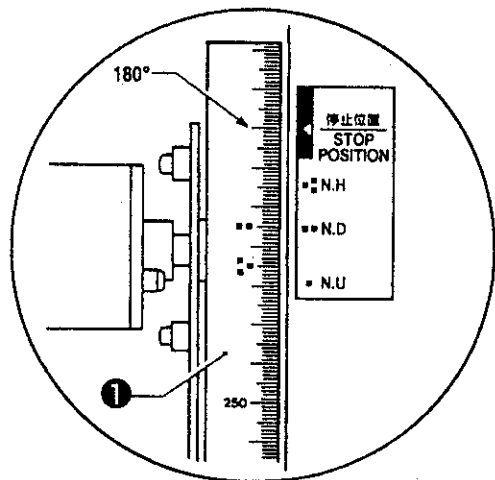


If adjustment should be made while the power switch is turned on, pay special attention to your safety.



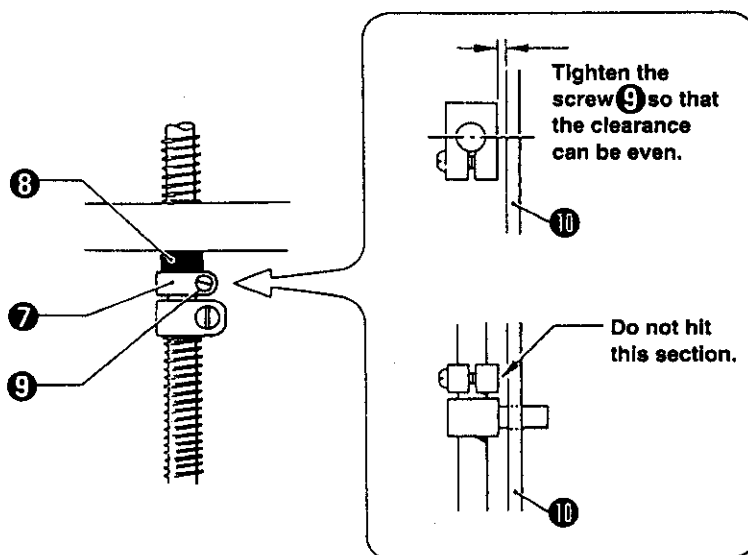
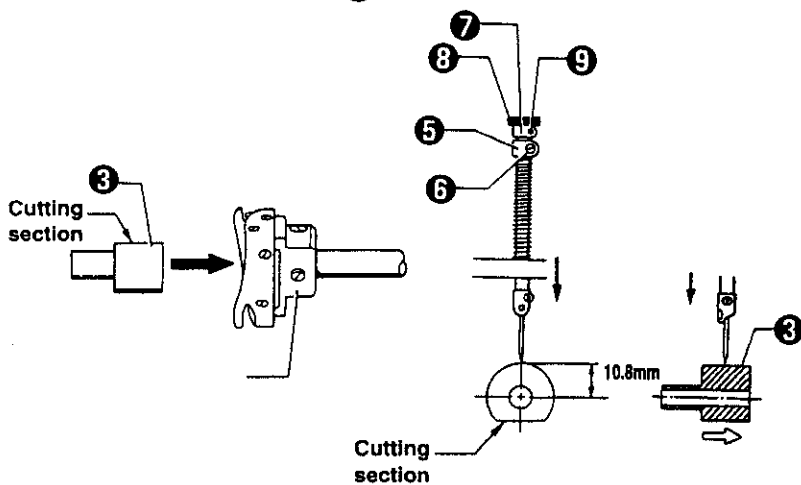
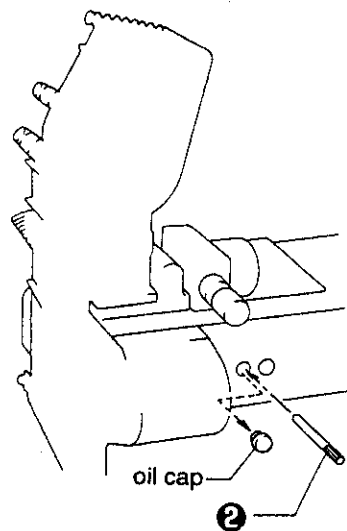
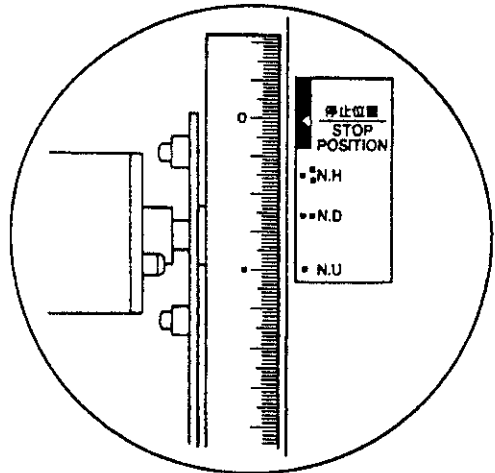
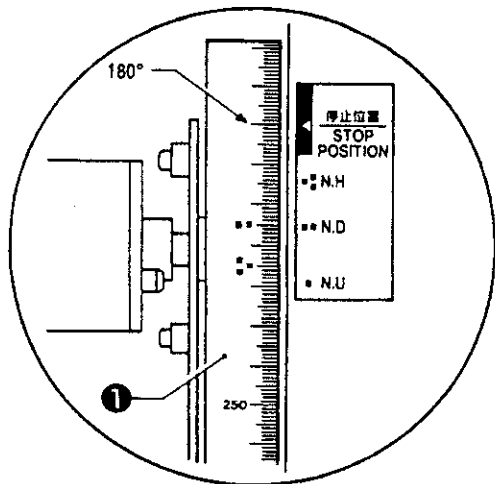
Maintenance and inspection of the machine should be conducted only by trained engineers.

1. Adjusting the needle bar height



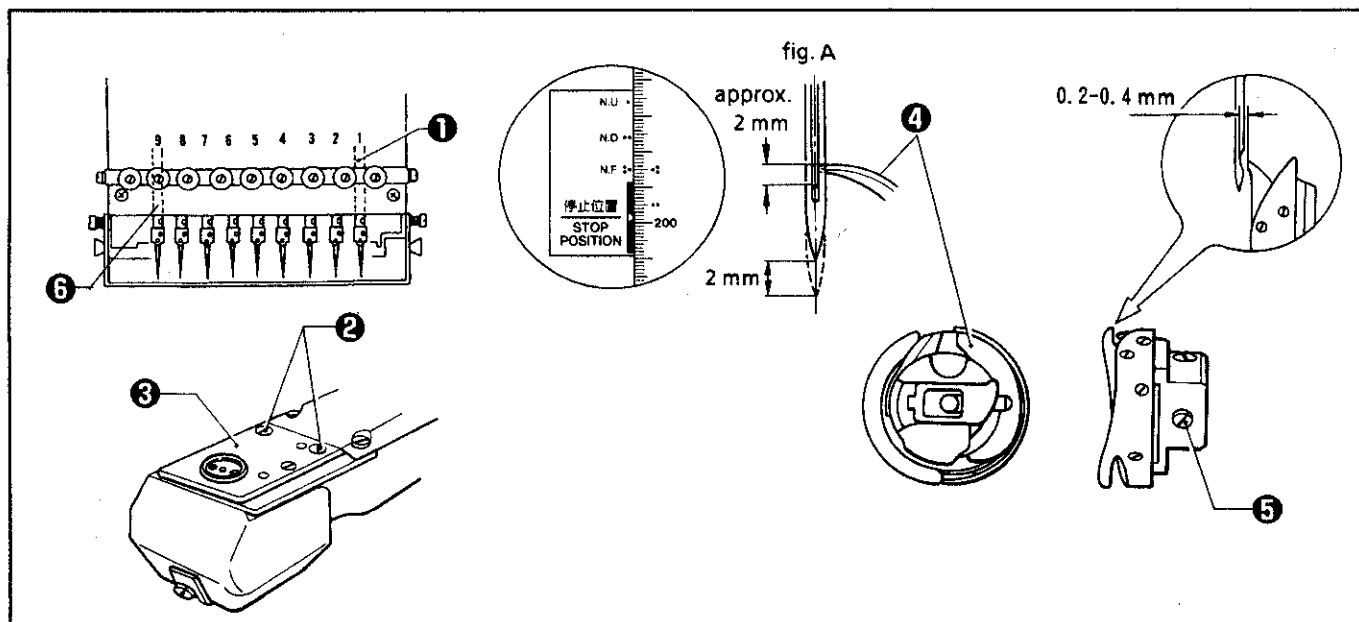
1. Dismount the pulley cover and turn the pulley ① until the pulley scale indicates 180° and the needle bar is set at the lowest position. (The pulley "■" mark and the stop mark "■" are aligned.)
2. Insert the positioning bar ② into the hole of the pulley ① and fix the drive shaft.
NOTE: Turn the pulley securely in the clockwise direction to eliminate a backlash.
3. Loosen the needle bar clamp set screw ③ when the needle tip is positioned 10.8 mm above the center of the rotary hook shaft. Adjust the position of the needle bar thread guide so that the set screw ④ on it is turned to the right by 25 - 30°. Tighten the needle bar clamp set screw ③ securely.
NOTE: When tightening the needle bar clamp set screw ③, the hole in the needle bar guide should face the front.
4. After adjustment is finished, remove the positioning bar ②.
5. Set the needle bar at the highest position (where the pulley indication mark "■" and the cover indication mark "■" are aligned). Lightly press the top dead center stopper ⑤ toward the cushion rubber ⑥, and tighten the top dead center stopper screw ⑦ while pressing down the needle bar clamp so that it faces the front.
NOTE: Make sure that the top dead center stopper does not hit the needle bar guide rail ⑧ at this time.

■ When using the bottom dead center gauge



1. Turn the pulley ❶ until the scale of pulley ❶ indicates 180° (where the pulley indication mark "■" and the stop mark "■" are aligned) and the needle bar is set at the lowest position.
2. Insert the positioning bar ❷ into the hole of the pulley ❶ and fix the drive shaft.
NOTE: Turn the pulley securely in the clockwise direction.
3. Insert the bottom dead center gauge ❸ into the rotary hook ❹.
4. Loosen the screw ❺ of the needle bar clamp ❽ and move the needle bar up and down until the needle tip touches the gauge ❸ lightly.
NOTE:
 - The needle point should touch the gauge at a place other than the cutting section.
 - The bottom dead center gauge should be set in or removed from the rotary hook with its cutting section facing upward.
5. Tighten the screw ❺ of the needle bar clamp ❽ securely.
6. After adjustment is finished, remove the positioning bar ❷.
7. Set the needle bar at the highest position (where the pulley indication mark "■" and the cover indication mark "■" are aligned). Lightly press the top dead center stopper ❿ toward the cushion rubber ⓫, and tighten the top dead center stopper screw ⓬ while pressing down the needle bar clamp so that it faces the front.
NOTE: Make sure that the top dead center stopper ❿ does not hit the needle bar guide rail ⓭ at this time.

2. Adjusting the timing of needle and rotary hook



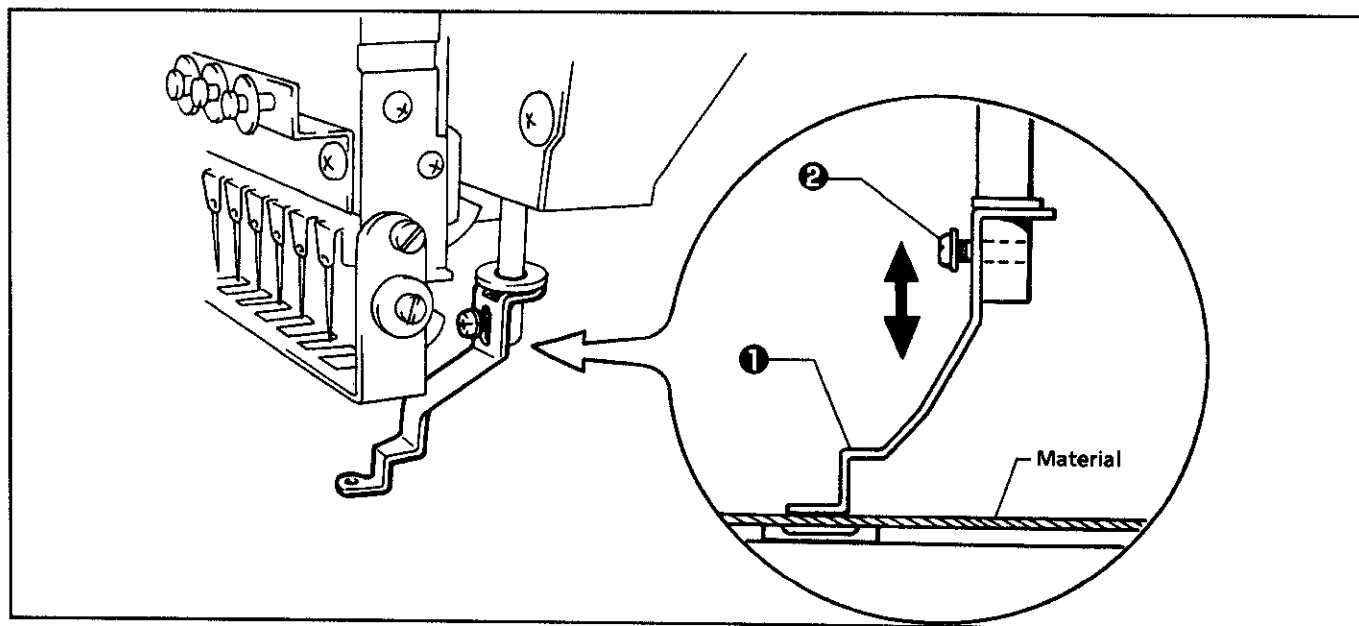
1. Select the first needle bar ①. (The illustration at the up shows the case of BAS-423A. For BES-1230AC, the No.12 needle becomes ⑥.)
2. Remove two screws ② and the needle plate ③.
3. Loosen the set screws ⑤ of the rotary hook ④, and adjust the rotary hook ④ position so that the needle point meets the rotary hook ④ point when the needle bar is raised 2 mm above its lowest position (when the "■" mark on the pulley is aligned with the one on the belt cover). Then tighten the set screws ⑤.

At this time, the needle bar height should be approximately 2 mm. (Figure A)

4. Adjust the clearance between the needle and the rotary hook point to 0.2 - 0.4 mm, and tighten the three set screws of the rotary hook.

NOTE: If the clearance between the needle and the rotary hook point is not within the range of 0.2 - 0.4mm, adjust again as described in the step ④ until the needle bar No.1 or No.9 (No.12 for BES-1230AC) whichever has the smallest clearance may not be interfered by the rotary hook point.

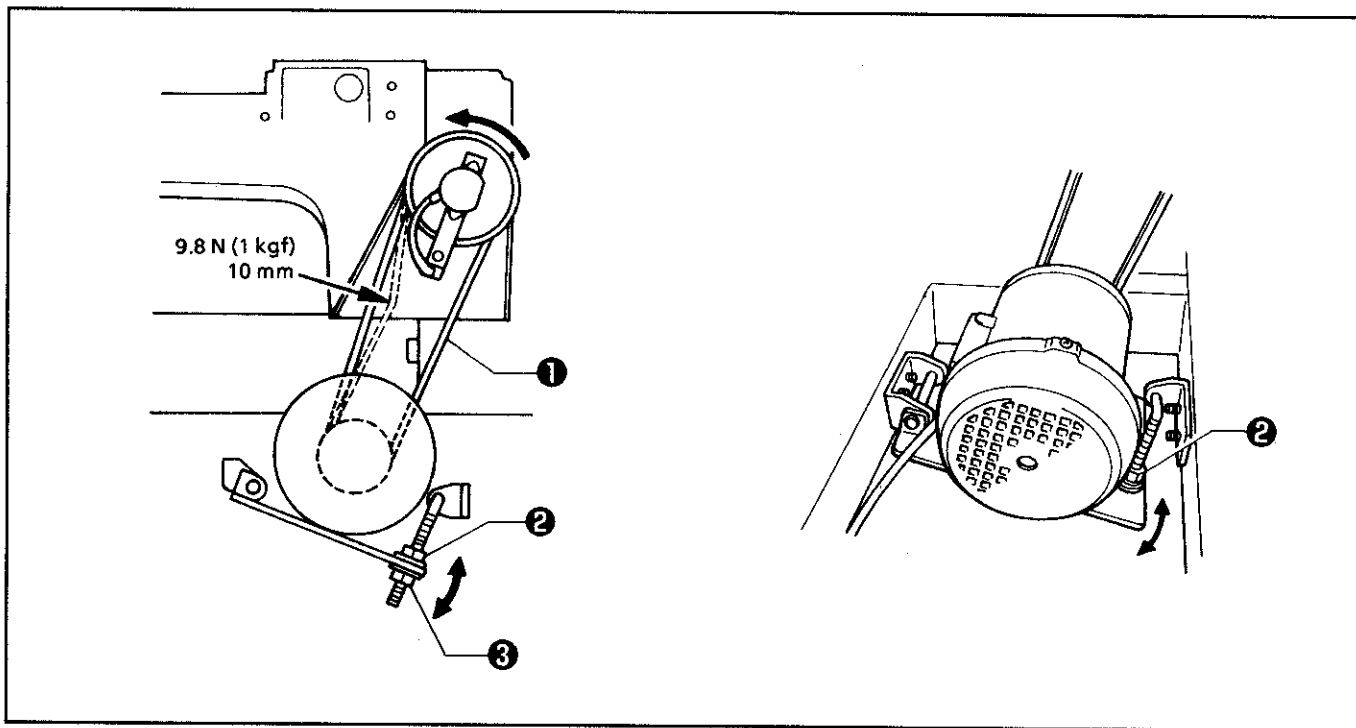
3. Adjusting the cloth presser foot height



1. Turn the power switch off.
2. Select the needle bar No.1.
3. Loosen the screw ② of the presser foot ①, and adjust the presser foot ① until it comes above the cloth top surface when it is at the bottom dead center (where the pulley indication mark "■" and the cover indication mark "■" are aligned).
4. While the power is turned on, lower the presser foot using the lever.

4. Adjusting the belt tension

The belt tension is adjusted to the optimum tension at the time of shipment from the factory. However, as the belt is used, it becomes run in and may loosen around the machine pulley and motor pulley. Use the following procedure to check the belt tension.



Place a gauge against the belt ①, loosen the nut ②, and then turn the nut ③ so that there is 10 mm of deflection in the belt ① when 9.8 N (1 kgf) of pressure is applied.

- The machine operating direction is counterclockwise when seen from the machine pulley end.

Chapter 11.

Error Messages

Refer to the table below if an error message is displayed.

By pressing the <CLEAR> key, the message will disappear and the display will return to the previous menu.

Message when power is turned on	Cause	Solution
Keyboard ROM NG.	CPU version of key board does not match PROM version of PCB.	Change CPU version of key board, to proper version matching PROM. Contact your dealer.
Needle POS. Error	Pulley is not in proper position.	Turn pulley till needle bar is in proper position.
X__ORG. Error Y__ORG. Error	Damaged circuit board, sensor defective, cable defective, pulse motor defective, blown fuse.	Contact your dealer.
Over travel	<ul style="list-style-type: none"> • X-Y carriages movement exceeds maximum area. • Overtravel sensor is in incorrect position or defective. • Damaged circuit board. 	Turn power off. Move carriages X and Y to center of area manually, then turn power on again. If same error message is displayed again, turn power off, then on again while pressing <CLEAR> key. Contact your dealer.
Memory Clear	Back-up data in the memory disappears.	Press key according to message.
N__Case POS. Error	Needle bar is not set properly.	Adjust needle bar case position by turning the knob on the middle machine head. (Refer to page 21)

Message in entry mode	Cause	Solution
No File	Data not registered in the floppy disk is entered.	Check file name of data and re-enter.
Data ERR.	Input data has something wrong.	Check where data was made, then contact your dealer.
Disk ERR.	<ul style="list-style-type: none"> • Data is input without inserting floppy disk. • While reading data, floppy disk is removed when machine runs in sewing mode. • Damaged circuit board, defective cable, defective FDD. 	Insert floppy disk in proper position and re-enter. Do not remove floppy disk from FDD during sewing in this mode. Contact your dealer.
Memory over	Too much data, or too many stitches of a data is over inside memory capacity and cannot manage it.	Decrease input data.

Message in editing mode	Cause	Solution
Can't edit Data	Some of data entered in sewing mode while reading data has items that cannot edit.	

Message in sewing mode	Cause	Solution
No inputted Data	Without sewing data entered, you try to set machine to sewing mode.	First, input sewing data, then start sewing.
Short of Area	Entered value exceeds maximum area (600 mm x 300 mm).	This data cannot be sewn.
Data ERR.	Entered data has something wrong.	Check where data was made, then contact your dealer.
Area Over	When sewing starts from current needle position, sewing pattern is over area.	Move the hoop to position where message disappears, or spread area.
B.Thread empty	The set sewing times in bobbin thread counter is completed.	Reset sewing times in bobbin thread counter.
Thread breakage	<ul style="list-style-type: none"> • Upper thread breakage. • Thread is not wound on thread breakage detector. • Bobbin thread breakage • Bobbin thread has run out. 	Set thread.
Motor Lock	<ul style="list-style-type: none"> • Pulley is too tight. • Electrical failure 	Remove load. Contact your dealer.

Message in communication mode	Cause	Solution
Off line	<ul style="list-style-type: none"> • Paper tape reader or editing system does not connect with machine by cable. • Power of paper tape reader or editing system is not turned on. • Editing system does not enter communication mode. • Editing system is communicating with an other machine. 	<p>Link with dedicated cable.</p> <p>Turn on power.</p> <p>Set editing system to communication mode.</p> <p>Wait till communication ends.</p>

Message in communication mode	Cause	Solution
Line ERR.	<ul style="list-style-type: none"> • Data error occurs during communicating with editing system. • Editing system exits from communication mode while machine is communicating with editing system. • Power of editing system is turned off during communicating. 	<p>Re-communicate.</p> <p>Set editing system to communication mode, then communicate again.</p> <p>Turn on power of editing system again, enter communication mode.</p>
Line Busy	Editing system is defective, or breakdown.	Turn on power of editing system again, enter communication mode. Contact your dealer.
Tape read Error	<ul style="list-style-type: none"> • Poor punch of paper tape. • Paper tape runs short. • Dirty head of paper tape reader. • Power of paper tape reader is not turned on. • Paper tape type is wrongly selected. • Improper communication baud rate. 	<p>Remake paper tape.</p> <p>Clean head. Turn on the power.</p> <p>Select proper type to read paper tape. Adjust baud rate.</p>

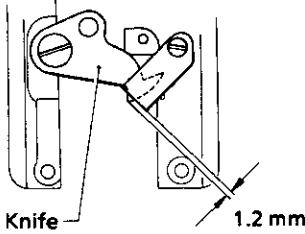
Message in replacing needle bar	Cause	Solution
N__ Case POS. Error	<ul style="list-style-type: none"> • Needle bar is not set properly. • Damaged circuit board. 	<p>Adjust needle bar case position by turning the knob on the middle machine head. (Refer to page 21.) Contact your dealer.</p>
N__ Case Lock	<ul style="list-style-type: none"> • Needle bar case is too tight mechanically, or locked and cannot move. • Electrical failure 	<p>Remove load.</p> <p>Contact your dealer.</p>

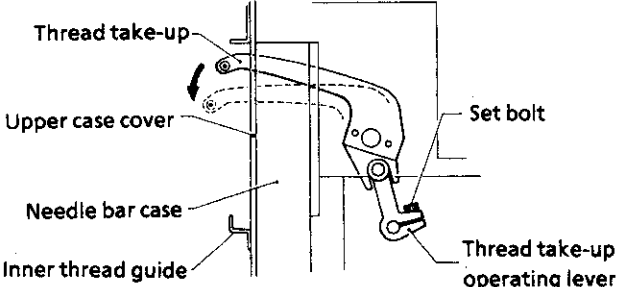
Chapter 12.

Troubleshooting

In case of a malfunction, diagnose the problem referring to the table below.
If the problem persists, turn off the power and contact your dealer.

Problem	Check point
1. The display is blank, though power is on.	<ul style="list-style-type: none"> • Is contrast dial properly adjusted?
2. The indicator does not light, though a floppy disk is in disk drive.	<ul style="list-style-type: none"> • Is floppy disk damaged? • Is disk drive functioning properly?
3. Thread breakage	<ul style="list-style-type: none"> • Is machine properly threaded? • Is thread tension too high? • Is rotary hook assembly clogged? • Is there thread in the bobbin? • Is needle bent? • Is there a rough edge or flaw on needle plate, rotary hook, or bobbin case that might cut the thread? • Is needle installed correctly? • Is presser foot lowered fully? • Are the stitch density and thread thickness correct? • Are the thread thickness and needle size correct? • Is a thread with right-hand twist being used? (If a thread with right-hand twist is being used, replace it with a thread with left-hand twist.) • Is there anything on the needle such as adhesive? • Is the material tension too weak? • Is there too much play between the outer rotary hook and inner rotary hook? • Does the outer rotary hook turn smoothly? • Has the clearance between the rotary hook stopper and the outer rotary hook been adjusted correctly? • Does the thread come out from the bobbin case smoothly?
4. Needle touches embroidery hoop.	<ul style="list-style-type: none"> • Is embroidery hoop too small? • Embroidery date size and sewing start point
5. Needle breaks.	<ul style="list-style-type: none"> • Is needle direction and height properly adjusted? • Is needle bent? • Is needle tip blunted? • Is timing of needle and rotary hook correct? • Is there looseness or play in the needle bar case? When there is play in the needle bar case • Is rotary hook holder properly attached so that rotary hook does not rotate? • Is needle size correct? Is needle tip sharp?

Problem	Check point
6. Monograms are not sewn properly.	<ul style="list-style-type: none"> • Is material edge caught in the machine? (Are embroidery hoop and other related parts operating correctly?) • Is material stretched properly? • Is thread tension proper? • Does bobbin thread come out smoothly?
7. Machine operates incorrectly.	<ul style="list-style-type: none"> • Is set screw of rotary encoder loosened? • Is set screw of machine pulley loosened? • Is set screw of N65 pulley loosened? • Is synchronizer adjusted properly? • Are wires of carriages X and Y off? • Are set screws of wire drums X and Y loosened? • Are set screws of pinion gears in pulse motors X and Y loosened? • Is sewing data in floppy disk normal?
8. Upper shaft is locked at some point of a cycle.	<ul style="list-style-type: none"> • Is movable knife for thread trimming stopped in middle of operation? [How to adjust] • Remove thread or other interruption for good thread trimming operation. • Remove needle plate and reset it in proper position manually as in the figure below. <div style="text-align: center;">  </div> <p>NOTE:</p> <ul style="list-style-type: none"> • When movable knife is in middle of operation, the safety system works so that the upper shaft cannot rotate. • Is roller released from thread trimmer cam?

Problem	Check point
<p>8. Upper shaft is locked at some point of a cycle.</p>	<ul style="list-style-type: none"> Is thread take-up stopped with striking upper case cover? [How to adjust]  <p>Loosen the bolt of the thread take-up operating lever to adjust movable range of thread take-up, then re-tighten it.</p> <ul style="list-style-type: none"> Is position of needle bar clamp or stopper correct?
<p>9. Upper shaft does not turn.</p>	<ul style="list-style-type: none"> Is thread tangled in rotary hook? [How to adjust] <p>Remove rotary hook and see whether upper shaft rotates or not. If thread is tangled, turn upper shaft by force to trim thread or remove rotary hook and thread.</p> <ul style="list-style-type: none"> Is presser foot lowered when the power is turned on? Raise all presser feet using the respective levers.
<p>10. Stitch cannot be made.</p>	<ul style="list-style-type: none"> Is needle attached properly? Is timing of needle and rotary hook correct?
<p>11. When the power is turned on, the hoop moves till the hoop is over the sewing area.</p>	<p>Turn off the power, then turn on the power again while pressing the <CLEAR> key.</p>
<p>12. When sewing is resumed in restart mode, the hoop moves till the hoop is over the area</p>	<p>When there is a problem even if this is done, refer to "Flow chart" in the BAS-416A service manual.</p>
<p>13. Thread breakage detector functions and machine stops although thread breakage does not occur.</p>	<p>Is thread breakage detect stud operation normal? (Is spring tension proper?)</p>

Following is displayed when trying to read sewing data from a floppy disk while the floppy disk is inserted into the floppy disk drive.

- ① "Disk ERR." is displayed.
- ② "Data ERR." is displayed.
- ③ "Reading" is displayed and remains .

When another floppy disk is inserted, reading and sewing can be performed normally. The floppy disk drive may not be defective, but it is not clear what is wrong.

<Cause and solution>

1. Floppy disk has not been previously defective.

If it occurs on the floppy disk which was able to use normally before, the floppy disk may be defective. (Repairing is impossible.)

Carefully deal with floppy disk. And for security, back up data on other storage medium, like personal computer, punching machine and so on.

2. The floppy disk was originally defective.

If it occurs at a first-time use, the floppy disk may be originally defective.

Consult with shop you bought it or its maker.

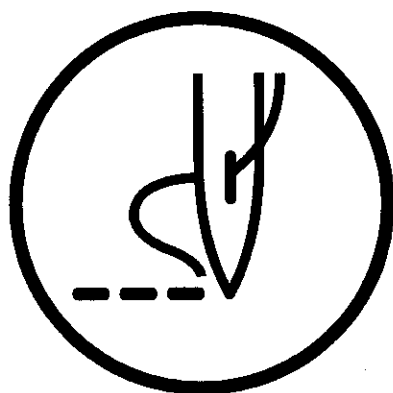
3. Following floppy disk cannot be used in BES-1230AC · BAS-423A even though it can be used in other embroidery machine.

When 3.5 2HD floppy disk was made in 2DD format.

When 3.5 2DD floppy disk was made in 2HD format.

If your problem does not come under case 1., 2. or 3., please consult with Brother's shop.

brother.



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