

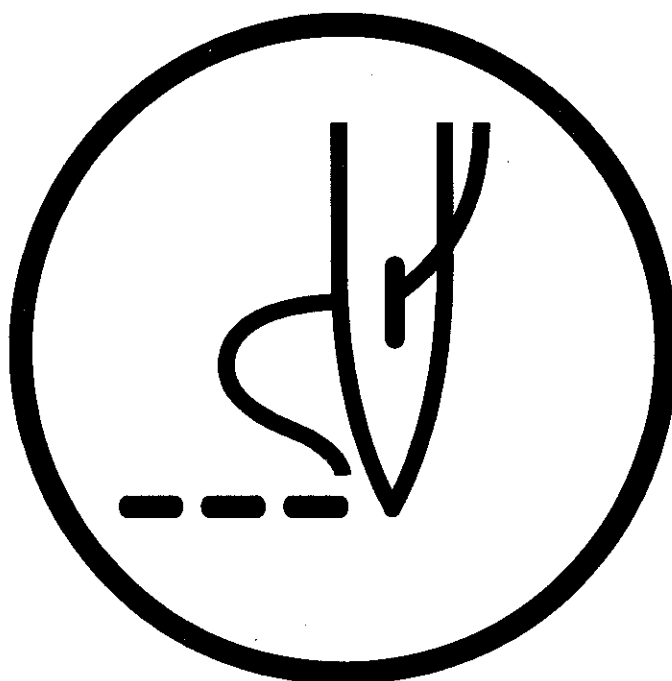
BAS-326E

INSTRUCTION MANUAL



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

PROGRAMMABLE ELECTRONIC PATTERN SEWER



brother.



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



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



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

2 Notes on safety

DANGER



Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box.

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.



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



The sewing machine weighs more than 65 kg. The installation should be carried out by two or more people.



Do not connect the power cord until installation is complete, otherwise the machine may operate if the 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 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 re



Have two people present to hold the machine head with both their hands when tilting it back or returning it to its original position.

Sewing



This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.



The sewing machine should not be used for any applications other than sewing.



Attach all safety devices before using the sewing machine.

If the machine is used without these devices attached, injury may result.



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

- When not using the machine
- When leaving the machine unattended



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



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.



If the machine develops a problem, contact your nearest Brother dealer or a qualified technician.

CAUTION

Cleaning



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



Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result.

Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea.

Keep the oil out of the reach of children.

Maintenance and inspection



Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.



Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.



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 start switch is pressed by mistake, which could result in injury.

- When carrying out inspection, adjustment and maintenance
- When replacing consumable parts such as the rotary hook and knife



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



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



Use only the proper replacement parts as specified by Brother.



If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.



Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.



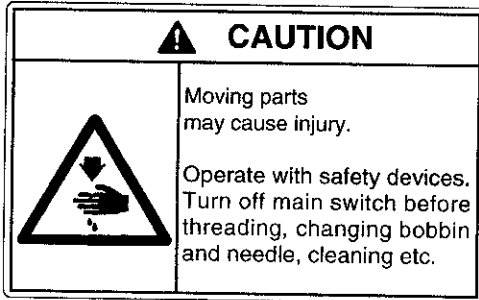
Have two people present to hold the machine head with both their hands when tilting it back or returning it to its original position.

3 Warning labels

★ The following warning labels appear on the sewing machine.

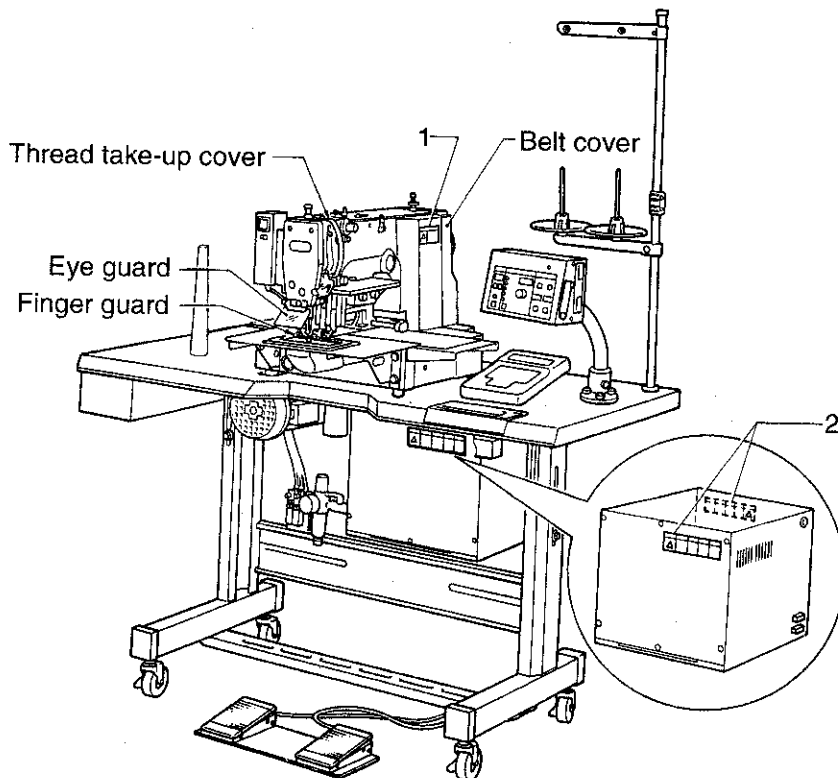
Please follow the instructions on the labels at all times when using the machine. If the labels have been removed or are difficult to read, please contact your nearest Brother dealer.

1



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

2

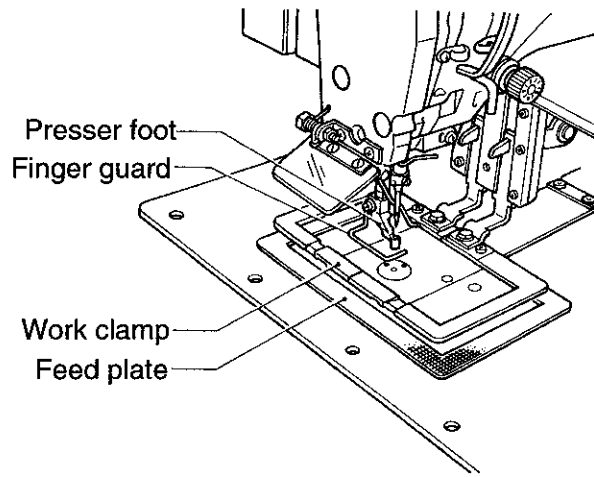


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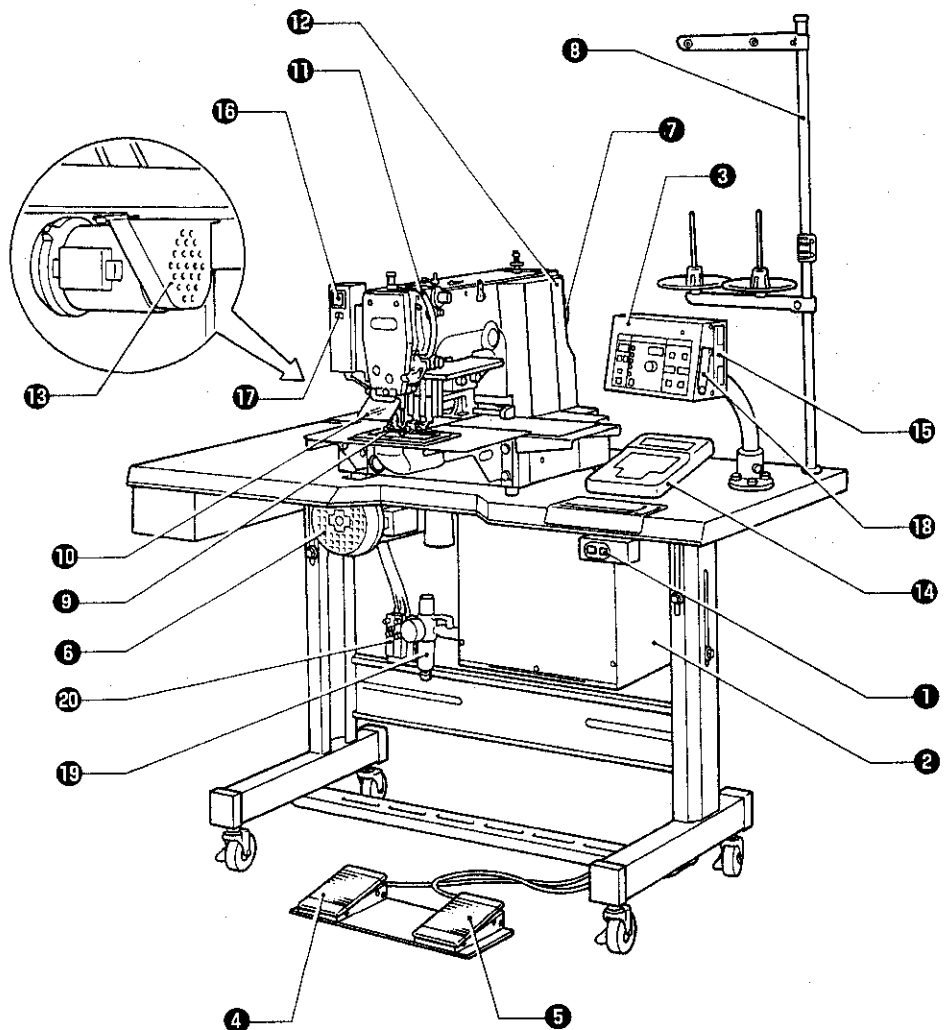
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1. Name of each part



- 1 Power switch
- 2 Control box
- 3 Operation panel
- 4 Presser lifter pedal
- 5 Starting pedal
- 6 Motor cover
- 7 Pulley
- 8 Spool stand
- 9 Finger guard
- 10 Eye guard
- 11 Thread take-up cover
- 12 Belt cover
- 13 Motor cover
- 14 Programmer
- 15 Floppy disk
- 16 Emergency stop switch
- 17 Thread wiper switch
- 18 Dip switch
- 19 Integrater
- 20 Solenoid valve











2. Specifications

Stitch formation	Single needle lock stitch
Sewing machine	Lock stitch, pattern tacking sewing machine (with large shuttle hook)
Maximum pattern size	Max. 200 × 100 mm
Maximum stitch number	Max. 20,000(one pattern)
Stitch length	0.1 - 12.7 mm
Maximum sewing speed	2,500 spm(When stitch length is 3 mm or less)
Feed mechanism	Intermittent feed, pulse motor drive
Rotary hook	Shuttle hook(Standard rotary hook is sold separately)
Needle	DP × 5, DP × 17, MR
Data storage method	3.5 floppy disk 2HD/1.44MB, 2DD
Test function	Operation test function provided for use with low speed drive
Safety devices	Automatic stop function for activation in the event of misoperation realized with intermediate stop function and safety circuits
Wiper device	Standard equipment
Thread trimmer device	Standard equipment
Work clamp height	Max. 30 mm
2-step presser foot	Split-type work clamp
Work clamp lift stroke	18 mm
Intermittent stroke	0, 3 (Factory default) - 8 mm
Weights	Machine head: 65 kg Control box: 10 - 20 kg (depending on destination)
Power supply	Single-phase 110V , 220V , 240V , 3-phase 220V , 380V , 400V , 415V , 600VA
Motor	Three-phase 400 W induction motor
Air pressure	0.49 MPa (5.0 kgf/m ²)
Power table	T-shaped for use sitting or standing
Machine dimensions	1,200 W × 590 D × 1,120H mm (Sitting) 1,350 H mm (Standing)Excluding spool stand

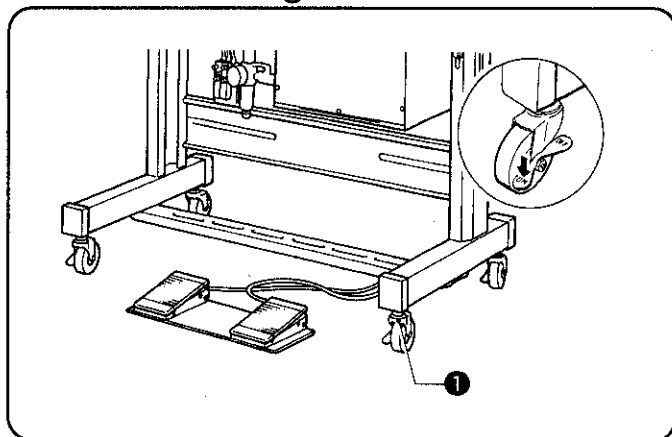
3. Installation



CAUTION

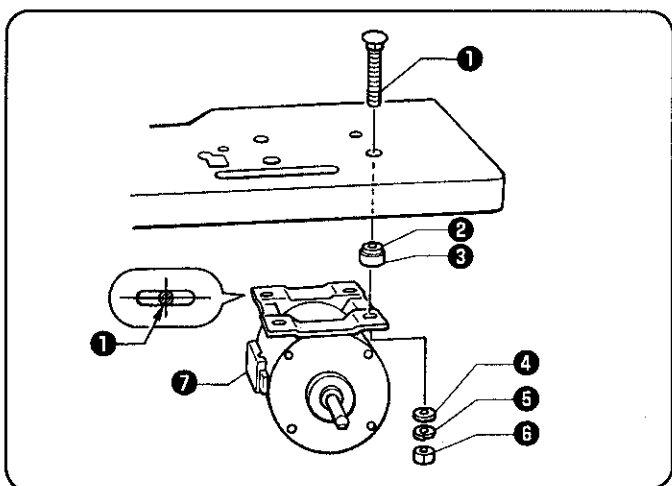
- | | |
|--|--|
| <ul style="list-style-type: none"> Machine installation should only be carried out by a qualified technician. Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done. The sewing machine head weighs more than 65 kg. The installation should be carried out by two or more people. Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury. Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock. | <ul style="list-style-type: none"> Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine. Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children. Avoid setting up the sewing machine near sources of strong electrical noise such as high-frequency welding equipment. If this precaution is not taken, incorrect machine operation may result. |
|--|--|

3-2. Positioning



Determine the position for the sewing machine, and then lock the casters **1** so that the sewing machine will not move.

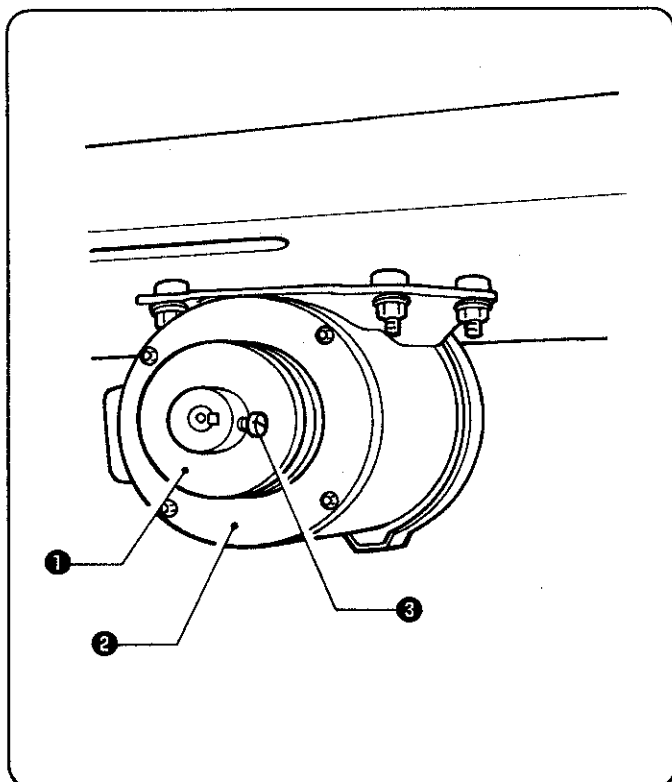
3-3. Installing the motor



Install the motor **7** to the work table with the four accessory bolts **1**, cushions **2**, cushion collars **3**, flat washers **4**, spring washers **5** and nuts **6**.

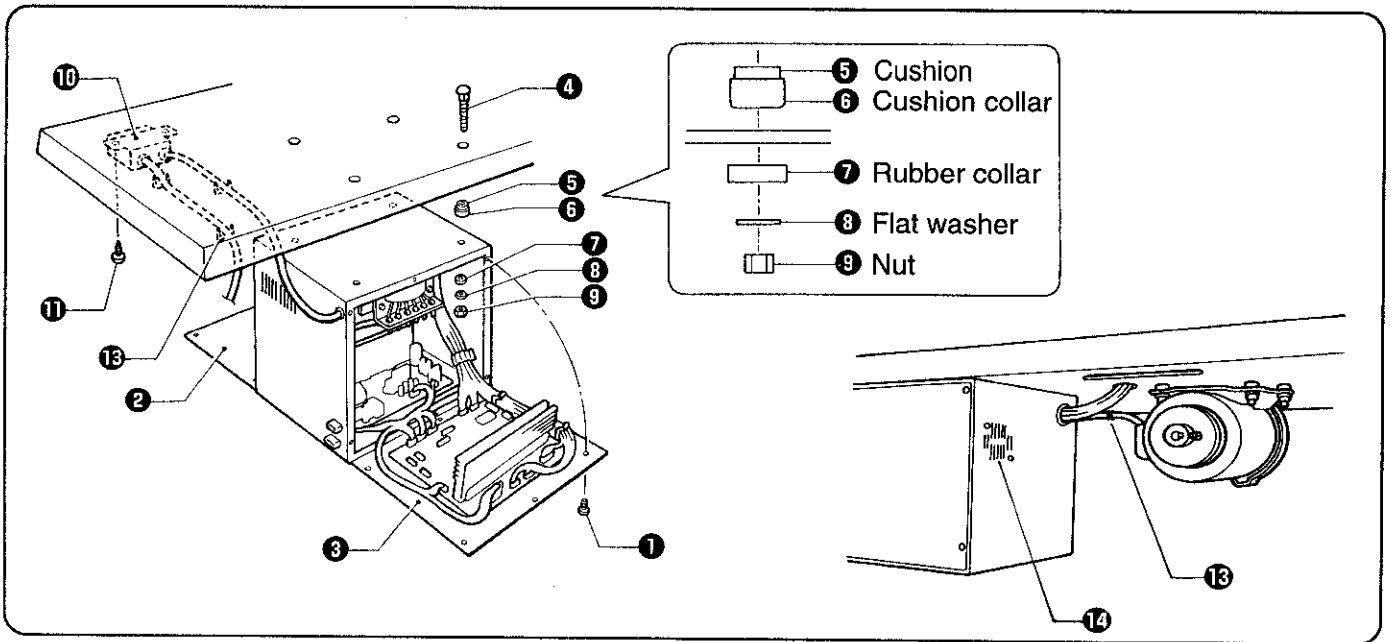
At that time, fix by setting bolts **1** a little to the right of oval hole on motor.

3-4. Installing the motor pulley



Place the motor pulley **1** onto the shaft of the motor **2** so that the key groove is aligned, and then tighten the set screw **3** so that the center of the V groove in the motor pulley **1** is aligned as closely as possible with the center of the belt hole in the power table.

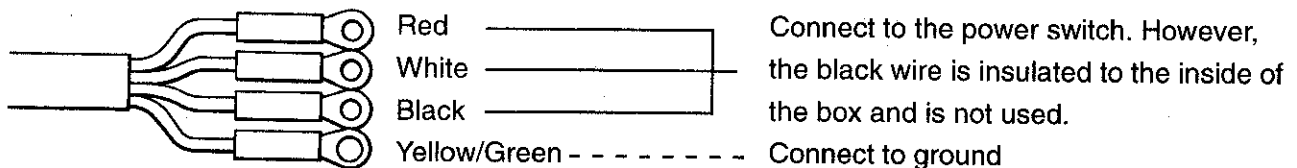
3-5. Installing the control box

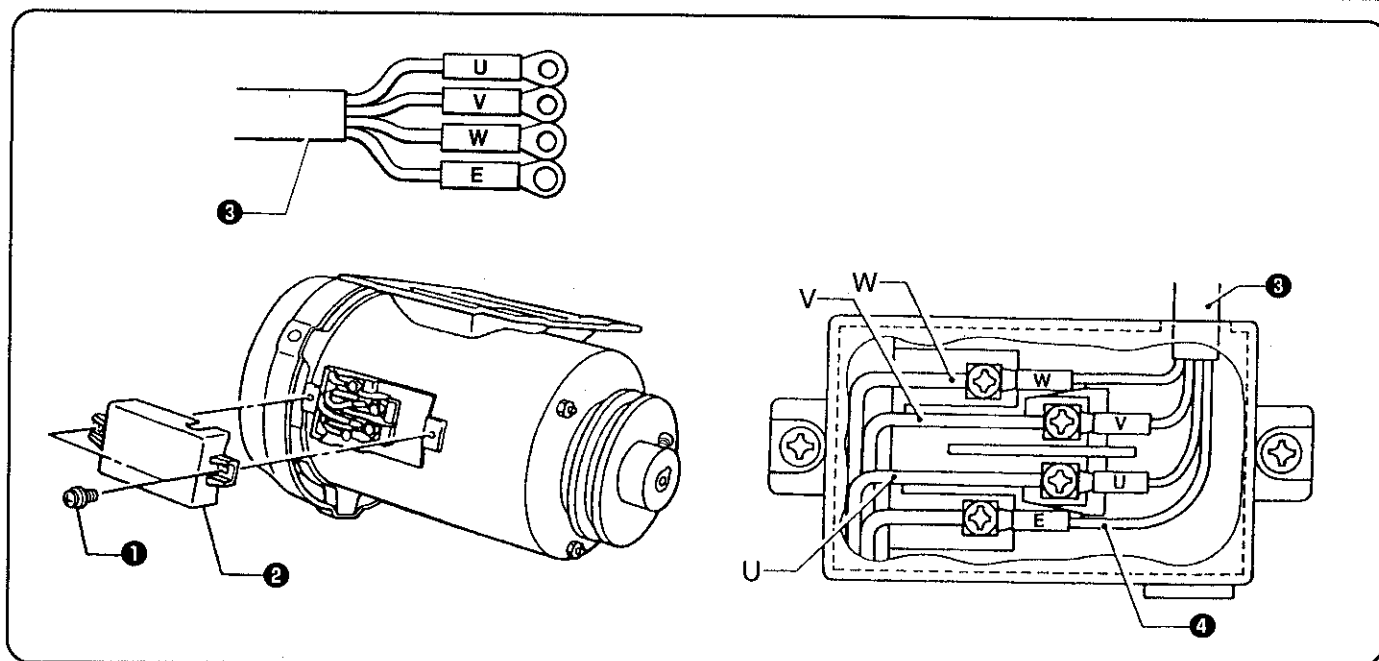


1. Remove the screws **1**, and then open the covers (panel mounting assembly **2** and main P.C. board mounting plate **3**).
Caution: When opening the cover, hold it securely so that it does not fall down.
2. Install the control box with the four accessory bolts **4**, cushions **5**, cushion collars **6**, rubber collars **7**, flat washers **8** and nuts **9** as shown in the illustration above.
* At this time, leave a gap of approximately 1 mm between the work table and the top of the box.
3. Close the covers (panel mounting assembly **2** and main P.C. board mounting plate **3**), and tighten them with the screws **1**.
* The main P.C. board mounting plate **3** will be opened again during "3-11. Connecting the cords", so provisionally tighten it with the screw **1**.
4. Install the power switch **10** with the two screws **11**.
5. Secure the power switch cord and the motor cord with the five staples **13**.

NOTE

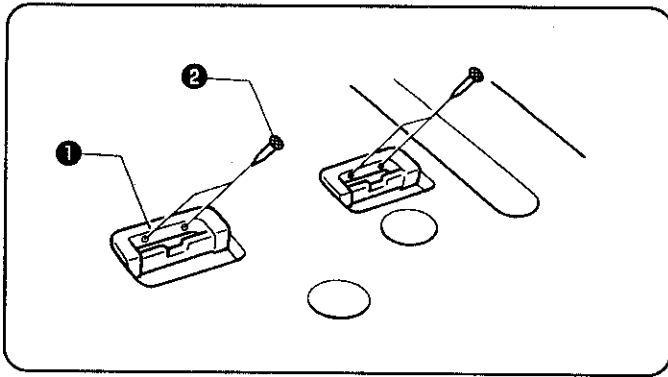
- Secure the motor cord with staples in such a way that it does not cross over the outlet port of the cooling fan **14**.
- Some specifications are not supplied with an accessory power switch **10**. For these specifications, connect a power switch which satisfies the necessary regulations in the country of use.





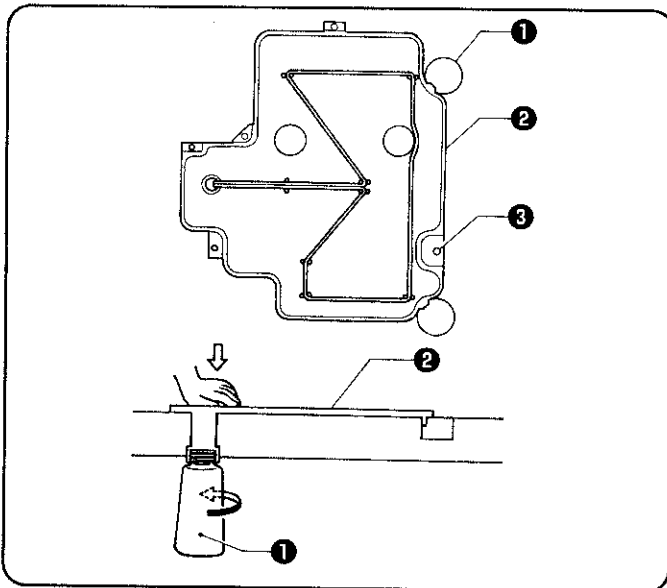
1. Loosen the screw ❶, and then open the terminal board cover ❷.
2. Pass the motor cord ❸ through the hole in the top of the terminal board, align the U, V and W marks on the cord with the terminals marked U, V and W, and then secure the cords with the screws.
3. Secure the ground wire ❹ of the motor cord ❸ in the position shown in the illustration.
4. Install the terminal board cover ❷ with the screw ❶.

3-6. Installing the rubber cushions



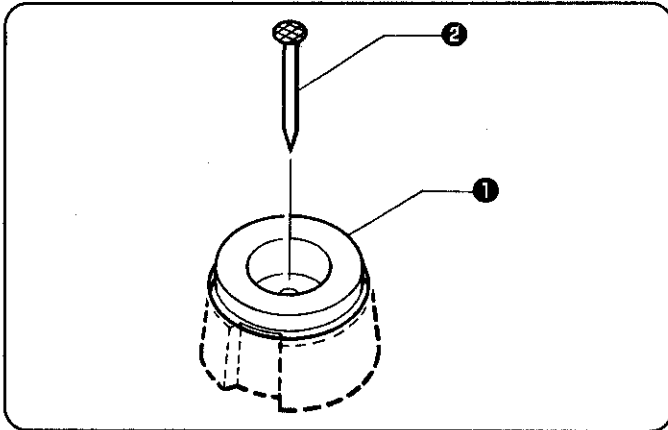
Install the rubber cushions **1** with the nails **2**.

3-7. Installing the oil pan



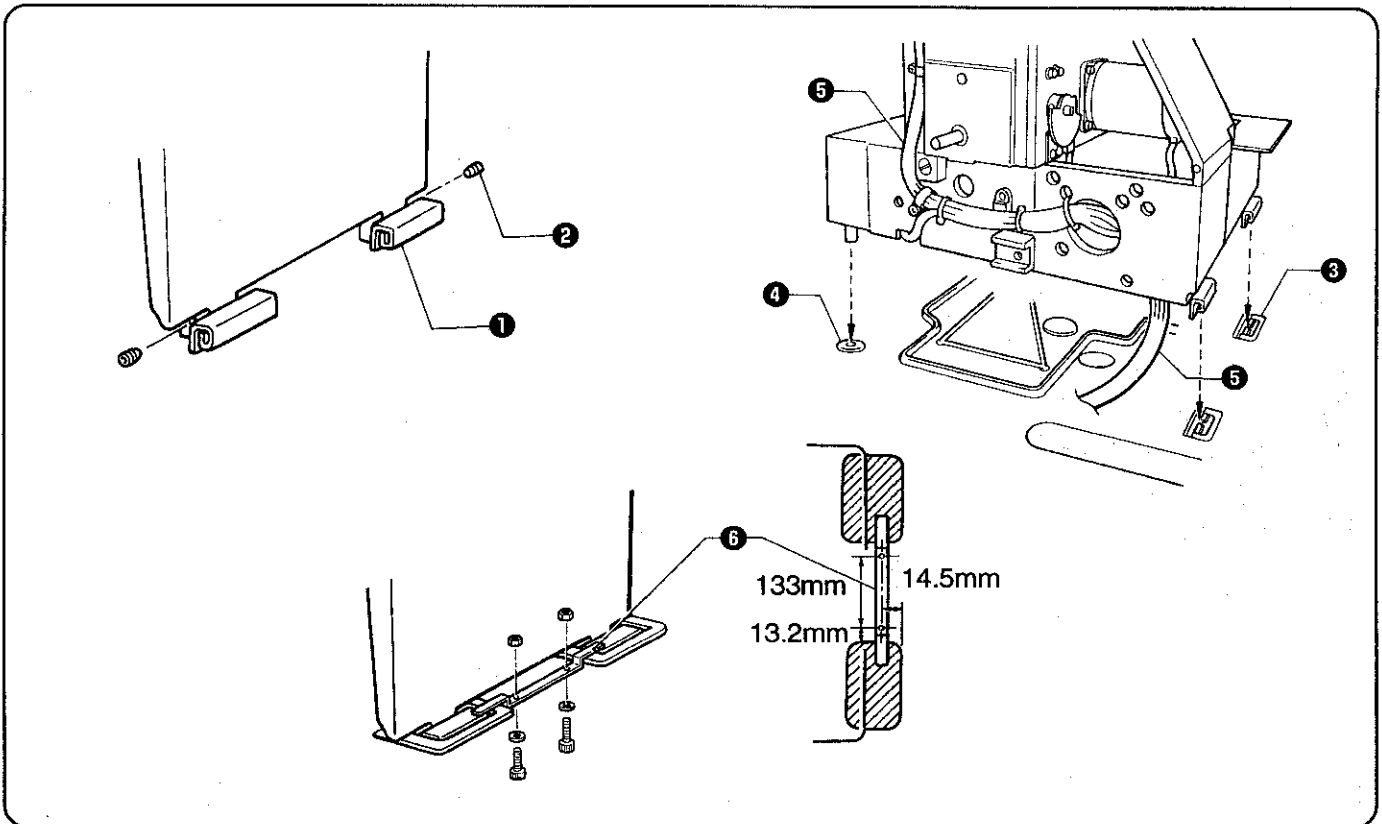
1. Insert the tabs of the oil pan **2** into the holes for the table **1**, and then secure it in place with the five nails **3** so that the oil pan **2** is not at an angle.
2. While pushing the oil pan **2** down from above, screw in the oil container **2**.

3-8. Installing the cushions



Place the two cushions **1** into the holes in the work table, and secure them in place with the nails **2**.

3-9. Installing the machine head



1. Insert the head hinges **1** into the machine head so that they are parallel, and then secure them with the two set screws **2**.
2. Place the machine head gently on top of the rubber cushions **3** and cushions **4**.

NOTE

Pull the cords **5** out as shown in the illustration above in order to prevent them from being clamped by the machine head.

3. Install the hinge presser **6** with the two bolts .

3-10. Tilting the sewing machine head

1. Loosen the screws **2** which are holding the X feed base cover L assembly **1** by about 2 - 3 turns, and then remove the X feed base cover L assembly **1** in the direction of the arrow in the illustration.

NOTE

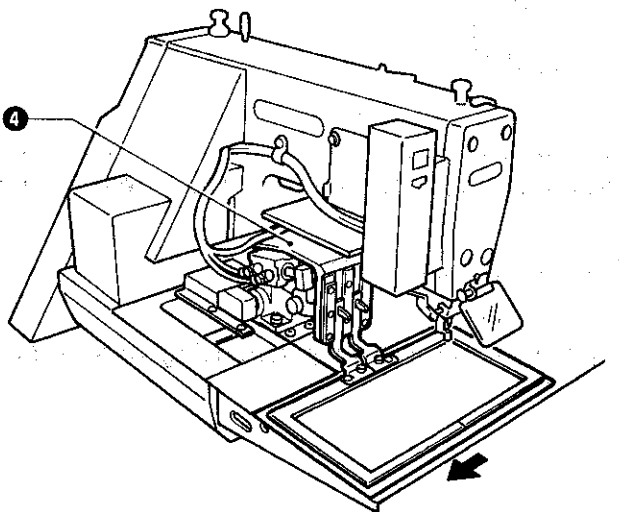
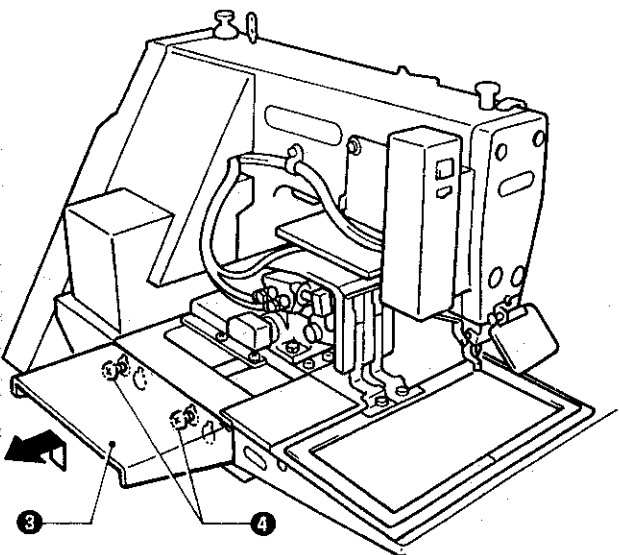
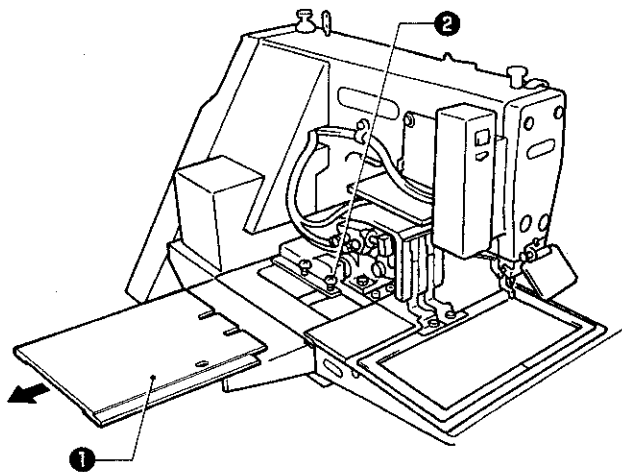
The sewing machine is packed without the X feed base cover L assembly **1** installed.

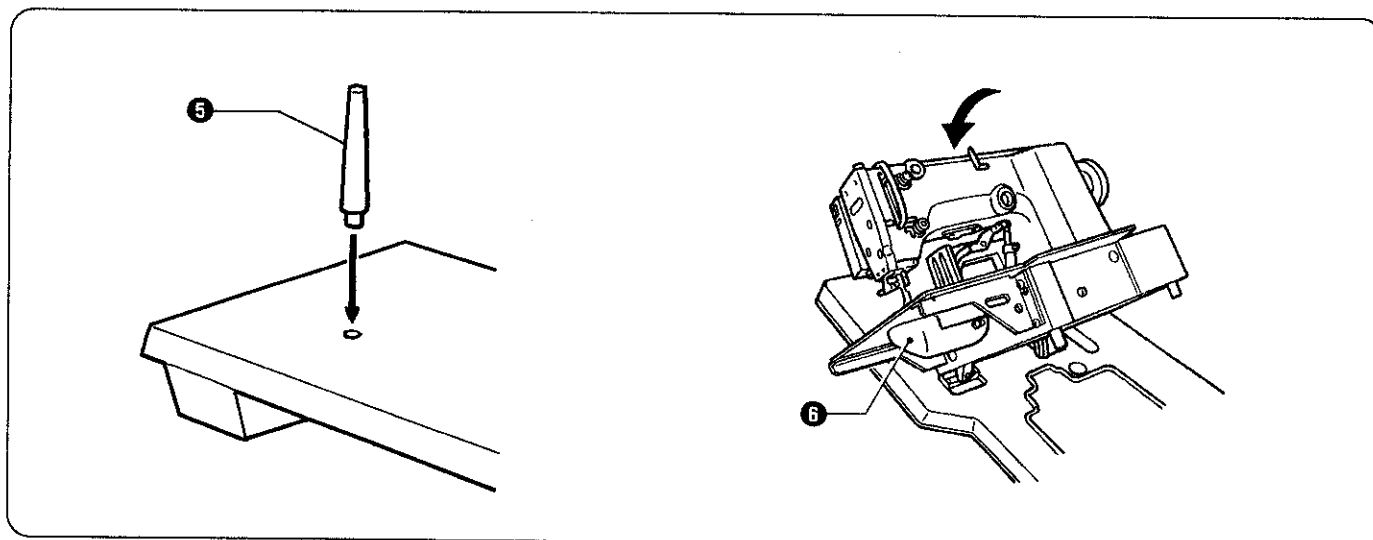
2. Loosen the screws **4** which are holding the feed base cover support **3** on the left of the sewing machine (when looking from the front of the sewing machine) by about 2 - 3 turns, lift the feed base cover support **3** up slightly, and then remove it in the direction of the arrow in the illustration.

NOTE

The sewing machine is packed without the feed base cover support **3** installed.

3. Move the presser arm assembly **4** as far as it will go in the direction of the arrow in the illustration (to the left when looking from the front of the sewing machine).





4. Tap the head rest assy ⑤ into the table hole.

NOTE

- Tap the head rest ⑤ securely into the work table as far as it will go.
- Remove the X feed base cover L assembly ① and the feed base cover support ③ from the machine head before tapping the head rest ⑤ into the work table.

5. Stand at the left side of the table, and gently tilt the machine towards you. When returning the machine to the original position, be careful of the shuttle hook cover ⑥ and the cord.

NOTE

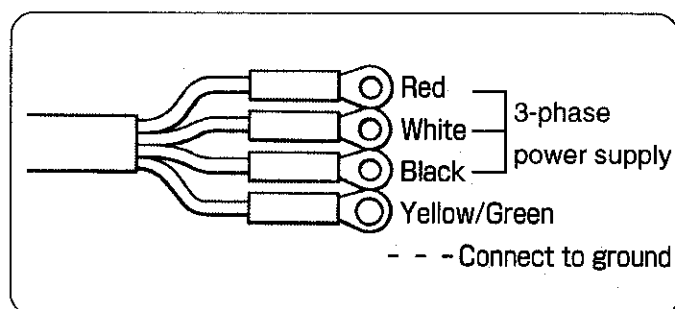
- Be sure to have two people there when tilting back the machine head and returning it to its original position.
- After tilting back the machine head, do not push the face plate or the pulley from above.

3-11. Connecting the ground wire

⚠ DANGER

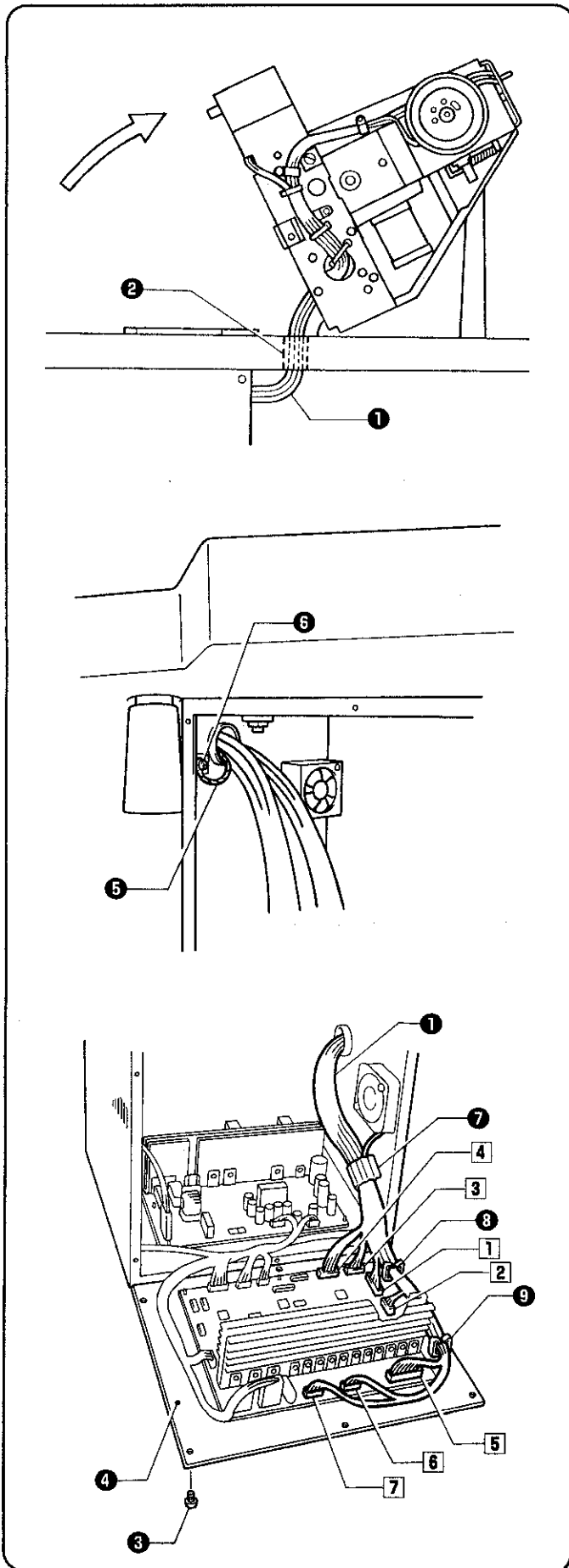


Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock.



■ Connection method for 3-phase power supply

3-12. Connecting the cords



1. Gently tilt back the machine head.
Refer to "3-10. Tilting the sewing machine head".

NOTE

After tilting back the machine head, do not push the face side or the pulley side from above.

2. Pass the cords **1** through the hole **2** in the work table.
3. Gently return the machine head to its original position.
4. Remove the screws **3**, and then open the control box cover (main P.C. board mounting plate **4**).

NOTE

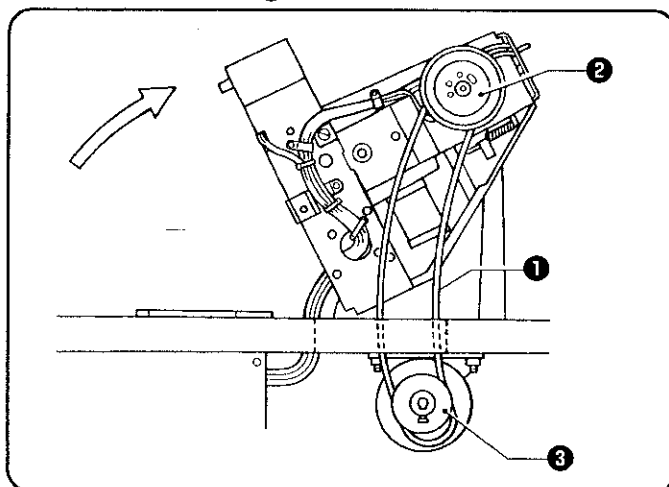
When opening the cover, hold it securely so that it does not fall down.

5. Insert the cords through the hole in the side of the control box.
6. Loosen the screw **6**, and then connect the ground wire **5** that is coming from the machine head as shown in the illustration at left.
7. Securely insert each of the connectors **1-7** as indicated below.

Machine head connectors	(Connection indications) * This is indicated on the P.C. board.
• Connector 1 for X·Y sensor (9-pin with 1 mark)	P1 (ORG)
• Connector 2 fo synchronizer (5-pin with 2 mark)	P2 (SYNCHRO)
• Connector 3 for emergency stop switch (9-Pin With 3 mark)	P3 (HEAD)
• Connector 4 for valve (pneumatic type only) (12-Pin with 4 mark)	P4 (VALVE)
• Connector 5 for solenoid (8-pin with 5 mark)	P5 (SOL)
• Connector 6 for pulse motor Y (5-pin (blue) with 6 mark)	P6 (YPM) (blue)
• Connector 7 for pulse motor X (5-pin with 7 mark)	P7 (XPM)

8. Secure the cords **1** with the cord clamps **7 8 9**.

3-13. Installing the V-belt



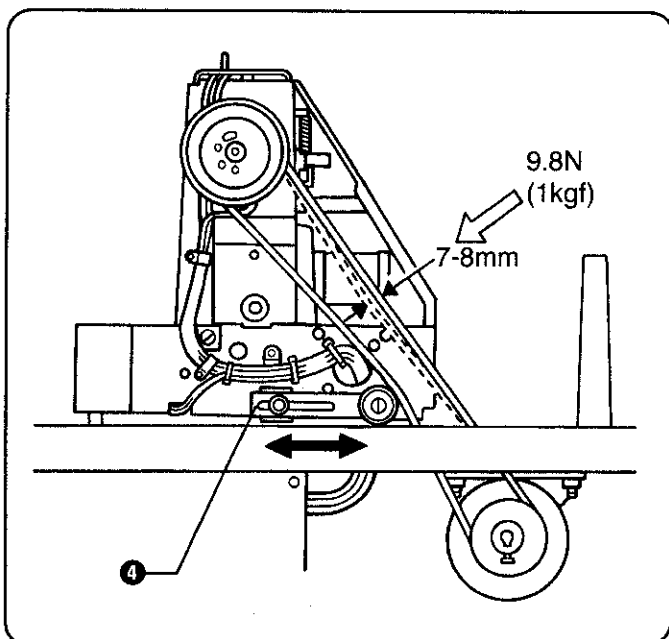
1. Have two people gently tilt back the machine head, and then place the V-belt ① into the V grooves on the machine head pulley ② and the motor pulley ③.

NOTE

After tilting back the machine head, do not push the face plate side or the pulley side from above.

2. Gently return the machine head to its original position.

* Be careful not to clamp the cords at this time.



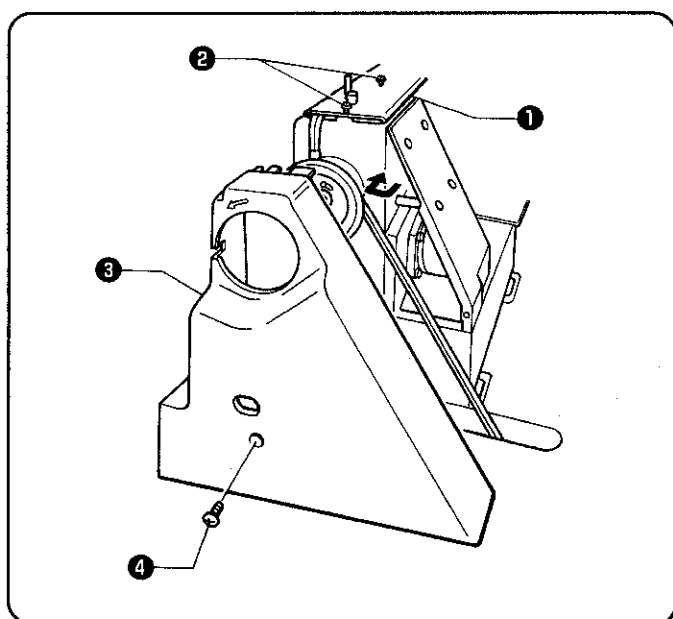
3. Install the accessory tension pulley assembly ④ to the machine head with the accessory flat washer, spring washer and bolt.

4. Adjust the belt tension by moving the tension pulley assembly to the right and left so that there is 7 - 8 mm of deflection in the V-belt ① when it is gently pushed in the middle with a force of approximately 9.8 N (1 kgf).

NOTE

- When above belt tension is weak, this will be cause of following problem;
 - * Noise and vibration become large.
 - * Needle up stop position becomes unstable.
 - * Error message (E-22) is displayed(only when memory switch (14 is on)).

3-14. Installing the belt cover

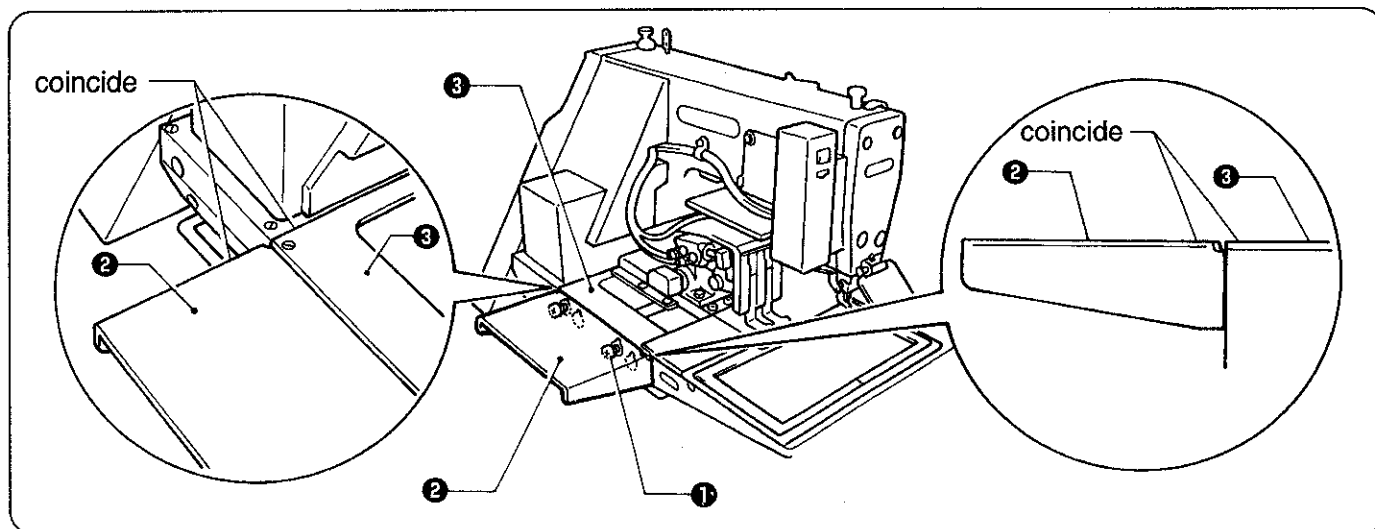


1. Loosen the two screws ② of the upper cover ①.
2. Insert the belt cover ③ in the direction of the arrow, and then secure it with the two screws ② and the screw ④.

NOTE

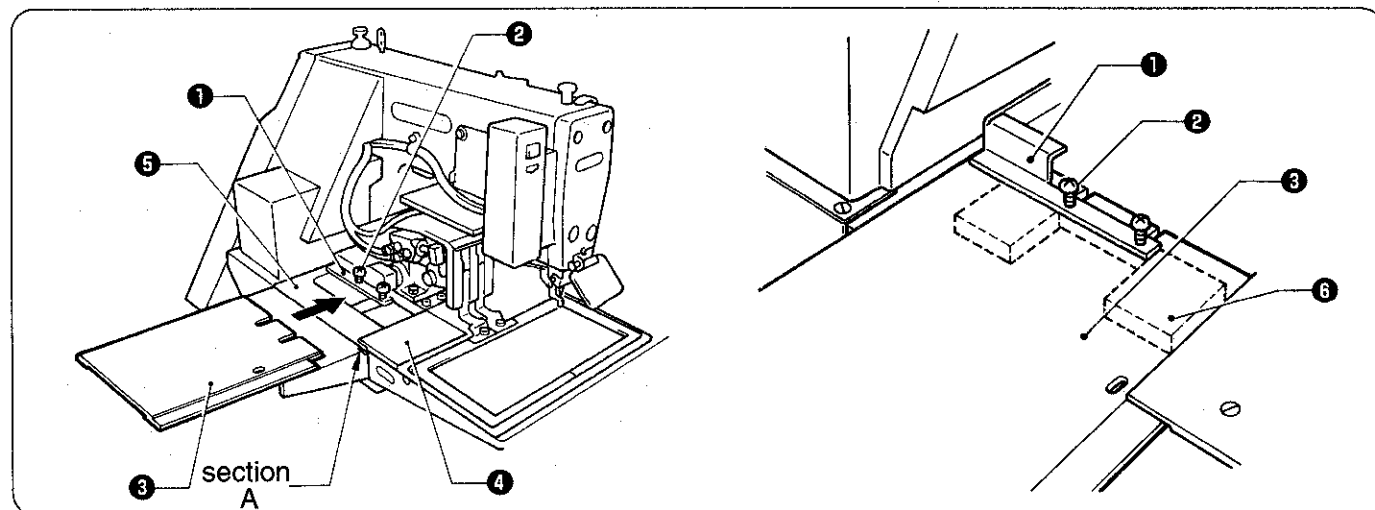
When tilting back the machine head, loosen the screws ②, remove the screw ④ and then remove the belt cover ③ first.

3-15. Installing the feed base cover supports



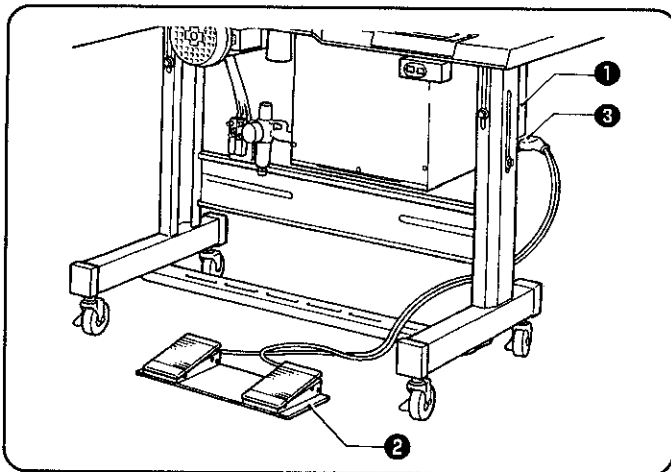
Loosen the four screws **1** on the side of the bed by about 2 - 3 turns, and then install the feed base cover supports **2** to the side of the bed so that the top surfaces of the feed base cover supports **2** (one each at left and right) are at the same height as the top surfaces of the X and Y feed base covers **3** (at left and right).

3-16. Installing the X feed base cover assemblies



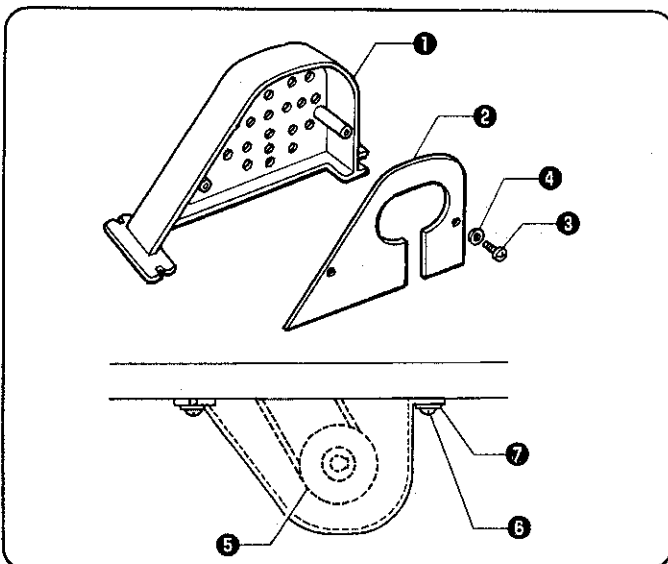
1. Loosen the four screws **2** which are holding the bellows assembly **1** by about 2 - 3 turns, and then slide the X feed base cover assemblies **3** (one each at left and right) in the direction of the arrow in the illustration into the gaps (section A) between the needle plate support plate and the X and Y feed base cover **5** (at left and right).
2. Lift the bellows assembly **1** up slightly, clamp the tops and bottoms of the X feed base cover assemblies **3** (one each at left and right) between the bellows assembly **1** and the X feed base **6**, and then tighten the screws **2**.

3-17. Installing the foot switch



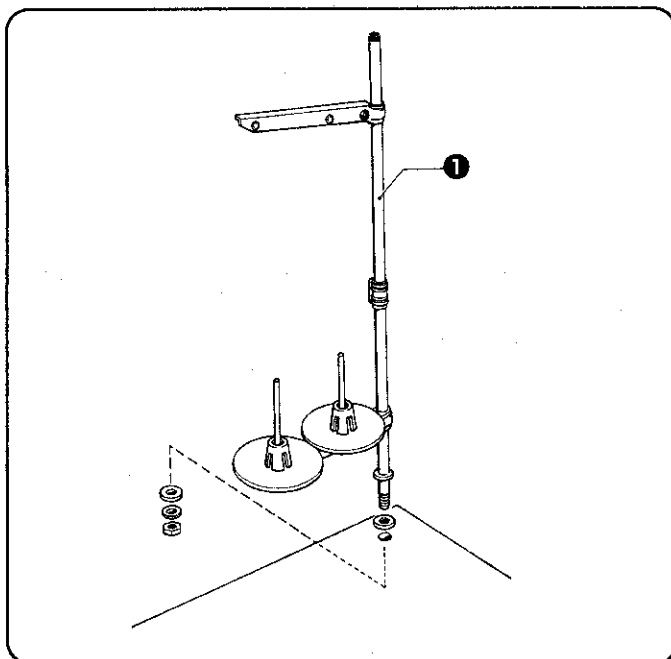
Insert the connector of the foot switch **2** into the connector **3** of the control box **1**.

3-18. Installing the motor cover



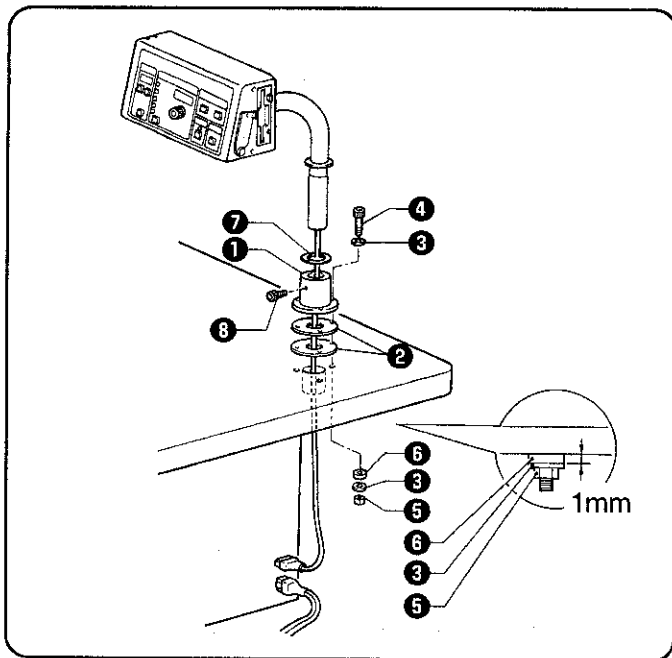
1. Install the motor cover **1** to the motor back cover **2** with the screws **3** and the flat washers **4**.
2. Pass the motor shaft through the notch in the motor back cover **2**, and then tighten the screws **6** and the washers **7** so that the clearance between the motor pulley **5** and the motor cover **1** is uniform.

3-19. Installing the spool stand



Install the spool stand **1** to the table.

3-20. Installing the operation panel



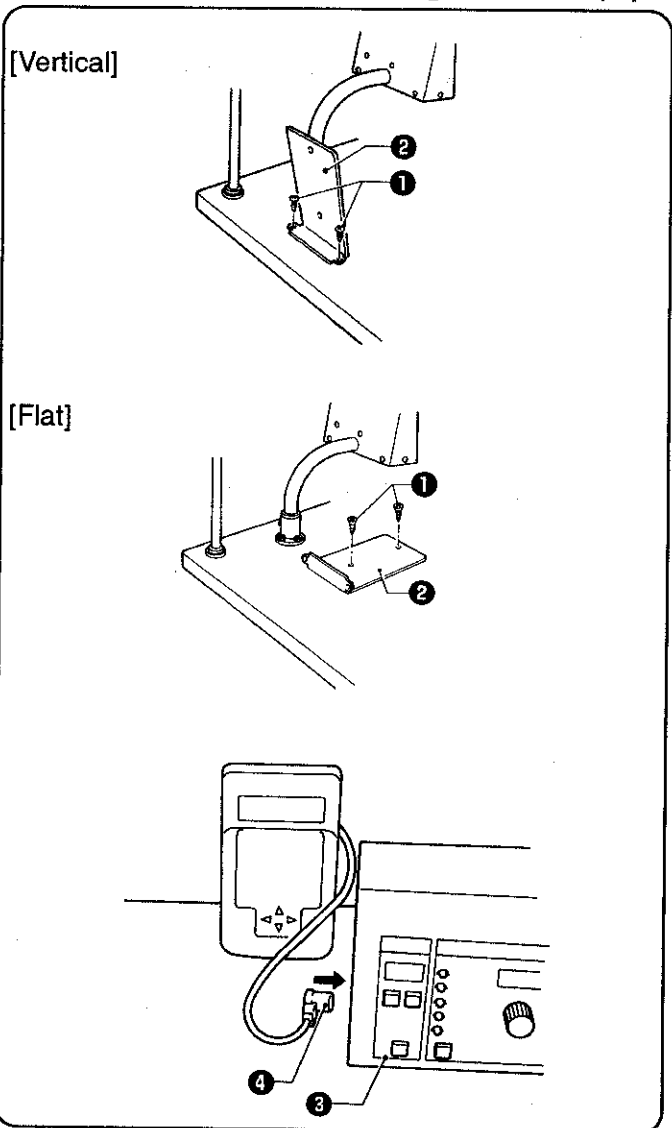
1. Assemble the operation panel stand ① and cushion A ②. Then insert the bolts ④ together with the washers ③ into the three holes from above, and then tighten the nuts ⑤, washers ③ and cushion B ⑥ from below to secure the assembly.

NOTE

Tighten until the thickness of cushion B becomes about 1 mm.

2. Pass the cords of the control panel assembly through the hole in the operation panel stand ①.
3. Attach the rubber sheet ⑦ to the hole in the operation panel stand ① and then secure it with the bolt ⑧.
4. Connect the connector cords to the control box.

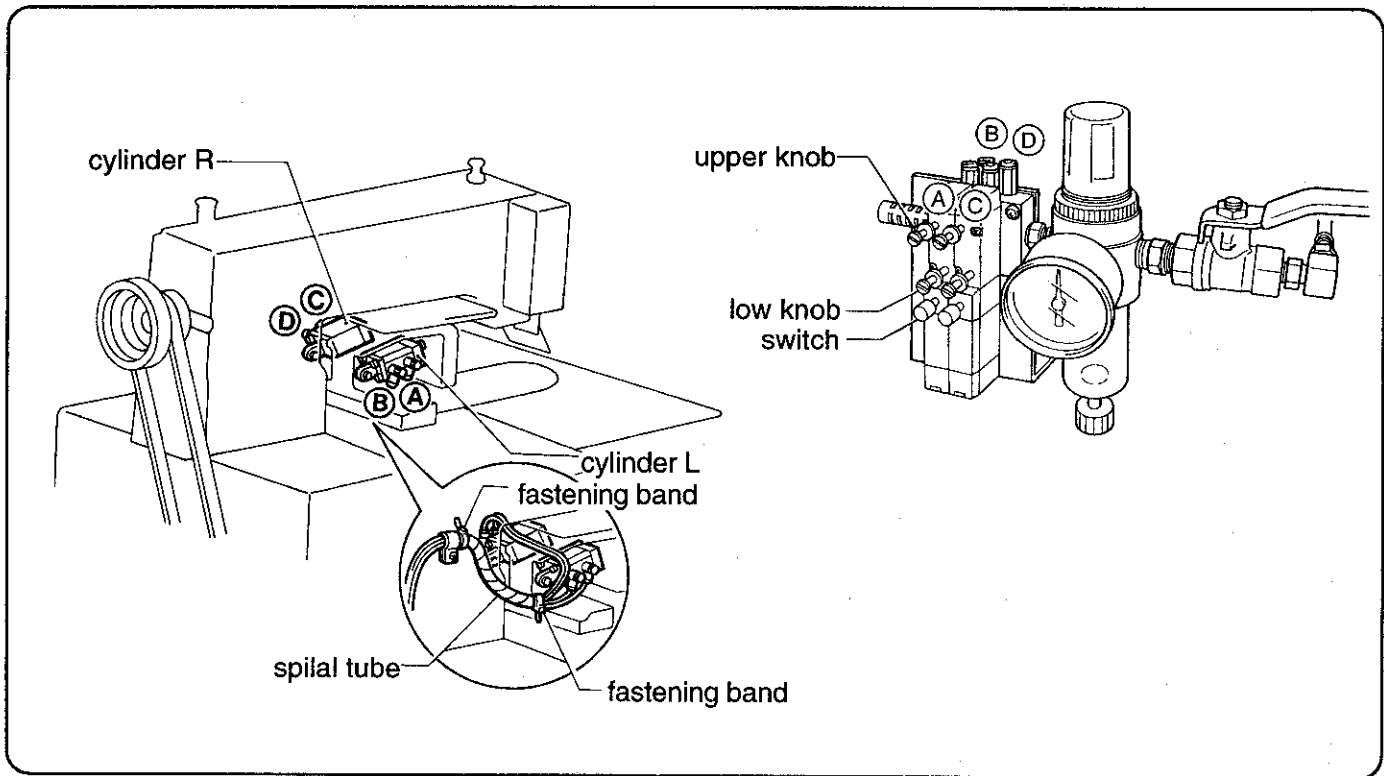
3-21. Installing the programmer(option)



1. Install the programmer support ② to the work table with the two screws ①.

2. Insert the programmer connector ④ securely into the left side of the operation panel ③.

3-22. Connecting the tubes



- Connect each air tube to the position with the corresponding number.

NOTE

Immediately after connecting the air tubes, bind them together using the spiral tube and secure them with the fastening band.

- Adjusting the speed controller

The raising and lowering speeds for the work clamp can be adjusted by screwing the knobs on the valve in and out. Adjust the knob position to set the appropriate speed.

- If the upper knob is screwed inward, the work clamp raising speed becomes slower; if it is screwed outward, the raising speed becomes faster.
- If the lower knob is screwed inward, the work clamp lowering speed becomes slower; if it is screwed outward, the lowering speed becomes faster.
- The work clamp can be operated when the power is turned off by pressing the switch.
- If the switch is pushed in and turned to the right, the work clamp can then be held in the raised condition.

NOTE

The valve knobs should be adjusted so that the left and right sides of the work clamp operate at the same speed.

4. Lubrication

CAUTION



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



Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result.

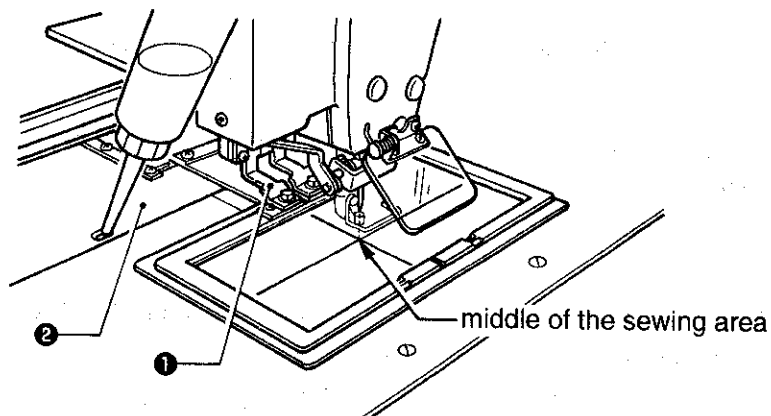
Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea.

Keep the oil out of the reach of children.

NOTE

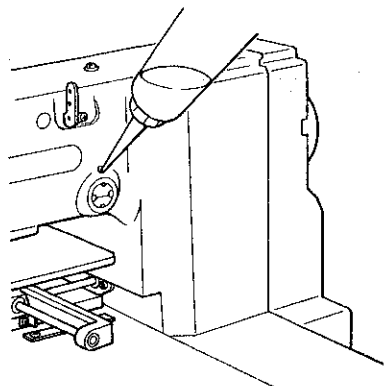
- Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass.
If oil is not added and the oil drops below this level, there is the danger that the machine may seize during operation.
- Be sure to let the machine operate for a while after adding the oil.
- Use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

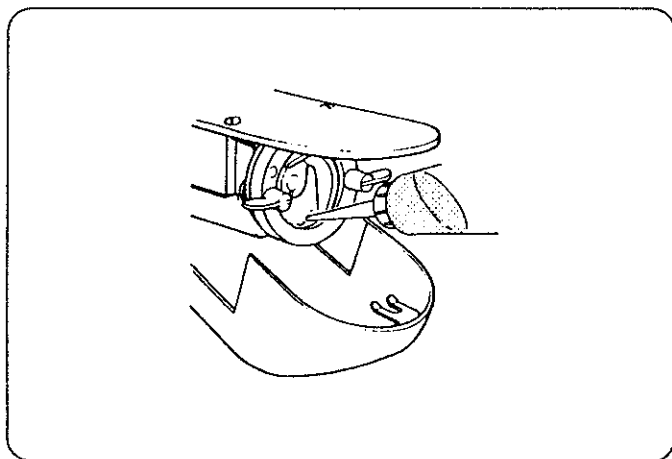
4-1. Lubrication points



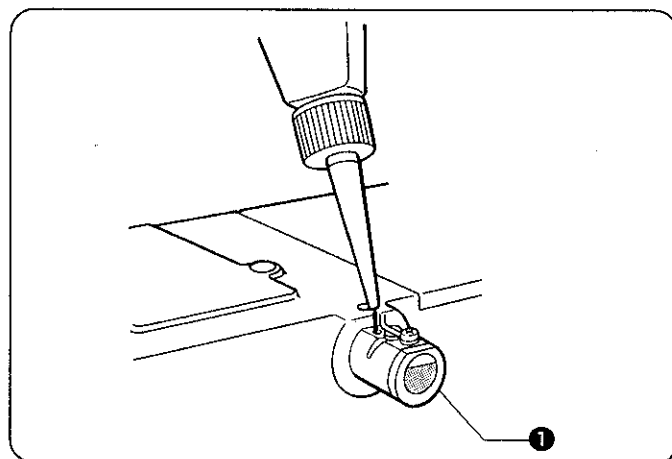
1. When filling the bed oil tank with oil, first move the presser arm **1** to the middle of the sewing area in the X direction so that the oil hole in the X feed base cover L assembly **2** is aligned with the oil hole in the bed, and then fill the bed oil tank with oil.

2. Fill the arm-side oil tank with oil.





3. Add a drop of oil to the shuttle hook race.



4. If using the liquid cooling tank **1**, fill it with silicon oil (100 cs).

5. Correct use

5-1. Selecting the needle and thread

Needle	Thread	Main application
DP×5 #9	#100~#60	Knitted wear
DP×5 #16	#80~#50	General clothing
DP×17NY #19	#50~#20	Denim
DP×17 #21		〃
DP×17 #25		Leather·seat belts

Different needles and threads are used for different sewing applications.

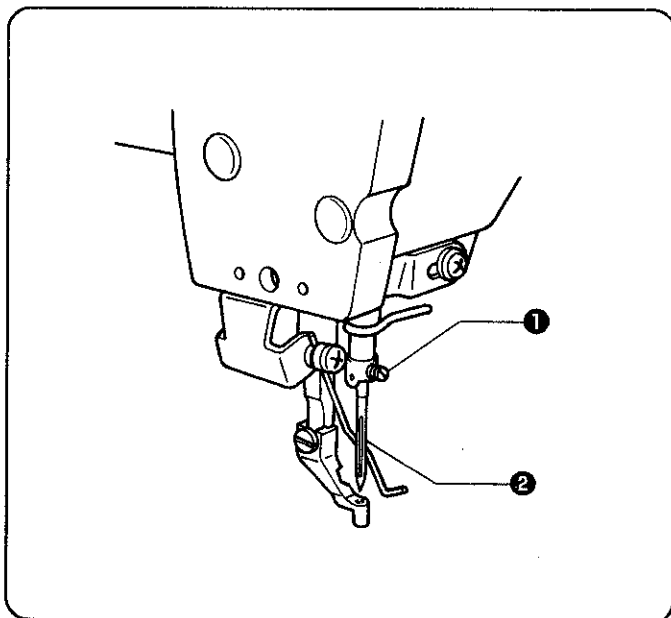
Refer to the table at left for details on which needle

5-2. Installing the needle

⚠ CAUTION



Turn off the power switch before installing the needle, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.



Loosen the set screw ❶, insert the needle ❷ as far as it will go so that the groove is facing toward you and then tighten the set screw ❶.

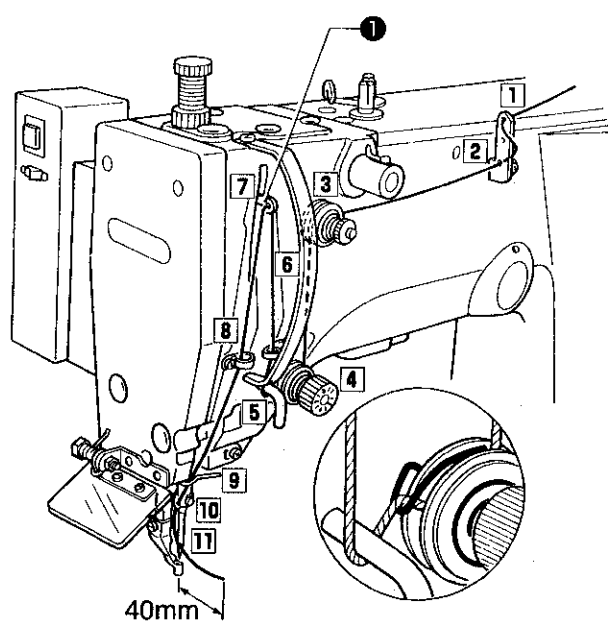
5-3. Threading the upper thread

! CAUTION

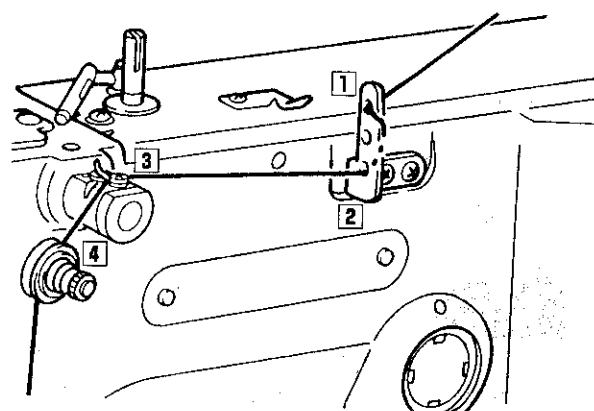


Turn off the power switch before threading the thread, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.

[When using cotton thread]



[When using the liquid cooling tank]



■ Thread the upper thread correctly as shown in the illustration above.

NOTE

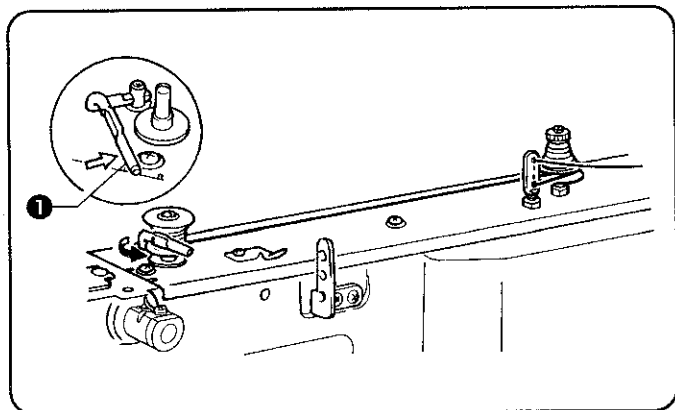
- Turn the machine pulley and raise the thread take-up lever ❶ before threading the upper thread. (This will make threading easier and it will prevent the thread from coming out at the sewing start.)
- When threading the thread through the needle, allow a distance of approximately 40 mm between the needle hole and the end of the thread. If the trailing length of the thread is too long, it may cause the thread to.

5-4. Winding the lower thread

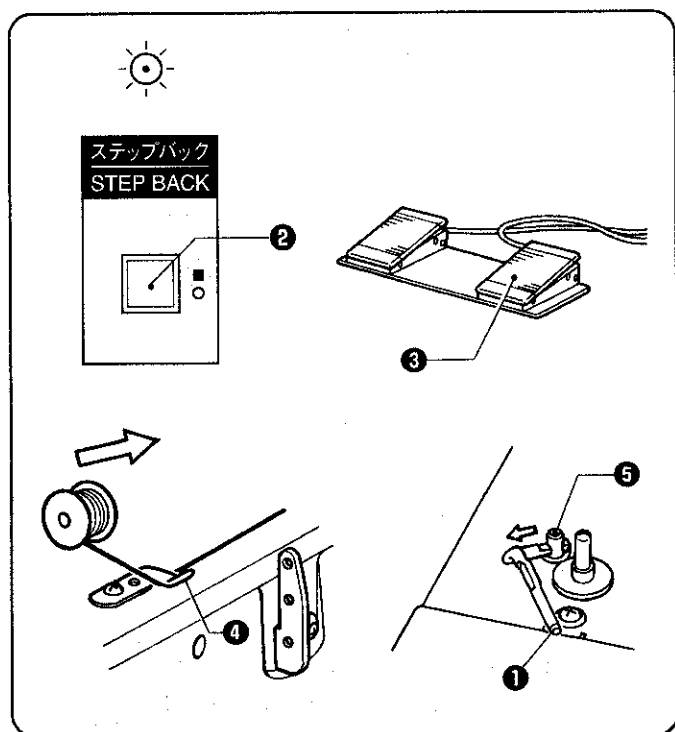
⚠ CAUTION



Do not touch or place anything against any of the moving parts while winding the lower thread, otherwise personal injury or damage to the machine may result.



1. Place the bobbin all the way onto the shaft.
2. Thread the thread as shown in the illustration at left, wind the thread around the bobbin several times in the direction of the arrow, and then press the bobbin presser ①.
3. Turn on the power switch.
(The POWER indicator on the operation panel will illuminate.)



4. Check that the needle is not touching the presser foot, and then while pressing the STEP BACK switch ②, depress the foot switch e to start the machine. Keep depressing the foot switch ③ until the lower thread stops being wound onto the bobbin. Release the STEP BACK switch ② after the machine starts operating.
If you release the foot switch before winding is completed, depress it once more while pressing and holding the STEP BACK switch ②.
5. The bobbin presser ① will automatically return to its original position after a set amount of thread (80 - 90% of the bobbin capacity) has been wound on.
6. Release the foot switch ③.
7. Remove the bobbin, hook the thread onto the knife ④, and then pull the bobbin in the direction of the arrow to cut the thread.
8. To wind more thread onto the bobbin, loosen the set screw ⑤ and pull the bobbin presser ① outward.

<< If the thread winds onto the bobbin unevenly >>

If the thread winds onto the bobbin unevenly, loosen the nut ① and turn the bobbin winder thread tension stud ② to adjust.

NOTE

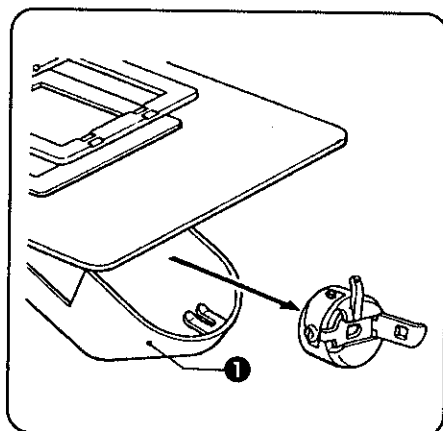
If the thread winds on as shown in A, turn the bobbin winder thread tension stud ② clockwise; if it winds on as shown in B, turn the bobbin winder thread tension stud ② counterclockwise.

5-5. Replacing the bobbin case and threading the thread

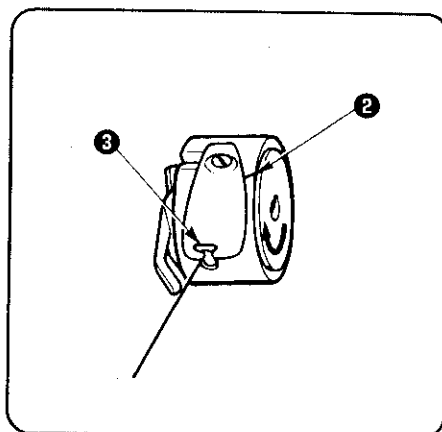
CAUTION



Turn off the power switch before removing and replacing the bobbin case, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.

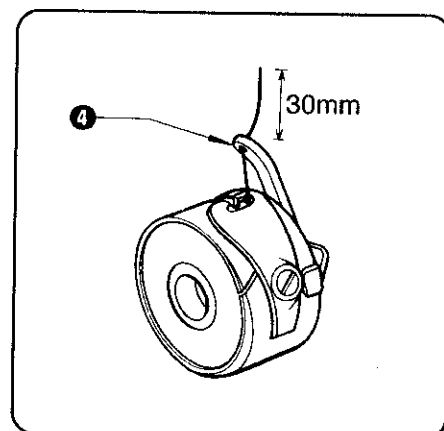


1. Pull the shuttle race cover **1** forward and then open the cover.



2. Lift the bobbin case latch and remove the bobbin case.

3. Insert a new bobbin into the bobbin case, and then pass the thread through the slot **2** and pull it out from the thread hold **3**. Check that the bobbin turns in the direction of the arrow when the thread is pulled at this time.



4. Pass the thread through the lever thread hole **4**, and then pull out approximately 30 mm of thread.

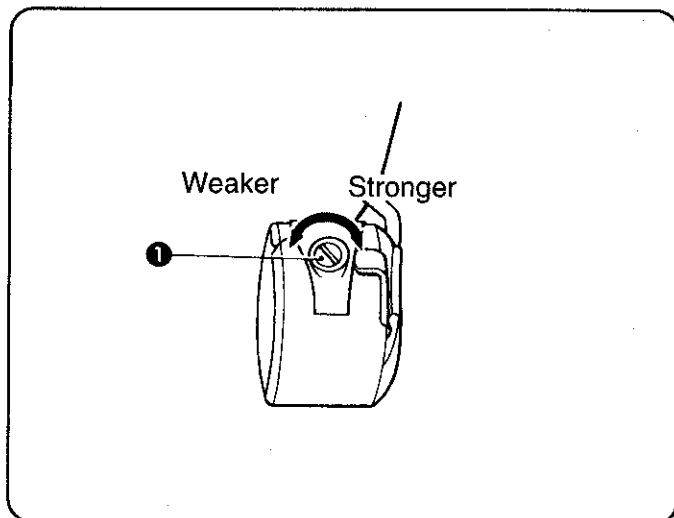
5-6. Sewing conditions and thread tension

5-6-1. Sewing conditions

Specifications	For thick materials	For medium-thick materials
Upper thread	# 20 or equivalent	# 50 or equivalent
Lower thread	# 20 or equivalent	# 60 or equivalent
Upper thread tension	150~200g	50~100g
Lower thread tension	20~40g	20~40g
Thread take-up spring height	8~10mm	6~8mm
Thread take-up spring tension	150~200g	40~60g
Needle	DP×17 # 21	DP×5 # 16
Normal sewing speed	2000spm	2000spm

5. Correct use

5-6-2. Lower thread tension

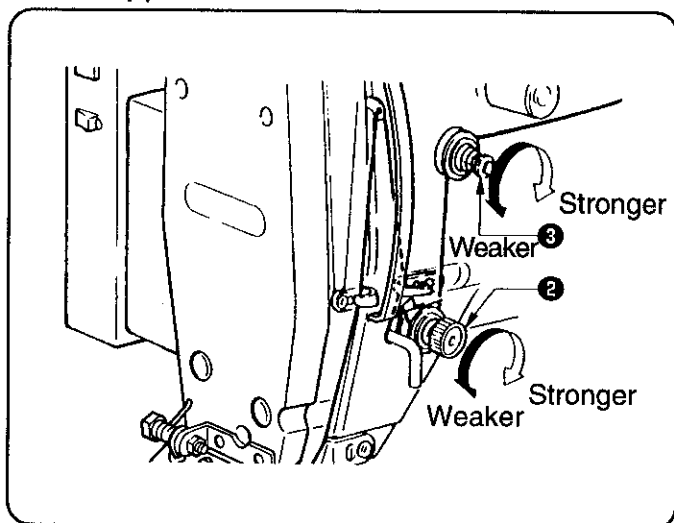


Set the lower thread tension to as weak a tension as possible and so that the bobbin case drops by its own weight when the end of the thread is held. Turn the adjusting screw ① to adjust the tension.

NOTE

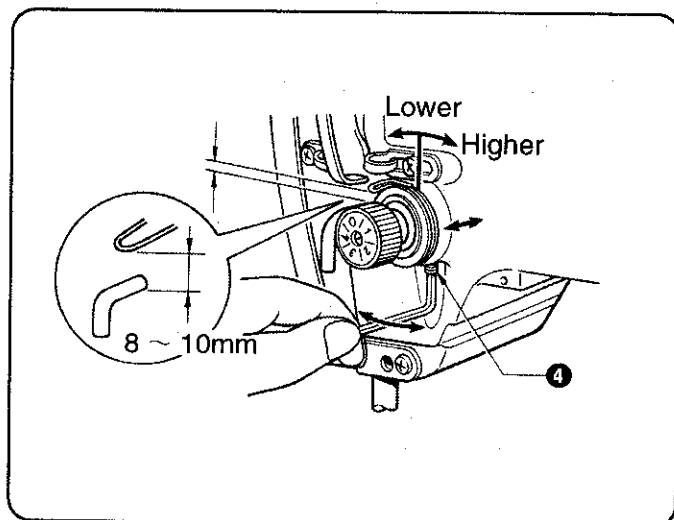
If the lower thread tension is too weak, it may not be possible to cut the lower thread properly during thread trimming.

5-6-3. Upper thread tension



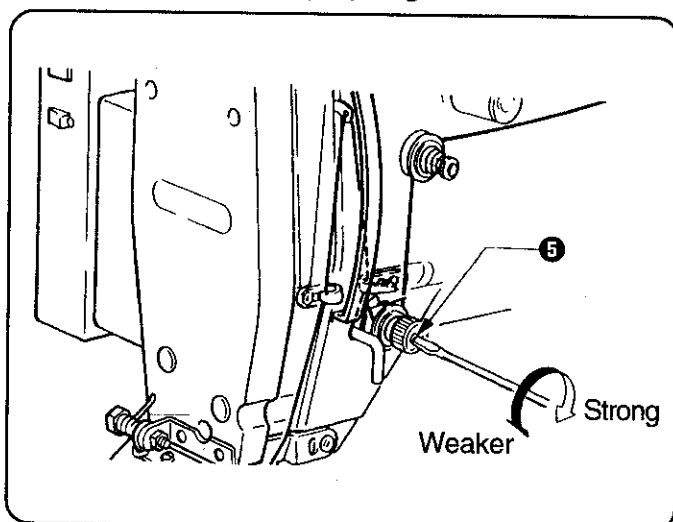
Turn the tension nut ② (main tension) to adjust the tension as appropriate for the material being sewn. Furthermore, turn the thread nut ③ (sub-tension) to adjust the remaining length of upper thread to 35 - 40 mm.

5-6-4. Thread take-up spring height



Loosen screw ④ and turn the entire thread take-up unit to adjust so that the height of the thread take-up spring is 8 - 10 mm.

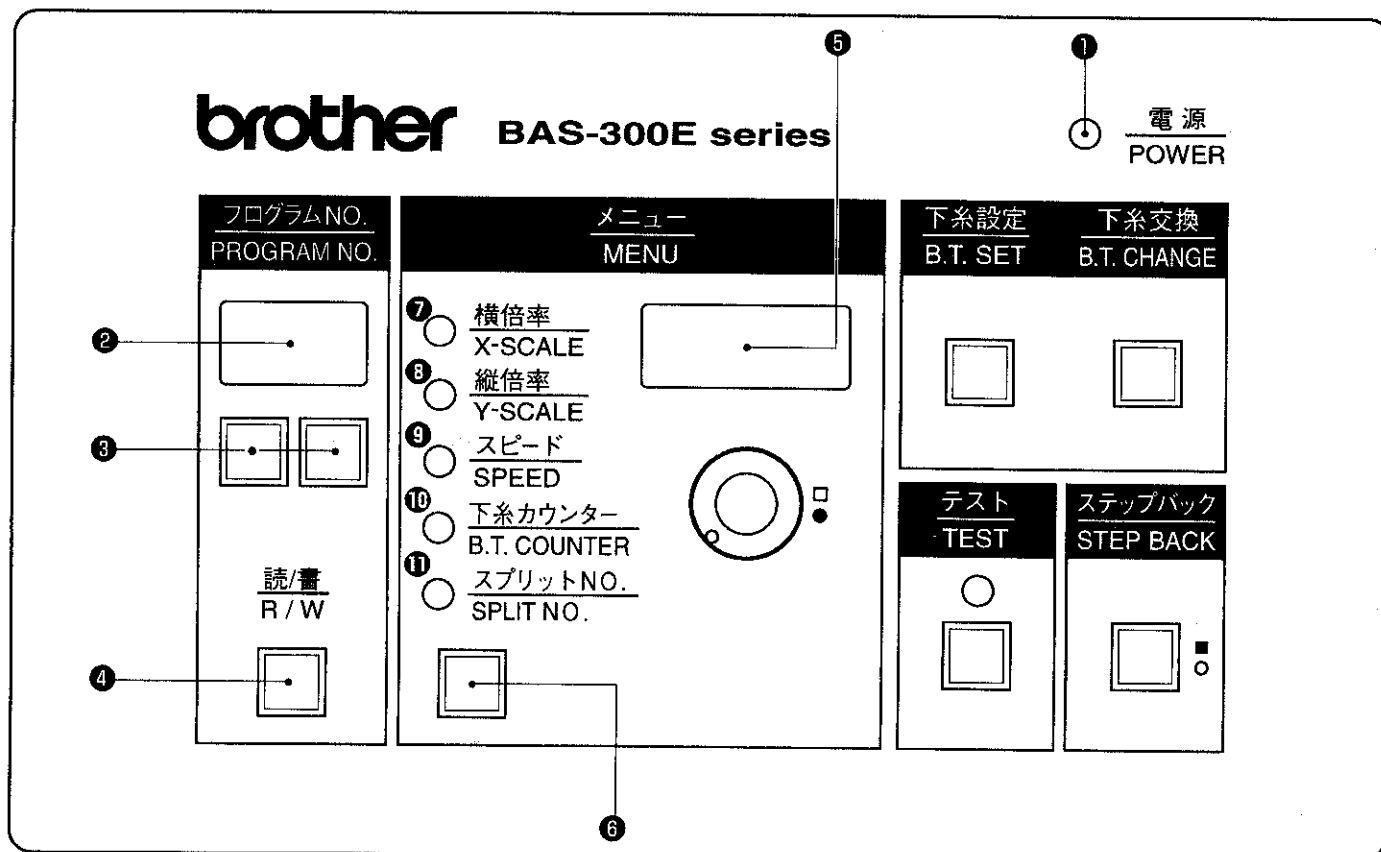
5-6-5. Thread take-up spring tension



Adjust the thread take-up spring tension by turning the tension stud ⑤ with a screwdriver.

6. Panel operation

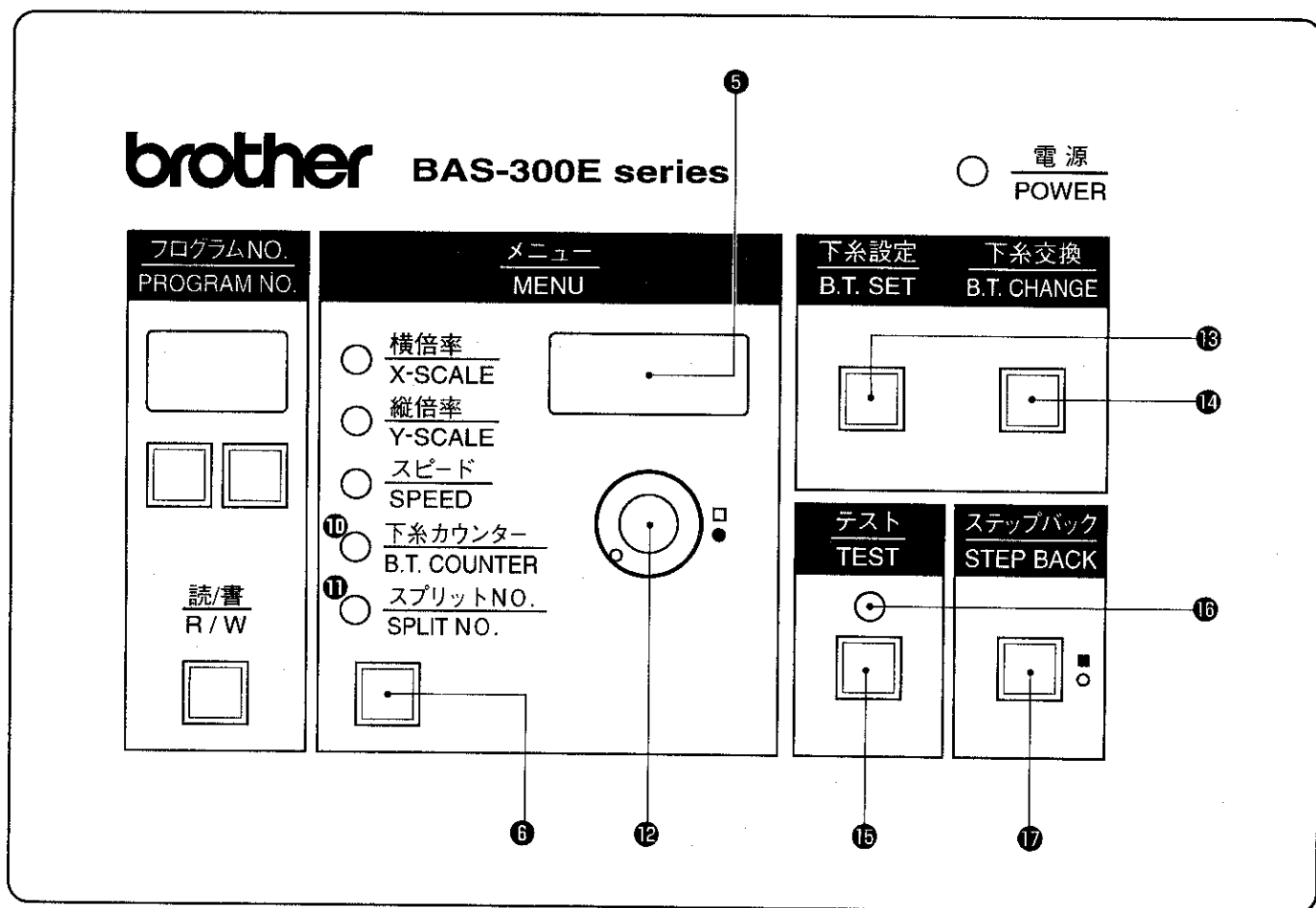
6-1. Explanation of panel



- ① POWER indicator When the power is turned on, the indicator lights to show that the power is on.
- ② PROGRAM No. display Displays the program number 00 - 99.
- ③ Program select switch Used to select the program number when reading a program from or writing a program to disk.
- ④ Program Read/Write switch Used to read a program from floppy disk, or to write a newly programmed stitch pattern to floppy disk.
Up to ten patterns (00 - 99) can be stored on each disk.
- ⑤ Display screen Used to display data such as menus, errors and memory switch settings.
- ⑥ Menu switch Used to select the desired menu (scale, speed, bobbin thread counter, split No.). One of the indicators ⑦ - ⑪ illuminates to indicate the menu selected, and the setting for that menu then appears on the display screen ⑤.
The illuminated indicator changes in the following order each time the switch is pressed.

→ X-SCALE indicator ⑦ — Y-SCALE indicator ⑧ — SPEED indicator ⑨ —
→ B.T. COUNTER indicator ⑩ — SPLIT NO. indicator ⑪

- ⑦ X-SCALE indicator Illuminates when X-scale mode has been selected using the menu switch ⑥.
- ⑧ Y-SCALE indicator Illuminates when Y-scale mode has been selected using the menu switch ⑥.
- ⑨ SPEED indicator Illuminates when speed mode has been selected using the menu switch ⑥.



- ⑩ Bobbin Thread COUNTER Illuminates when bobbin thread counter mode has been selected using the indicator
- ⑪ SPLIT NO. indicator Illuminates when split No. mode has been selected using the menu switch ⑥.
- ⑫ Dial The setting shown on the display screen ⑤ can be changed by turning this dial while pressing the STEP BACK switch ⑰.
- ⑬ Bobbin Thread SET switch Used to store the number of work pieces displayed in the bobbin thread counter to floppy disk.
- ⑭ Bobbin Thread CHANGE switch Used to continue sewing after replacing the bobbin thread.
(An alarm will sound when the counter reads <000>. Sewing is not possible when the counter reads <000>.) (Refer to "3-9. Using the bobbin thread counter".)
- ⑮ TEST switch Used to move the feed mechanism only in order to confirm a programmed stitch pattern.
- ⑯ TEST indicator Lights when the TEST switch is pressed.
- ⑰ STEP BACK switch Used when winding a fresh bobbin, or when correcting a stitch pattern due to a broken needle thread.

6-2. Using the floppy disk

Compatible types of floppy disk

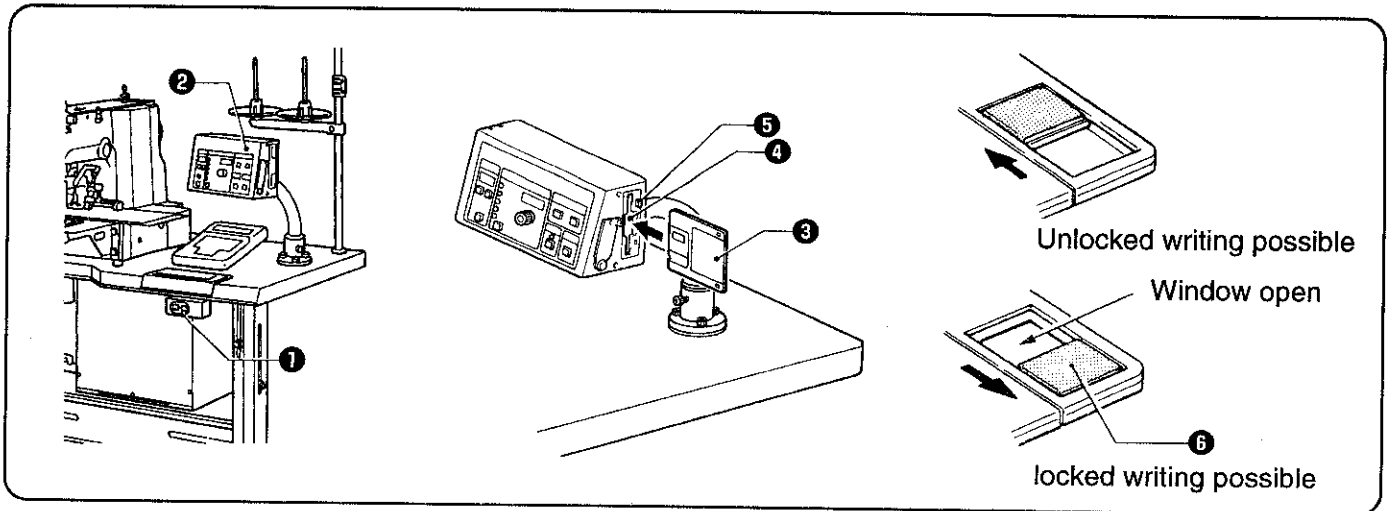
Data type	No. of stitches programmed	Data resolution	Disk	Format	Write enabled
300E type	20,000 stitches per pattern 100 pattern Up to a maximum of 360,000 stitches	0.05 mm/pulse	2HD	1.44 MB	Yes
Tajima embroidery data	50,000 stitches per pattern	0.1 mm/pulse			No
Old 300A type	4,000 stitches per pattern 10 patterns Up to a maximum of 40,000 stitches	0.1 mm/pulse	2DD	Automatically formatted	Yes
Old 300 data	2,000 stitches per pattern 10 patterns Up to a maximum of 20,000 stitches	0.2 mm/pulse			No

- The above four types of data can all be read, but when writing to disk, all data is automatically converted to 300E data when writing to 2HD disks and 300A data when writing to 2DD disks.
- When using a 2HD disk, use a disk which has been pre-formatted as a 1.44 MB disk. (The programmer can be used to format these disks. Refer to the programmer instruction manual for details.)
- TFD embroidery data can be embroidered after it has been converted by the programmer to BAS-300E data.
- Restriction on using 2DD floppy disks.

In order to maintain compatibility with the old 300A series, the following restrictions have been placed on the use of the new functions which have been added to the E series.

Restricted function	A series (2DD)	E series (2HD)	Applicable command
Resolution	0.1 mm/pulse	0.05 mm/pulse	
Low-speed conversion	2 types (400 and 1,200 revolutions)	4 types (400, 600, 800 and 1,200 revolutions)	[668] L [669] L
Split function during embroidering	Not available	Available	[220] L [230] L
Needle down stop for split	Not available	Available	[221] L [231] L
Expansion option output	Not available	Available	

6. Panel operation



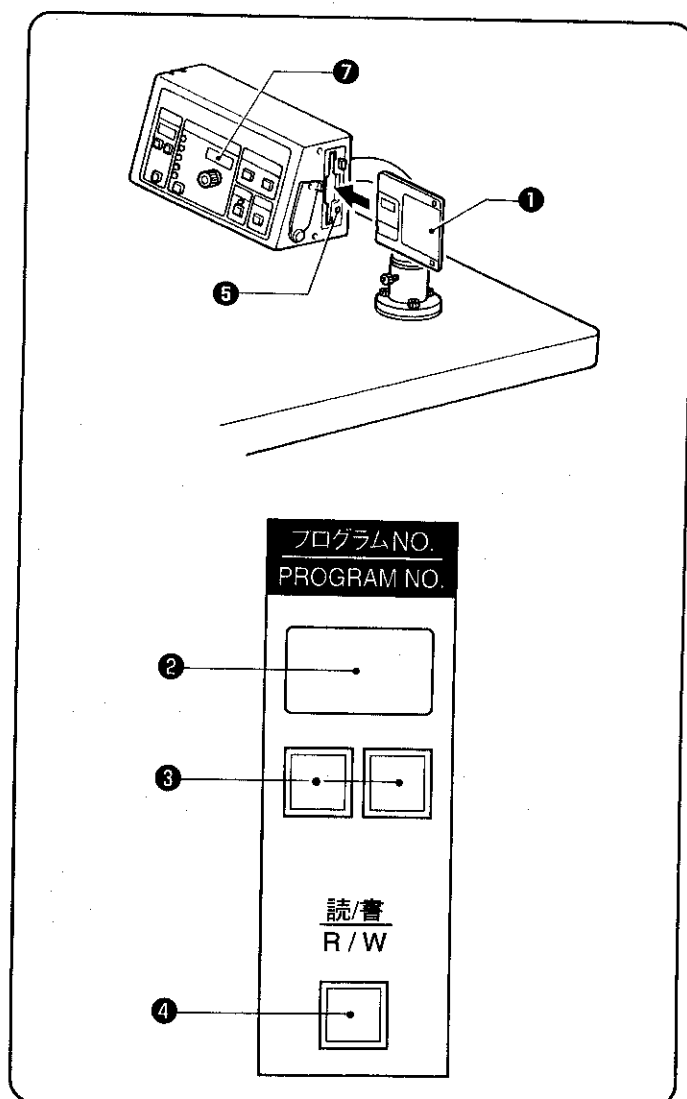
1. Turn on the power switch ①. The POWER indicator ② will illuminate and the machine model number will appear on the display screen.
2. Hold the disk ③ with the label up and the metal shutter to the front, and insert the disk into the drive ④. It will click into place.
3. To eject the disk, press the eject button ⑤.

NOTE

- Slide the write protector y on the back of the disk up (the window opens) to lock the disk and prevent accidental erasure of the disk contents.
- Inserting the disk into the drive upside down or backwards may damage the drive and will prevent reading or writing of data.
- Be sure to store your disks away from any magnets or magnetic sources, including radios, televisions, tele phones, and other devices. Magnetism can erase or damage disk contents. Also, be careful to prevent exposure of the disk to oil or dust.

6-3. Using the program R/W (Read/Write) switch

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



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

To READ a pattern to memory

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

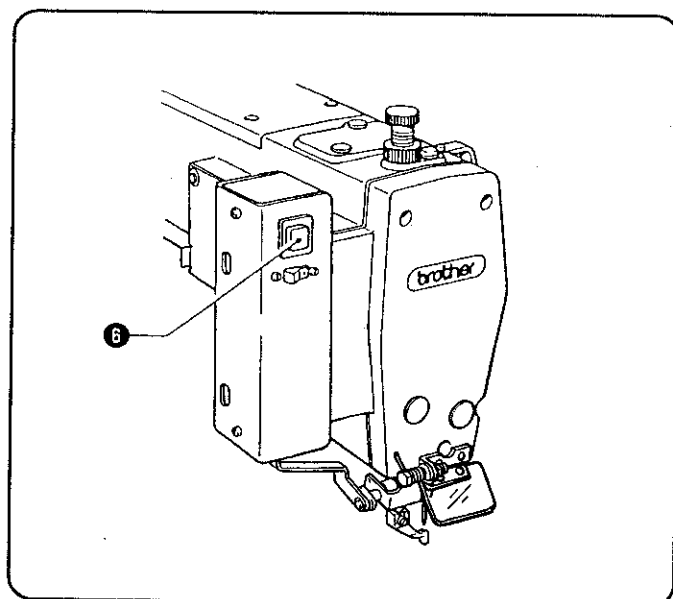
To WRITE a pattern to disk

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

If an error message is displayed

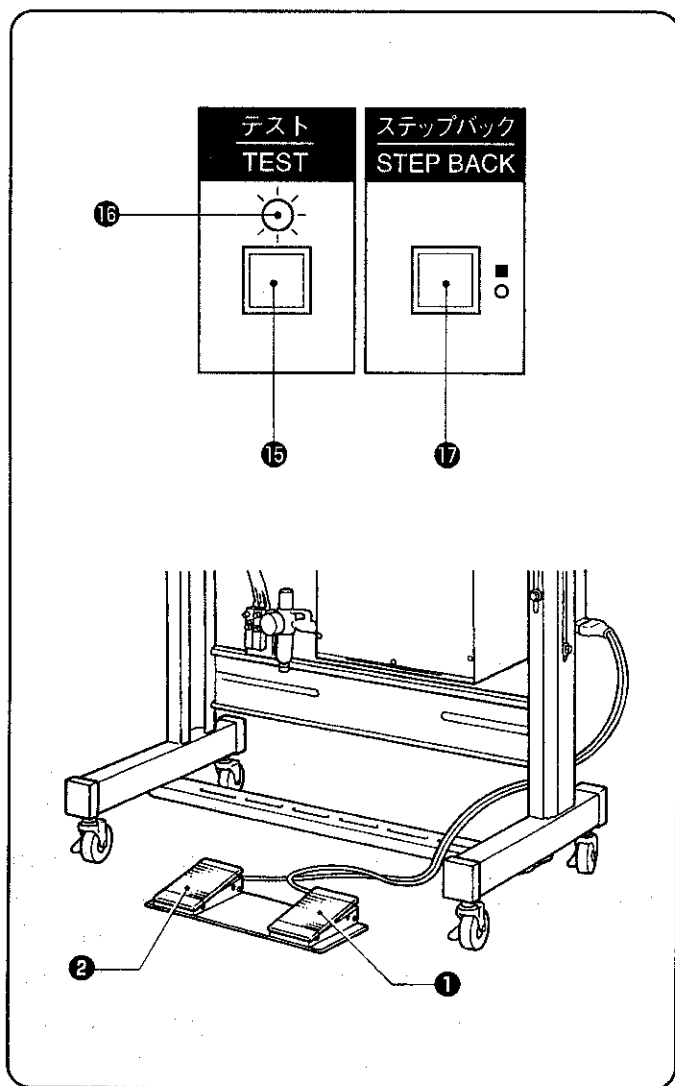
If an error message code is displayed in the display **7**, and alarm will sound.

Press the emergency stop switch **6** on the front of the machine to stop sewing machine operation, and then refer to and follow the error code list on page 59.



6-4. Using the TEST switch(Checking the sewing pattern)

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



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

NOTE

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

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

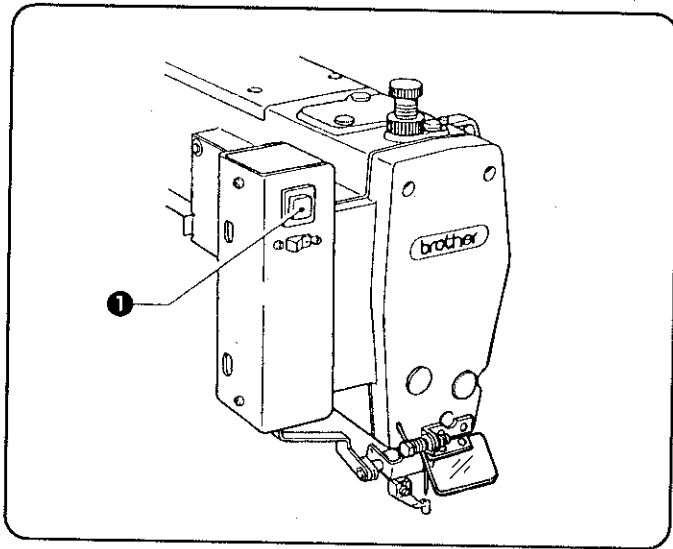
4. Press the starting pedal **1**. (The needle will remain stationary as the work clamp advances through the pattern at low speed one stitch at a time. Press the presser lifter pedal **2** to fast forward.
- If the STEP BACK switch **17** is pressed while moving at low speed, the work clamp will move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

Resuming operation from a stopping point

6. Sewing will start when the starting pedal **1** is pressed.

6-5. Using the emergency stop switch

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



If the emergency stop switch ❶ is pressed while sewing

All operations will stop, and an alarm will sound. Correct the problem, and press the emergency stop switch ❶ again. The thread cutter will operate, the emergency stop function will be cancelled, and the alarm will stop.

- There will be no response when either foot switch is pressed when the emergency stop switch ❶ is on (the alarm is sounding).

If the emergency stop switch ❶ is pressed during the test mode

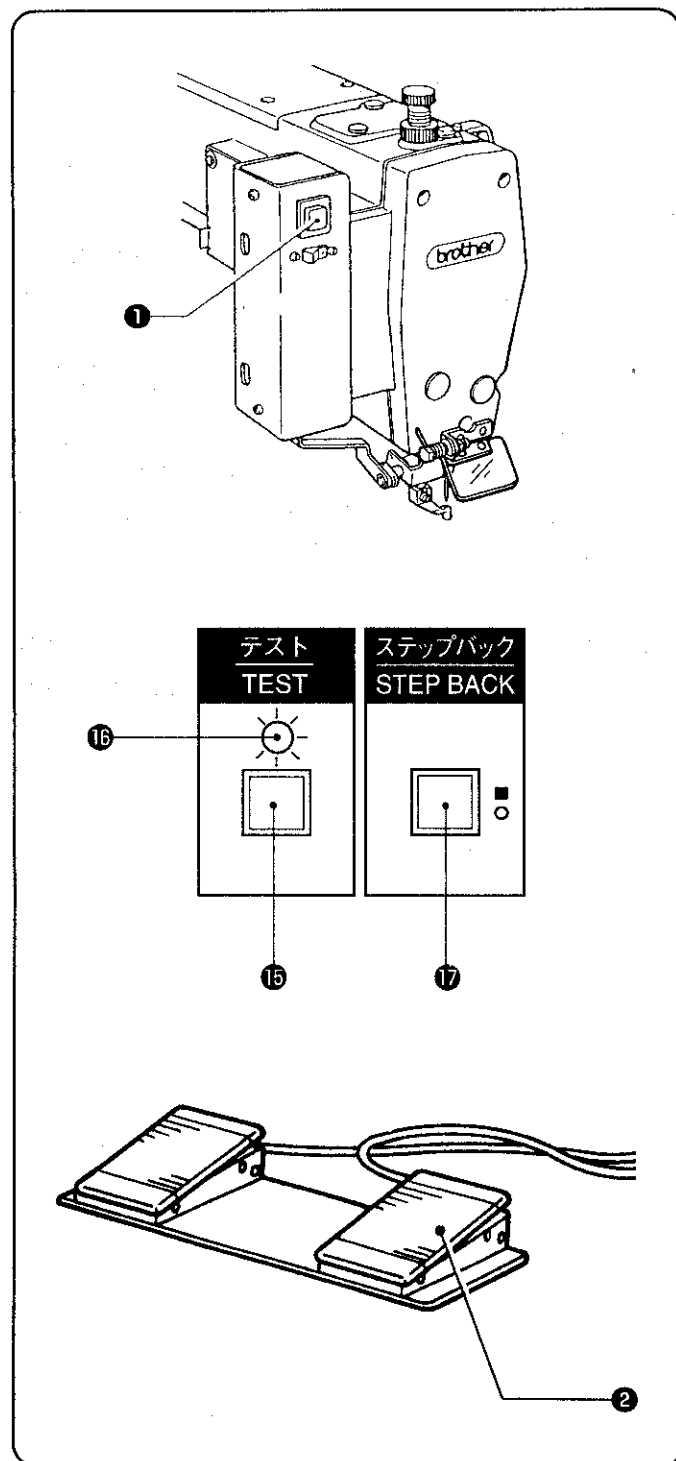
All operations will stop, and an alarm will sound. The emergency stop function will be cancelled when the emergency stop switch ❶ is pressed.

If a problem occurs

If an abnormal load is applied or a problem occurs during sewing, the emergency stop function is automatically activated, all operations stop, and the alarm sounds. Press the emergency stop switch ❶ to cancel the emergency stop mode.

6-6. Using the STEP BACK switch

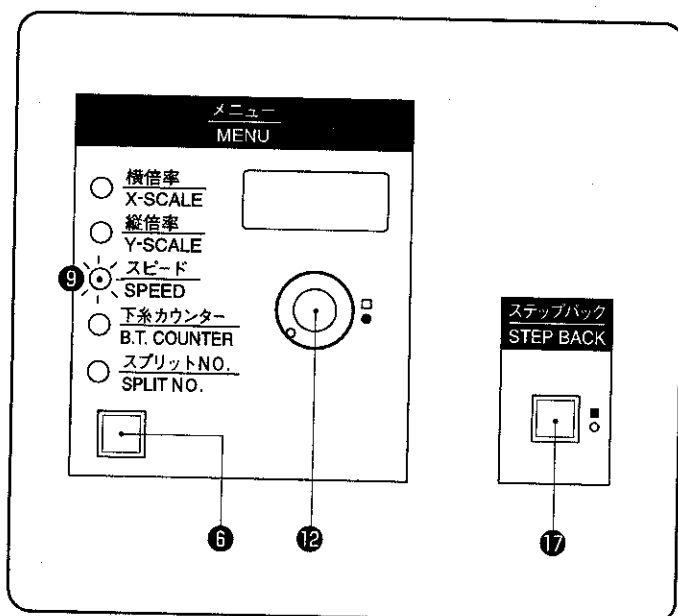
This switch is used to move the machine one stitch at a time in the reverse sewing direction to enable resewing in the event the thread breaks or the bobbin thread runs out in mid-pattern. Use this switch to return to the point where the thread broke or run out. This is especially useful with large patterns.



1. Press the emergency stop switch ❶ while the machine is running. (All operations will stop and the emergency stop lamp will illuminate.)
2. Press the emergency stop switch ❶ once again. (The emergency stop lamp will go out.)
3. Press the STEP BACK switch ❷. (The work clamp will move stitch by stitch in the opposite direction while the STEP BACK switch ❷ is being pressed.)
4. When the work clamp has returned to the desired position, release the STEP BACK switch ❷. (If the work clamp is stopped too soon, press the STEP BACK switch ❷ again to resume work clamp movement.)
5. The machine will start sewing when the starting pedal ❸ is pressed.
In addition, if the TEST switch ❹ is pressed, the TEST indicator ❺ will illuminate and the work clamp will move one stitch at a time in the forward direction.

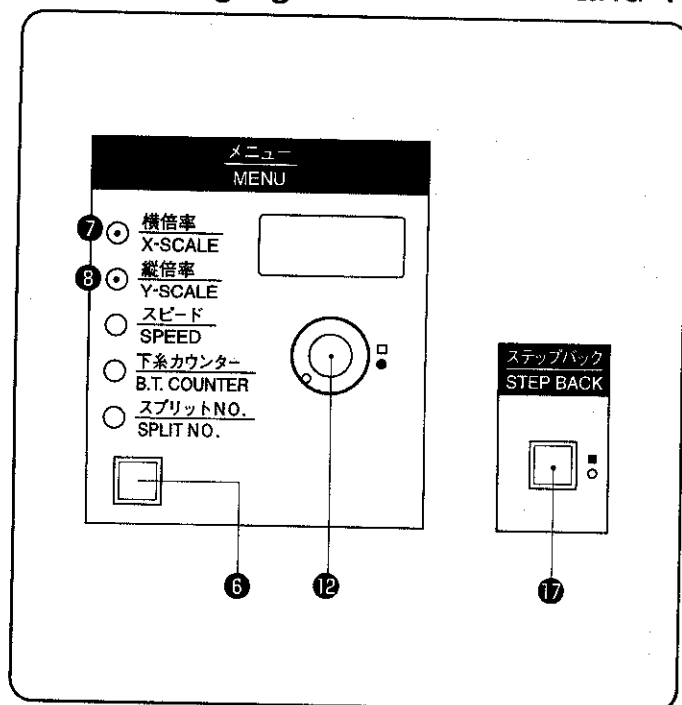
6-7. Adjusting the sewing SPEED control

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



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

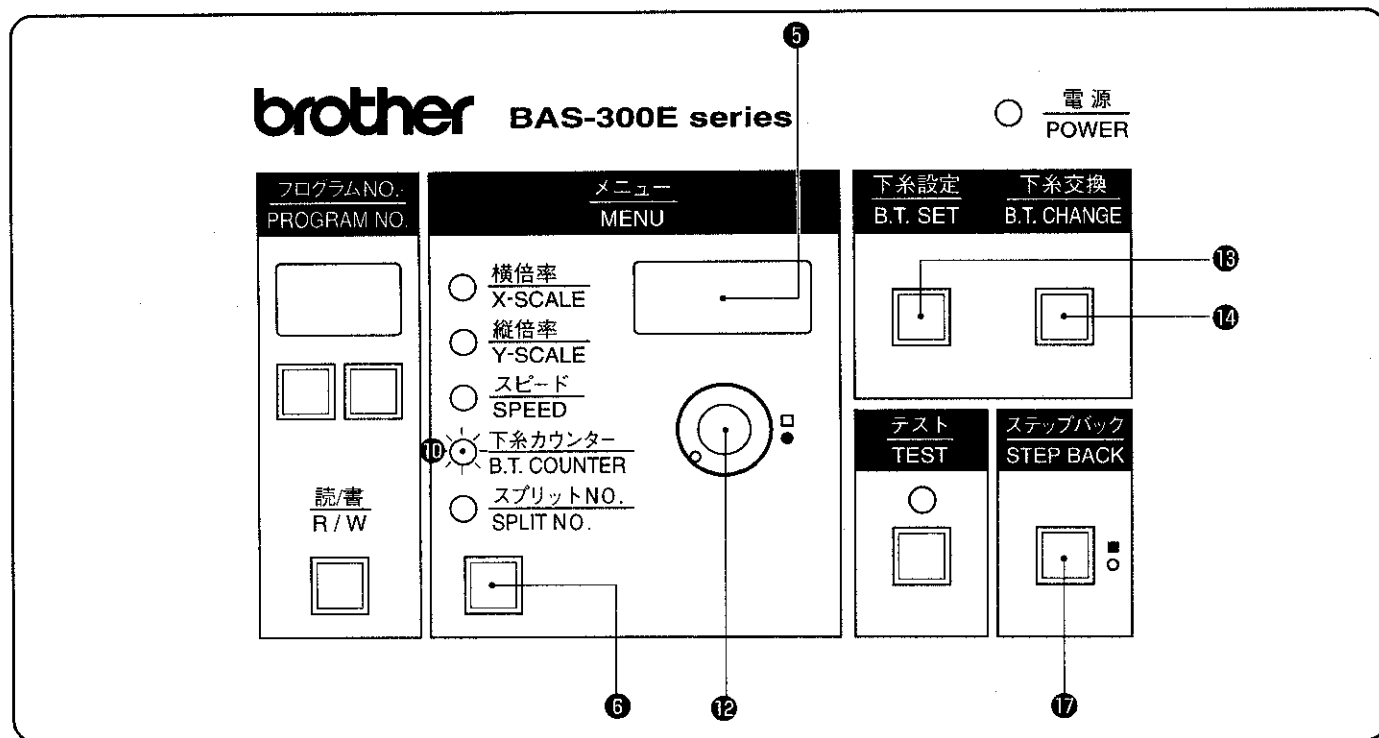
6-8. Changing the X-SCALE and Y-SCALE settings



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

6-9. Using the bobbin thread counter

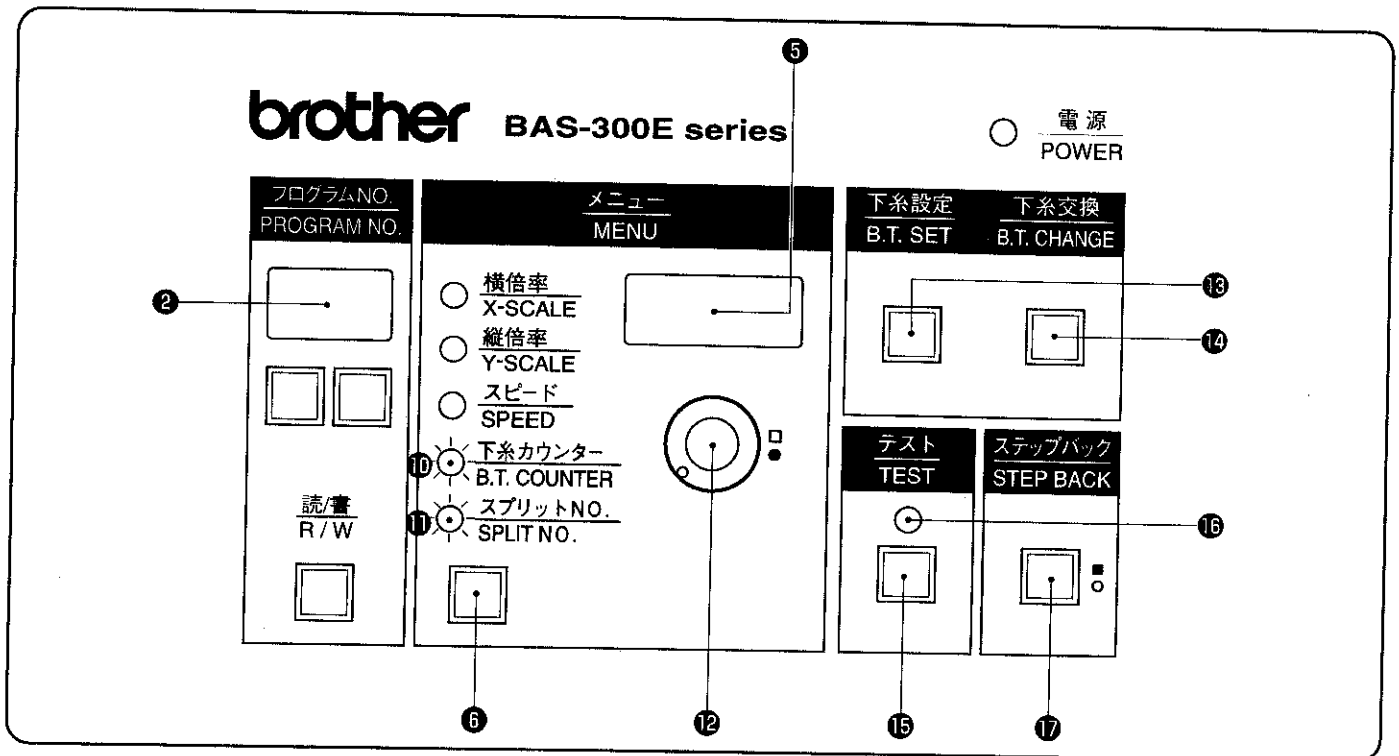
Set the bobbin thread counter to display the number of pieces of the selected pattern which can be sewn with the amount of thread on the bobbin to avoid running out of bobbin thread in the middle of a pattern.



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

6-10. Using production counter

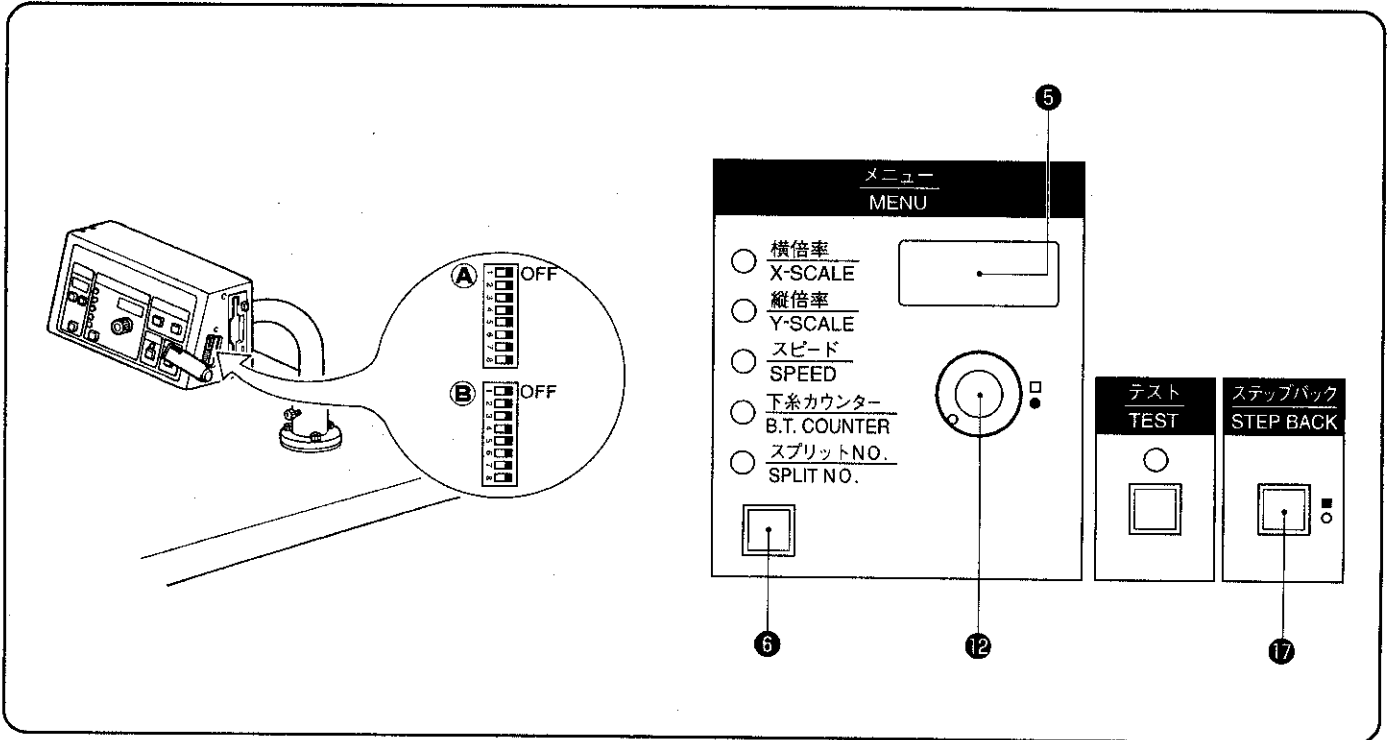
Both PRO. NO. and B.T. COUNTER displays are available for the five-digit PRODUCTION counter.



1. While pressing the TEST switch 15, press the B.T.SET switch 13. The B.T. COUNTER indicator 10 and the SPLIT NO. indicator 11 will both illuminate, and the production counter value will appear on the program number display 2 and on the display screen 5.
 - Press the B.T. CHANGE switch 14. The PRODUCTION counter will display <00000>.
 - The production counter can be set to a value between <00000> and <99999> by turning the dial 12 while pressing the STEP BACK switch 17.
2. Depress the start switch to start embroidering.
3. Press the TEST switch 15 or the MENU switch 6. The TEST indicator 16 will switch off and the contents of each display screen will return to the normal display.

6-11. Using single split mode

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



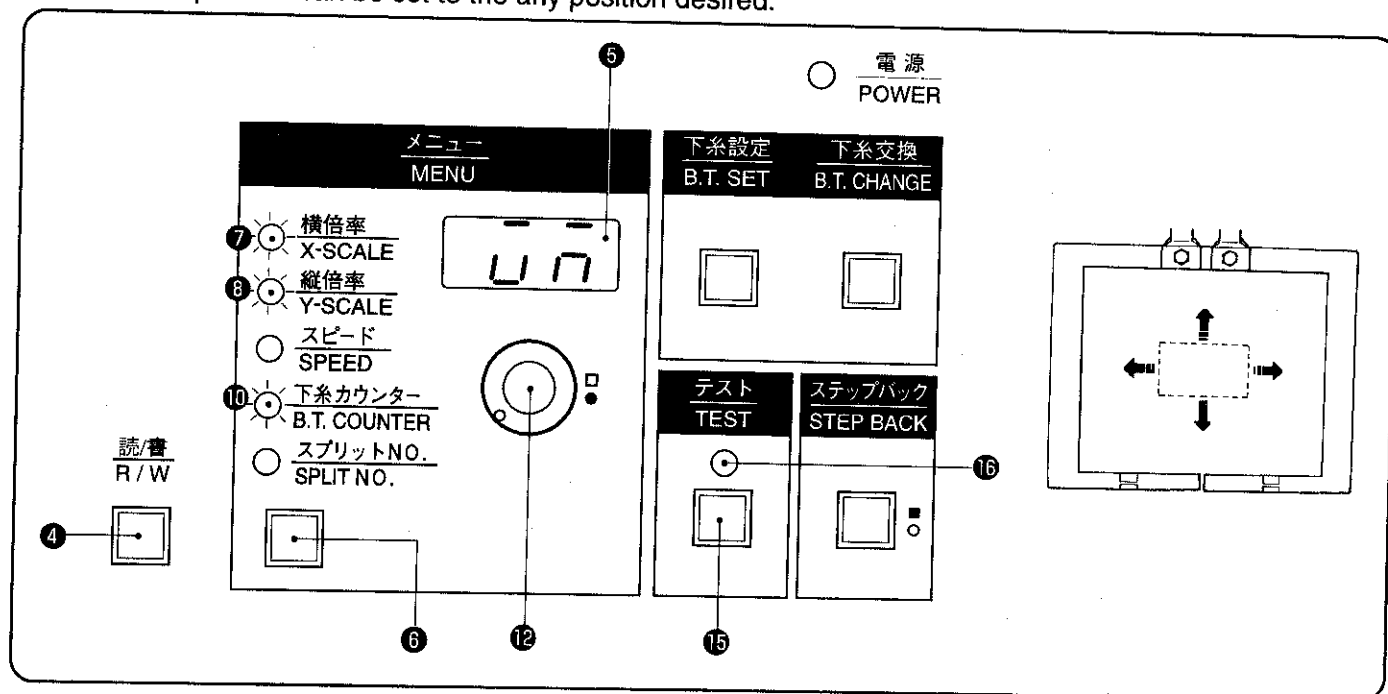
1. Move DIP switch **B** No. 1 to the ON position. This will activate single split mode.
(Refer to "DIP SWITCH SETTINGS" on 10.)
2. Turn on the power read in the patterns which have been programmed for split sewing.
3. Press the MENU switch **6** until the SPLIT NO. indicator **11** is illuminated. "1" will then appear in the display screen **5**. Then, while pressing the STEP BACK switch **17**, turn the dial **12** to change the contents appearing on the display screen **5** in order.
(Example) If three patterns have been programmed for split sewing, the number on the display screen changes in the following order: "1" → "2" → "3" → "1" → "2" ...
4. When the starting switch is pressed, only the pattern displayed on the display screen **5** will be sewn.

NOTE

As to split sewing, refer to the instruction manual of the "electronic programmable pattern tacker programmer"

6-12. Shifting a stitch pattern

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



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

7. Sewing

CAUTION



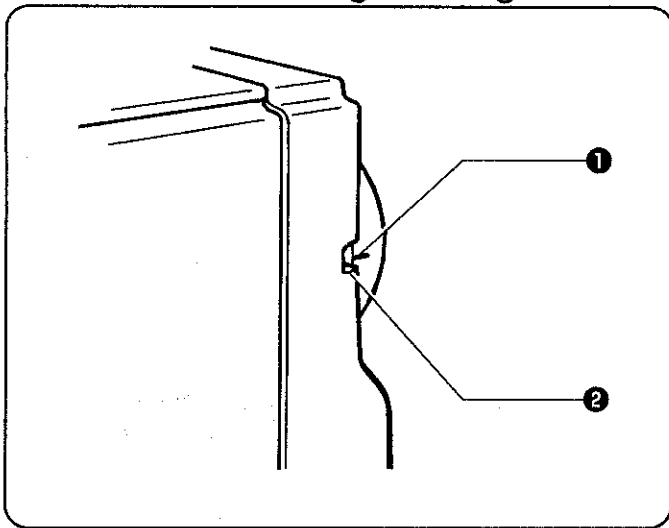
Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

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



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

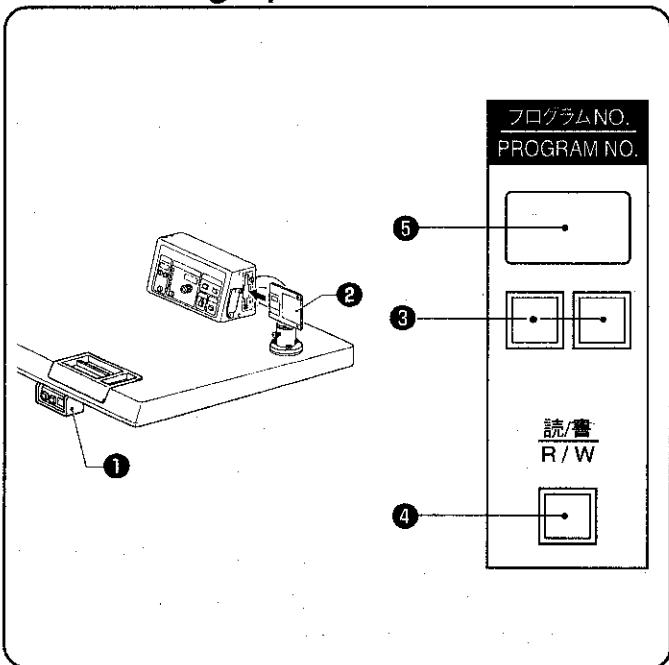
7-1. Before starting sewing....



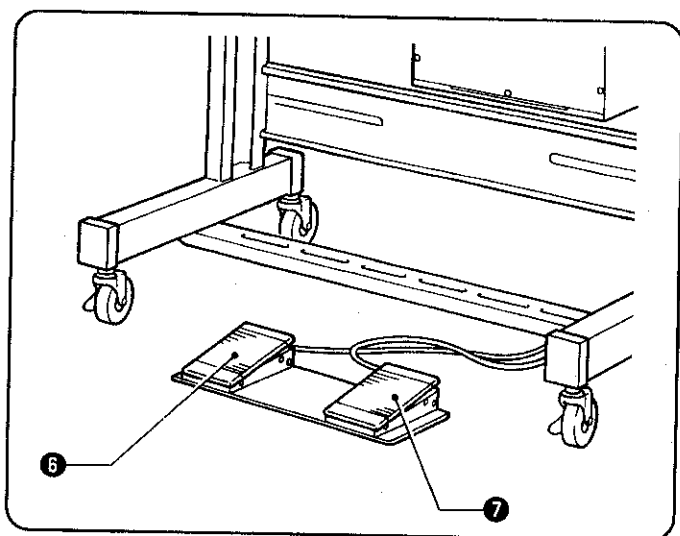
- Check that the needle bar is at its highest position. Turn the machine pulley so that the index mark **1** on the pulley is between the marks **2** on the belt cover.

- * If the machine is started while the index mark **1** is not between these two marks **2**, error message "E-22" will be displayed.
(only when memory switch No.14 is on)

7-2. Sewing operation



1. Turn the power switch **1** on.
(The power indicator on the operation panel will light.)
2. Insert the floppy disk **2**.
3. Press the PRO. No. selection switch **3** to select the desired program number.
4. Press R/W switch **4**.
 - The floppy disk drive indicator will light and the program no. display **5** will show a P while the data is being read. When reading is completed, an alarm will sound and the indicator will go out, then the program no. display **5** will blink the program number.



5. Step on the presser lifter switch **6** to raise the presser foot.
6. Insert the work piece under the work clamp, and press the presser lifter switch **6** to lower the clamp.
7. Press the starting pedal **7**.

NOTE

The work clamp will return to the origin, and will then advance to the sewing start position and blinking will stop. This is only required the first time a program is sewing.

8. Press the starting pedal **7** again to start sewing.
9. After sewing is completed, the thread cutter will automatically operate, then the work clamp will rise.

NOTE

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

8. Maintenance and inspection

CAUTION

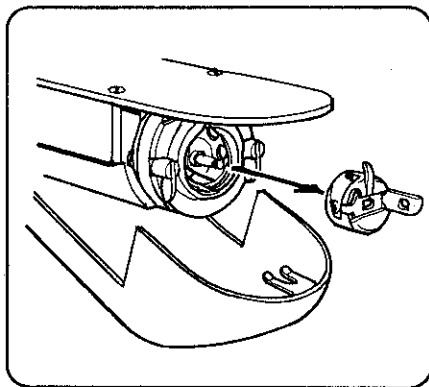


Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

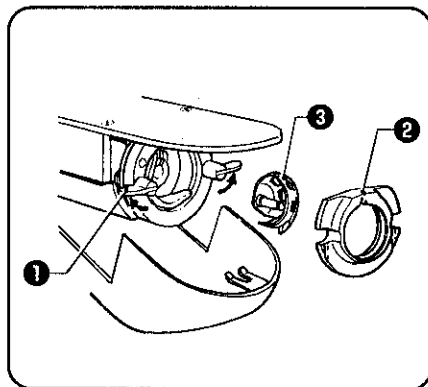


Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea.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

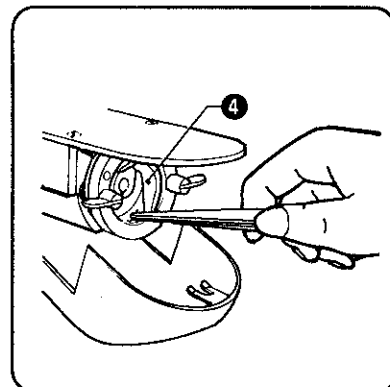
8-1. Cleaning the rotary hook



1. Pull the shuttle hook cover forward to open, and then remove the bobbin case.



2. Open the large shuttle hook set claw **1** in the direction indicated by the arrow, and then remove the large shuttle hook **2** and the inner rotary hook **3**.

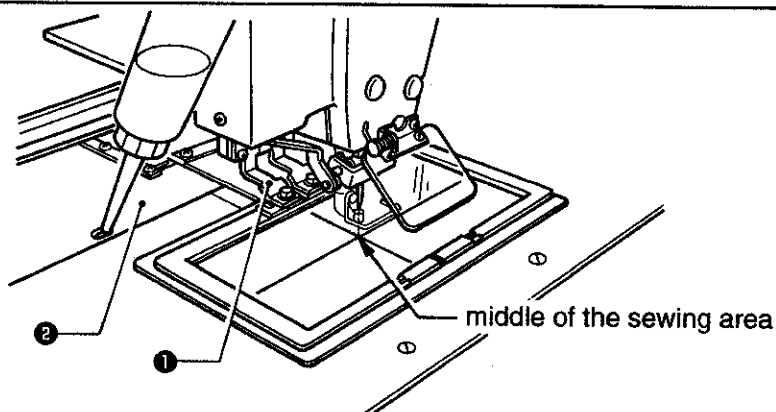


3. Clean all the dust and thread ends from around the driver **2**, the top of the rotary hook thread guide and the shuttle race.

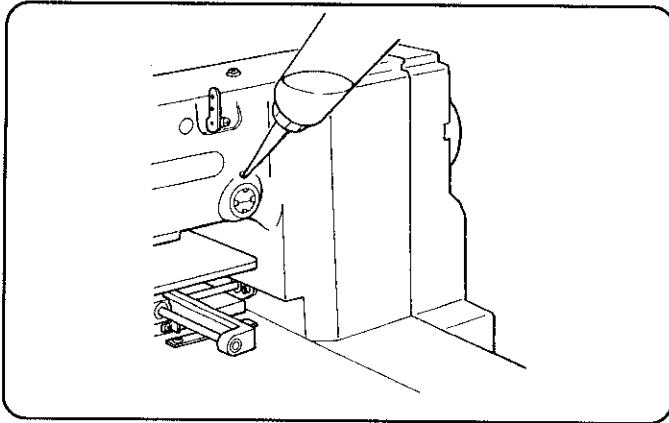
8-2. Lubrication

NOTE

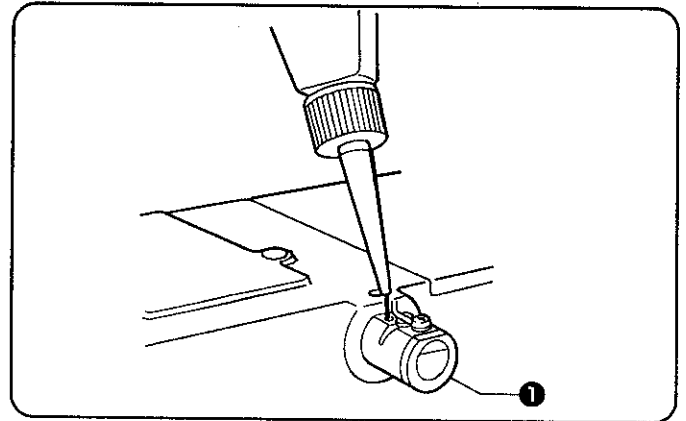
- Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass.
- If oil is not added and the oil drops below this level, there is the danger that the machine may seize during operation.
- Be sure to let the machine operate for a while after adding the oil.
- Use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



1. When filling the bed oil tank with oil, first move the presser arm **1** to the middle of the sewing area in the X direction so that the oil hole in the X feed base cover L assembly **2** is aligned with the oil hole in the bed, and then fill the bed oil tank with oil.

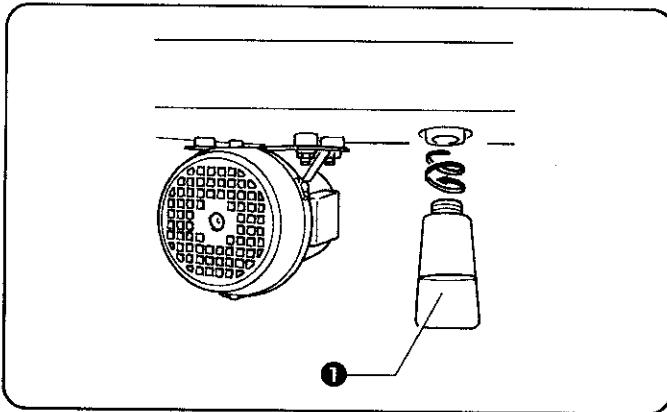


2. Fill the arm-side oil tank with oil.



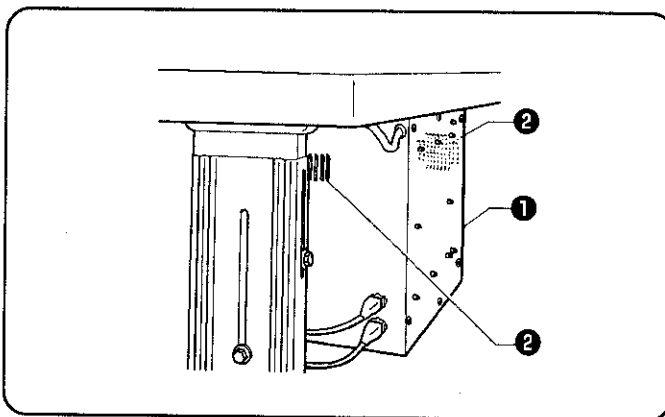
3. If using the liquid cooling tank ❶, fill it with silicon oil(100 cs).

8-3. Draining the oil



1. Remove and empty the waste oil container ❶ whenever it is full.
2. After emptying the waste oil container ❶, screw it back into its original position.

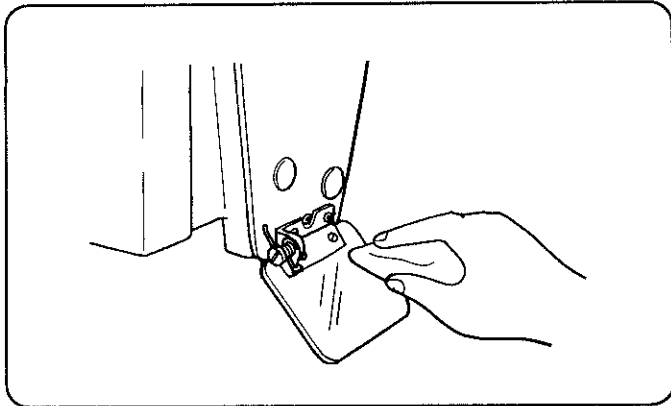
8-4. Cleaning the control box air inlet port



Use a vacuum cleaner to clean the filter in the air inlet port ❷ of the control box ❶ at least once a month.

* If the machine is used while the air inlet port is blocked, the inside of the control box will overheat. When this happens, the overheating error code ("E-d") will be displayed and you will not be able to operate the sewing machine.

8-5. Cleaning the eye guard

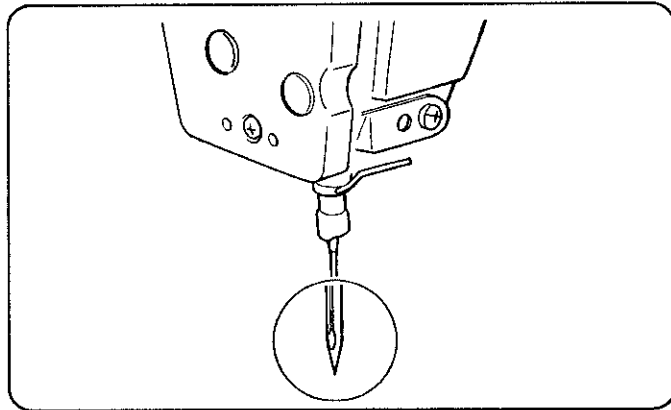


Wipe the eye guard clean with a soft cloth.

NOTE

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







8-6. Checking the needle



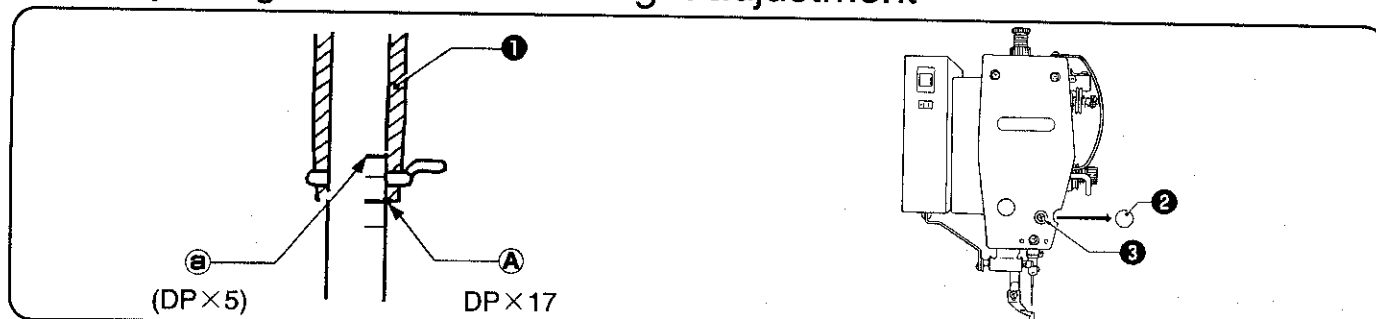
Always check that the tip of the needle is not broken before starting sewing.

9. Standard adjustments

⚠ CAUTION

-  Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
-  Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.
-  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.
 - When carrying out inspection, adjustment and maintenance
 - When replacing consumable parts such as the rotary hook and knife
-  Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.
-  If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.
-  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.

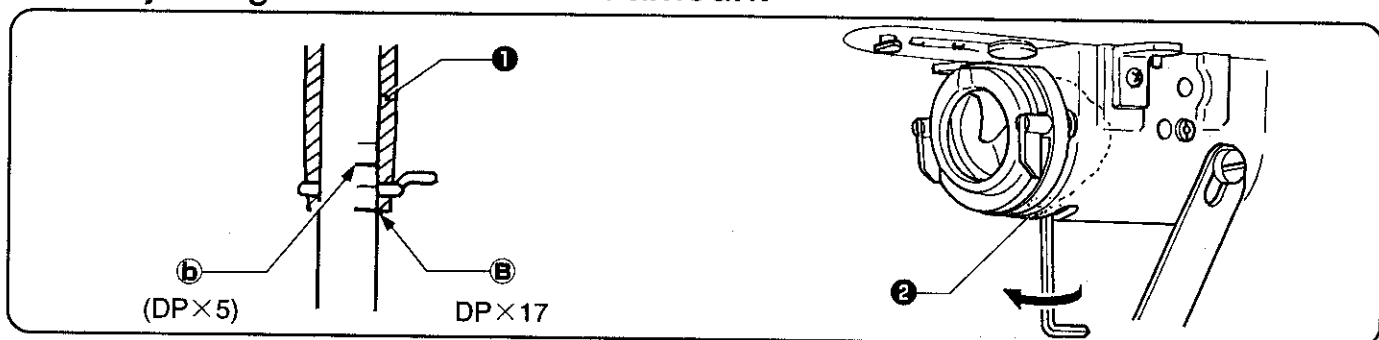
9-1. Adjusting the needle bar height adjustment



Turn the machine pulley to move the needle bar to the lowest position. Then remove the rubber plug ②, loosen the screw ③ and then move the needle bar up or down to adjust so that the second reference line from the bottom of the needle (reference line A) is aligned with the lower edge of the needle bar bush ①.

* If using a DP × 5 needle, use the highest reference line (reference line B).

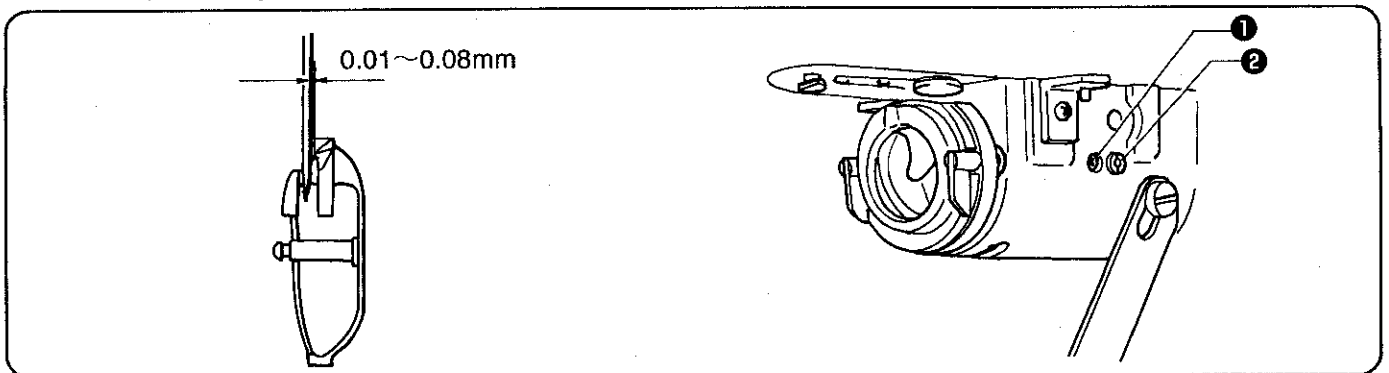
9-2. Adjusting the needle bar lift amount



Turn the machine pulley to raise the needle bar from the lowest position until the lowest reference line on the needle (reference line B) is aligned with the lower edge of the needle bar bush ①. Then loosen the screw ② and move the driver to adjust so that the tip of the rotary hook is aligned with the needle center line.

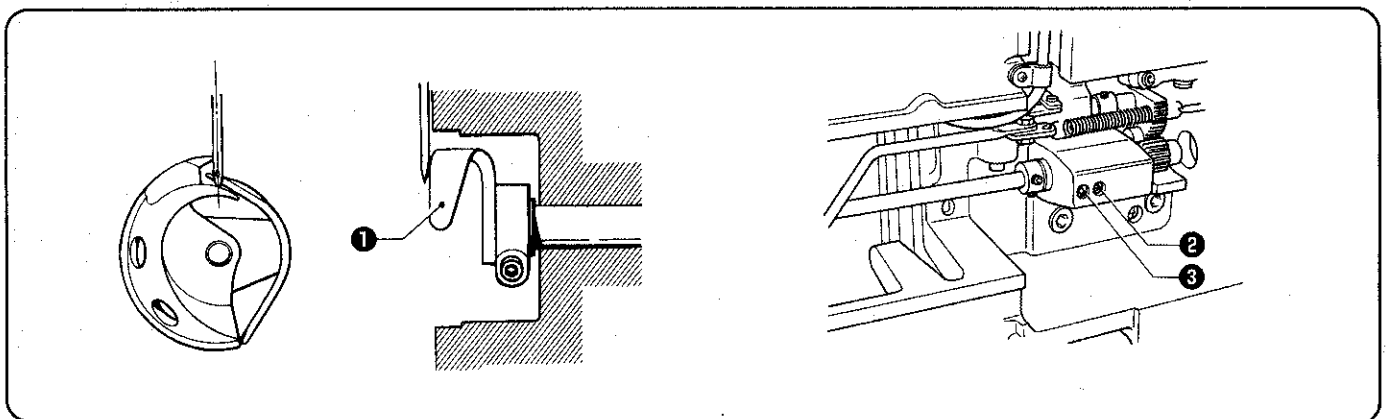
* If using a DP × 5 needle, use the second reference line from the top of the needle (reference line A).

9-3. Adjusting the needle clearance



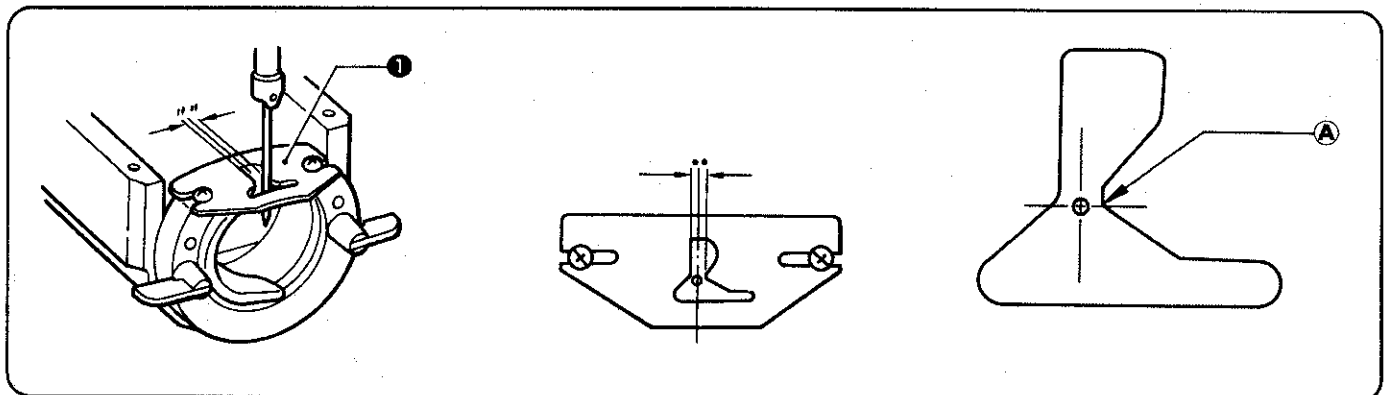
Turn the machine pulley to align the tip of the rotary hook with the needle center line. Then loosen the set screw **1** and turn the eccentric shaft **2** to adjust so that the clearance between the needle and the rotary hook is 0.01 - 0.08 mm.

9-4. Adjusting the driver needle guard



Turn the machine pulley to align the tip of the rotary hook with the needle center line. Then loosen the set screw **2** and turn the eccentric shaft **3** to adjust so that the driver needle guard **1** contacts the needle. If the needle contact pressure is too great, skipped stitches may occur. On the other hand, if the driver needle guard **1** is not touching the needle, the tip of the inner rotary hook will obstruct the needle, resulting in an excessively high amount of friction.

9-5. Adjusting the shuttle race thread guide

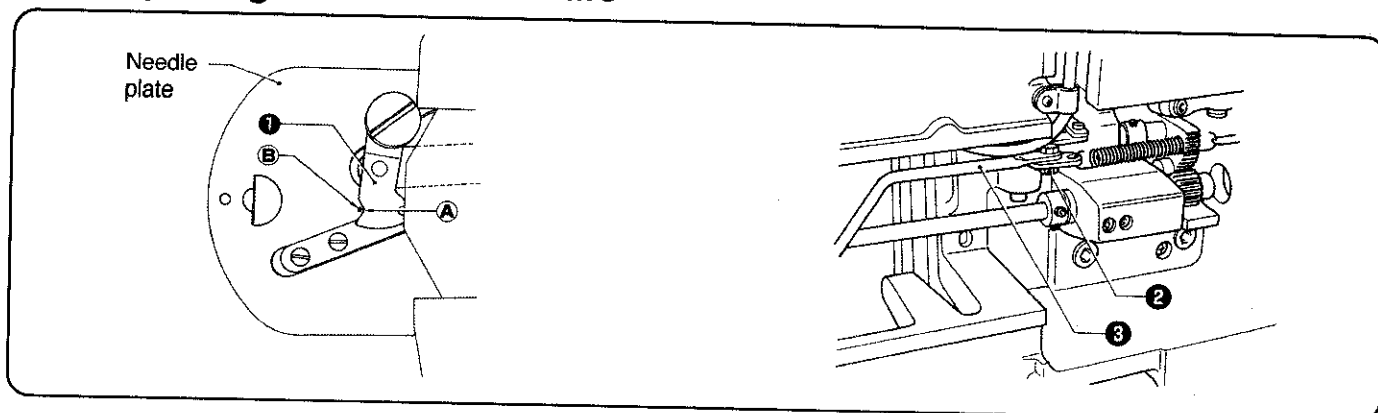


The needle groove of the shuttle race thread guide **1** should be aligned with the center of the needle plate hole, and the needle center and the angled section **A** should be aligned.

NOTE

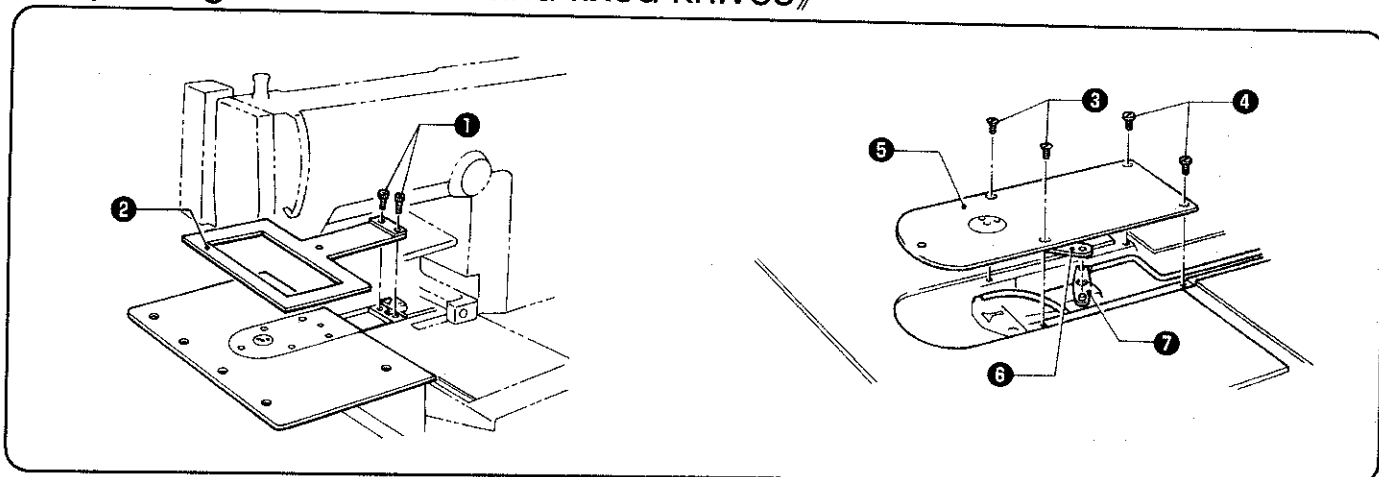
If the shuttle race thread guide is in the wrong position, thread breakages, soiled thread or catching of the thread may occur.

9-6. Adjusting the movable knife

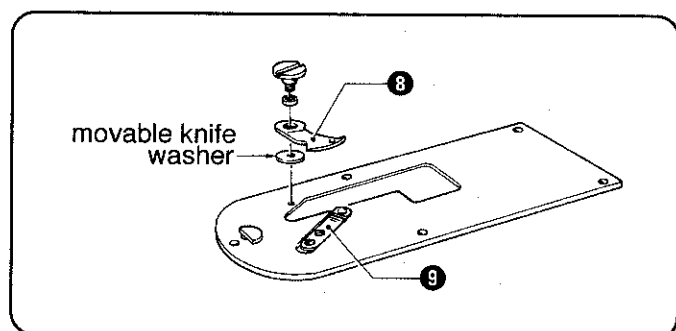


Loosen the nut ② and move thread trimmer rod L ③ to the left or right to adjust so that the V section ① of the movable knife is aligned with the index mark ③ on the needle plate when the machine is at the stop position.

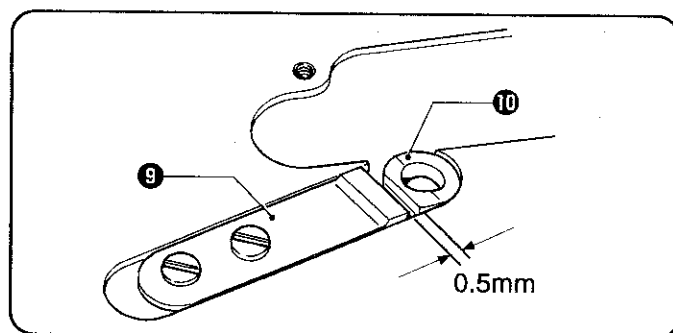
《Replacing the movable and fixed knives》



1. Remove screws ①, and remove feed plate ②. Remove screws ③ and ④, and remove needle plate ⑤. Now disconnect the thread cutter connecting rod ⑥ from stud ⑦.



2. Remove the movable knife, and replace it with a new movable knife. Now check the cutting edge of the movable knife ⑧ and the fixed knife ⑨. If necessary, use the provided movable knife washer to adjust the knives so that they cut properly.

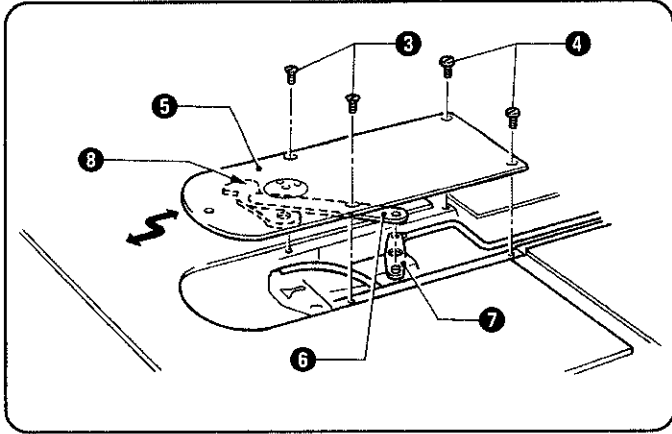


3. Install the fixed knife ⑨ 0.5 mm away from needle hole plate ⑩.

NOTE

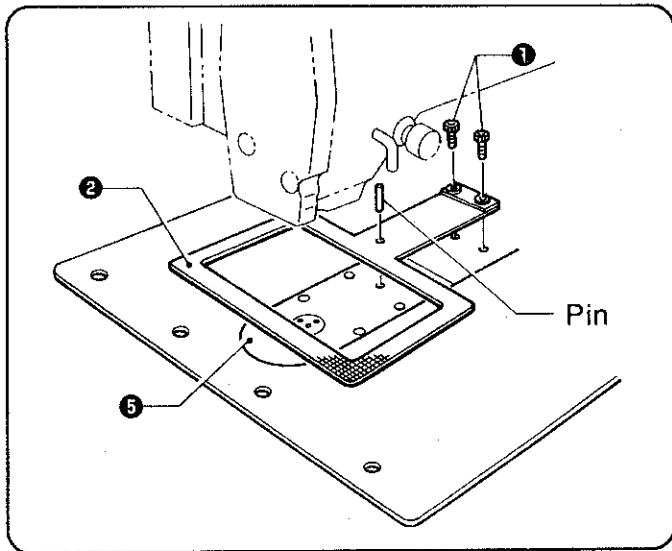
After engaging the movable knife ⑧ and fixed knife ⑨, loosen the screw, return the movable knife to its original position and then re-tighten the screw. Then re-engage the movable knife ⑧ and fixed knife. Repeat the above procedure 2 - 8 times to obtain good cutting performance for longer periods.

9. Standard adjustments



4. Fit the thread cutter connecting rod **6** on connecting lever pin **7**, and install needle plate **5**.

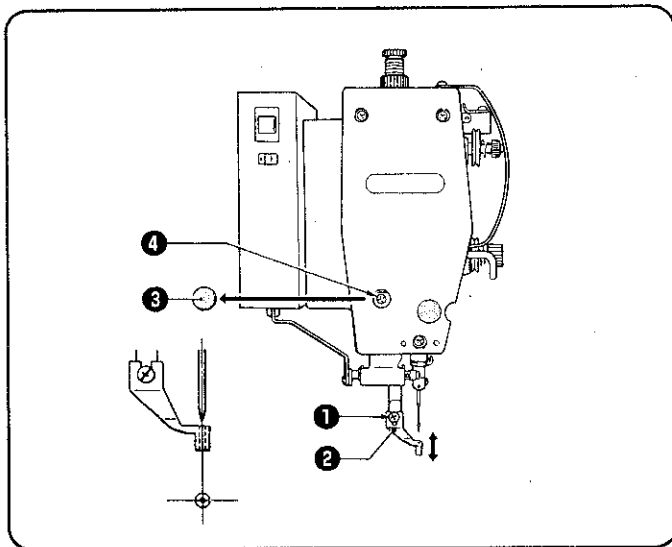
- When fitting the connecting rod **6** on the connecting lever pin **7** and before tightening screws **3** and **4**, move the needle plate back and forth a little bit to confirm that the movable knife **8** is pulled by the connecting rod **6**.



5. When installing the feed plate **2**, use a 2 mm- diameter pin (such as a needle) to align the hole in the needle plate **5** with the hole in the feed plate **2** when the machine is at the home position, and then tighten the screws **1**.

9-7. Presser foot adjustment

Turn the pulley by hand to lower the presser foot to the down position, and then proceed with the steps below.



1. Loosen screw **1**, set the bottom of the presser foot **2** lightly against the work piece, and then tighten screw **1**.

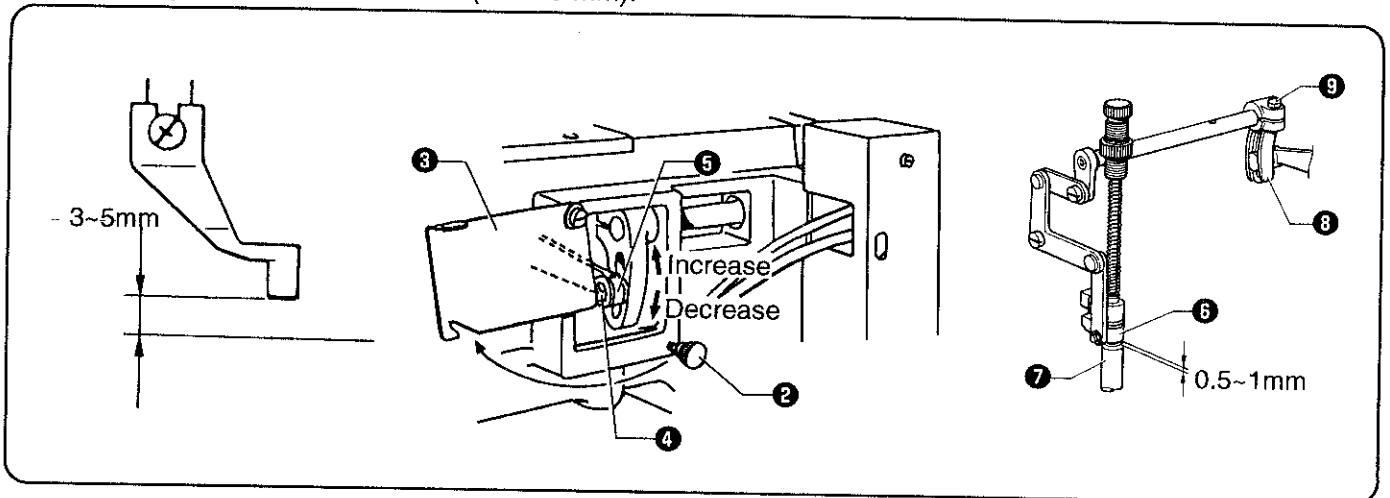
NOTE

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

2. Turn the pulley by hand, and make sure the needle enters the center of the needle hole in the presser foot **2**. If the needle is not aligned with the center of the needle hole, remove cap **3**, loosen screw **4**, and turn the presser foot (presser bar) to adjust.

9-8. Changing the presser foot lift

■ Standard presser foot lift is 3 mm (max. 8 mm).

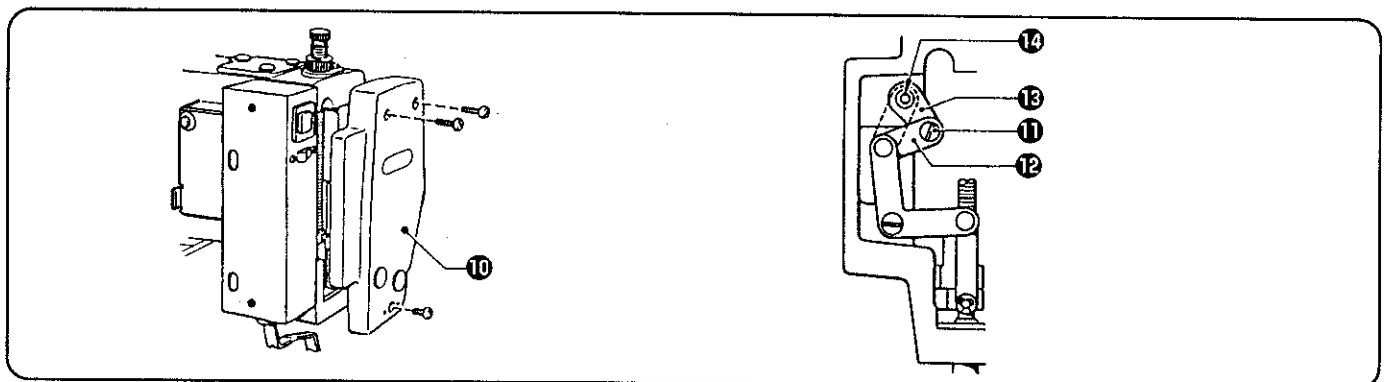


Adjusting presser foot lift to 3 - 5mm

1. Loosen the stud screw **2** and open the intermittent cover **3**.
2. Loosen the nut **4** and adjust the intermittent presser connecting rod **5** position.
(When the intermittent presser connecting rod is raised, the lift will increase. When lowered, the lift will decrease.)

Adjusting presser foot lift to 5 - 8 mm

1. Turn the upper shaft to set the presser foot to its lowest point. Loosen the screw **9** of intermittent presser arm (R) **8**. Adjust the clearance between the presser lifter **6** and the presser bar bush **7** to 0.5 - 1 mm.
2. Loosen the nut **4** and adjust the intermittent presser connecting rod **5** position.
(When the intermittent presser connecting rod is raised, the lift will increase. When lowered, the lift will decrease.)

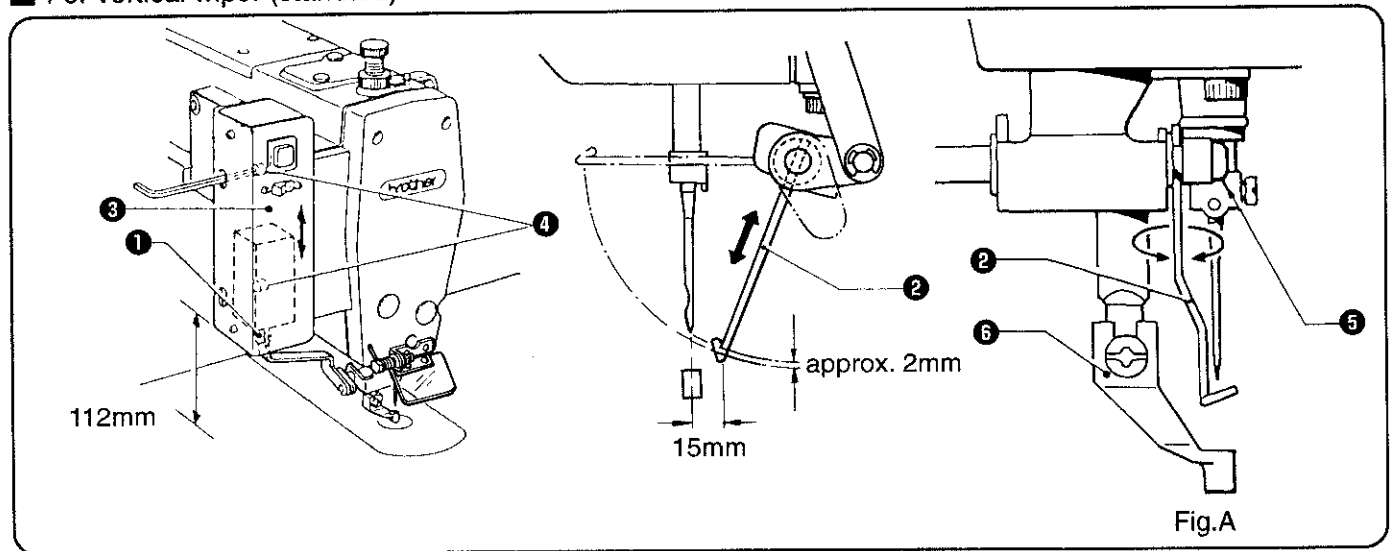


If vertical movement of the presser foot is not required

1. Remove the face plate **10**.
2. Remove the stud screw **11** and re-attach the intermittent connecting rod **12** to the upper screw hole **14** of the intermittent presser arm R **13**.

9-9. Wiper adjustment

■ For vertical wiper (standard)



1. When the thread wiper solenoid plunger **1** is driven to the full stroke, the wiper **2** should be 15 mm in front of the needle center. Loosen screws **3** and shift the entire solenoid bracket **4** up or down to adjust.

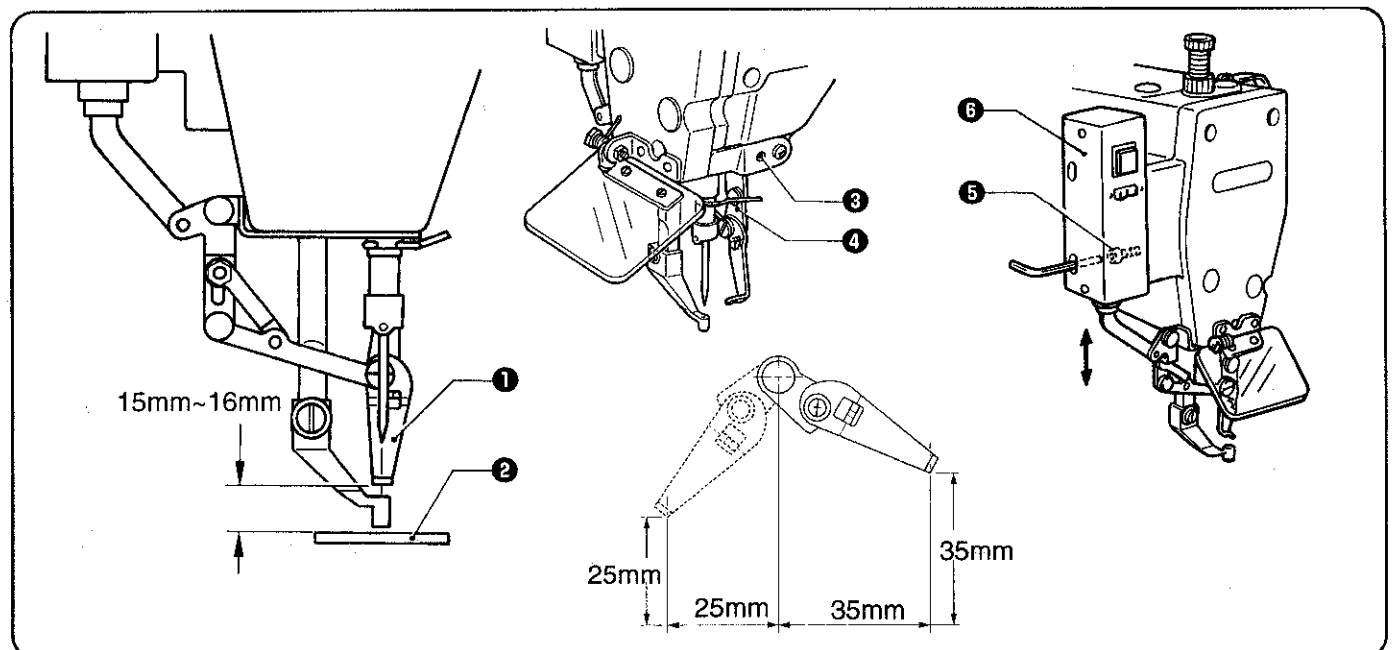
The standard height from the solenoid bracket **4** bottom to the needle plate top is approximately 112 mm.

2. When the wiper **2** is operated and aligned with the center of the needle bar, the distance from the wiper **2** to needle tip should be approximately 2 mm. Loosen screw **5** and move the wiper **2** in or out to adjust. As shown in Fig. A, make sure the wiper **2** does not strike the presser foot **6** or needle.

NOTE

Check that the wiper **2** is not touching the finger guard.

■ For vertical wiper (standard)



1. Loosen the set screw **2** and move the wiper arm support **3** up or down to adjust so that there is a clearance of 15 - 16 mm between the bottom of the thread wiper and the tip **1** of the needle when the thread wiper is aligned with the center of the needle bar.
2. After the thread wiper has wiped the thread, loosen the bolt **5** and move the whole solenoid fixing plate **6** up or down to adjust so that the distance is approximately 37.5 mm.

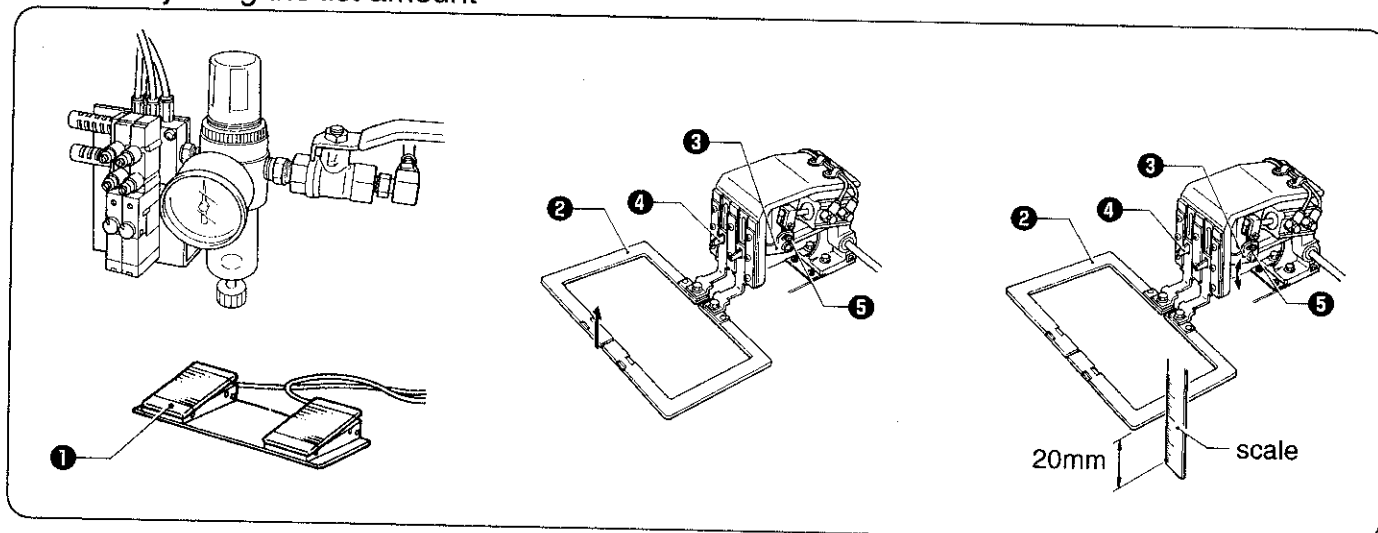
9-10. Adjusting the two-step work clamp lift amount

- The maximum work clamp lift amount is 30 ± 1 mm from the top of the needle plate.

NOTE

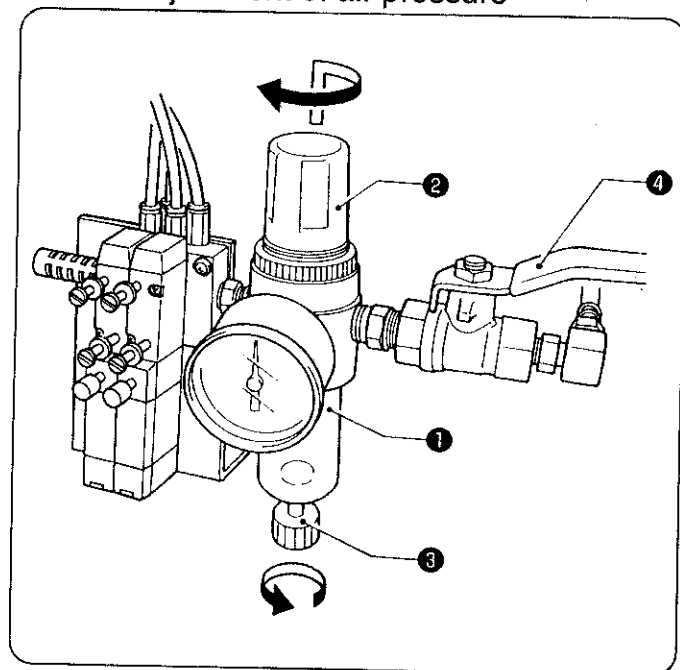
The amount of lift is adjusted to 20 mm at the time of shipment from the factory.

9-10-1. Adjusting the list amount



1. Turn on the air, and then press the presser lifter switch **1** to raise the presser foot **2**.
2. Loosen the bolts **5** of presser lifter lever UR **3** and presser lifter lever UL **4**.
3. Place a scale against the presser foot **2**, and then move presser lifter lever UR **3** and presser lifter lever UL **4** up and down to adjust so that the amount of presser lift is 20 mm from the top of the needle plate.
4. After adjusting the lift amount (20 mm), tighten the bolts **5** of presser lifter lever UR **3** and presser lifter lever UL **4**.

9-10-2. Adjustment of air pressure

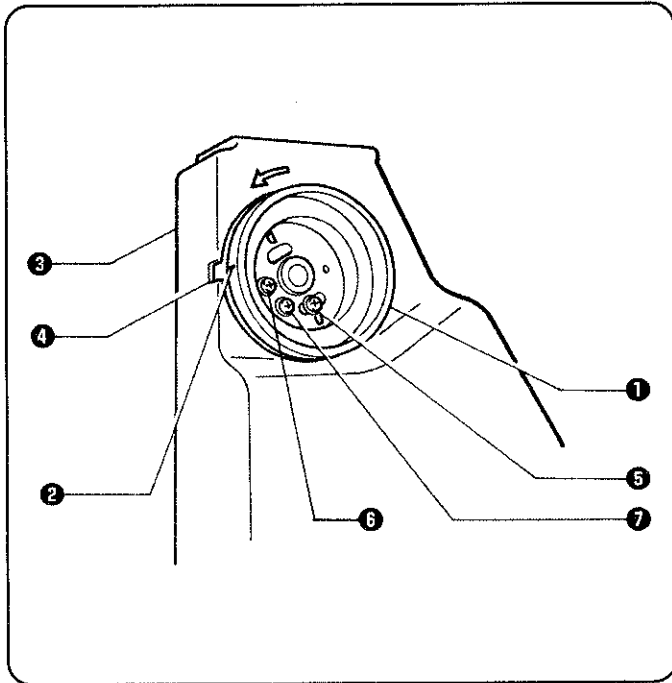


1. Air pressure should be 0.49 MPa [5 kg/cm²].
The air pressure can be adjusted by pulling up and turning the control knob **2** on the integrator **1**.
After adjustment is complete, push the control knob **2** downward to lock it.
2. If water stands in the bottle of the integrator **1**, turn the drain cock **3** in the direction indicated by an arrow to drain the water.

NOTE

Open the air cock **4** slowly.

9-11. Adjusting the needle up stop position



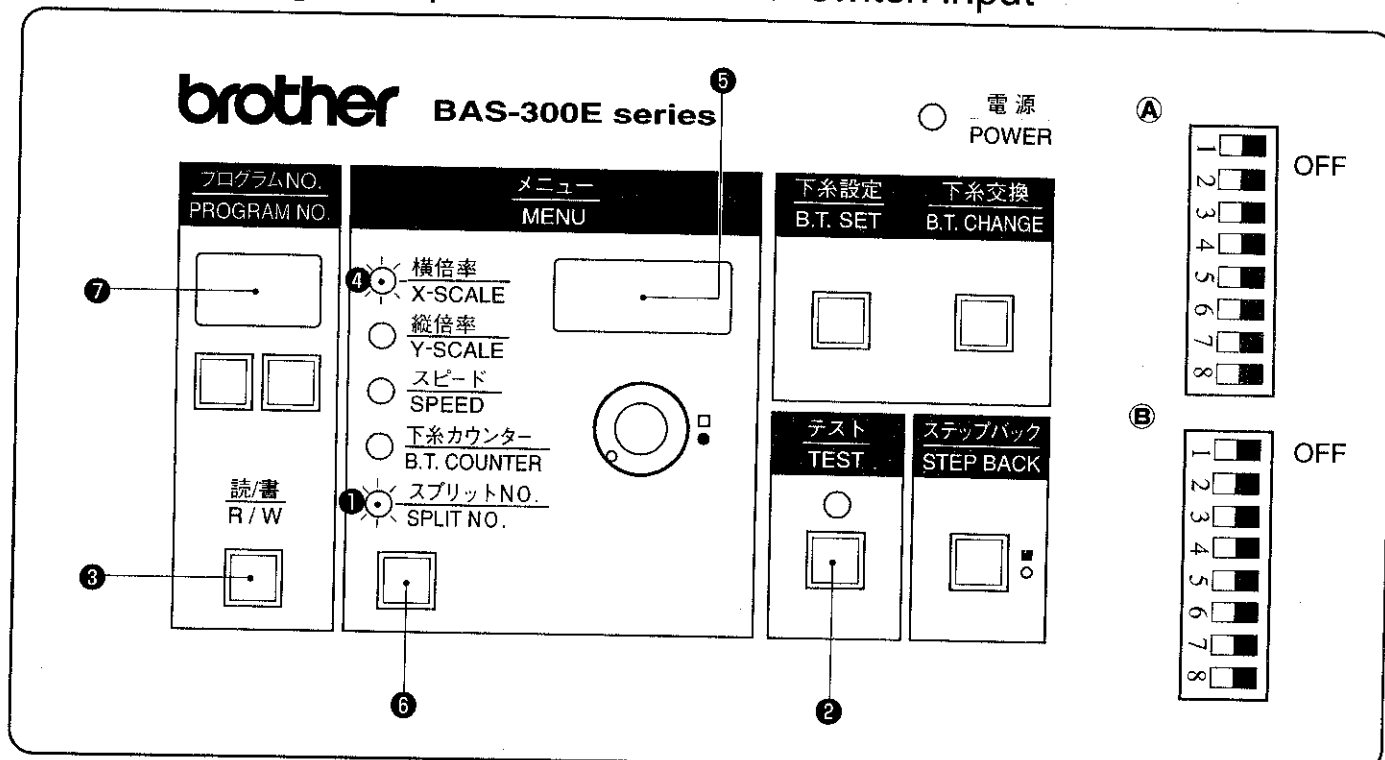
The needle up stop position is adjusted so that the index mark **2** on the machine pulley **1** is inside the mark **4** on the belt cover **3**.

If adjustment is necessary, loosen the screw **5** at the "U" mark of the machine pulley **1** and adjust the position of the machine pulley **1**. The machine pulley **1** stops later if it is turned clockwise, and it stops earlier if it is turned counterclockwise.

NOTE

- The screw **6** is used by the needle down detection function and should not be loosened.
- The screw **7** is a screw for detecting the machine stop position, and should not be loosened.
- If the index mark **2** is not inside the mark **4** when be displayed (when memory switch No.14 is on). Turn the machine pulley to move the index mark **2** to the correct position and then start the sewing machine.

9-12. Checking the input sensor and DIP switch input



1. When the SPLIT NO. indicator ① is illuminated and the R/W switch ③ is pressed while the TEST switch ② is being pressed, the X-SCALE indicator ④ will illuminate and the state of the X home position signal will appear on the display screen ⑦.

■ When sensor is ON



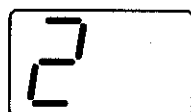
■ When sensor is OFF



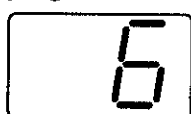
2. Each time the MENU switch ⑥ is pressed, a different indicator will illuminate and the operating condition for the corresponding item will appear on the display screen.

- When X-SCALE indicator is illuminated : X home position sensor
- When Y-SCALE indicator is illuminated : Y home position sensor
- When SPEED indicator is illuminated : Needle up signal (synchronizer)
- When B.T. COUNTER indicator is illuminated : 24-section signal (synchronizer)
- When SPLIT ON. indicator is illuminated : Needle down signal (synchronizer)

3. If the settings for DIP switch ①A at the side of the operation panel are changed at this time, the number of the changed switch will appear in the top row of the program number display ⑦.

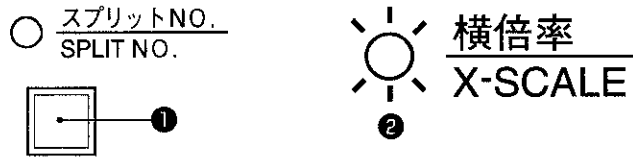


4. If the settings for DIP switch ①B are changed at this time, the number of the changed switch will appear in the bottom row of the program number display ⑦.

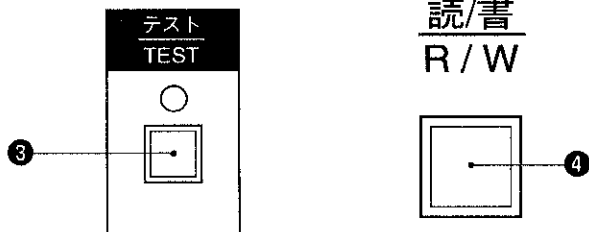


9-13. Checking the input voltage

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



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



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

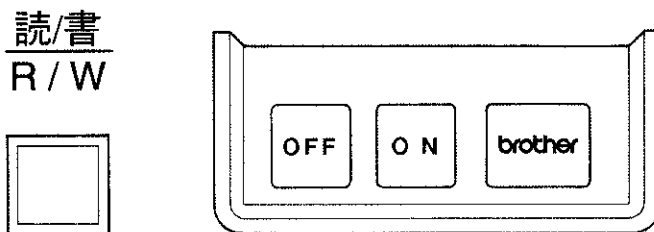
200-V specifications	090 ~ 110	"100" is displayed when the input voltage is 200 V.
220-V specifications	100 ~ 120	
230-V specifications	105 ~ 125	"110" is displayed when the input voltage is 100 V (for 100-V specs.), 380 V (for 380-V specs.) or 415 V (for 415-V specs.).
100-V, 380-V, 400-V and 415-V specifications	100 ~ 120	

5. Press the TEST switch ❸ once more to return the display to the normal condition.

9-14. Clearing all memory settings

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

■ While pressing the R/W switch, turn on the power. This will clear all of the memory setting.

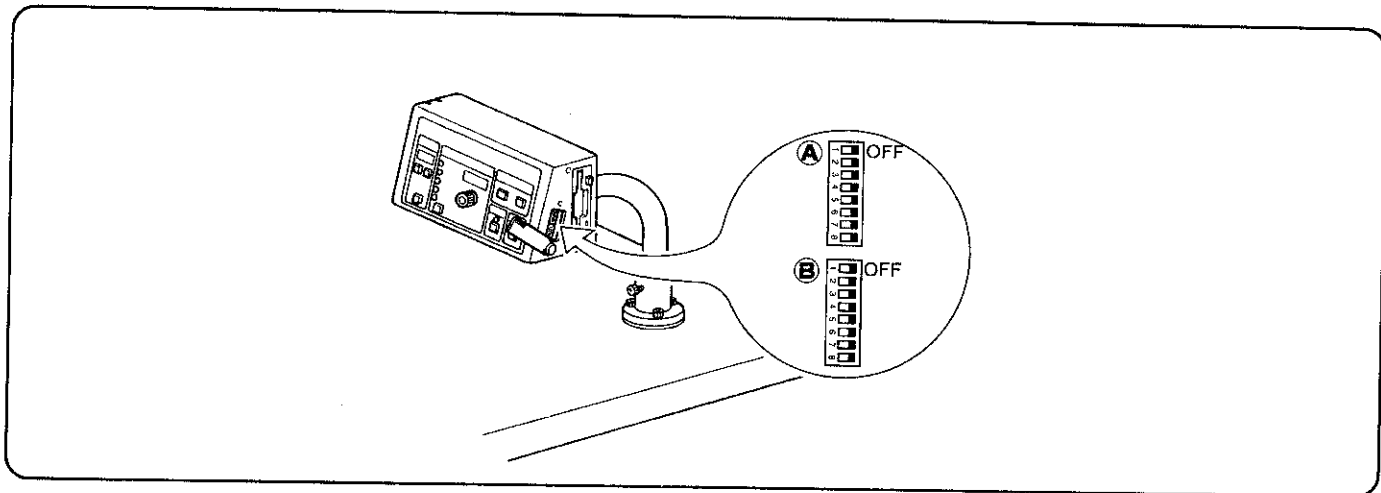


10. DIP SWITCH

NOTE

When changing DIP switch, the power must be off.

10-1. Panel DIP switch functions



■ DIP switch **A**

SW No.	When ON
A - 1	After sewing is complete, the work clamp is raised by the operator and does not rise automatically.

- Various setting combinations for DIP switch No. 2, No. 3 and No. 4 can be used to change the way the work clamp is raised and lowered.
- The operation mode can be changed using the two-stage work clamp switch.

SW A -2	SW A -3	SW A -4	Function of work clamp pedal
—	—	—	—
ON	—	—	—
—	ON	—	For split-type presser foot, the left/right order changes alternately.
ON	ON	—	Only work clamp rises and lowers; presser foot lowers when starting switch is pressed.
—	—	ON	Work clamp and presser foot rise and lower simultaneously.
ON	—	ON	Lowers in the order right work clamp left work clamp, presser foot; reverse order when rising.
—	ON	ON	Lowers in the order left work clamp right work clamp, presser foot; reverse order when rising.
ON	ON	ON	Lowers in the order left and right work clamp presser foot; reverse order when rising.

10. Dip switch

SW No.	When ON
Ⓐ-5	After sewing is completed, work clamp does not automatically rise (only in split mode)
Ⓐ-6	Clamping force output is produced (Inner clamping device available as an option)
Ⓐ-7	Single-pedal operation using the starting switch; when the starting switch is pressed, the work clamp drops, and when it is released, sewing starts.
Ⓐ-8	Thread breakage detector device is activated (available as an option)

■ DIP switch Ⓑ

SW No.	When ON
Ⓑ-1	Single split mode activated
Ⓑ-2	_____
Ⓑ-3	Needle cooler output is produced.
Ⓑ-4	Thread is not trimmed after an emergency stop.
Ⓑ-5	When a rotating-type thread breakage detector device is used, detection precision is increased from 8 to 14. When a fiber-type thread breakage detector device is used, detection precision is increased from 5 to 10.
Ⓑ-6	Fiber-type thread breakage detector device is ON, and DIP switch Ⓐ - 8 is ON (available as an option)
Ⓑ-7	When using a 3-stage pedal
Ⓑ-8	* Feeding speed is switched to high speed.

* The feeding speed can be changed to one of eight settings by changing the settings of memory switch 31 (refer to page 60). As a result, you can select the appropriate speed to match the thickness of the material being sewn and the weight of the presser foot.

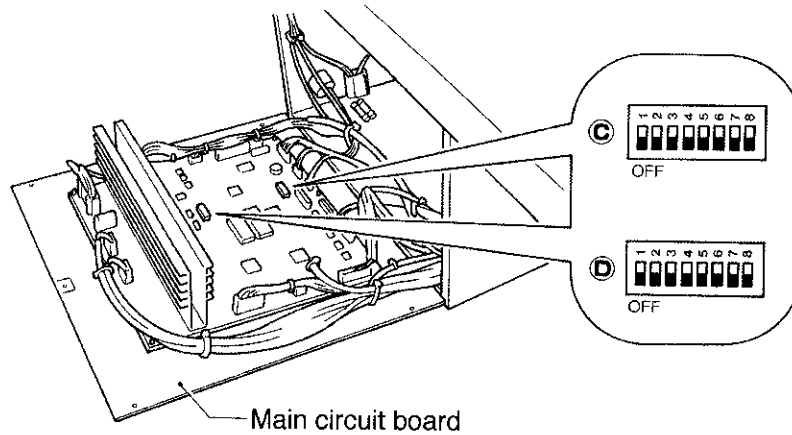
If mis-alignment of the seam occurs, set DIP switch B-8 to the OFF position.

10-2. DIP switches inside the control box

DANGER



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



■ DIP switch C

C-1	C-2	C-3	Model setting
—	—	—	
ON	—	—	BAS311E
—	ON	—	BAS326E
ON	ON	—	
—	—	ON	
ON	—	ON	
—	ON	ON	
ON	ON	ON	BAS311EL

SW No.	When ON
C-4	Controlled sewing area becomes 1200 mm x 400 mm
C-5	Set to ON when the connection has been changed so that the work clamp remains raised when the power is turned off.
C-6	When using an air-driven intermittent work clamp
C-7	—
C-8	—

10. Dip switch

■ DIP switch

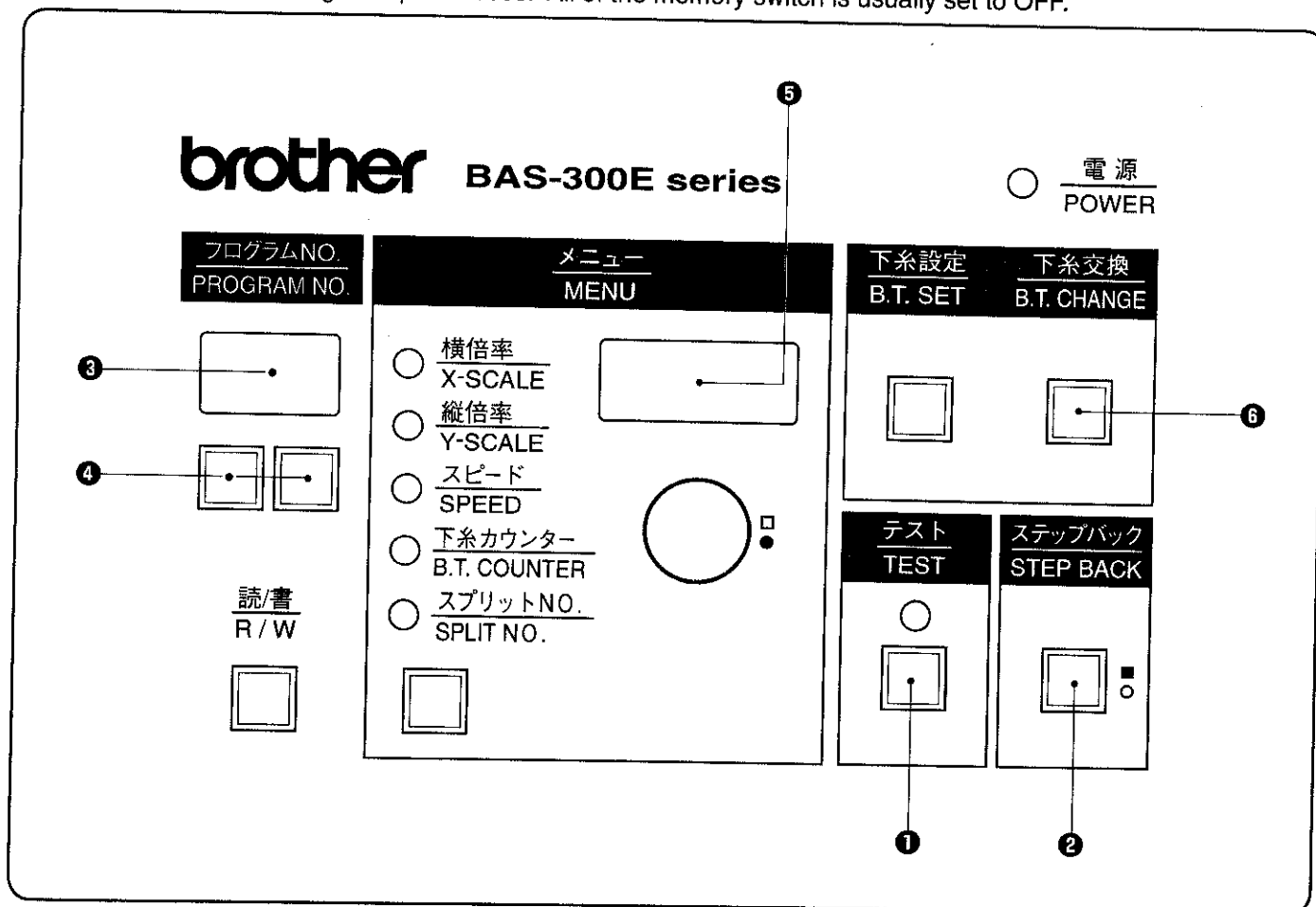
SW No.	When ON
①-1	The first two stitches at the sewing start will be sewn at low speed (approx. 260 spm)
①-2	The last two stitches at the sewing end will be sewn at low speed (approx. 260 spm)
①-3	—
①-4	The last two stitches at the sewing end will be sewn at low speed (approx. 700 spm)
①-5	—
①-6	Slow-speed sewing at the sewing start will be canceled
①-7	When the upper shaft is stopped, the motor will change direction and the needle bar will return to the vicinity of the needle up stop position
①-8	During an emergency stop, the thread is trimmed and the needle bar stops in the raised position.

11. Changing special functions using the memory switches

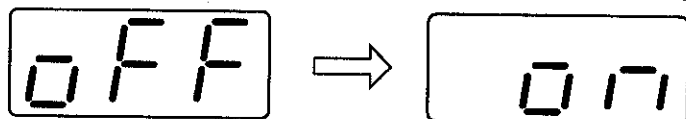
The functions of the switches on the operation panel can be changed to carry out special functions.

* All of the memory switches are set to OFF at the time of shipment.

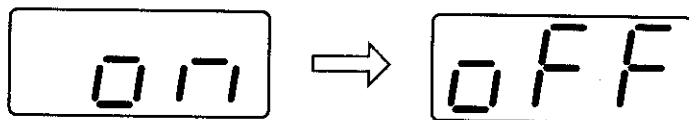
NOTE The following are special uses. All of the memory switch is usually set to OFF.



1. Turn on the power switch.
2. While pressing the TEST switch ①, press the STEP BACK switch ② to switch to setting mode.
3. Press the program select switch ④ so that the number displayed on the display screen ③ matches the switch number (00 - 3F) for the function that you would like to select from the table.
4. Press the STEP BACK switch ② to switch the setting appearing in the display screen ⑤ from OFF to ON.



If pressed once more:



■ If the B.T. CHANGE switch ⑥ is pressed at this time, all memory switch settings will be changed to OFF.

5. Press the TEST switch ①. The display will return to normal.

11. Changing special functions using the memory switches

■ Memory Switches(00~0F)

SWNo.	When ON
memo-00	When moving to the home position, the feed plate moves in the order X→Y and the start position moves in the order Y→X
memo-01	When moving to the home position, the feed plate moves in the order Y→X and the start position moves in the order X→Y.
memo-02	The forward position becomes the home position, and movement is in the order Y→X and X→Y. Used for attaching buttons.
memo-03	Eject device operates. (Eject device is available by special order.)
memo-04	Needle stops in up position during emergency stop. (Needle normally stops in down position.)
memo-05	When sewing is finished, the feed plate moves via the machine home position to the start position
memo-06	After the final stitch, the work clamp rises and then the feed plate returns to the start position.
memo-07	Intermittent work clamp is not used (does not rise).
memo-08	When using an alternating clamping presser (1/4 ON, 3/4 OFF), and when sewing overlapping rectangles.
memo-09	Changes the wiper to air drive. (Air wiper is available as an option.)
memo-0A	Jog feeding becomes faster during programming.
memo-0b	ON when a two-stage tensioner is used. (Two-stage tensioner is available as an option.)
memo-0c	Single-pedal operation by means of two-stage work clamp switches. DIP switch ①-2 is ON
memo-0d	Clearing the emergency stop switch action is carried out using the STEP BACK switch.
memo-0E	Test feeding is carried out at the same speed as normal sewing. (For checking feed operation)
memo-0F	After sewing is finished, the work clamp automatically opens and closes once (practice operation)

■ Memory Switches(10~1F)

SWNo.	When ON
memo-10	Milling device can be used (available as an option)
memo-11	Bobbin thread counter and production counter are adjusted when thread is trimmed
memo-12	Work clamp is lowered by pressing work clamp first stage switch twice, without using work clamp second stage switch. When DIP switch A -2 is ON, work clamp lowers in the order right → left; when OFF, work clamp lowers in the order left → right. Order is opposite when rising.
memo-13	When work clamp is lowered, the starting switch causes locking; if the switch is released before locking, the work clamp rises When DIP switch A -2 is ON, work clamp lowers in the order right → left; when OFF, work clamp lowers in the order left → right. Order is opposite when rising
memo-14	Needle up error detected.
memo-15	ON when machine is equipped with signal tower indicator. (This indicator is available by special order.)
memo-16	ON when machine is equipped with thread nipper. (Thread nipper is available by special order.)
memo-17	ON when machine is equipped with reset switch. (Reset switch is available by special order.)
memo-18	Starting switch causes work clamp to drop in order right → left → forward control is in the same order as starting, and for backward control the work clamp rises in the order left → right using work clamp first stage switch (when DIP switch A -2 is ON). When OFF, the left and right orders are reversed.
memo-19	Produces three work clamp signal outputs (right and left work clamp, and intermittent work clamp) so that a two-position air valve can be used. (Two-position air valve is available by special order.)
memo-1A	When using a triple pedal (DIP switch B -7 is also ON), the right is used exclusively to detect the home position. If DIP switch A -7 is OFF, the left pedal causes left and right work clamps to be raised and lowered simultaneously. If ON, the left pedal causes the left work clamp to be raised and lowered, and the right work clamp lowers when starting pedal to sew
memo-1b	B430E single foot pedal can be used. DIP switch A -7 is ON.
memo-1c	Bobbin thread counter is decremented at the start of sewing.
memo-1d	When using an air pressure drop detection switch. (This detection switch is available by special order.)
memo-1E	Split number is changed automatically
memo-1F	Program number is changed automatically

■ Memory Switches(20~2F)

SWNo.	When ON
memo-20~memo2F	—

11. Changing special functions using the memory switches

■ Turn the dial while pressing the STEP BACK switch to change the values.

SWNo.	Possible setting range	Units	Initial value	Explanation
memo-30	1~999	×10ms	10	Time until feed mechanism starts moving after work clamp has lifted.
memo-31	1~4	—	1	Changes the feed speed. 1 (Fast) ↔ 4 (Slow)
memo-32	1~7	—	3	Changes the possible sewing speed for a given stitch length. 1 (Fast) ↔ 7 (Slow) 1 (2,700/3 mm), 2 (2,600/3 mm), 3 (2,500/3 mm), 4 (2,300/3 mm), 5 (2,000/3 mm), 6 (1,800/3 mm), 7 (1,200/3 mm) Settings 1 and 2 are outside the warranty specification at the time of shipment from the factory.)
memo-33	1~10	x 7.5°	5	Changes the feed timing 1 (Fast) — 5 (standard) — 10(Slow)
memo-34	1~5	—	0	Number of low-speed stitches sewn at 400 spm at sewing start
memo-35	10~60	×ms	40	—
memo-36	—	—	0	—
memo-37	—	—	0	—
memo-38	—	—	0	—
memo-39	—	—	0	—
memo-3A	—	—	0	—
memo-3b	—	—	0	—
memo-3c	—	—	0	—
memo-3d	—	—	0	—
memo-3E	—	—	0	—
memo-3F	—	—	0	—

12. Error codes

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

Code	Cause	Remedy
E.10	Emergency stop switch was pressed.	Press the emergency stop switch once more to cancel.
E.11	Emergency stop switch was pressed during sewing.	Press the emergency stop switch once more to cancel. The STEP BACK switch can then be used to resume sewing.
E.12	Emergency stop switch is being continually pressed, or emergency switch connection error.	Turn off the power and check.
E.20	Problem with machine motor stopping, or synchronizer connection error.	Turn off the power, and then turn the machine pulley to check if the machine has locked up. Check the synchronizer connection. Check if connectors P14, P15 or P16 are disconnected.
E.21	Machine motor operation error.	Turn off the power and check the ground wire connection.
E.22	Needle up stop position error.	Turn the pulley to align the index mark with the needle up stop position. Check the V-belt tension.
E.30	Data is outside possible sewing area due to enlargement or reduction ratio setting.	Check the enlargement or reduction ratio setting.
E.31	Data pitch exceeds 12.7 mm due to enlargement or reduction ratio setting.	Check the enlargement or reduction ratio setting.
E.32	No end code was input into sewing data.	Input an end code, or change the program number.
E.40	Floppy disk is not inserted, disconnected cord inside operation panel, or malfunction of drive.	Insert a floppy disk. If floppy disk is already inserted, turn off the power and check the connections of cords inside the operation panel.
E.41	Program number is invalid, no data, or floppy disk is not formatted.	Check the floppy disk.
E.43	Floppy disk changed from readable disk when setting the bobbin thread or when setting the memory switch.	Replace with a readable floppy.
E.4F	Other error when reading floppy disk.	Replace the floppy disk and repeat the operation.
E.50	Floppy disk is write-protected.	Remove the write-protection.
E.51	Insufficient space on floppy disk.	Use a different floppy disk.
E.52	Floppy disk cannot be formatted	Replace the floppy disk and repeat the operation.
E.5F	Floppy disk write error.	Repeat the operation.
E.60	Data backup is not possible.	Turn off the power, wait a while and then turn it back on. If the error appears continually, contact a qualified service technician.
E.60	Data cannot be backed up	
E.70	Overlapping option output numbers.	Change the option output number.
E.80	Thread breakage error detected by rotating-type thread breakage detector device.	Thread the upper thread. Sewing can then resume.
E.81	Upper thread breakage error detected by optical fiber-type sensor.	Thread the upper thread. Sewing can then resume.

12. Error codes

■ Error codes[E.9 *] ~ [E.F *]

⚠ 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.






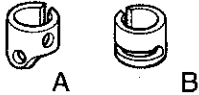




Code	Cause	Remedy
E.90	Abnormal drop in power supply voltage, or power was turned on again immediately after it was turned off.	Turn off the power and check the input voltage. After turning off the power, wait 3 seconds or more before turning it on again.
E.91	Abnormal rise in power supply voltage.	Turn off the power and check the input voltage.
E.A0	Starting switch was pressed without any valid sewing data loaded.	Re-read the sewing data.
E.A1	Home position point was not detected within a certain time during home position detection.	Turn off the power and check the X-Y feed and the home position sensor connection.
E.c0	Motor PROM is not correctly inserted.	Turn off the power and check.
E.c1	The box cooling fan (at the left when looking from the front) is not operating.	Turn off the power and check whether any thread scraps have built up.
E.c2	Heat sink of control circuit board is abnormally hot.	Turn off the power and clean the air intake port of the box.
E.c3	Abnormal current detected in X pulse motor.	Turn off the power and contact a qualified service technician.
E.c4	Abnormal current detected in X pulse motor.	Turn off the power and contact a qualified service technician.
E.c5	The box cooling fan (at the right when looking from the front) is not operating.	Turn off the power and check whether any thread scraps have built up.
E.d0	Air pressure drop error.	Turn off the power and check.
E.E0	Main PROM is not correctly inserted.	Turn off the power and check.
E.E1	Communication error detected by control circuit board.	Turn off the power, wait a while and then turn it back on.
E.E2	Communication error detected by panel circuit board.	Turn off the power, wait a while and then turn it back on.
E.E3	Bad connection in cable between panel and box.	Turn off the power and check.
E.F0	Power relay is not operating (malfunction of power supply circuit board).	Turn off the power and contact a qualified service technician.
E.F1	Bad connection in cable between power supply circuit board and main circuit board.	Turn off the power and check.
E.F2	Abnormal current detected in power supply circuit board.	Turn off the power and contact a qualified service technician.

REFERENCE segment LED alphabet

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

13. Gauge parts list according to subclasses

The following parts are available for the BAS-326E for adding further flexibility to the range of applications.

Model	BAS-326E	
Subclass	-21	-22
Use	Thick (Air type)	Medium thick materials (Air type)
Part name		
Needle hole plate 	Needle hole plate E (ϕ 2.6) S10212-101	Needle hole plate F (ϕ 2.2) S10213-001
Inner rotary hook assembly 	Inner rotary hook LB assembly S15663-991	Inner rotary hook LA assembly S15662-991
Large shuttle hook 	Large shuttle hook B 152686-101	Large shuttle hook A 152682-101
Tension spring 	Tension spring B 144588-001	Tension spring B 145519-001
Bobbin case assembly 	Bobbin case assembly LA S15902-401	Bobbin case assembly LA S15902-401
Needle bar thread guide 	Needle bar thread guide A S02438-001	Needle bar thread guide A S02438-001
Needle 	DP \times 17 # 21 145646-021	DP \times 5 # 16 107415-016
Feed plate 	Feed plate 326B S44389-001	Feed plate 326A S44388-001
Work clamp 	Work clamp A S42843-001	Work clamp A S42843-001
Spring 	Spring 107606-001	Spring 104525-001

14. Troubleshooting

Problem	Cause	Check	Remedy	Page
Presser does not rise.	Work clamp operation is sluggish.	Sliding part of the work clamp lubrication	Grease the sliding part of the work clamp.	/
	Presser lifter air tube is bent or damaged.	Presser lifter air tube	Straighten the bend in the tube or replace the tube.	17
	Presser lifter link is not moving back.	Link return spring is unhooked.	Hook the link return spring properly.	/
Presser does not drop.	Work clamp operation is sluggish.	Sliding part of the work clamp lubrication	Grease the sliding part of the work clamp.	/
	Presser lifter air tube is bent or damaged.*	Presser lifter air tube	Straighten the bend in the tube or replace the tube.	17
Presser lift amount is incorrect.	Incorrect position of presser arm lever F.	Distance between work clamp and top of needle plate	Adjust the work clamp lift amount.	47
Thread wiper does not operate correctly.	The thread wiper is obstructing the needle.	Clearance between thread wiper and needle tip	Adjust the height of the thread wiper.	48
	Thread wiper position is incorrect.	Thread wiper position	Adjust the operating distance of the thread wiper.	48
Lower thread winds to one side.	Bobbin winder thread tension stud height is incorrect.	Bobbin winder thread tension stud height	Adjust the height of the thread tension stud.	22
Lower thread winding amount is incorrect.	Bobbin presser position is incorrect.	Thread winding amount	Adjust the position of the bobbin presser.	22
Thread slips out of the needle.	Stitches being skipped at the sewing start.	Refer to "Skipped stitches occur".	Refer to "Skipped stitches occur".	/
	Uneven upper thread length.	Upper thread length	Adjust the sub-tension.	24
	Position of shuttle race thread guide is incorrect	Position of shuttle race thread guide	Adjust the position of the shuttle race thread guide	44

Problem	Cause	Check	Remedy	Page
Upper thread breaks.	Upper thread tension is too strong.	Upper thread tension	Adjust the upper thread tension.	24
	Needle is installed incorrectly.	Needle direction	Install the needle so that the groove is facing forward.	20
	Thread is too thick for the needle.	Thread and needle	Use the correct thread for the needle.	20
	Thread take-up spring tension and height are incorrect.	Thread take-up spring tension and height	Adjust the tension and height of the thread take-up spring.	24
	Damaged or burred rotary hook, needle hole plate or needle.	Damage or burring	File smooth or replace the affected part.	
	Thread melting (synthetic thread)	Thread edge	Use a thread cooling device.	19
	Thread path is incorrect.	Thread	Pass the thread correctly along the thread path.	24
Lower thread breaks.	Lower thread tension is too strong.	Lower thread tension	Adjust the lower thread tension. amount.	24
	Corners of needle hole plate or bobbin case are damaged.	Damage	File smooth or replace the affected part.	
Skipped stitches occur.	Clearance between needle and rotary hook tip is too great.	Needle clearance	Adjust the needle clearance. the affected	44
	Incorrect needle and rotary hook timing.	Needle bar lift amount	Adjust the needle bar lift amount.	43
	Driver is contacting needle more than is necessary.	Clearance between driver and needle	Adjust the driver needle guard.	44
	Needle is bent.	Bent needle	Replace the needle.	
	Needle is installed incorrectly.	Needle direction	Install the needle so that the groove is facing forward. tube.	20
Needle breaks.	Needle is touching the rotary hook.	Needle clearance	Adjust the needle clearance. the groove	44
		Needle bar lift amount	Adjust the needle bar lift amount.	43
	Needle is bent.	Bent needle	Replace the needle.	
	Needle moves about.	Needle and threa	Select the correct needle for the sewing conditions. Reduce the sewing	23
	Needle is too thin.	Needle and thread	Use the correct needle for the material.	

14. Troubleshooting

Problem	Cause	Check	Remedy	Page
Upper thread is not trimmed.	Fixed knife is blunt.	Fixed knife blade	Sharpen or replace the fixed knife.	/
	Movable knife does not pick up the thread.	Shuttle race thread guide position	Adjust the position of the shuttle race thread guide.	44
		Needle bar lift amount	Adjust the needle bar lift amount.	43
	The movable knife does not pick up the thread because of skipped stitches at the sewing end.	Skipped stitches at sewing end	Refer to "Skipped stitches occur".	/
	Movable knife position is incorrect.	Movable knife position	Adjust the position of the movable knife.	43
Sub-tension is too weak.	Sub-tension	Turn the sub-tension nut to adjust the tension.	24	
Thread jamming.	Thread take-up spring tension and height are incorrect.	Thread take up spring tension and height	Adjust the tension and height of the thread take-up spring.	24
	Incorrect needle and rotary hook timing.	Needle bar lift amount	Adjust the needle bar lift amount	43
	Shuttle race thread guide is not separating the threads.	Shuttle race thread guide position	Adjust the position of the shuttle race thread guide.	44
Poor seam finish on reverse side of material.	Shuttle race thread guide is not separating the threads. incorrect.	Shuttle race thread guide position	Adjust the position of the shuttle race thread guide.	44
	Upper thread is not properly tight.	Upper thread tension	Adjust the upper thread tension.	24
	Uneven upper thread length.	Upper thread length	Adjust the sub-tension.	24
Incorrect thread tightness.	Upper thread tension is too weak.	Upper thread tension	Adjust the upper thread tension.	24
	Lower thread tension is too weak.	Lower thread tension	Adjust the lower thread tension.	24
	Thread take-up spring tension and height are incorrect.	Thread take-up spring tension and height	Adjust the tension and height of the thread take-up spring.	24

Problem	Cause	Check	Remedy	Page
Unstable upper thread length	Improper tension and height of thread take-up spring	Thread take-up spring tension and height	Adjust the tension and height of the thread take-up spring.	24
	Improper adjustment of sub tension	sub tension	Adjust the sub tension.	/
	Needle up stop position fluctuates.	See "Unstable needle up stop position."	←	/
	Fixed knife is blunt.	Fixed knife blade	Sharpen or replace the fixed knife.	/
Unstable needle up stop position	Inadequate adjustment of V belt tension	Tension pulley position	Adjust the tension of the V belt using the tension pulley.	13
	Electrical trouble	Refer to the details for [E.22] in the error code table.	←	61

15.Option

- **Programmer assy**

Used to create sewing patterns for the BAS-300E series. It can also be used to display error messages.

- **Inner clamp device**

Used for efficient sewing around labels, emblems and tape; operates by air together with the outer presser, so material slippages will not occur.

- **One-touch clamping device**

Allows the clamp to be replaced quickly and easily, without the need for extra tools. The positioning adjustment that has been previously required for other clamps is no longer necessary.

- **Milling device**

This device can be used to cut a variety of objects such as grooves, holes, and outline shapes in plastic or aluminum sheets.

- **WP stitch device**

Increases the stitch creation range for perfect stitches.

- **Auto bobbin changer**

When the amount of bobbin thread remaining becomes low, this device automatically replaces the bobbin. This reduces the need for tasks such as checking the amount of bobbin thread remaining and replacing bobbins, so that productivity can be increased.

- **Snap fastener and hook attachment device**

This attachment is for holding snap fasteners and hooks.

- **Needle thread presser device**

This allows the upper thread to be securely placed under the material for the first stitch at the sewing start.

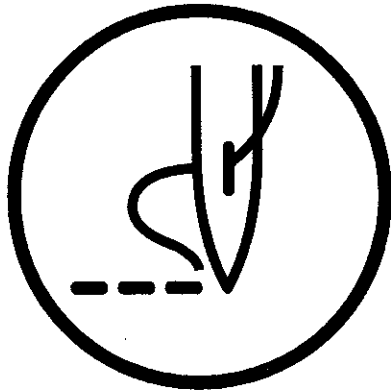
- **Thread breakage detector device**
Available as rotary type or fiber type, stops sewing when a thread breakage is detected and warns the operator.
- **Needle coder device**
This is a pneumatic-type needle cooler which prevents the thread breaking due to heat. It is particularly useful when sewing thicker materials at high sewing speeds.
- **OT Presser**
Use according to particular sewing needs in order to provide an even clamping force.
- **Soft presser**
At the first stage, the work clamp applies only a spring force so that the material can be positioned. Then at the second stage, air pressure provides a full clamping force.
- **Cassette presser**
This allows the operator to hold two clamps so that the preparation for the next operation can be carried out while sewing is in progress. Overlapping operations are thus possible, which can greatly boost productivity.
- **Play prevention work clamp**
This work clamp prevents any play from occurring in the clamp.
- **Thread wiper the side**
Wipes the upper thread away to the side when an inner clamping device is being used.
- **Air wipper device**
The thread wiper is driven by a pneumatic cylinder.
- **2-step thread tension device**
Allows the upper thread tension to be switched between two settings at any position desired by using the programmer.

* Refer to the separate Parts Book for details.





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