

KE-430FX **KE-430FS** **BE-438FX**

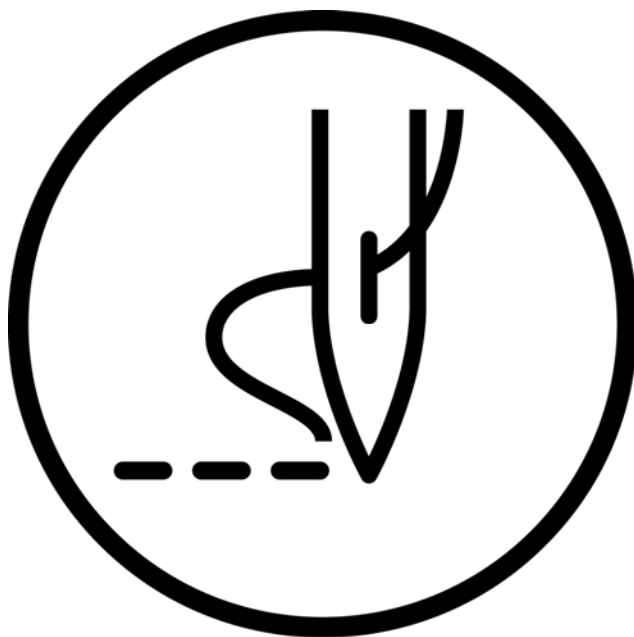
Basic Operation Manual

ELECTRONIC DIRECT DRIVE LOCKSTITCH BAR TACKER
ELECTRONIC DIRECT DRIVE LOCKSTITCH BUTTON SEWER

Please read this manual before using the machine.

Please keep this manual within easy reach for quick reference.

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



brother®

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

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

SAFETY INSTRUCTIONS

1. Safety indications and their meanings

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

The meanings of these indications and symbols are given below.

Indications

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

Symbols



• • • •

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



• • • •

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



• • • •

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

2. Notes on safety

DANGER



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

CAUTION

Environmental requirements



Use the sewing machine in an area which is free from sources of strong electrical noise such as electrical line noise or static electric noise.

Sources of strong electrical noise may cause problems with correct operation.



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



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



The ambient temperature should be within the range of 5°C to 35°C during use.

Temperatures which are lower or higher than this may cause problems with correct operation.



The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices.

Excessively dry or humid environments and dew formation may cause problems with correct operation.



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

Installation



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



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



The sewing machine weighs approximately 57 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.



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



All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.



Install the safety covers to the machine head and motor.



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



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

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

Keep the oil out of the reach of children.

CAUTION

Sewing

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

Cleaning

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

Maintenance and inspection

- | | |
|---|---|
| <p> Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.</p> <p> Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.</p> <p> Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.</p> <ul style="list-style-type: none"> • When carrying out inspection, adjustment and maintenance • When replacing consumable parts such as the rotary hook <p> If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.</p> | <p> Hold the machine head with both hands when tilting it back or returning it to its original position.
Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.</p> <p> Use only the proper replacement parts as specified by Brother.</p> <p> If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.</p> <p> Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.</p> |
|---|---|

3. Warning labels

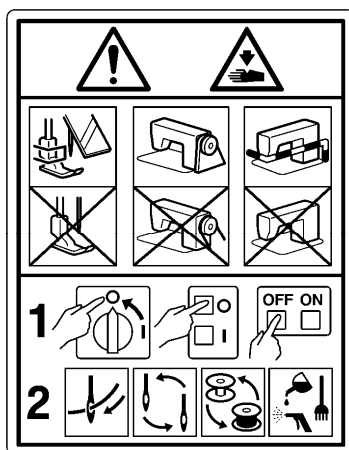
The following warning labels appear on the sewing machine.

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

1

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

2



CAUTION

Moving parts may cause injury.

Operate with safety devices* installed.

Turn off the power before carrying out operations such as threading, changing the needle, bobbin, knives or hook, cleaning and adjusting.

*Safety devices

Eye guard
Finger guard
DT solenoid cover
Thread take-up cover
Side cover
Rear cover, etc.

5

PE



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

6



Direction of operation

3



Be careful to avoid injury from the moving thread take-up.

7



Do not hold, otherwise problems with operation or injury may occur.

4



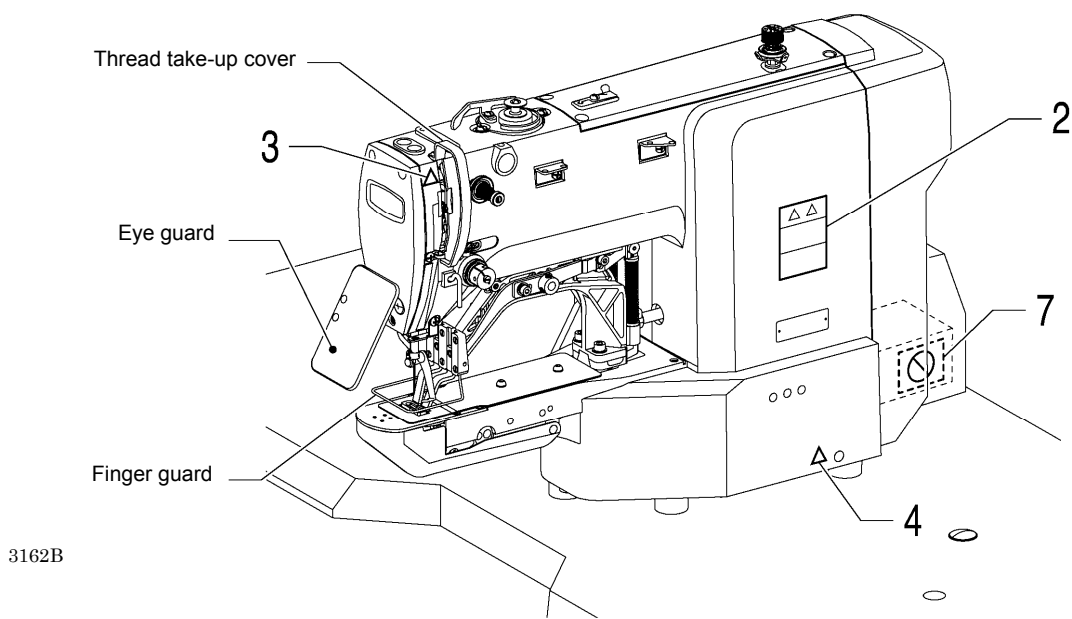
Be careful not to get your hands caught when returning the machine head to its original position after it has been tilted.

8

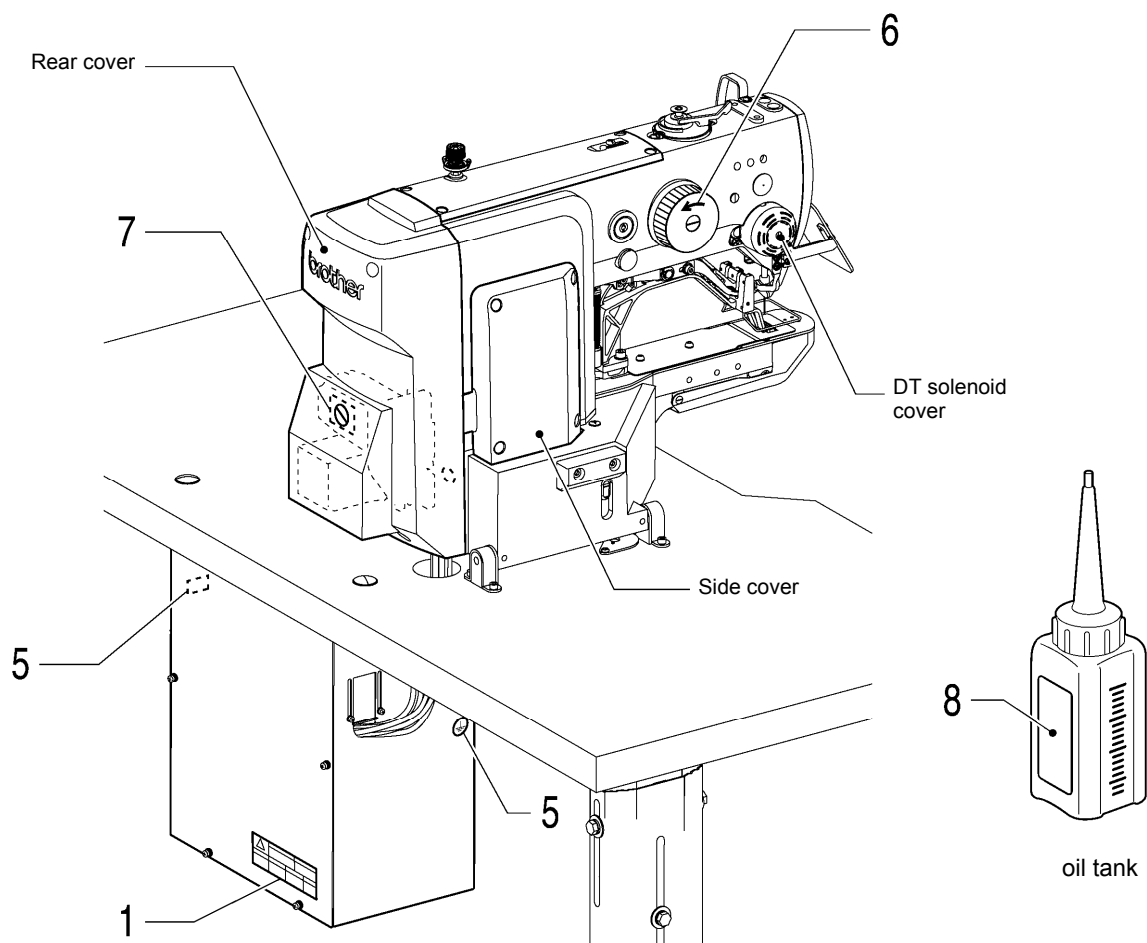
brother
Lubricating Oil for Machining

▲ CAUTION
Lubricating oil may cause inflammation to eye and skin.
Wear protective glasses and gloves.
Swallowing oil can cause diarrhoea and vomiting.
Do not swallow.

Keep away from children.
FIRST AID
Eye contact :
-Rinse with plenty of cold water.
-Seek medical help.
Skin contact :
-Wash with soap and water.
If swallowed :
-Seek medical help immediately.



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oil tank

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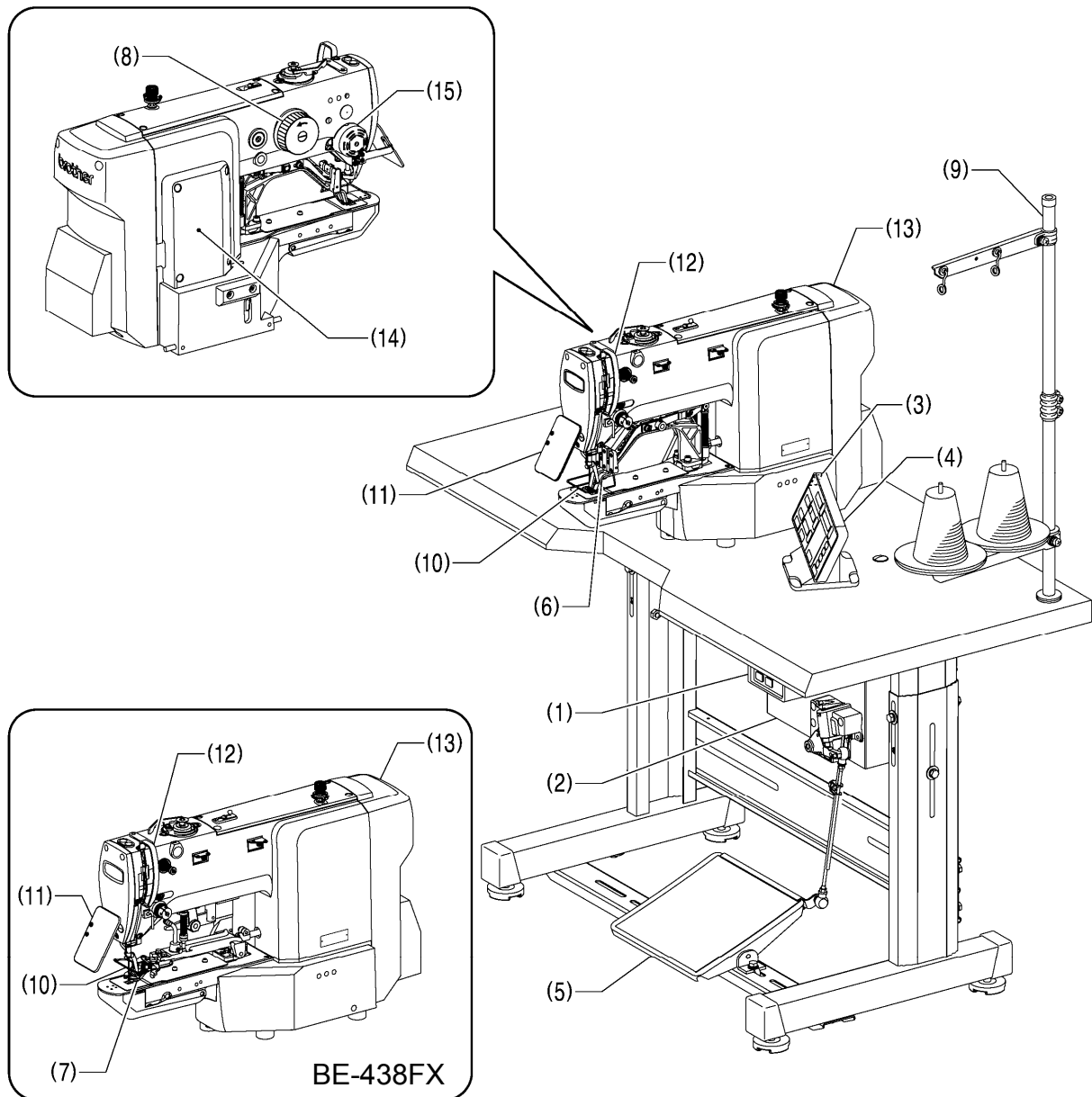
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1. NAMES OF MAJOR PARTS

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- (1) Power switch
- (2) Control box
- (3) SD card slot
- (4) Operation panel
- (5) Foot switch
- (6) Work clamp (KE-430FX·FS)
- (7) Button clamp (BE-438FX)
- (8) Pulley
- (9) Cotton stand

Safety devices

- (10) Finger guard
- (11) Eye guard
- (12) Thread take-up cover
- (13) Rear cover
- (14) Side cover
- (15) DT solenoid cover

2. USEFUL FUNCTIONS FOR OPTIMUM SEWING

Original programs can be set easily using the panel
 → Page 36
 Patterns, X-scale, Y-scale, sewing speed, slow start pattern and upper thread tension can be recorded into programs.
 When a program number is selected, the program which has been set for that number can then be sewn.

Copying programs can be done easily
 → Page 40
 To create a program with parameters that are almost exactly the same as those of another program, you can copy the original program and change just the parts which need to be changed.

Correcting the upper thread tension can be done easily
 → Page 43
<A. Basic method of use>
 The changes made at this time will be reflected in each program, so this is a useful way of changing programs while checking actual sewing.
<B. Overall correction>
 This function is useful if you would like to change the tension values for all programs at once.

Slow start pattern setting is easy
 → Page 39
 This is used to stop the thread from pulling out at the sewing start, and at times when skipped stitches might easily occur.
 The starting-up speed at the sewing start can be adjusted easily.

The thread nipper device prevents the thread from pulling out at the sewing start (-03, -0K, -0F specifications).
 → Page 31
 This is used to stop the thread from pulling out at the sewing start, and at times when skipped stitches might easily occur.
 * The default setting for this memory switch is "OFF".

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3. LIST OF SEWING PATTERNS

3-1. List of sewing patterns (KE-430FX·FS)

The sewing patterns shown below have been preset into the sewing machine and can be selected according to specifications.
(Any sewing pattern is available as long as it is within the work clamp and feed plate in size.)

Use the work clamp and feed plate that match the respective sewing pattern selected.

The sewing size is the length when the enlargement/reduction ratio is 100%.

For medium-weight materials (-03)									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
1		42	16	2	65		43	16	2
4		31	16	2	66		32	16	2
5		29	10	2	67		30	10	2
8		21	7	2	68		22	7	2
13		35	10	2	69		36	10	2
15		42	10	2	70		43	10	2
20		28	7	2	71		29	7	2
21		35	7	2	72		36	7	2
64		30	16	2	89		90	24	3
For heavy-weight materials (-05)									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
2		42	20	3	18		56	24	3
3		35	20	3	19		64	24	3
6		30	16	3	62		42	20	3
14		35	16	3	63		35	20	3
16		43	16	3	78		43	20	3
17		42	24	3	79		36	20	3

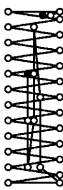
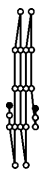
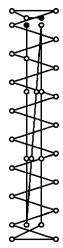
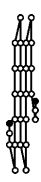
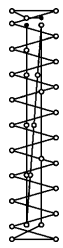
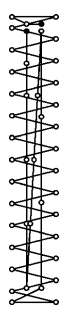
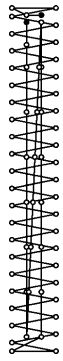
3. LIST OF SEWING PATTERNS

For heavy-weight materials (-05)									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
80		31	16	3	83		43	24	3
81		36	16	3	84		57	24	3
82		44	16	3	85		65	24	3
For knitted materials (-0K) and foundation garments (-0F)									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
7		28	8	2	73		29	8	2
9		21	7	2	74		22	7	2
22		14	7	2	75		15	7	2
31*		28	8	2	76*		29	8	2
32*		22	8	2	77*		23	8	2
33*		15	8	2					

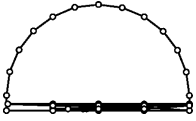
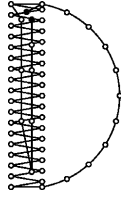
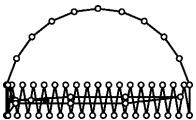
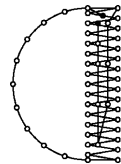
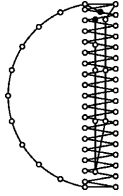
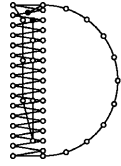
* The sewing start and sewing end are in the middle of the pattern.

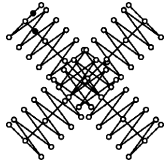
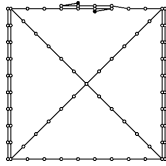
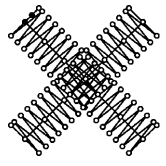
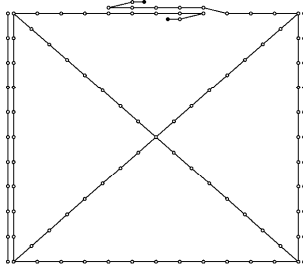
Straight bar tacking					Vertical zigzag stitching				
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
10		21	10	0.3	44		46	9	15
11		28	10	0.3					
12		28	20	0.3	45		70	9	25
23		35	25	0.3					
24		42	25	0.3					
25		45	25	0.3					

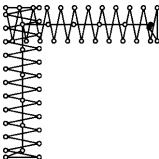
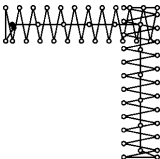
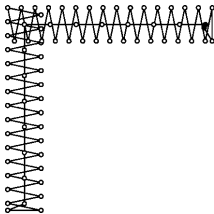
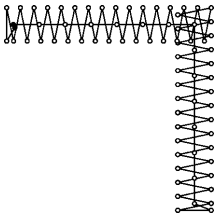
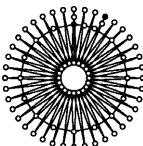
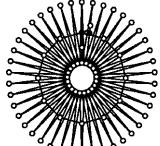
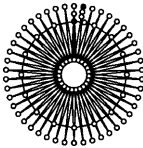
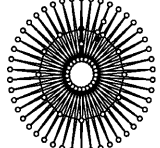
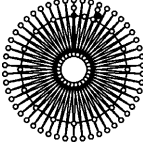
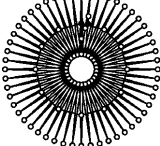
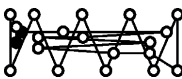
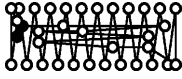
3. LIST OF SEWING PATTERNS

Vertical bar tacking					Vertical straight bar tacking				
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
26		28	3	10	28		19	0.3	10
27		35	3	10	29		21	0.3	10
40		32	3	16	30		28	0.3	10
41		36	3	16	46		27	0.3	20
42		44	3	20	47		44	0.3	25
43		68	3	24					

3. LIST OF SEWING PATTERNS

Crescent bar tacking									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
34		35	12	7	37		57	7	12
35		58	12	7	38		53	7	10
36		57	7	12	39		53	7	10

Crossed stitching					Crossed tacking				
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
48		70	10	10	50		84	16	16
49		93	9.6	9.6	51		105	30	26

L-pattern tacking									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
52		60	11.3	11.2	53		60	11.3	11.2
54		78	15.3	15.2	55		78	15.3	15.2
Circular stitching									
No.	Pattern	No. of stitches	Tacking size (mm)		No.	Pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
56		106	9	9	59		104	10	10
57		116	9	9	60		114	10	10
58		127	9	9	61		124	10	10
For eyelet buttonhole									
No.	Pattern	No. of stitches	Tacking size (mm)						
			Length	Width					
86		21	6	2					
87		28	6	2					
88		35	6	2					

If you want to sew a sewing pattern other than standard sewing patterns, you can create your original pattern using the PS-300B. Consult with your local Brother sales office for details.

Note when creating additional sewing patterns

When sewing data with a small number of stitches (15 stitches or less) is sewn repeatedly (short cycle operation), the upper shaft motor may overheat and the "E150" error code may be generated.

3-2. List of sewing patterns (BE-438FX)

The sewing patterns shown below have been preset into the sewing machine. Any sewing pattern can be selected as long as the needle will drop down into the holes of the buttons.

When sewing patterns that do not have crossover stitches, the thread is trimmed after sewing of one side is completed, and then the other side is sewn.

No.	No. of holes in button	Pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
1	2		6	—	12	3.4	0
54 ^{*1}			6	—	12		
2			8	—	14		
55 ^{*1}			8	—	14		
3			10	—	16		
4			12	—	18		
5 ^{*2}			16	—	22		
6 ^{*2}			20	—	26		
56 ^{*1}			6	—	11	0	3.4
7 ^{*3}			6	—	12		
23 ^{*3}			10	—	16		
8 ^{*3}			12	—	18		
9 ^{*3}	3		5-5-5	—	21	2.6	2.4
24 ^{*3}			7-7-7	—	27		
25 ^{*3}			5-5-5	—	21		
26 ^{*3}			7-7-7	—	27		
57 ^{*1}	4		6-6	1	18	3.4	3.4
10			6-6	1	19		
58 ^{*1}			8-8	1	22		
11			8-8	1	23		
12			8-8	3	25		
13			10-10	1	27		
27			12-12	1	31		

*1 Use for buttons with small holes.

*2 Check that the diameter of the holes in the buttons is 2 mm or greater before using the programs.

*3 Do not use the button lifter spring.

3. LIST OF SEWING PATTERNS

No.	No. of holes in button	Pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
14 ^{*4}	4		6-6	0	24	3.4	3.4
36 ^{*5}			6-6	0	24		
28 ^{*4}			8-8	0	28		
37 ^{*5}			8-8	0	28		
15 ^{*4}			10-10	0	32		
38 ^{*5}			10-10	0	32		
29 ^{*4}			12-12	0	36		
39 ^{*5}			12-12	0	36		
59 ^{*1}			6-5	1	17		
16			6-5	1	18		
60 ^{*1}			8-7	1	21		
17			8-7	1	22		
30			10-9	1	26		
61 ^{*1}			6-6	1	18		
18			6-6	1	19		
62 ^{*1}			8-8	1	22		
19			8-8	1	23		
63 ^{*1}			10-10	1	26		
31			10-10	1	27		
45			12-12	1	31		
20 ^{*4}			6-6	0	24		
40 ^{*5}			6-6	0	24		
32 ^{*4}			8-8	0	28		
41 ^{*5}			8-8	0	28		
33 ^{*4}			10-10	0	32		
42 ^{*5}			10-10	0	32		

*1 Use for buttons with small holes.

*4 When sewing of one side is completed, the button clamp rises and the thread is trimmed. To finish sewing, press the foot switch until sewing of the other side starts, or press the foot switch again after sewing of the other side is completed.

*5 When sewing of one side is completed, the thread will be trimmed without the button clamp rising, and then the other side will be sewn.

3. LIST OF SEWING PATTERNS

No.	No. of holes in button	Pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
64 ^{*1}	4		6-6	1	18	3.4	3.4
21 ^{*3}			6-6	1	19	2.4	
34 ^{*3}			10-10	1	27		
22 ^{*3*4}			6-6	0	24		
43 ^{*3*5}			6-6	0	24		
35 ^{*3*4}			10-10	0	32		
44 ^{*3*5}			10-10	0	32		
46			6-7	1	19	3.4	3.4
47			8-9	1	23		
48			10-11	1	27		
49			12-13	1	31		

*1 Use for buttons with small holes.

*3 Do not use the button lifter spring.

*4 When sewing of one side is completed, the button clamp rises and the thread is trimmed. To finish sewing, press the foot switch until sewing of the other side starts, or press the foot switch again after sewing of the other side is completed.

*5 When sewing of one side is completed, the thread will be trimmed without the button clamp rising, and then the other side will be sewn.

For shank button					
No.	Pattern	No. of threads	No. of stitches	Sewing size (mm)	
				X	Y
50		6	12	3.4	0
51		8	14		
52		10	16		
53		12	18		

Note when creating additional sewing patterns

When sewing data with a small number of stitches (15 stitches or less) is sewn repeatedly (short cycle operation), the upper shaft motor may overheat and the "E150" error code may be generated.

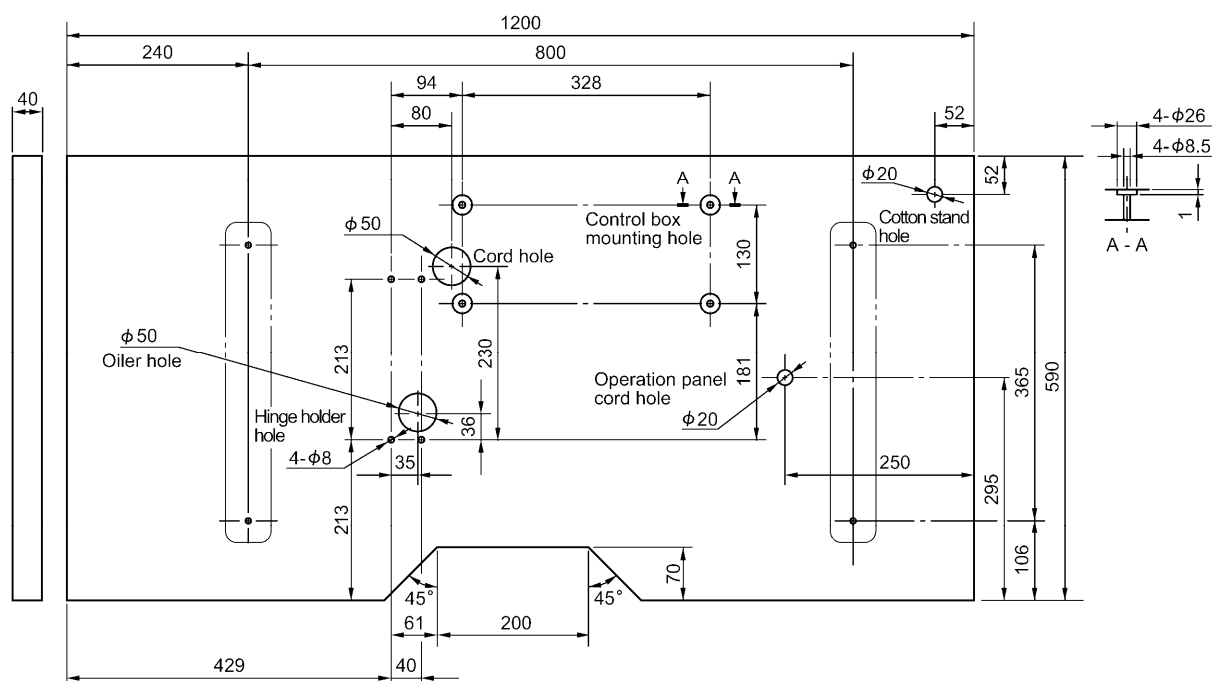
4. INSTALLATION

⚠ CAUTION

-  Machine installation should only be carried out by a qualified technician.
-  Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.
-  The sewing machine head weighs approximately 57 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.
-  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.
-  All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cable or secure it too firmly staples, otherwise there is the danger that fire or electric shocks could occur.
-  Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock, and problems with correct operation may also occur.
-  Install the safety covers to the machine head and motor.

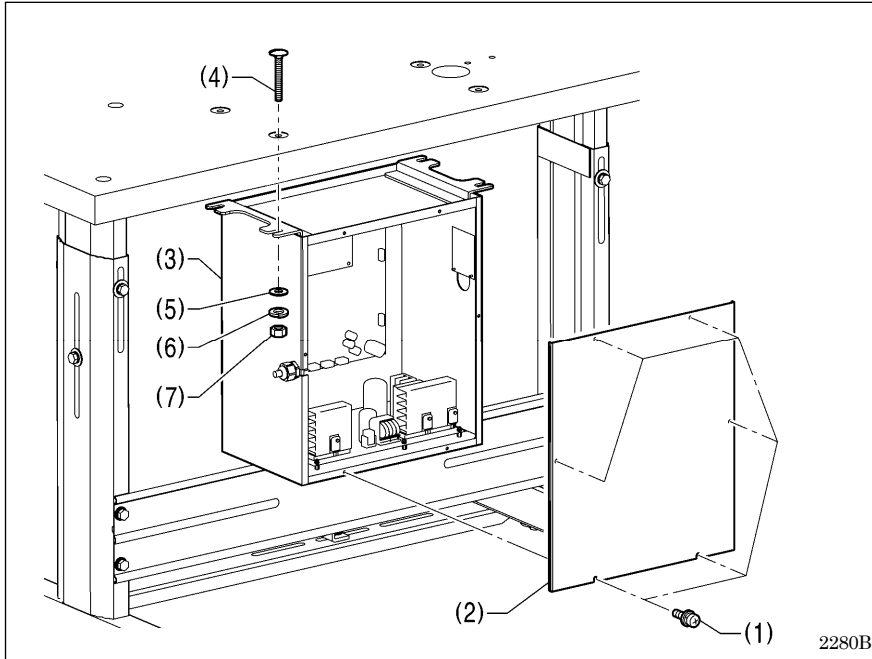
4-1. Table processing diagram

- The thickness of the table should be at least 40 mm, and it should be strong enough to bear the weight and vibration of the sewing machine.
- Check that the control box is at least 10 mm away from the leg. If the control box and the leg are too close together, it may result in incorrect sewing machine operation.



2453B

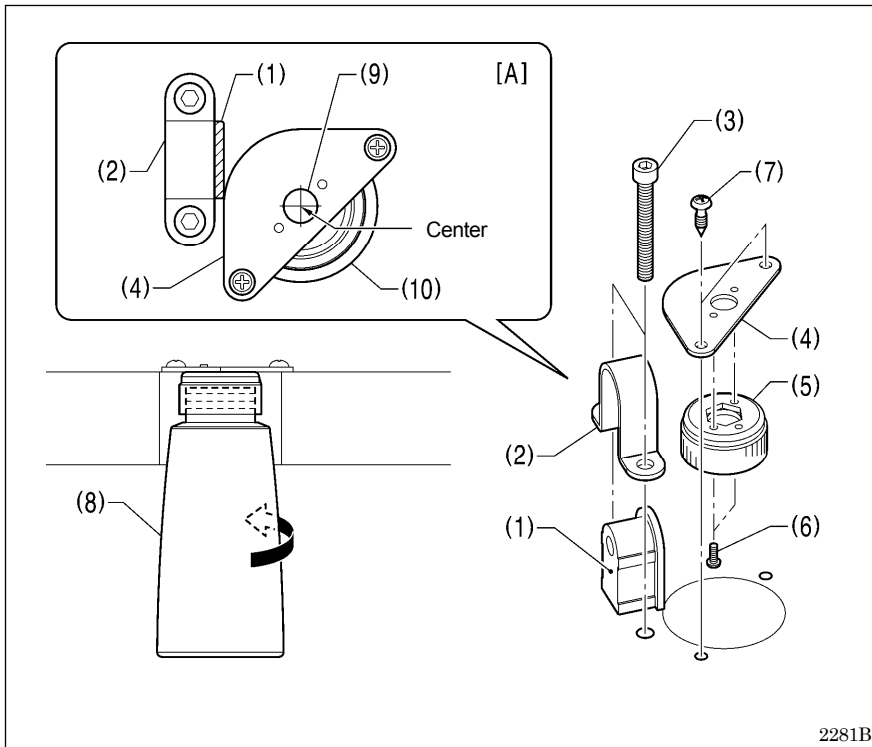
4-2. Installing the control box



Remove the six screws (1), and then remove the control box cover (2).

- (3) Control box
- (4) Bolts [4 pcs]
- (5) Plain washers [4 pcs]
- (6) Spring washers [4 pcs]
- (7) Nuts [4 pcs]

4-3. Installing the oiler



Before installing the oiler, provisionally install the rubber cushion (1) and the hinge holder (2) to the table with the two bolts (3).

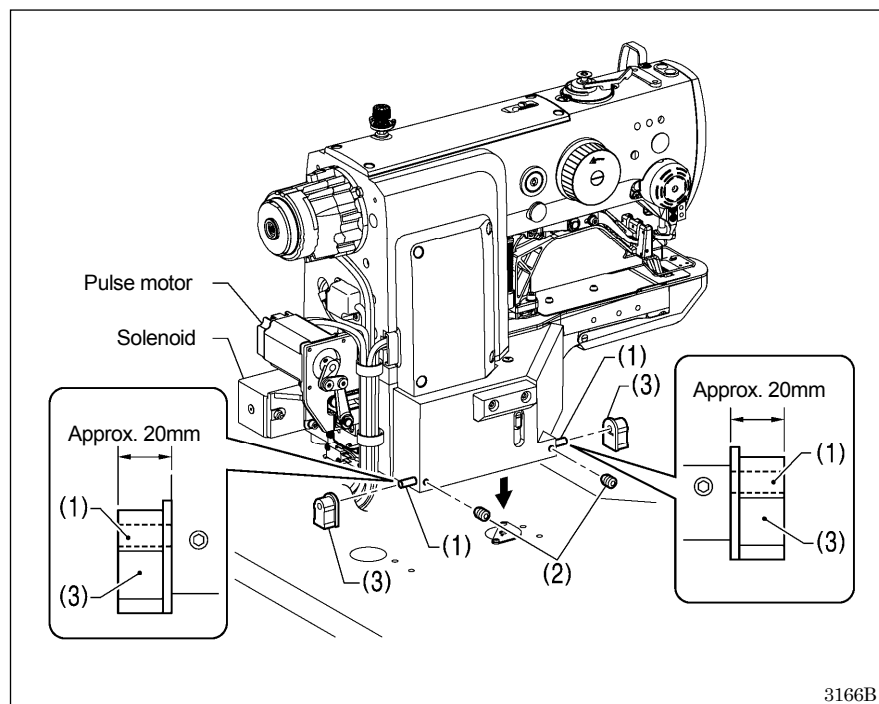
- (4) Dust oiler setting plate
- (5) Dust oiler
- (6) Screws [2 pcs]
- (7) Wood screws [2 pcs]
- (8) Oiler

* Install the dust oiler setting plate (4) so that the hole (9) in the dust oiler setting plate (4) is in the center of the hole (10) in the table for installing the oiler (8) as shown in figure [A].

NOTE:

- Make sure that the dust oiler setting plate (4) does not interfere with the hinge holder (2).

4-4. Installing the machine head

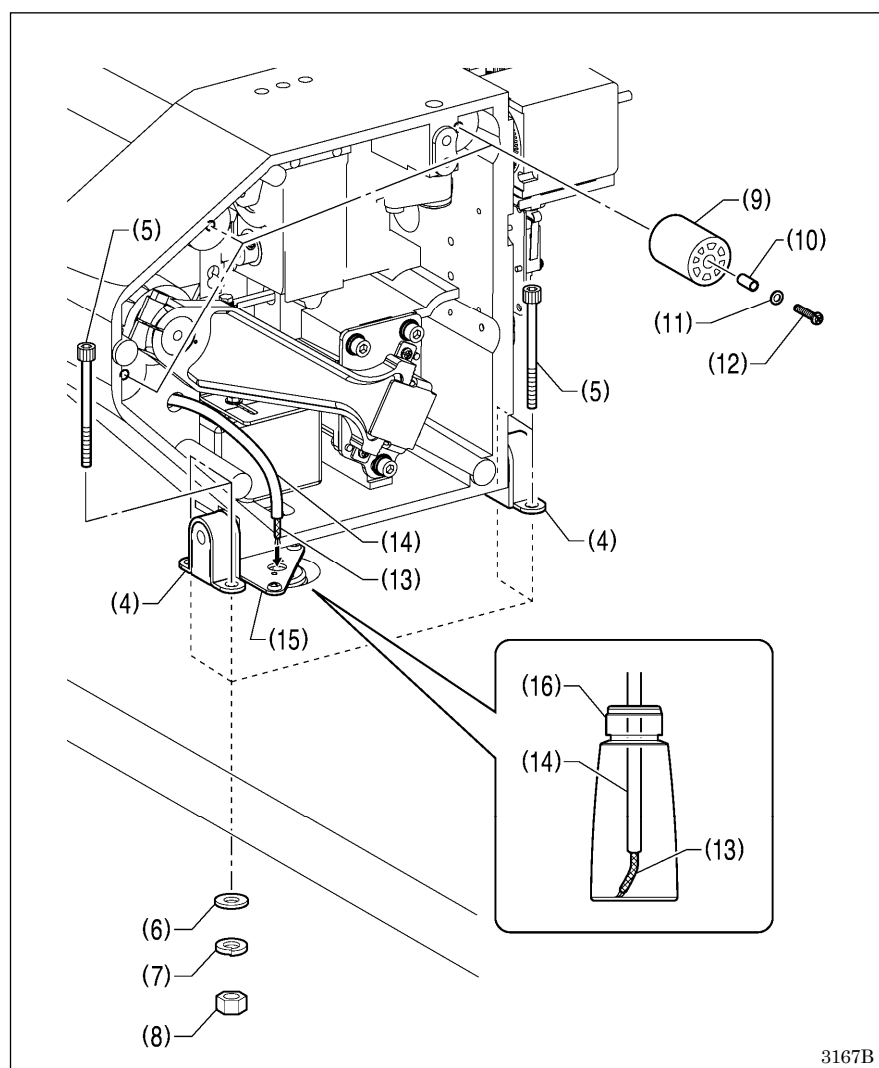


- (1) Pins [2 pcs]
- (2) Set screws [2 pcs]
- (3) Rubber cushion assembly [2 pcs]

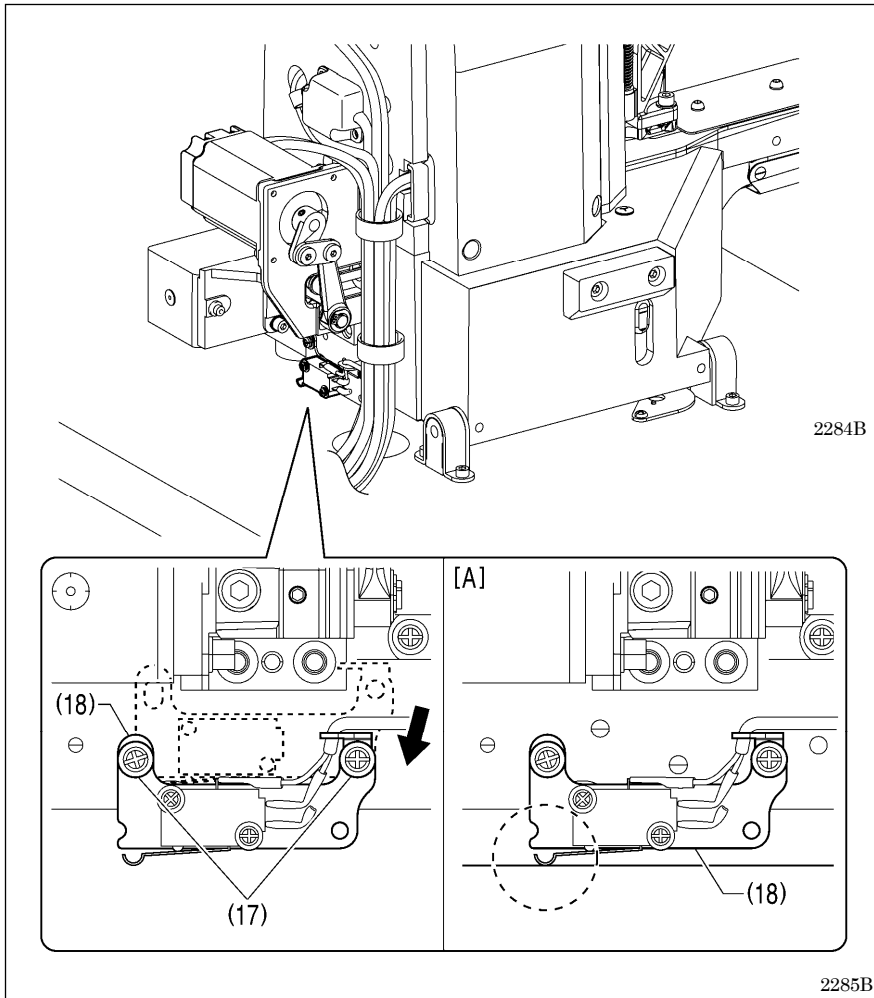
Place the machine head gently on top of the table.

NOTE:

- Be careful not to clamp any cords between the machine head and the table.
- When holding the machine head, do not hold it by the pulse motor or the solenoid, otherwise it may damage the pulse motor or solenoid.



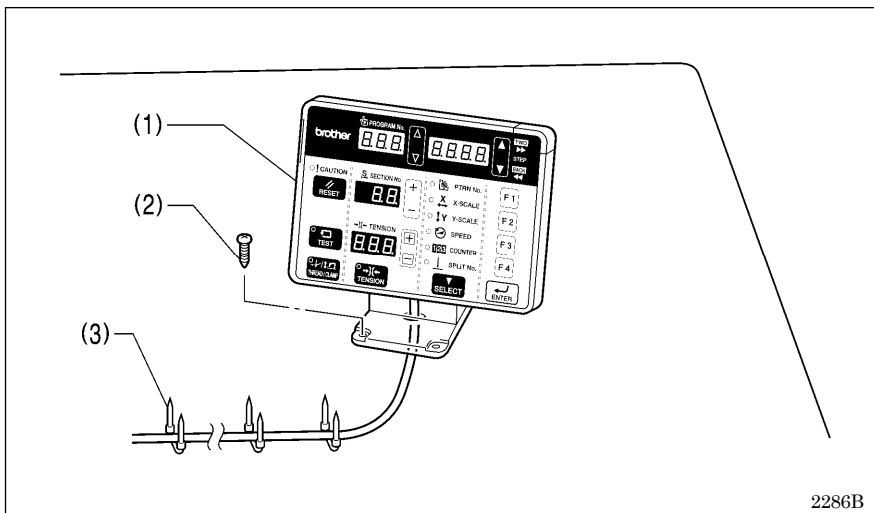
4. INSTALLATION



1. Remove the two screws (17), and then temporarily remove the machine head switch (18).
2. Use the two screws (17) which were removed to install the machine head switch (18) in the position shown in the illustration.
3. Check that the machine head switch is turned on as shown in figure [A].

* If the machine head switch is not turned on, adjust the installation position while referring to "4-14. Checking the machine head switch".

4-5. Installing the operation panel

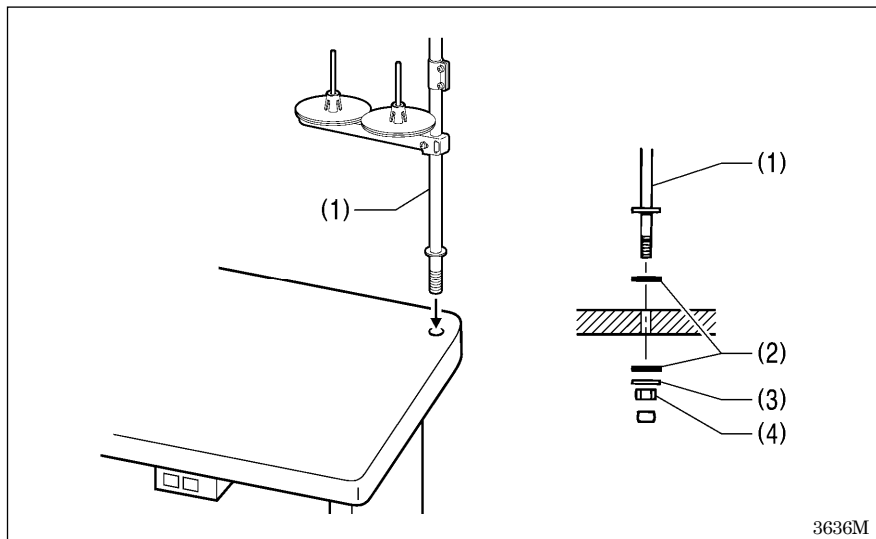


- (1) Operation panel
- (2) Wood screws [4 pcs]

* Pass the panel cord through the hole in the table, and then insert it into the control box through the hole in the side of the control box.

- (3) Staples [3 pcs]

4-6. Installing the cotton stand

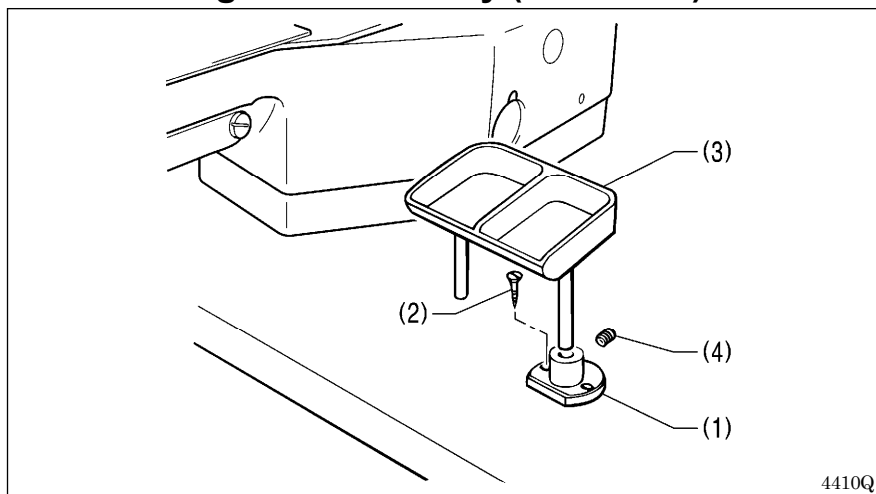


(1) Cotton stand

NOTE:

Securely tighten the nut (4) so that the two rubber cushions (2) and the washer (3) are securely clamped and so that the cotton stand (1) does not move.

4-7. Installing the button tray (BE-438FX)



Install the button tray at a place convenient for operation.

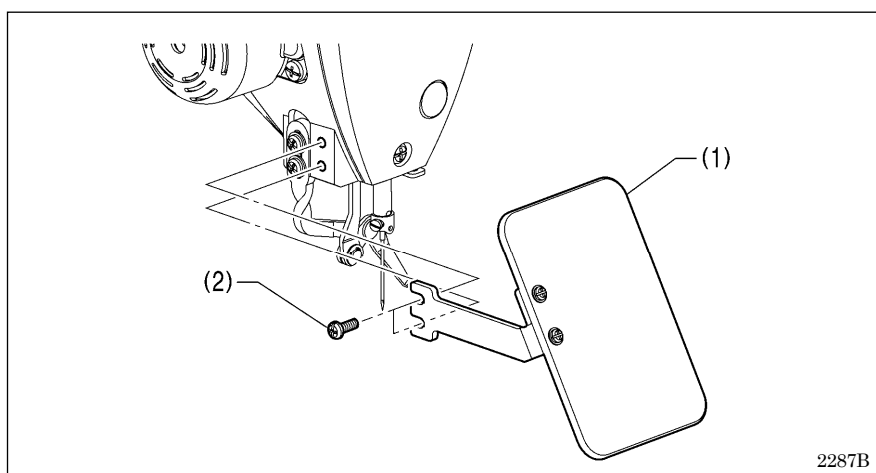
- (1) Button tray holder
- (2) Wood screws [2 pcs]
- (3) Button tray
- (4) Set screw

4-8. Installing the eye guard

! CAUTION

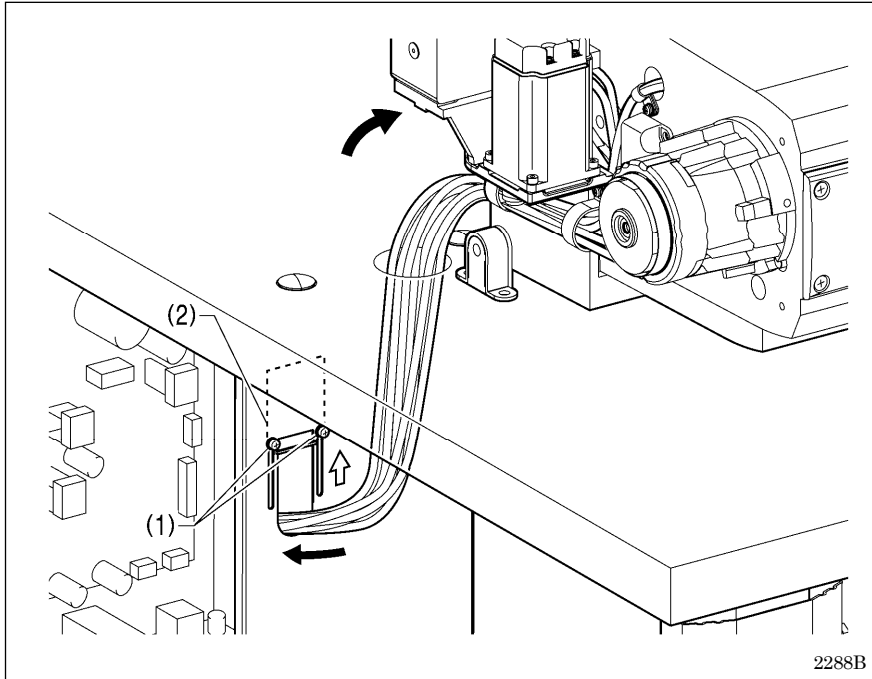


Attach all safety devices before using the sewing machine.
If the machine is used without these devices attached, injury may result.



- (1) Eye guard assembly
- (2) Screws [2 pcs]

4-9. Connecting the cords



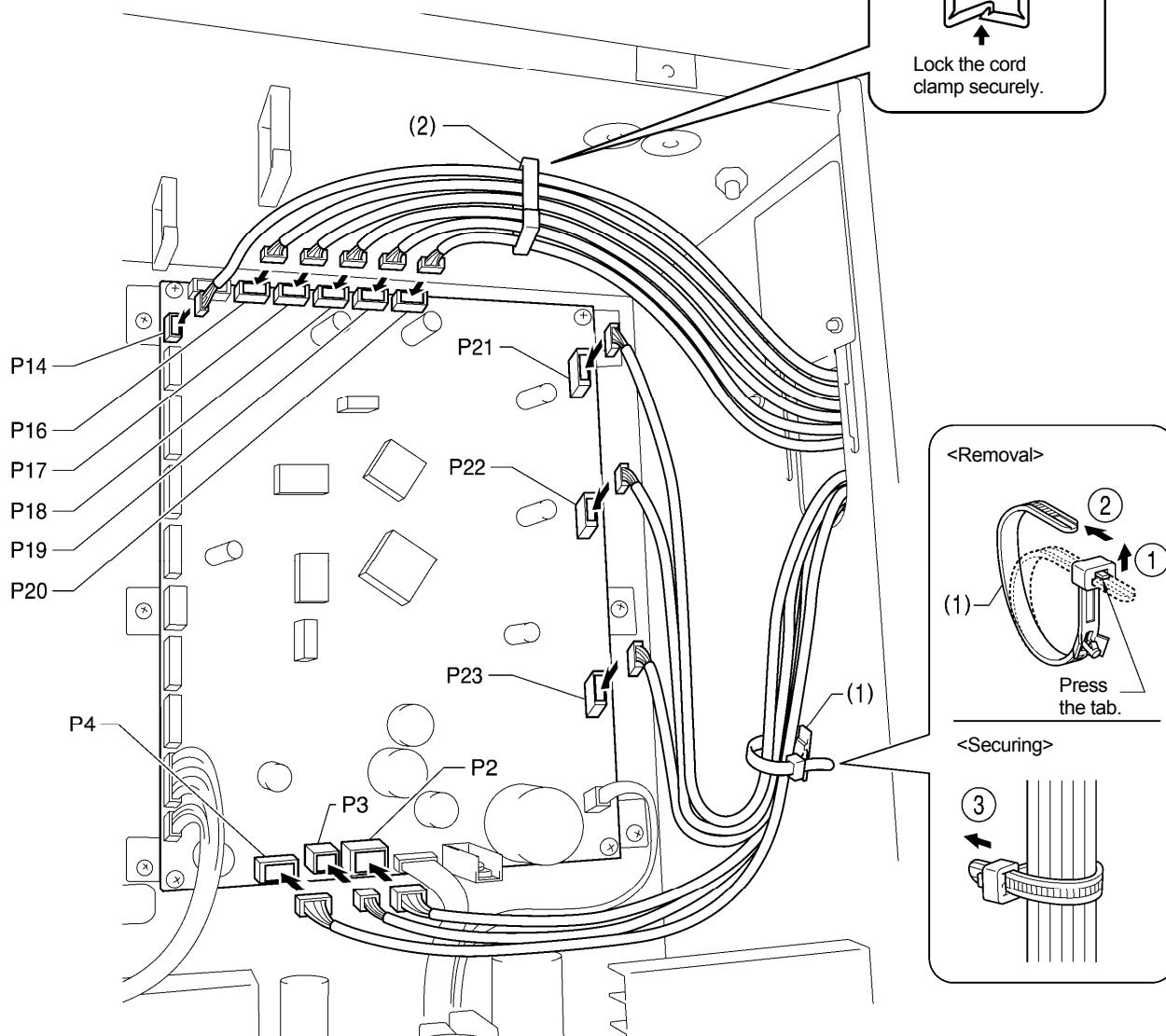
1. Gently tilt back the machine head.
2. Pass the cord bundle through the hole in the work table.
3. Loosen the two screws (1), and then open the cord presser plate (2) in the direction of the white arrow and pass the cord bundle through the opening.
4. Securely connect the connectors as indicated in the table below.
(Refer to following page.)

NOTE:

- Check that the connector is facing the correct way, and then insert it firmly until it locks into place.
- Secure the cables with cable ties and cord clamps, while being careful not to pull on the connector.

(Continued on next page.)

< Main P. C. board >



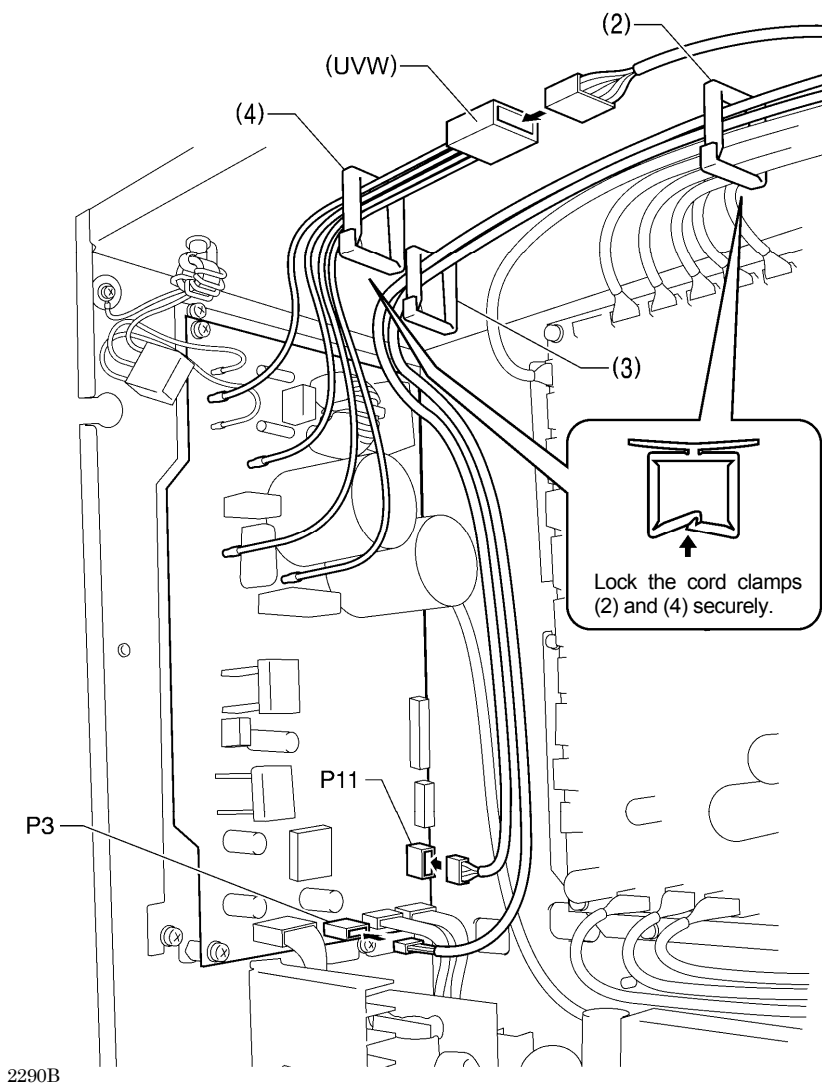
2289B

Connectors	Connection location on main P. C. board	Cord clamps
X pulse motor encoder [5-pin] White	P17 (X-ENC)	(2)
Y pulse motor encoder [5-pin] Blue	P18 (Y-ENC)	(2)
Work clamp pulse motor encoder 5-pin Black	P19 (P-ENC)	(2)
Thread nipper pulse motor encoder 5-pin Red	P20 (T-ENC)	(2)
Machine head switch [3-pin]	P14 (HEAD-SW)	(2)
Machine head memory [6-pin]	P16 (HEAD-M)	(2)
Thread trimmer solenoid [6-pin]	P2 (SOL1)	(1)
Digital tension 4-pin / Tension release solenoid 4 -pin	P3 (SOL2)	(1)
Thread clamp pulse motor [4-pin] Red	P4 (TPM)	(1)
X pulse motor [4-pin] White	P21 (XPM)	(1)
Y pulse motor [4-pin] Blue	P22 (YPM)	(1)
Work clamp pulse motor [4-pin] Black	P23 (PPM)	(1)

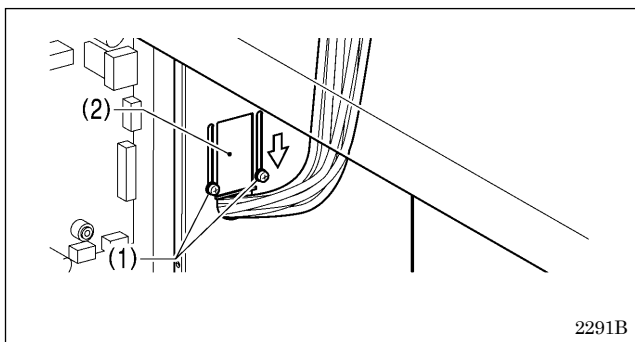
NOTE: Route the X, Y and work clamp pulse motor harnesses so that they do not touch the power supply P.C. board.

(Continued on next page.)

< Motor P. C. board >



Connectors	Connection location on motor P. C. board	Cord clamps/ cable ties
Upper shaft motor [4-pin]	(UVW)	(4)
Synchronizer [10-pin]	P11 (SYNC)	(2) (3)
Operation panel [4-pin]	P3 (PANEL)	(2) (3)



- Close the cord presser plate (2) in the direction of the white arrow, and secure it by tightening the two screws (1).

NOTE:

Close the cord presser plate (2) securely so that no foreign objects, insects or small animals can get inside the control box.

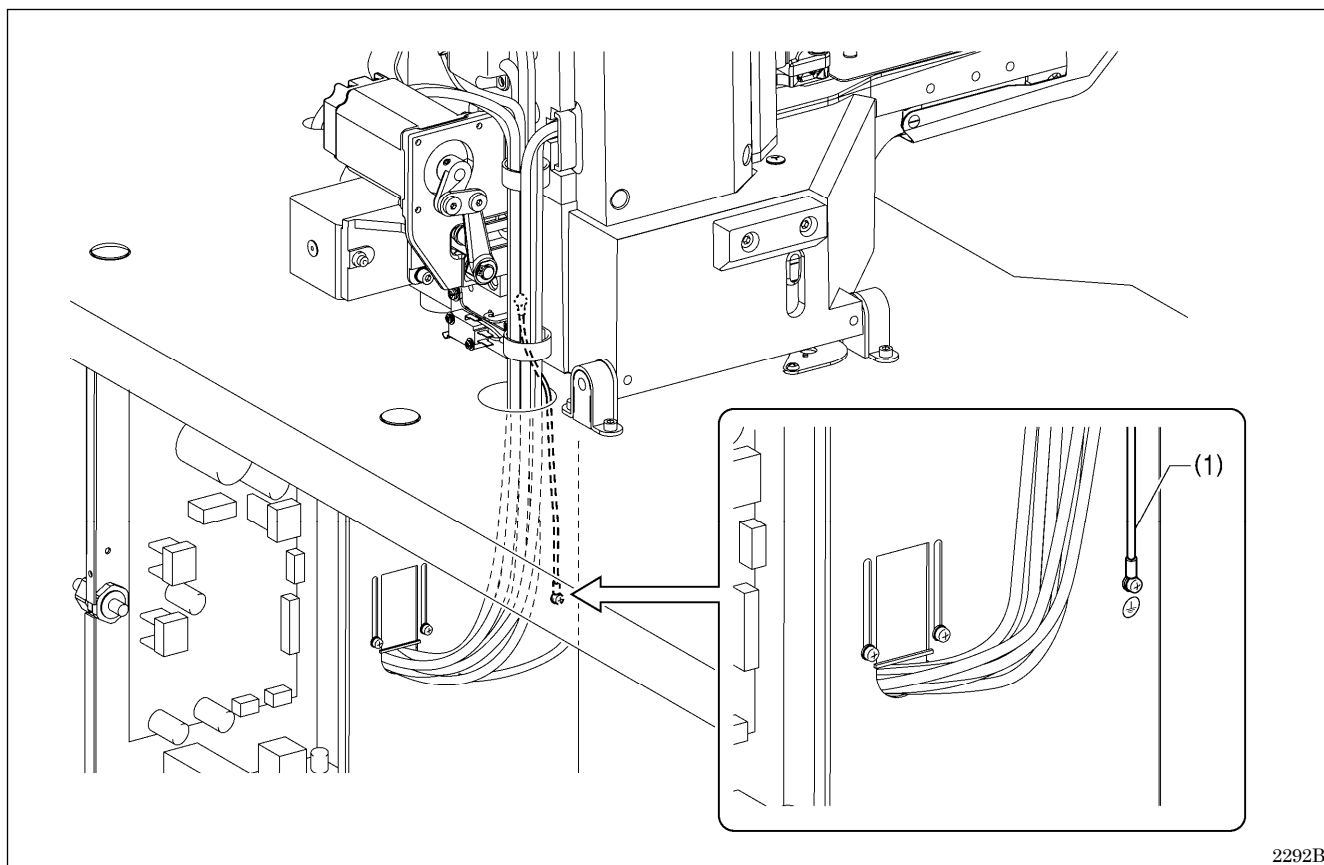
- Check that the cords do not get pulled, and then gently return the machine head to its original position.

4-10. Connecting the ground wire

CAUTION



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



2292B

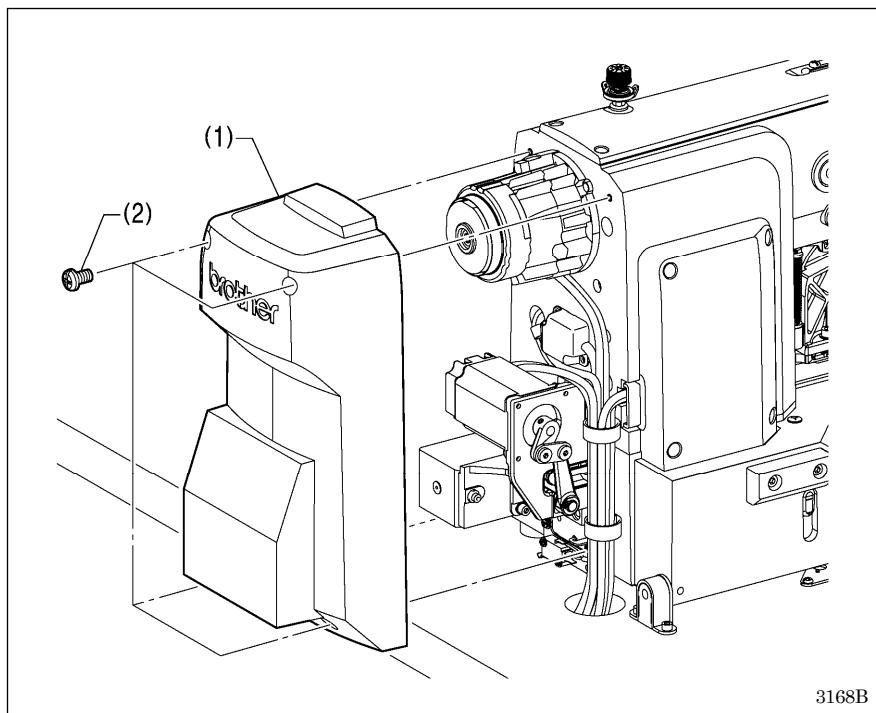
(1) Ground wire from the machine head (Ground mark position)

* The recommended tightening torque for the ground screws is $1.0 \pm 0.1 \text{ N} \cdot \text{m}$.

NOTE:

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

4-11. Installing the rear cover



- (1) Rear cover
- (2) Screws [4 pcs]

NOTE:

Be careful not to clamp the cords when installing the rear cover (1).

4-12. Lubrication

CAUTION

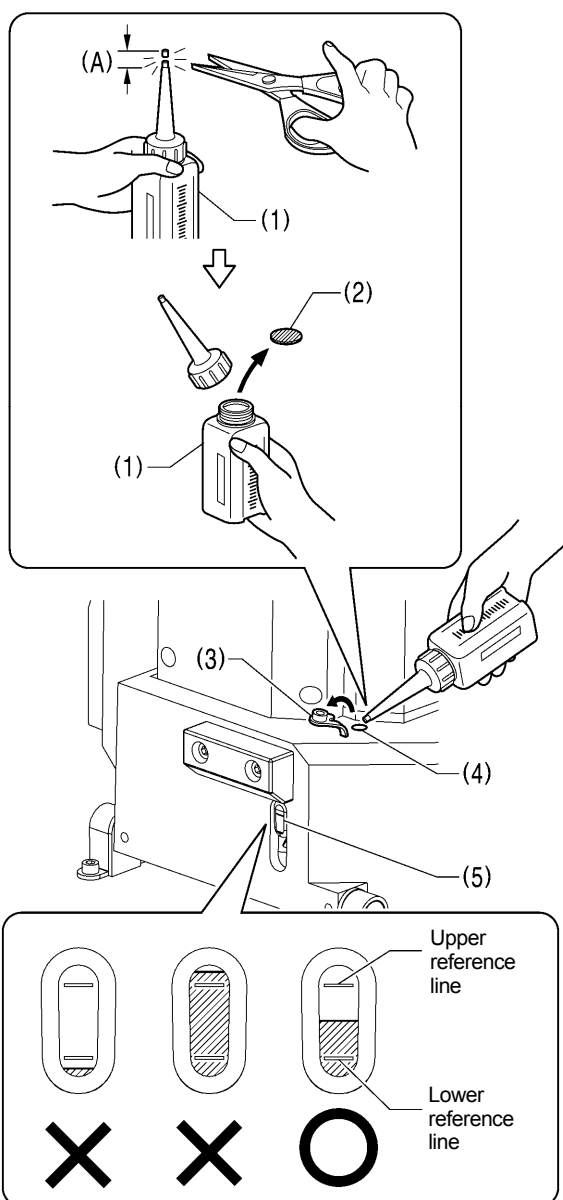


Do not connect the power cord until lubrication has been completed, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



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.



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

• Use only the lubricating oil <Nippon Oil Corporation Sewing Lube 10N; VG10> specified by Brother.

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

1. Hold the base of the nozzle of the accessory oil tank (1), and use scissors to cut about half-way along the straight section (A) of the nozzle.
2. Loosen and remove the nozzle, and then remove the seal (2).
3. Tighten the nozzle.
4. Open the oil feeding pocket cover (3).
5. Insert the nozzle of the oil tank (1) deeply into the oil feeding pocket (4), and then add lubricating oil.
6. Check that the oil level is between the upper reference line and the lower reference line in the oil gauge window (5).

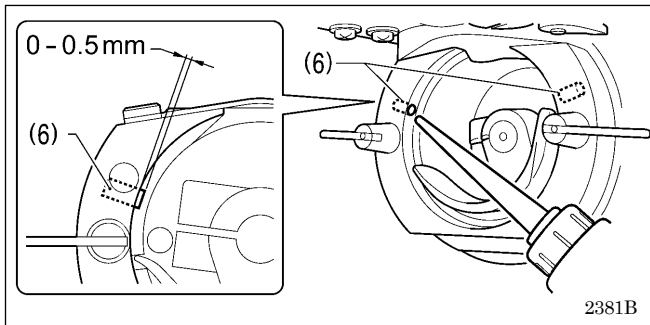
NOTE:

- When the oil level drops below the lower reference line in the oil gauge window, be sure to add more oil. If the oil level drops below the lower reference line, problems with operation of the sewing machine such as seizing may occur.
- Do not add oil so that the oil level goes above the upper reference line, otherwise the oil may spill out when the machine head is tilted back

(Continued on next page.)

2294B

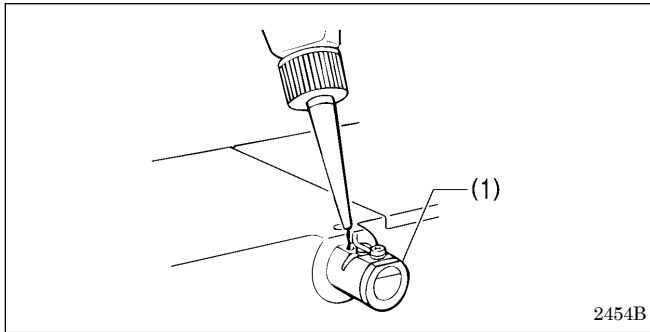
4. INSTALLATION



7. Pour oil in through the two holes of the shuttle race base assembly so that the felt (6) is lightly moistened.

NOTE:

- The two pieces of felt (6) should normally project by 0 to 0.5 mm from the hook race. Be careful not to push in the felt (6) when lubricating.
- If there is no more oil on the felt (6) of the shuttle race base assembly, problems with sewing may result.



< When using the needle cooler (option) >

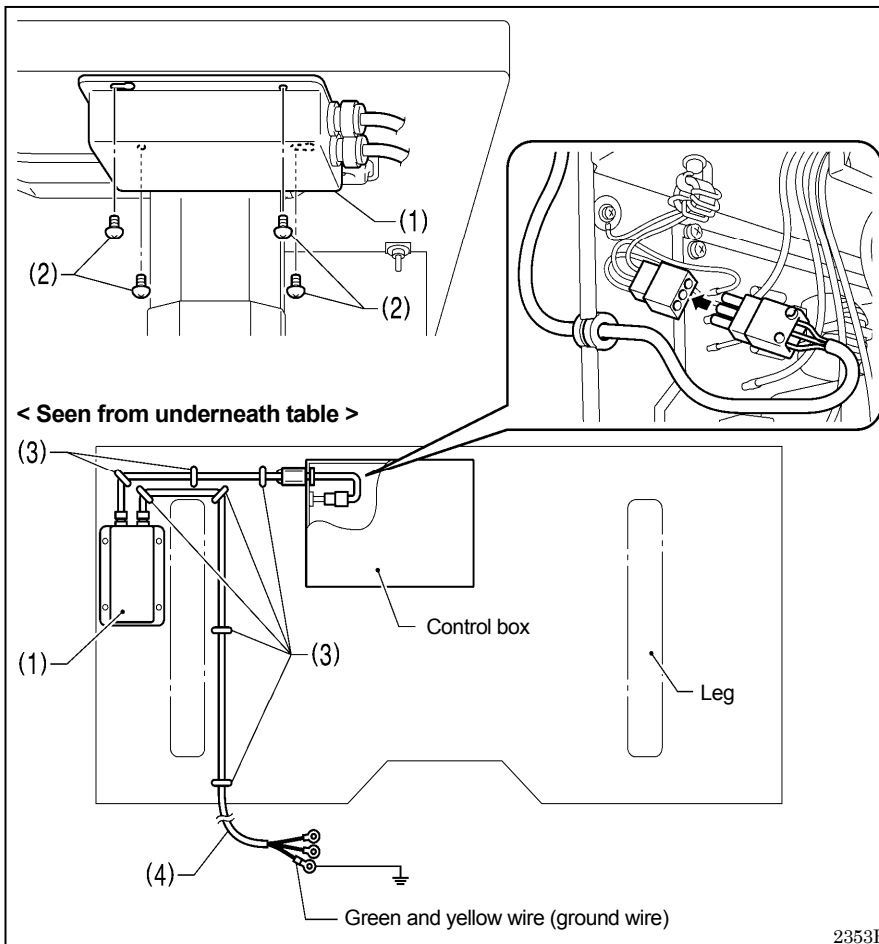
If using the needle cooler (option) (1), fill it with silicon oil.

4-13. Connecting the power cord

CAUTION



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



Connect cords that match the voltage specifications.

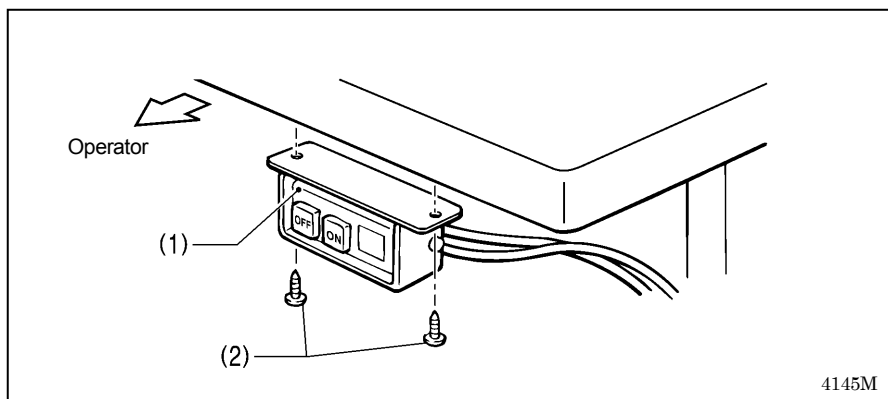
< EU specifications >

- (1) Filter box
- (2) Screws [4 pcs]
- (3) Staples [7 pcs]
- (4) Power cord

1. Attach an appropriate plug to the power cord (4). (The green and yellow wire is the ground wire.)
2. Insert the power plug into a properly-grounded electrical outlet.

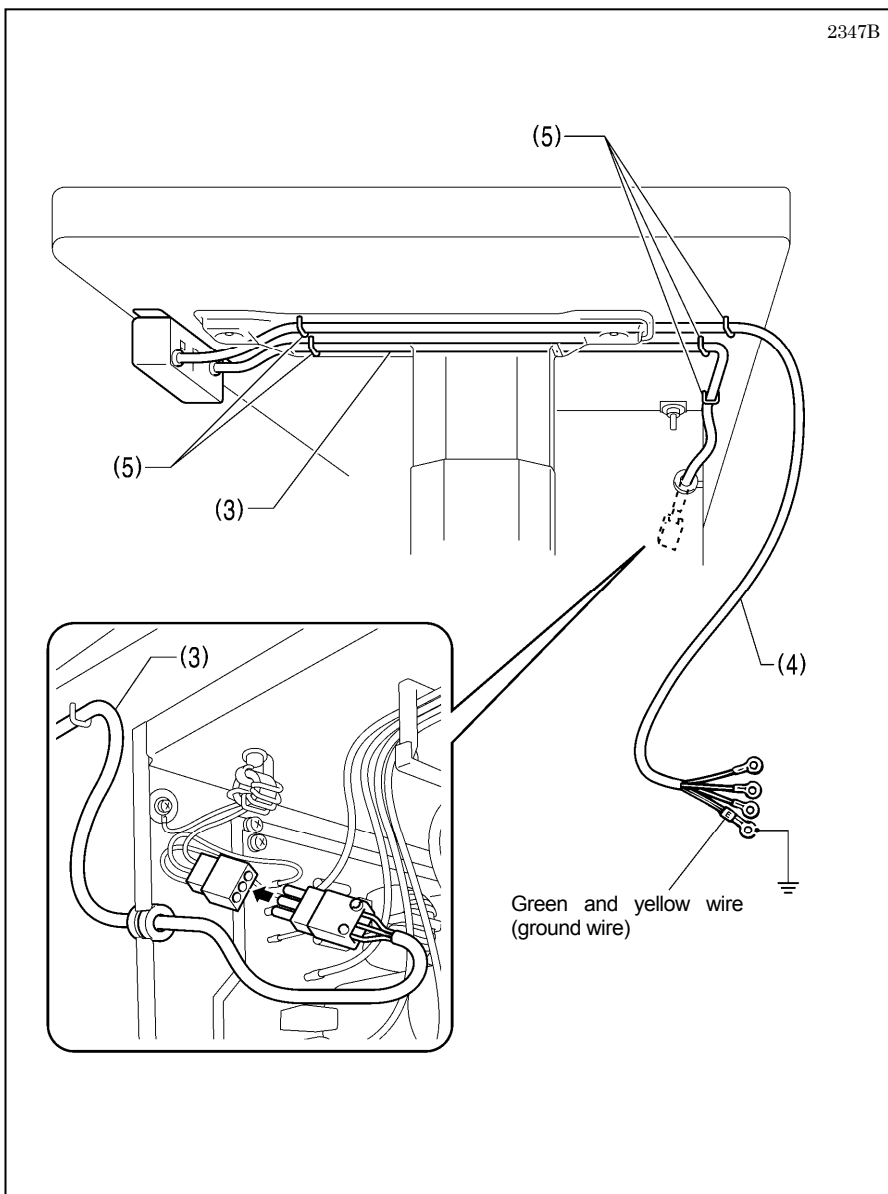
NOTE:

- Take care when tapping in the staples (3) to make sure that they do not pierce the cords.
- Do not use extension cords, otherwise machine operation problems may result.



<200 V system >

- (1) Power switch
(2) Screws [2 pcs]



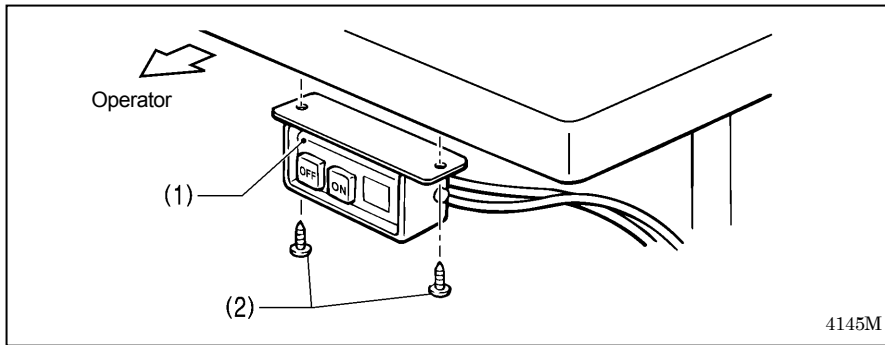
- (3) 3-pin power supply connector
(4) Power cord
(5) Staples [5 pcs]

1. Attach an appropriate plug to the power cord (4). (The green and yellow wire is the ground wire.)
2. Insert the power plug into a properly-grounded electrical outlet.

NOTE:

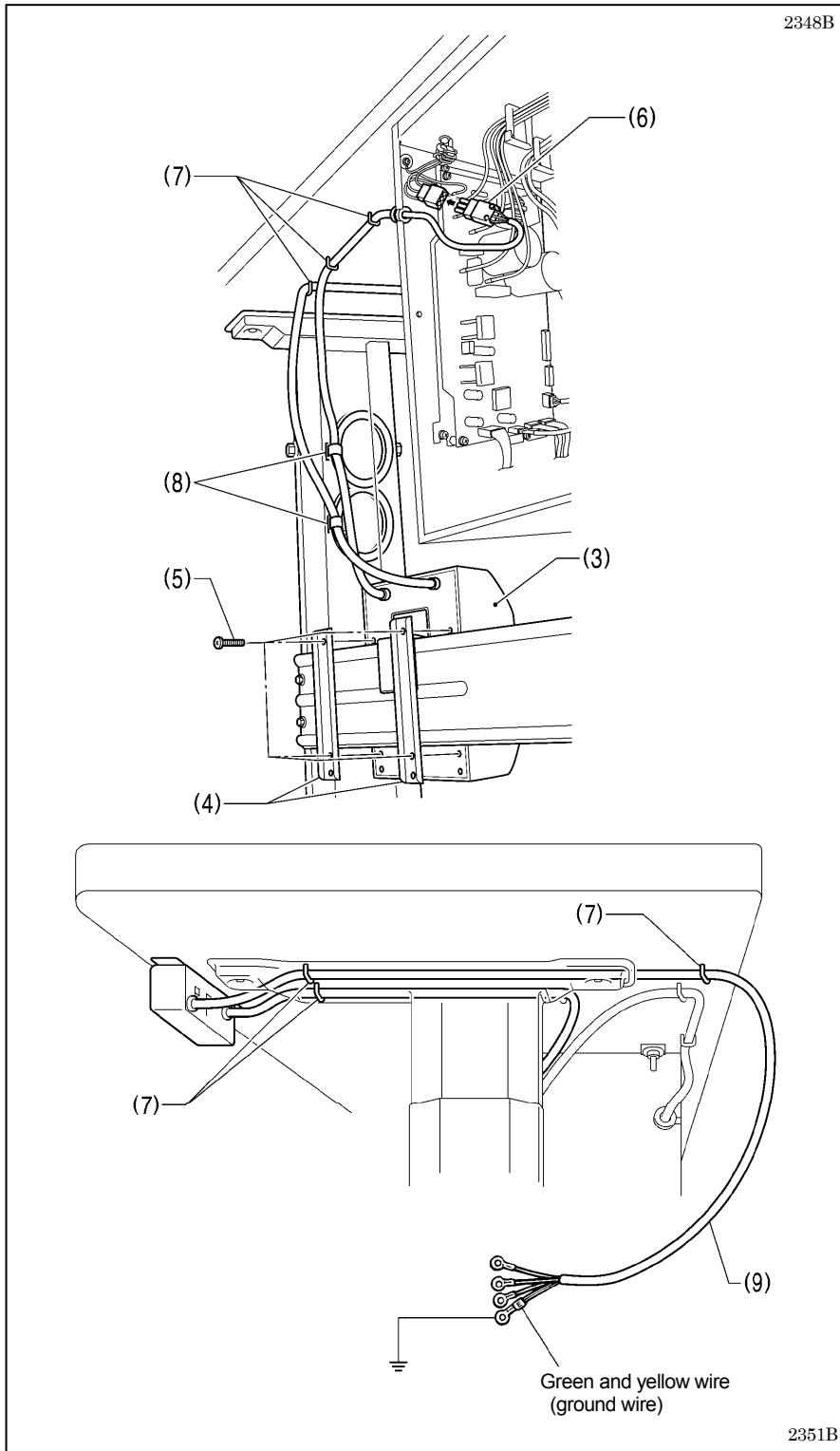
- Take care when tapping in the staples (5) to make sure that they do not pierce the cords.
 - Do not use extension cords, otherwise machine operation problems may result.
3. Use the six screws to tighten the cover of the control box. Check that none of the cords are being clamped by the cover at this time.

4. INSTALLATION



<100 V / 400 V system >

- (1) Power switch
- (2) Screws [2 pcs]



- (3) Transformer box
- (4) Transformer box plates [2 pcs]
- (5) Screw [with washer]
- (6) 3-pin power supply connector
- (7) Staples [6 pcs]
- (8) Cord clamps [2 pcs]
- (9) Power cord

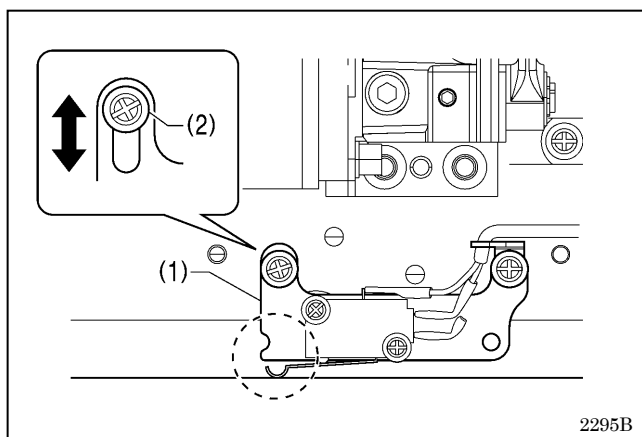
1. Attach an appropriate plug to the power cord (9). (The green and yellow wire is the ground wire.)
2. Insert the power plug into a properly-grounded AC power supply.

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

NOTE:

- If the ground connection is not secure, electric shocks, operating errors or damage to electronic components such as P.C. boards may occur.
 - Take care when tapping in the staples (7) to make sure that they do not pierce the cords.
 - Do not use extension cords, otherwise machine operation problems may result.
3. Use the six screws to tighten the cover of the control box. Check that none of the cords are being clamped by the cover at this time.

4-14. Checking the machine head switch



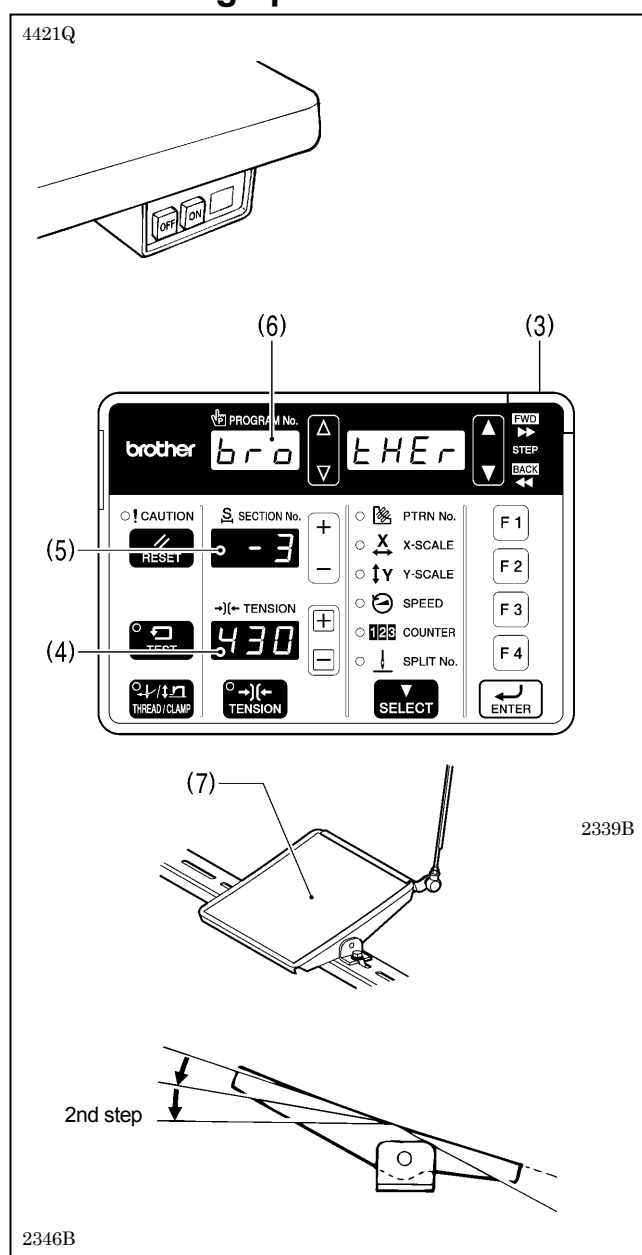
1. Turn on the power switch.
2. Check that no error numbers appear on the operation panel.

<If error [E050], [E051] or [E055] is displayed>

If the machine head switch (1) is not turned on, error [E050], [E051] or [E055] will occur.

Use the screw (2) to adjust the installation position of the machine head switch as shown in the illustration.

4-15. Starting up



1. Turn on the power switch.
The POWER indicator (3) will illuminate, and the model name will appear in the tension value display (4) and the specifications will appear in the section No. display (5).

Specifications		Display
Medium-weight materials	[- 03]	- 3
Heavy-weight materials	[- 05]	- 5
Knitted materials	[- 0K]	- K
Foundation garments	[- 0F]	- F

After this, the program number will flash in the program No. display (6).

2. Depress the foot switch (7) to the 2nd step.
The feed mechanism will move to the home position and the work clamp / button clamp will rise.

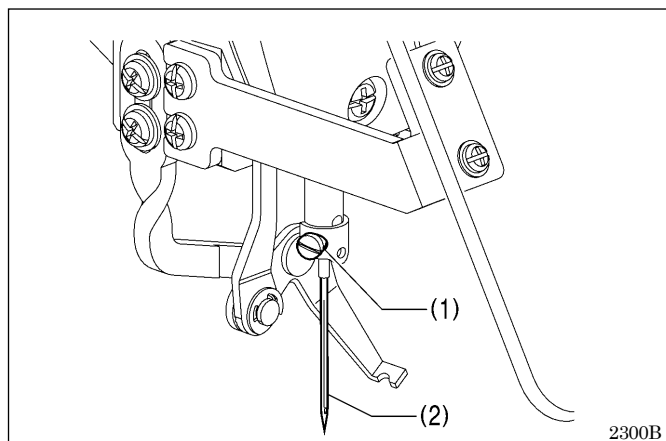
5. PREPARATION BEFORE SEWING

5-1. Installing the needle

! CAUTION



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

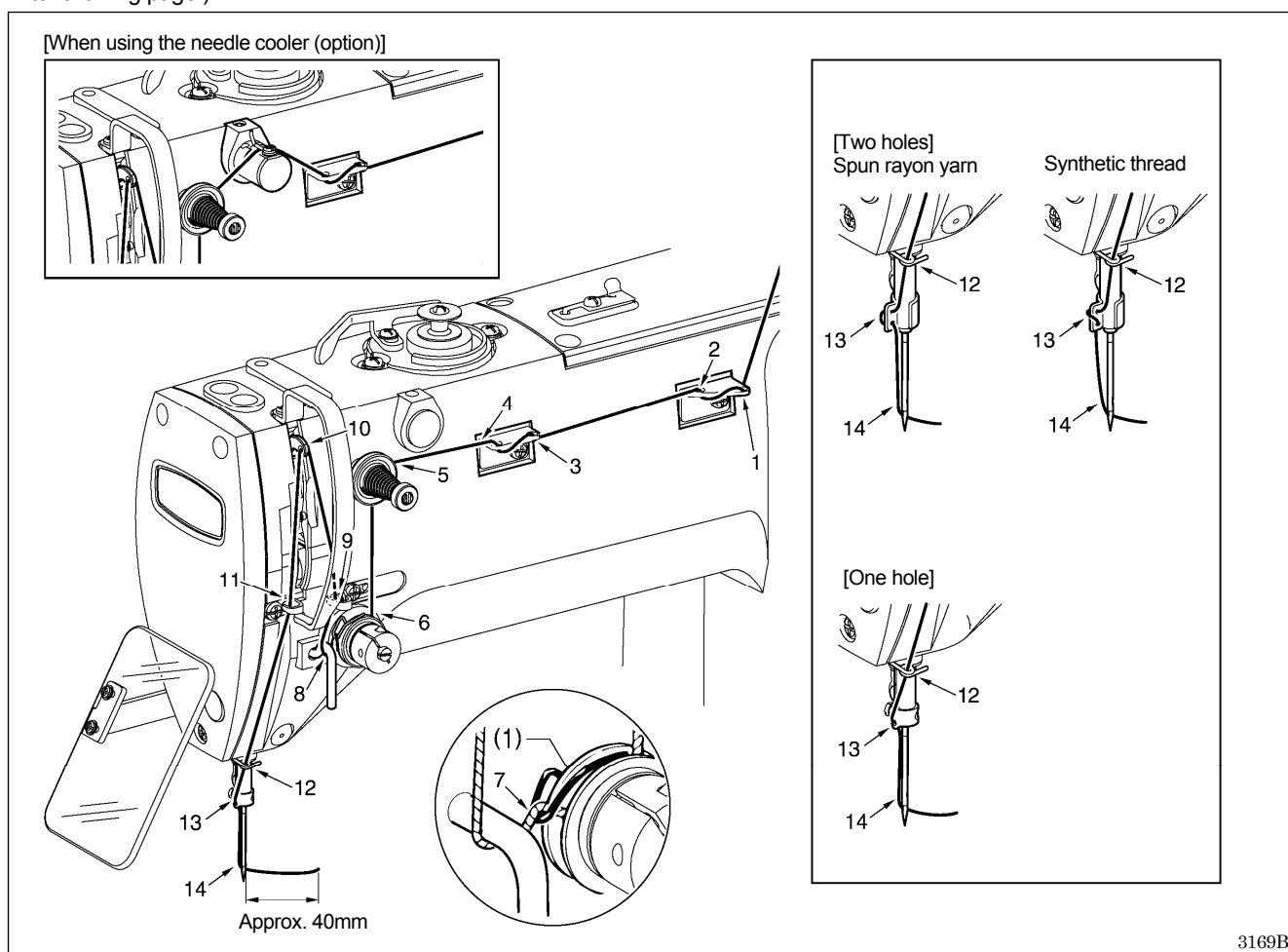


1. Loosen the set screw (1).
2. Insert the needle (2) in a straight line as far as it will go, making sure that the long groove on the needle is at the front, and then securely tighten the screw (1).

5-2. Threading the upper thread

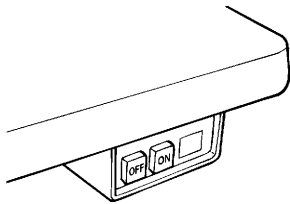
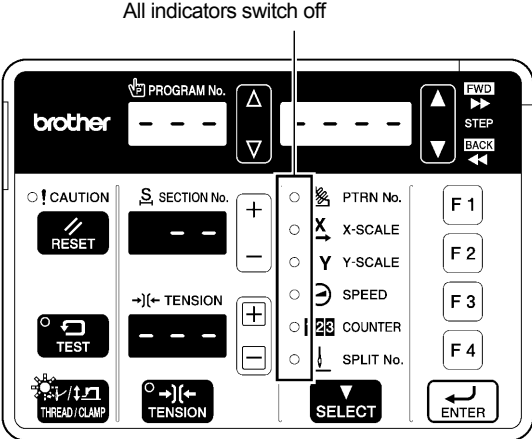
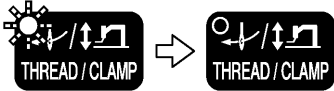
Thread the upper thread correctly as shown in the illustration below.

* When using threading mode for threading, the tension discs (1) will open so that the thread can be threaded more easily. (Refer to following page.)



<Threading mode>

Threading mode is safe because the sewing machine will not start even when the foot switch is depressed.

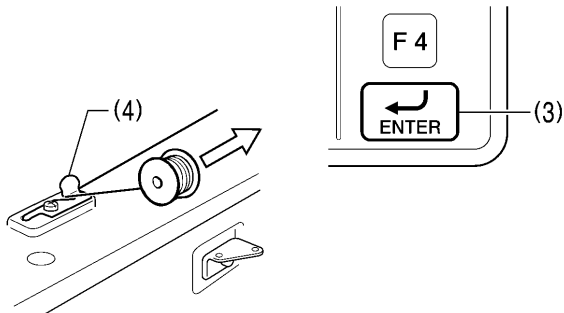
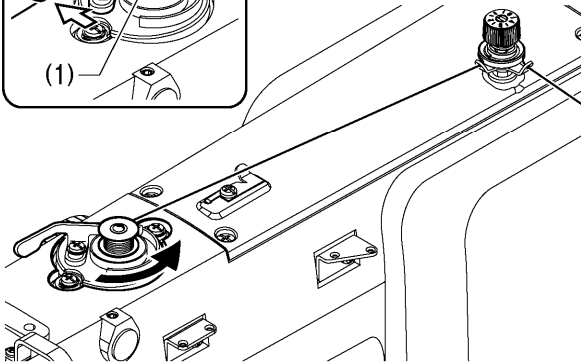
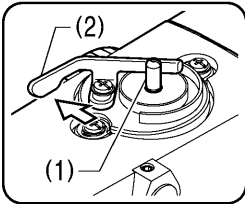
1	Turn on the power switch.  4421Q
2	Press the THREAD/CLAMP key.  2340B 2389B
3	Threading the thread.
4	Ending threading mode Press the THREAD/CLAMP key. The work clamp/button clamp will return to where it was before threading mode was started.  2390B

5-3. Winding the lower thread

 CAUTION


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

3170B

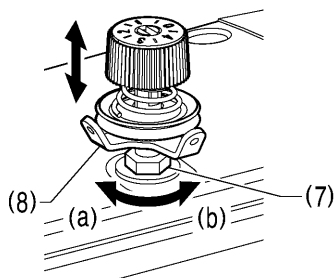
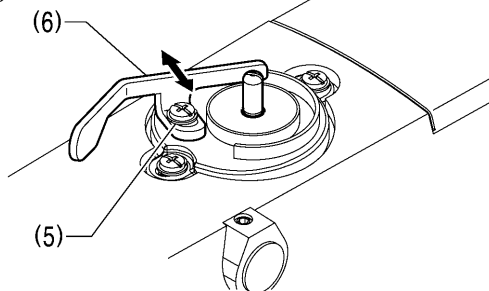


3171B

2341B

1. Place the bobbin onto the bobbin winder shaft (1).
2. Thread the thread as shown in the illustration, wind the thread around the bobbin several times, and then press the bobbin presser arm (2).
3. Turn on the power switch.
4. Depress the foot switch to the second step. The feed mechanism will move to the home position.
5. Check that the needle is not touching the work clamp/button clamp, and then while pressing the ENTER key (3), depress the foot switch to the second step.
6. Release the ENTER key (3) after the machine starts operating, and keep depressing the foot switch until the lower thread stops being wound onto the bobbin.
(If you release the foot switch before winding is complete, and then depress it again while pressing the ENTER key (3), winding will start again.)
7. Once winding of the set amount of lower thread (80 - 90% of the bobbin capacity) is completed, the bobbin presser arm (2) will return automatically.
8. 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.

3172B



3173B

Adjusting the bobbin winding amount

Loosen the screw (5) and move the bobbin presser (6).

If the thread winds onto the bobbin unevenly

Loosen the nut (7) and move the bobbin winder tension assembly (8) up and down to adjust.

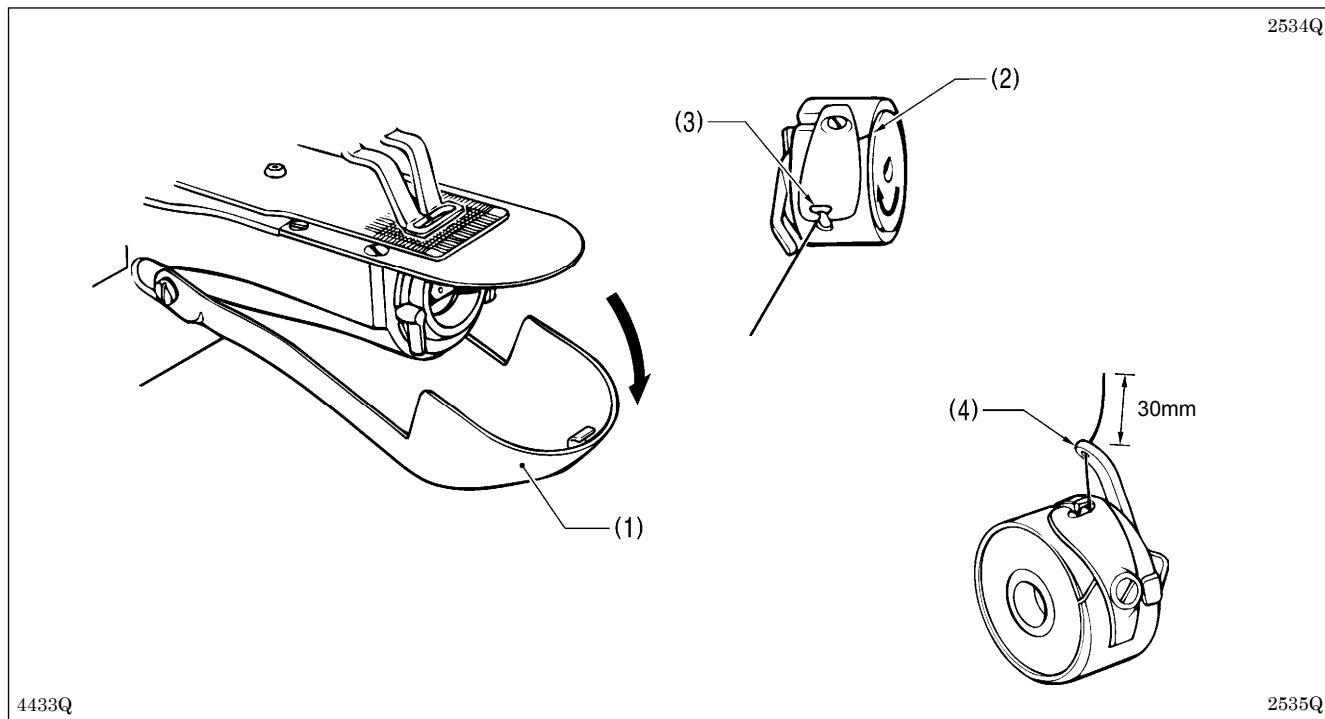
* For case A, turn the bobbin winder tension assembly (8) clockwise (a), and for case B, turn it counterclockwise (b).

5-4. Installing the bobbin case

! CAUTION



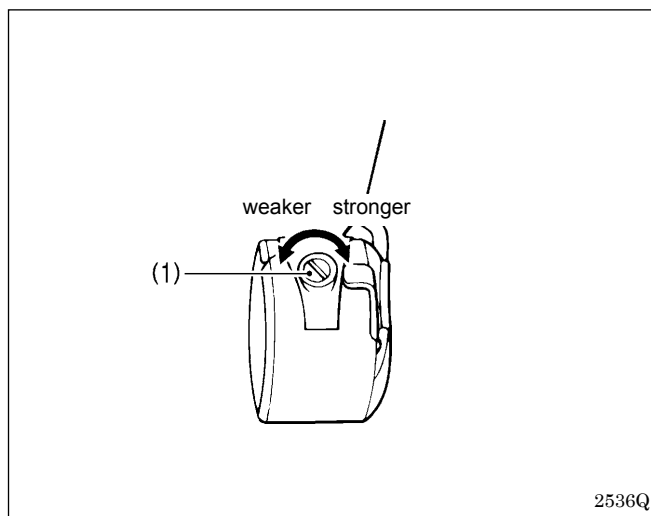
Turn off the power switch before installing the bobbin case, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



1. Pull the shuttle race cover (1) downward to open it.
2. While holding the bobbin so that the thread winds to the right, insert the bobbin into the bobbin case.
3. Pass the thread through the slot (2) and pull it out from the thread hole (3).
4. Check that the bobbin turns in the direction of the arrow when the thread is pulled.
5. Pass the thread through the lever thread hole (4), and then pull out approximately 30 mm of thread.
6. Hold the latch on the bobbin case and insert the bobbin case into the rotary hook.

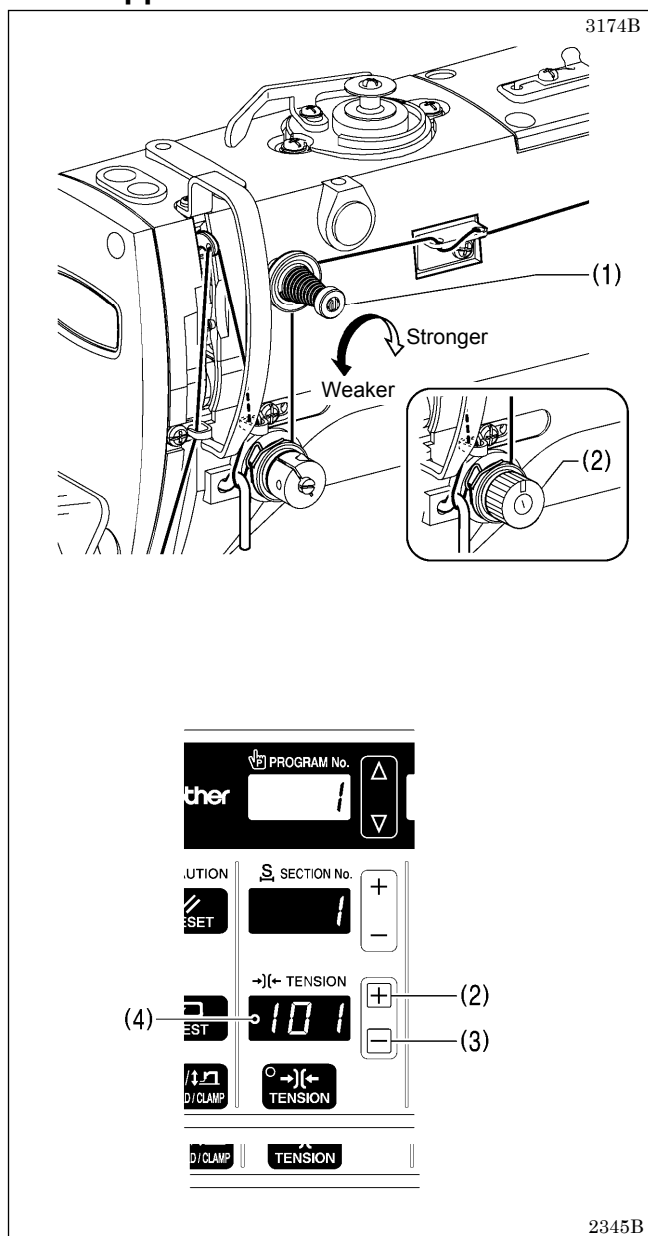
5-5. Thread tension

5-5-1. Lower thread tension



Adjust the thread tension to the weakest possible tension by turning the thread tension nut (1) until the bobbin case will not drop by its own weight while the thread end coming out of the bobbin case is held.

5-5-2. Upper thread tension



Use the digital tension or the tension nut (2) to adjust the tension as appropriate for the material being sewn. (Refer to "Setting the tension value".)

Furthermore, turn the tension nut (1) (sub-tension) to adjust the remaining length of upper thread to 35 - 40 mm, when the thread take-up lever is not used.

Setting the tension value <For KE-430FX and BE-438FX>

Press the $\oplus$ key (2) or the $\ominus$ key (3) to change the tension value (4).

* The tension value which has been set will be applied the next time sewing is carried out.

2382B

2383B

[Reference thread tension]

Use	KE-430FX・FS				BE-438FX
	Medium-weight materials (-03)	Knitted wear (-0K)	Foundation garments (-0F)	Heavy-weight materials (-05)	
Upper thread	#50 or equivalent	#60 or equivalent	#60 or equivalent	#30 or equivalent	#60 or equivalent
Lower thread	#50 or equivalent	#80 or equivalent	#60 or equivalent	#50 or equivalent	#60 or equivalent
Upper thread tension (N) [Tension value] *1	0.8 - 1.2 [80 - 120]*2			1.2 - 1.8 [70 - 130]*2	0.5 - 1.2 [50 - 150]*2
Lower thread tension (N)	0.2 - 0.3				0.2 - 0.3
Pre-tension (N)	0.05 - 0.3				0.1 - 0.4
Needle	DP x 5 #14	DP x 5 #9	DP x 5 KN#11	DPx17NY#19	DPx17NY#12

*1: For KE-430FX and BE-438FX.

*2: This is the tension value when the pretension is 0.05 N.

[Guide to maximum sewing speed for KE-430FX·FS]

Use	Max. sewing speed (sti/min)	
	Standard hook	Large hook
8 layers of denim	3,200	2,500
12 layers of denim	2,700	
Ordinary materials	2,700	2,500
For knitted materials and foundation garments	2,500	

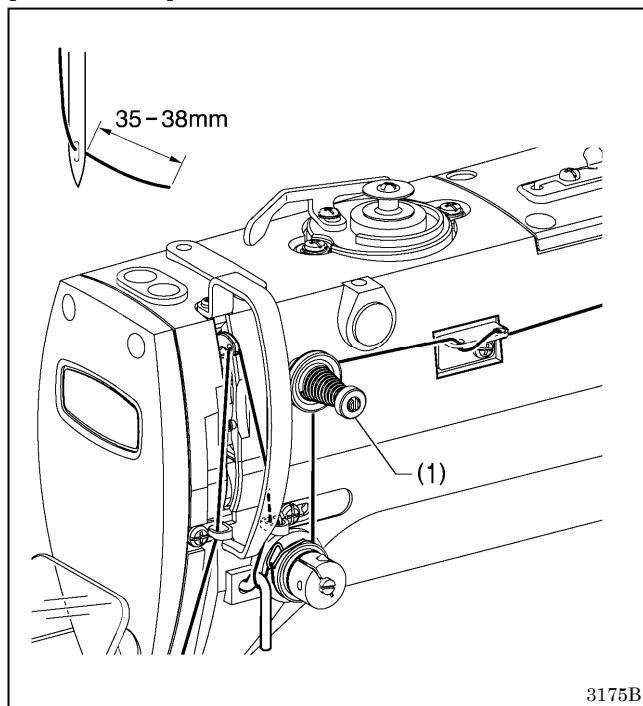
NOTE:

The thread may break due to heat under some sewing conditions. If this happens, reduce the sewing speed, or use the needle cooler (option).

5-6. Thread nipper device <KE-430FX-03, -0K, -0F>

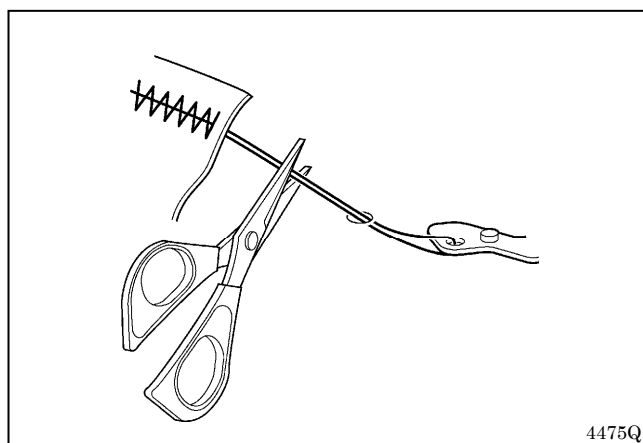
This is used to stop the thread from pulling out at the sewing start, and at times when skipped stitches might easily occur. The thread nipper device operates when memory switch no. 500 is set to "ON". However, some limitations apply. Refer to "6-2. List of memory switches" in the instruction manual CD for details.

* The default setting for this memory switch is "OFF".

[Notes on use]

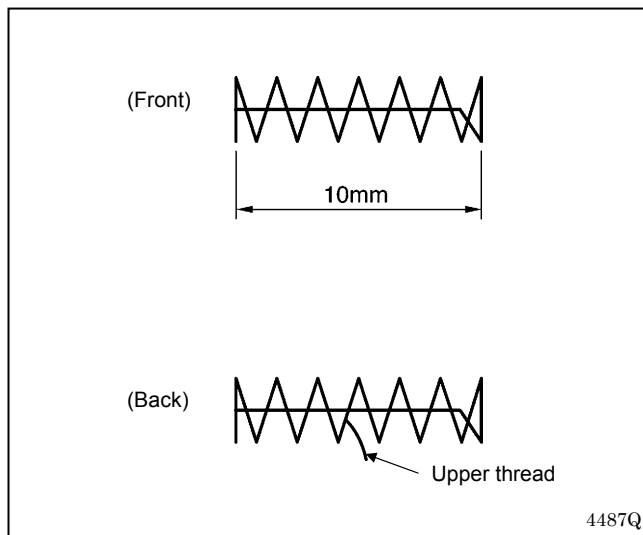
1. When using the thread nipper device, turn the tension nut (1) (sub-tension) to adjust the upper thread trailing length to 35 - 38 mm.

* Adjust the upper thread trailing length to less than 40 mm after replacing the upper thread also.



2. If the upper thread trailing length is 40 mm or more, or if the upper thread tension is weak and the upper thread does not form a good seam at the first stitch, the end of the thread that is being held by the thread nipper may become wound around the seam. Furthermore, if using thick thread that is #30 or higher or if the thread trailing length is too long, an error [E691] may occur. In any of these cases, use scissors to cut the thread without pulling it up too hard.

5. PREPARATION BEFORE SEWING



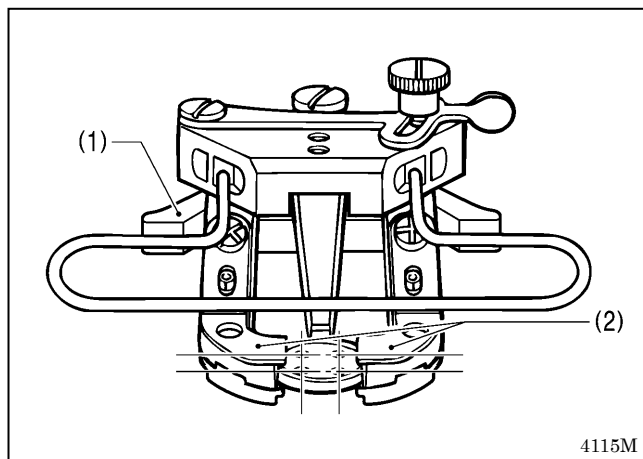
3. For sewing patterns with a short bar tack length (10 mm or less), the end of the thread that is being held by the thread nipper may poke out from the seam on the underside of the material. It is recommended that you change the thread nipper setting to "OFF" for patterns such as these.
4. If error [E690] or [E691] frequently occurs, remove the needle plate and remove any thread scraps from underneath the needle plate.

5. With the KE-430FX, the lower thread may poke out from the underside of the material on the 2nd stitch for some types of material and thread. If this happens, it is recommended that you use sewing patterns that are designed for use with the thread nipper device.
Refer to "3-1. List of Sewing Patterns (KE-430FX・FS)" for details of the sewing patterns.

<Program No. Reference Table>

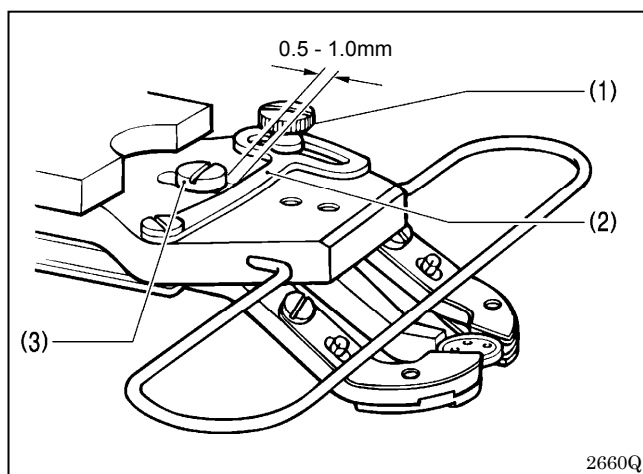
Specifications	Standard pattern No.	Pattern No. for thread nipper device
For medium-weight materials (-03)	1	65
	4	66
	5	67
	8	68
	13	69
	15	70
	20	71
For heavy-weight materials (-05)	21	72
	2	78
	3	79
	6	80
	14	81
	16	82
	17	83
For knitted wear (-OK) For foundation garments (-0F)	18	84
	19	85
	7	73
	9	74
	22	75
	31	76
	32	77

5-7. Inserting the button (BE-438FX)



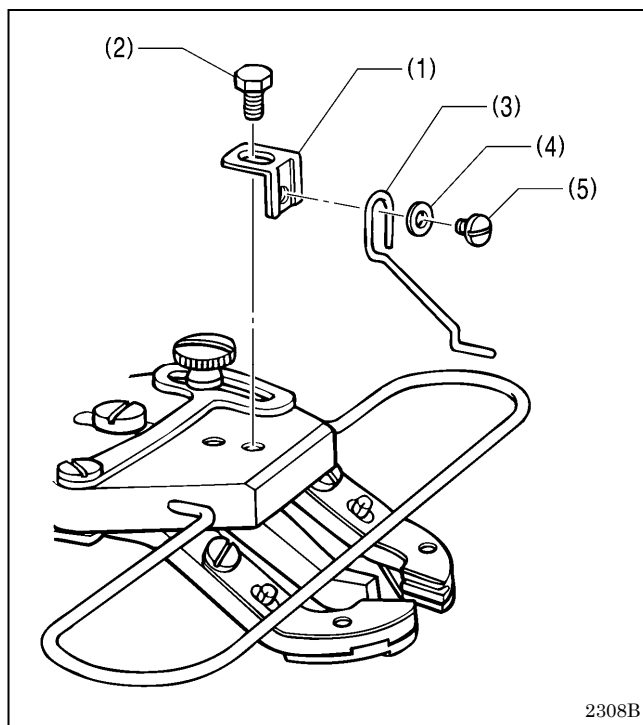
1. Press the button clamp plate cam (1) to open the button holder (2).
2. Insert the button, making sure that the button is facing the directing shown in the illustration, then release the button clamp plate cam (1).

5-8. Adjusting the button clamp (BE-438FX)



1. Insert the button in the button clamp, and then confirm that the button is securely held by the clamp and that the button can be turned by hand.
2. Loosen the shoulder screw (1), while the button is held by the clamp. Move the adjusting plate (2) so that the space between the adjusting plate (2) and screw (3) is approximately 0.5 - 1.0 mm, then tighten the shoulder screw (1).

5-9. Installing the accessory spring (BE-438FX)



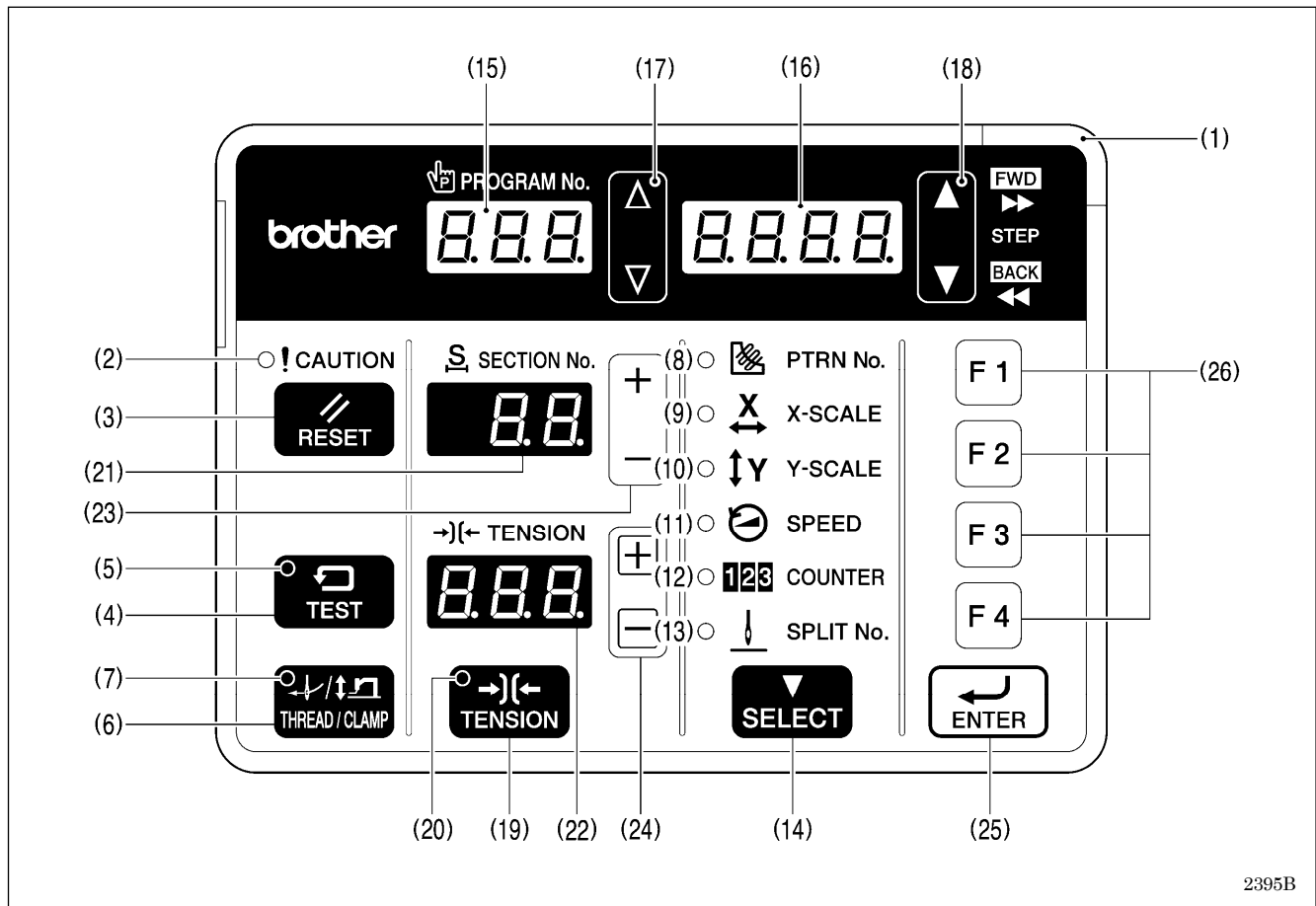
If you would like the button to be raised up more after it is sewn, install the accessory spring.

1. Install the spring support (1) with the bolt (2).
2. Install the spring (3) with the washer (4) and the screw (5).

* Adjust so that the spring (3) is in the middle of the button.

6. USING THE OPERATION PANEL (BASIC OPERATIONS)

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



2395B

(1) Power indicator

Illuminates when the power is turned on.

(2) CAUTION indicator

Illuminates when an error occurs.

(3) RESET key

Used to reset errors.

(4) TEST key

Used to switch to test mode, or it can be used in combination with other keys to switch to other setting modes.

(5) TEST indicator

Illuminates when the TEST key (4) has been pressed.

(6) THREAD/CLAMP key

Used to switch to threading mode.

(7) THREAD/CLAMP indicator

This illuminates when the work clamp/button clamp is switched in threading mode or by using the SELECT key (14).

(8) PATTERN No. indicator

Illuminates when the SELECT key (14) is pressed to switch to the pattern number.

(9) X-SCALE indicator

Illuminates when the SELECT key (14) is pressed to switch to the X-scale setting.

(10) Y-SCALE indicator

Illuminates when the SELECT key (14) is pressed to switch to the Y-scale setting.

(11) SPEED indicator

Illuminates when the SELECT key (14) is pressed to switch to the sewing speed setting.

(12) COUNTER indicator

Illuminates when the SELECT key (14) is pressed to switch to the lower thread or production counter setting.

(13) SPLIT No. indicator

Illuminates when the SELECT key (14) is pressed to show the split setting when split data (for specifying a pause while the program is running) exists.

(14) SELECT key

Used to switch the menu display (pattern No., X-scale and Y-scale, sewing speed, work clamp/button clamp lift amount, counter).

(15) PROGRAM No. display

This shows information such as program numbers.

(16) Menu display

Displays information such as menu setting values, memory switch settings and error codes.

(17) Setting keys ▽ ▲

Used to change the value which is displayed in the PROGRAM No. display (15).

(18) Setting keys ▼ ▲

Used to change the value which is displayed in the menu display (16).

(19) TENSION key

Used to switch to tension correction value display mode.

(20) TENSION indicator

Illuminates when in tension correction value display mode.

(21) SECTION No. display

Shows the section number when you select a pattern in which the upper thread tension changes while the pattern is being sewn.

(22) TENSION display <For KE-430FX and BE-438FX>

Shows the upper thread tension value.

(23) Setting keys [+ , -]

Used to change the value which is displayed in the SECTION No. display (21).

(24) Setting keys []

Used to change the value which is displayed in the TENSION display (22).

(25) ENTER key

Used to accept the values which are displayed in places such as the menu display (16).

(26) Function keys [F1, F2, F3, F4]

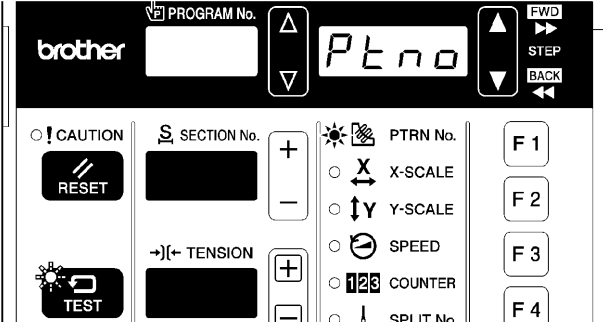
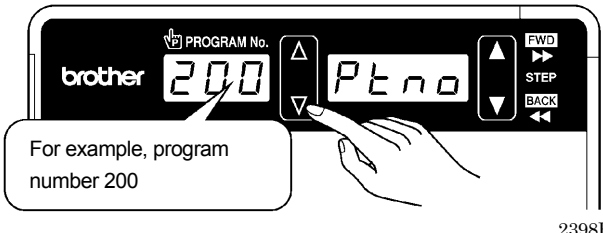
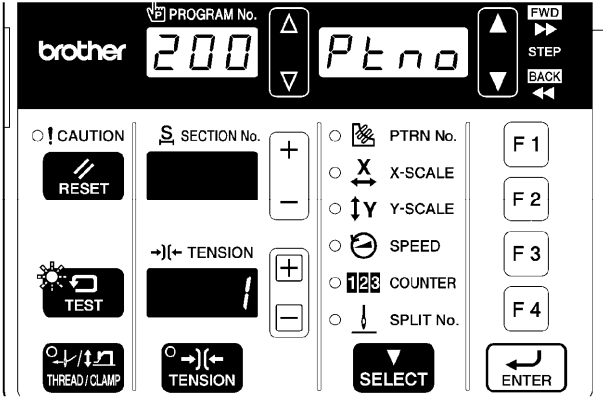
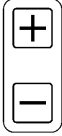
Used to directly select program numbers and cycle program numbers.

6-2. Program setting method

Patterns, X-scale, Y-scale, sewing speed, slow start pattern and upper thread tension can be recorded into programs.

When a program number is selected, the program which has been set for that number can then be sewn.

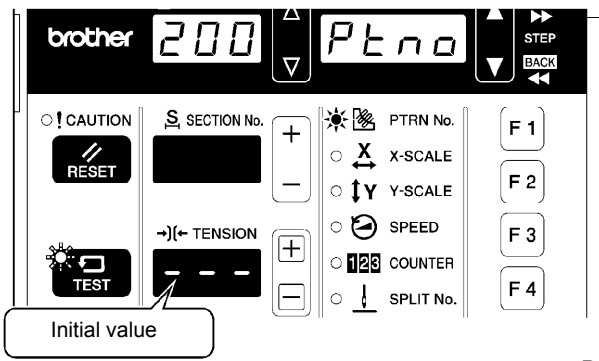
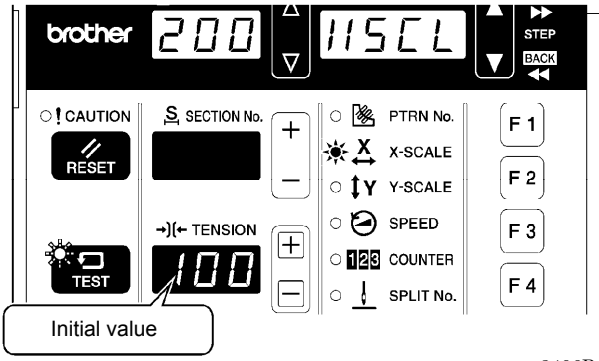
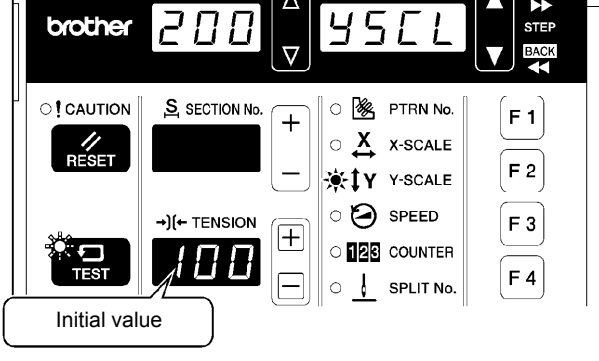
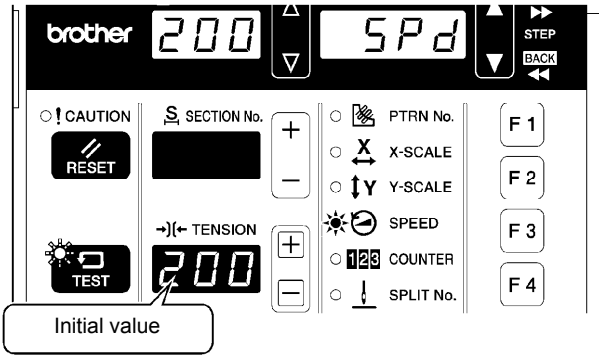
Program numbers 1 to 89 (1 to 64 for the 438FX) have patterns preprogrammed into the program numbers with the same numbers as the pattern numbers, and these pattern numbers cannot be changed. All items in program numbers 200 to 999 can be set as desired by the user.

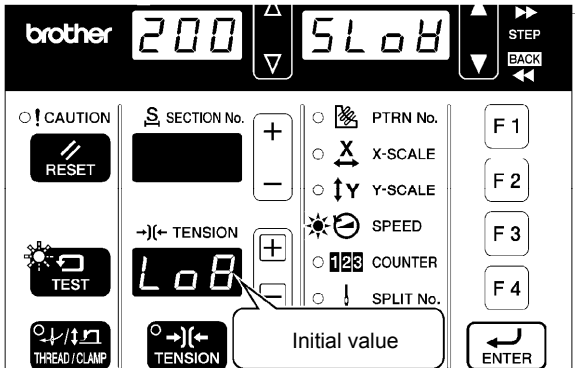
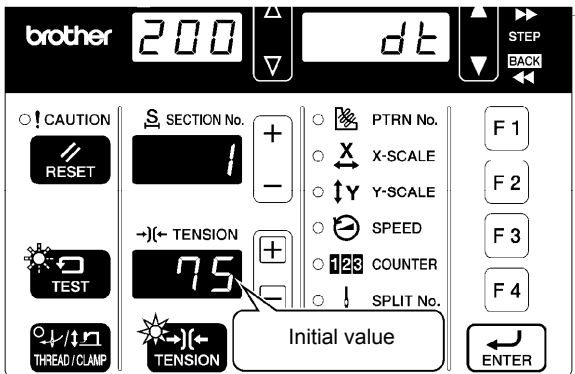
1	Switch to program mode. 	While pressing the TEST key, press the SELECT key.  +  - The program number will be displayed in the PROGRAM No. display, and "Ptno" will be displayed in the menu display. - If a pattern has been recorded in a program, the number for that pattern will be displayed in the TENSION display, and if no pattern has been recorded, "—" will be displayed.									
TEST indicator flashes, PTRN No. indicator illuminates 2396B 2397B											
2	Select the program number that you would like to change the parameters for. 	Press the Δ or ∇ key to set the program number that you would like to record. Program numbers 1 to 89 (1 to 64 for the 438FX) have the following restrictions. If you would like to create your own programs using sewing patterns, use program numbers 200 to 999.									
Restrictions due to program numbers selected <table border="1"> <thead> <tr> <th>Program No.</th> <th>1 to 89 (430FX·FS), 1 to 64 (438FX)</th> <th>200 to 999</th> </tr> </thead> <tbody> <tr> <td>Pattern selection operation</td> <td>Not possible</td> <td>Can be recorded as desired</td> </tr> <tr> <td>Patterns that can be recorded</td> <td>Patterns with same number as program number already recorded</td> <td>All patterns recorded in the sewing machine</td> </tr> </tbody> </table>			Program No.	1 to 89 (430FX·FS), 1 to 64 (438FX)	200 to 999	Pattern selection operation	Not possible	Can be recorded as desired	Patterns that can be recorded	Patterns with same number as program number already recorded	All patterns recorded in the sewing machine
Program No.	1 to 89 (430FX·FS), 1 to 64 (438FX)	200 to 999									
Pattern selection operation	Not possible	Can be recorded as desired									
Patterns that can be recorded	Patterns with same number as program number already recorded	All patterns recorded in the sewing machine									
3	(If program number 200 to 999 is selected) Record a pattern. 	Press the $+$ or $-$ key to change the pattern number, and then press the ENTER key to apply the change.  $\rightarrow$  - The setting ranges for other items will vary in accordance with the pattern which is recorded, so record the pattern first. - If "—" is recorded as the pattern number, that particular program will no longer have anything recorded. - If the display is flashing, it means that no pattern number has been entered and applied. If you press the SELECT key or the TEST key, the changes to the program contents will be canceled.									
2400B											

4	Select the item to be changed.	Press the SELECT key. 2401B The selected parameter changes in the order shown in the illustration below each time the SELECT key is pressed. Pattern → X-scale → Y-scale → Sewing speed → Slow start pattern → Upper thread tension
5	Change the setting for the parameter. (Refer to "List of parameters" on the next page for details on parameter changes.)	Press the  or  key to change the parameter setting. 2402B 2382B 2383B - The flashing display means that the parameter setting has not yet been applied. - You can make the initial setting appear in the display by pressing the RESET key.
6	Apply the changed parameter setting.	Press the ENTER key. 2403B - The display will change from flashing to illuminated, and this means that the setting has been applied. - If you press the SELECT key or the TEST key without pressing the ENTER key, you can cancel the parameter changes.
7	Repeat steps 4 to 6 above to record the settings for each parameter.	
8	If you would like to continue setting another program, repeat steps 2 to 7 above.	
9	Exit program mode.	Press the TEST key. 2404B TEST indicator switches off The display will return to the normal display.

6. USING THE OPERATION PANEL (BASIC OPERATIONS)

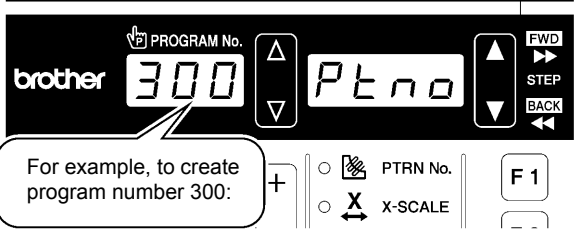
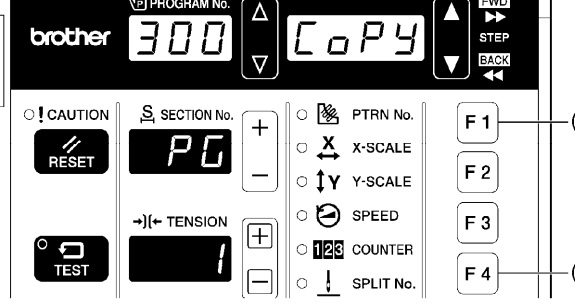
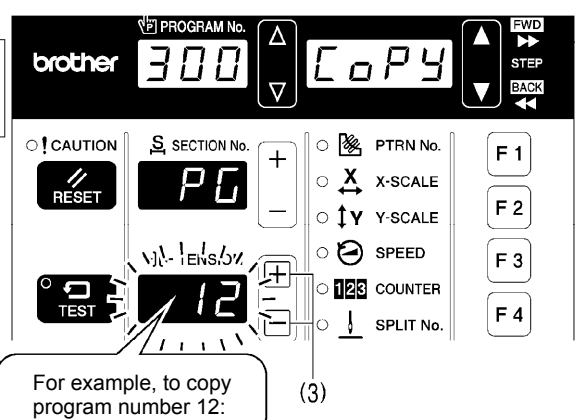
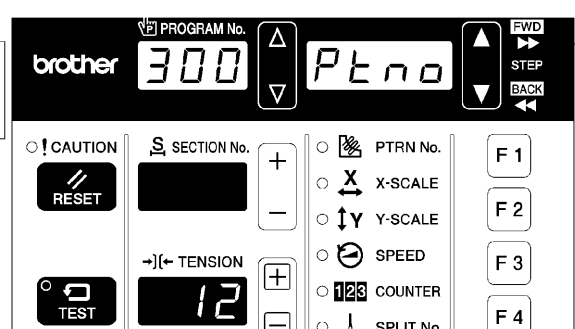
<List of parameters>

Parameter	Setting range and initial value	Display
Pattern	[For program numbers 1 to 89 (1 to 64 for the 438FX)] The setting cannot be changed. [For program numbers 200 to 999] “---”, 1 to 89 (1 to 64 for the 438FX), additional recorded pattern numbers.	 2405B
X-scale	20% - 200% (Limited by available sewing area.) (Initial value is 100%.) * The setting can be displayed in “mm” units by setting memory switch No. 402 to “ON”.	 2406B
Y-scale	20% - 200% (Limited by available sewing area.) (Initial value is 100%.) * The setting can be displayed in “mm” units by setting memory switch No. 402 to “ON”.	 2407B
Sewing speed	430FX·FS: 200 sti/min to 3200 sti/min 438FX: 200 sti/min to 2700 sti/min Setting units are 100 sti/min. (Initial value is 2000 sti/min.) * The setting is displayed in units of 10 sti/min. For a setting of 2000 sti/min, the display will be “200”.)	 2408B

Parameter	Setting range and initial value	Display																																																		
Slow start pattern	Lo1-Lo9 (Initial values: 430FX・FS: Lo8, 438FX: Lo7) The starting-up speed at the sewing start can be adjusted. * The smaller the number, the slower the start. * This is used to stop the thread from pulling out at the sewing start, and at times when skipped stitches might easily occur.																																																			
	430FX・FS: Medium-weight materials (-03), knitted wear (-0K), foundation garments (-0F)																																																			
	<table border="1"><thead><tr><th></th><th>Lo1</th><th>Lo2</th><th>Lo3</th><th>Lo4</th><th>Lo5</th><th>Lo6</th><th>Lo7</th><th>Lo8</th><th>Lo9</th></tr></thead><tbody><tr><td>Sewing speed for 1st stitch</td><td>200</td><td>200</td><td>300</td><td>400</td><td>400</td><td>400</td><td>400</td><td>800</td><td>1500</td></tr><tr><td>Sewing speed for 2nd stitch</td><td>200</td><td>300</td><td>400</td><td>400</td><td>500</td><td>600</td><td>800</td><td>1200</td><td>3000</td></tr><tr><td>Sewing speed for 3rd stitch</td><td>300</td><td>400</td><td>500</td><td>600</td><td>800</td><td>800</td><td>1200</td><td>2500</td><td>3200</td></tr><tr><td>Sewing speed for 4th stitch</td><td>500</td><td>600</td><td>700</td><td>900</td><td>1200</td><td>1200</td><td>2500</td><td>3200</td><td>3200</td></tr></tbody></table>		Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7	Lo8	Lo9	Sewing speed for 1st stitch	200	200	300	400	400	400	400	800	1500	Sewing speed for 2nd stitch	200	300	400	400	500	600	800	1200	3000	Sewing speed for 3rd stitch	300	400	500	600	800	800	1200	2500	3200	Sewing speed for 4th stitch	500	600	700	900	1200	1200	2500	3200	3200	(sti/min)
		Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7	Lo8	Lo9																																										
	Sewing speed for 1st stitch	200	200	300	400	400	400	400	800	1500																																										
Sewing speed for 2nd stitch	200	300	400	400	500	600	800	1200	3000																																											
Sewing speed for 3rd stitch	300	400	500	600	800	800	1200	2500	3200																																											
Sewing speed for 4th stitch	500	600	700	900	1200	1200	2500	3200	3200																																											
430FX・FS: Heavy-weight materials (-05)																																																				
<table border="1"><thead><tr><th></th><th>Lo1</th><th>Lo2</th><th>Lo3</th><th>Lo4</th><th>Lo5</th><th>Lo6</th><th>Lo7</th><th>Lo8</th><th>Lo9</th></tr></thead><tbody><tr><td>Sewing speed for 1st stitch</td><td>200</td><td>200</td><td>300</td><td>400</td><td>400</td><td>400</td><td>800</td><td>1500</td><td>1500</td></tr><tr><td>Sewing speed for 2nd stitch</td><td>200</td><td>300</td><td>400</td><td>400</td><td>600</td><td>800</td><td>1200</td><td>2000</td><td>3000</td></tr><tr><td>Sewing speed for 3rd stitch</td><td>300</td><td>400</td><td>500</td><td>600</td><td>800</td><td>1200</td><td>2500</td><td>2500</td><td>3200</td></tr><tr><td>Sewing speed for 4th stitch</td><td>500</td><td>600</td><td>700</td><td>900</td><td>1200</td><td>2500</td><td>3200</td><td>3200</td><td>3200</td></tr></tbody></table>		Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7	Lo8	Lo9	Sewing speed for 1st stitch	200	200	300	400	400	400	800	1500	1500	Sewing speed for 2nd stitch	200	300	400	400	600	800	1200	2000	3000	Sewing speed for 3rd stitch	300	400	500	600	800	1200	2500	2500	3200	Sewing speed for 4th stitch	500	600	700	900	1200	2500	3200	3200	3200	(sti/min)	
	Lo1	Lo2	Lo3	Lo4	Lo5	Lo6	Lo7	Lo8	Lo9																																											
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Sewing speed for 4th stitch	300	400	400	400	400	400	900	2000	2000																																											
* The speed will not be faster than the sewing speed which has been set. * The thread nipper device will not operate for settings other than Lo8 and Lo9.																																																				
Upper thread tension ◀For KE-430FX and BE-438FX▶	0 - 300 (Initial setting is "75".) * The later the value, the stronger the upper thread tension.																																																			

6-3. Copying programs

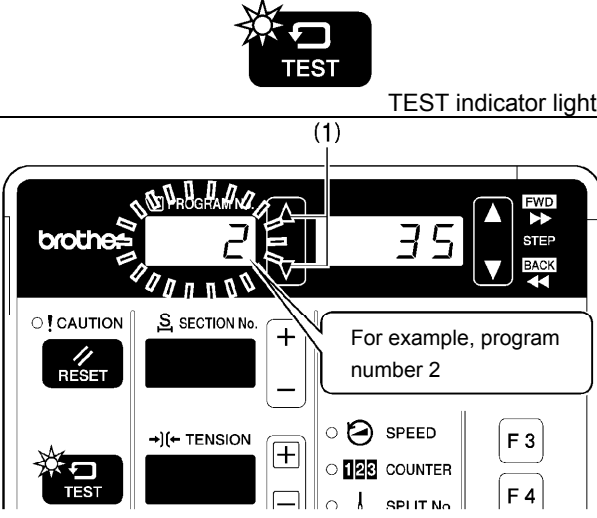
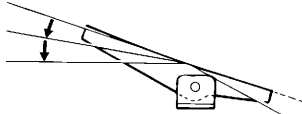
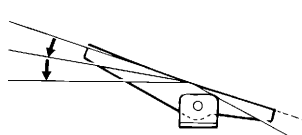
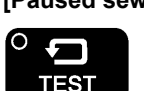
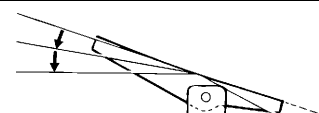
To create a program with parameters that are almost exactly the same as those of another program, you can copy the original program and change just the parts which need to be changed.

1	Select the program number to be used for creating the new program.	Carry out steps 1 and 2 in “6-2. Program setting method” to select the program number to be used for creating the new program.
	 For example, to create program number 300: 2410B	Select a program number from 200 to 999.
2	Switch to program copy mode.	While pressing the F1 key (1), press the F4 key (2).
	 For example, to copy program number 12: 2411B	“CoPy” will be displayed in the menu display, “PG” will be displayed in the SECTION No. display, and the number of the program containing the original data will be displayed in the TENSION display. - The displays will not appear in this way unless a program number from 200 to 999 has been selected as the new program number.
3	Select the program containing the original data.	Press the $\boxed{+}$ or $\boxed{-}$ key (3) to change the number of the program containing the original data.
	 For example, to copy program number 12: 2412B	- The value in the TENSION display will flash. - If you press the RESET key, you can cancel the copy operation and return to program mode. 2382B 2383B
4	Copy the program.	Press the ENTER key.
	 2413B	 All parameters in the program will be copied, and the sewing machine will then return to the status in step 3 of “6-2. Program setting method”. 2414B
5	Change the necessary parameters.	Carry out the steps from step 4 onward in “6-2. Program setting method” to change the necessary parameters.

6-4. Checking the sewing pattern (KE-430FX・FS)

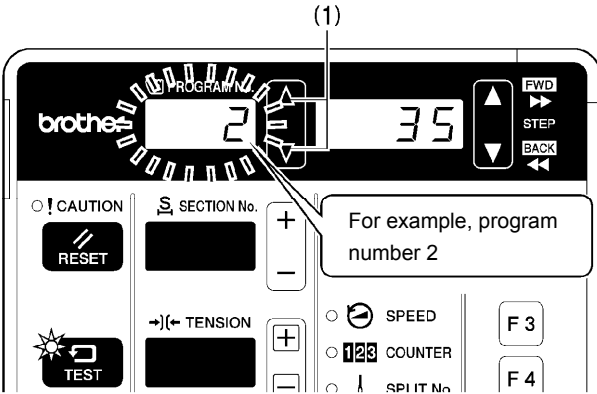
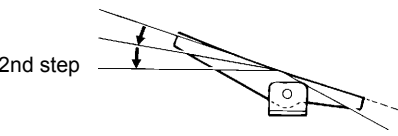
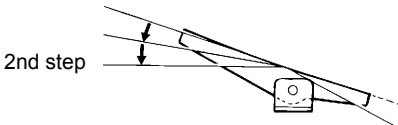
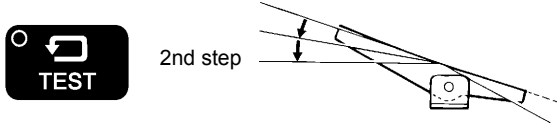
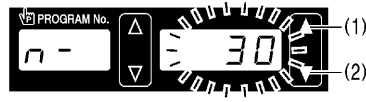
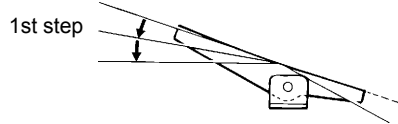
Use test feed mode to check the needle movement with only the work clamp operating.

Check that the needle hole does not come out from the frame of the work clamp.

1	 TEST indicator lights For example, program number 2 Program No. flashes → illuminates	1. Press the TEST key. - The number of stitches remaining until the final stitch will be displayed in the menu display. 2. Press the Δ or ∇ key (1) to set the program number that you would like to check. If the PROGRAM No. display is flashing, depress the foot switch to the 2nd step. - The feed mechanism will move to the home position and the program number will change from flashing to illuminated.  2nd step
2	Start continuous test feed mode.  4441Q [Test interrupt mode]  TEST indicator flashes [Paused sewing standby mode]  TEST indicator switches off  2nd step 2nd step	Depress the foot switch to the 2nd step and then release it. - The work clamp will start moving continuously one stitch at a time. (The stitch number display will be decremented by one stitch at a time.) - The TEST indicator will flash. [Fast-forward test mode] If you depress the foot switch to the 1st step while the work clamp is moving, the feeding speed will become faster while the foot switch is being depressed. If you would like the work clamp to stop moving, press the TEST key. - When the foot switch is depressed to the 2nd step, the work clamp will start moving again. If you would like sewing to resume from the point where it was paused, press the TEST key while test feeding is paused to switch off the TEST indicator. - When you depress the foot switch to the 2nd step, sewing will start. - If you press the Δ key (2) while in this mode, the work clamp will move forward by one stitch, and if you press the ∇ key (3), the work clamp will move back by one stitch. (It will move quicker if you keep the key pressed down.) - If you press the RESET key, the work clamp will return to the sewing start position.
3	Once the test feed reaches the final stitch, the work clamp stops moving.  TEST indicator switches off	Press the TEST key. 2404B
4	1st step 	Depress the foot switch to the 1st step. The work clamp will rise and the preparation for sewing will be completed. 4441Q

6-5. Checking the sewing pattern (BE-438FX)

Use test feed mode to check the needle movement with only the button clamp operating.

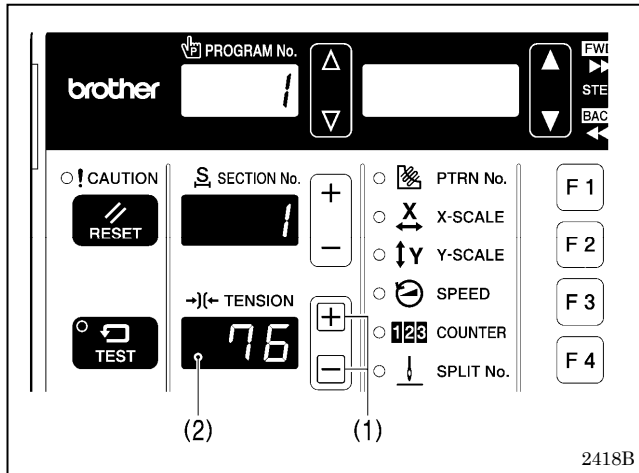
1	 TEST indicator lights Program No. flashes → illuminates	Press the TEST key. - The number of stitches remaining until the final stitch will be displayed in the menu display. 2416B 2. Press the ▲ or ▼ key (1) to set the program number that you would like to check. If the PROGRAM No. display is flashing, depress the foot switch to the 2nd step. - The feed mechanism will move to the home position and the program number will change from flashing to illuminated.  2415B 4441Q
2	Set the button. (Refer to “5-7. Inserting the button”.)	
3	Start single-stitch test feed mode.  4441Q After this, the button clamp will move forward by one stitch each time you depress the foot switch to the 1st step. Turn the pulley by hand each time the button clamp moves by one stitch, and check whether the needle drops into the hole of the button without touching the button. (If you turn the machine pulley one full rotation in the direction of sewing machine operation at this time, the button clamp will move forward by one stitch when the needle bar is near the needle up position.) In addition, when the foot switch is depressed to the 2nd step, the button clamp will move continuously by 1 stitch at a time as long as the foot switch is kept depressed. [Paused sewing standby mode]  TEST indicator switches off  TEST indicator flashes - If you press the ▲ key (1) while in this mode, the button clamp will move forward by one stitch, and if you press the ▼ key (2), the button clamp will move back by one stitch. (It will move quicker if you keep the key pressed down.) - If you would like to start single-stitch test feed once more, press the TEST key so that the TEST indicator flashes. - If you press the RESET key, the button clamp will return to the sewing start position. 2417B 2404B 4441Q 2416B	Depress the foot switch to the 2nd step and then release it. - The button clamp will move by one stitch only. - The TEST indicator will flash. If you would like sewing to resume from the point where it was paused, press the TEST key while test feeding is paused to switch off the TEST indicator. - When you depress the foot switch to the 2nd step, sewing will start.
4	End test feeding.  TEST indicator switches off 2404B	5 Depress the foot switch to the 1st step. The button clamp will be raised and preparation for sewing will be complete.  4441Q

6-6. Correcting the upper thread tension <For KE-430FX and BE-438FX>

The upper thread tension value is always displayed during sewing standby mode, and it can be changed at any time.

<A. Basic method of use>

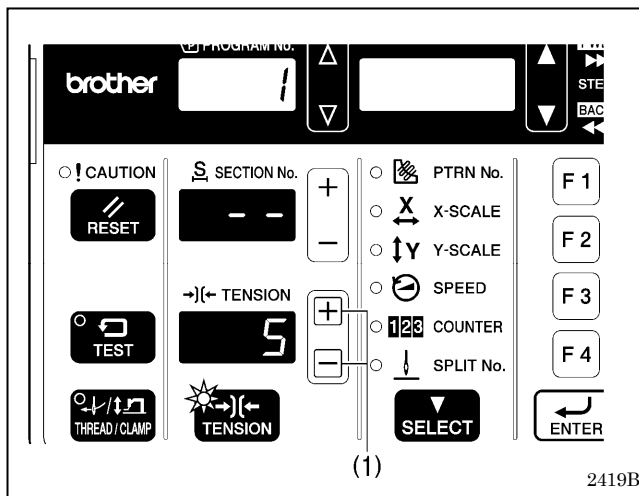
The changes made at this time will be reflected in each program, so this is a useful way of changing programs while checking actual sewing.



1. Press the $\boxed{+}$ or $\boxed{-}$ key (1) to change the value in the TENSION display (2).
 - The upper thread tension value which is set will be applied the next time sewing is carried out.

<B. Overall correction>

This function is useful if you would like to change the tension values for all programs at once.



1. Press the TENSION key.
 - The TENSION indicator will illuminate.
 - The overall correction value will be displayed in the TENSION display.
2. Press the $\boxed{+}$ or $\boxed{-}$ key (1) to change the overall correction value in the TENSION display.
 - The upper thread tension value which is set will be applied the next time sewing is carried out.

* The upper thread tension which matches the overall correction value which has been set for the upper thread tension will be applied during sewing, regardless of whether the TENSION indicator is illuminated or switched off.

(In this case, the setting value of "76" which was set in <A. Basic method of use> has the setting value of "5" added to it in <B. Overall correction> so that the upper thread tension applied will be "81".)

2382B 2383B

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.

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

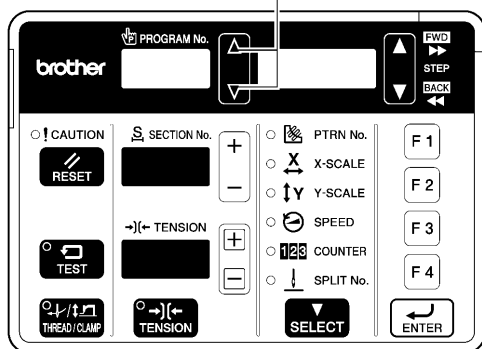


Use threading mode or turn off the power first in order to carry out threading.



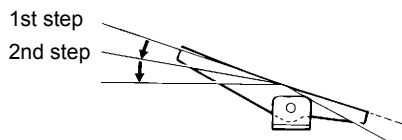
Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

7-1. Sewing

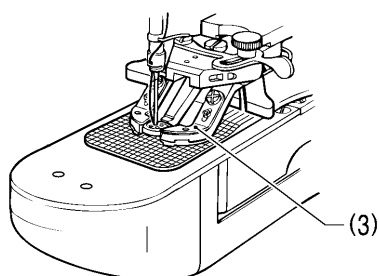
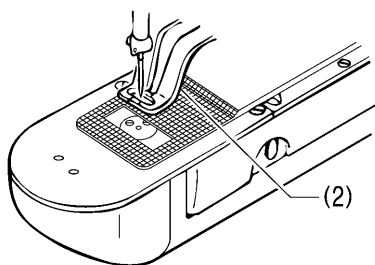


2342B

1. Turn on the power switch.
2. Press the Δ or ∇ key (1) to select the number for the program to be sewn.



4441Q



2384B

3. Depress the foot switch to the 2nd step.
The feed mechanism will move to the home position.
4. Set the material under the work clamp (2).
(For the BE-438FX, insert the button and place the material under the button clamp (3). (Refer to "5-7. Inserting the button".))
5. Depress the foot switch to the 1st step.
The work clamp (2) / button clamp (3) will be lowered.
6. Depress the foot switch to the 2nd step.
The sewing machine will start sewing.
7. Once sewing is completed and the thread has been trimmed, the work clamp (2) / button clamp (3) will rise.

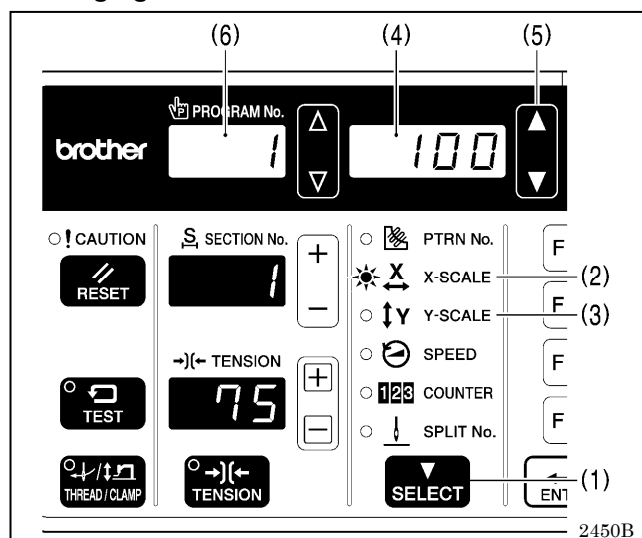
4116M

7-2. Changing sewing conditions

"X-scale", "Y-scale" and "Sewing speed" can be changed even during sewing standby.

The changes made at this time will be reflected in the program, so this is a useful way of changing programs while checking actual sewing.

<Changing X-scale and Y-scale>

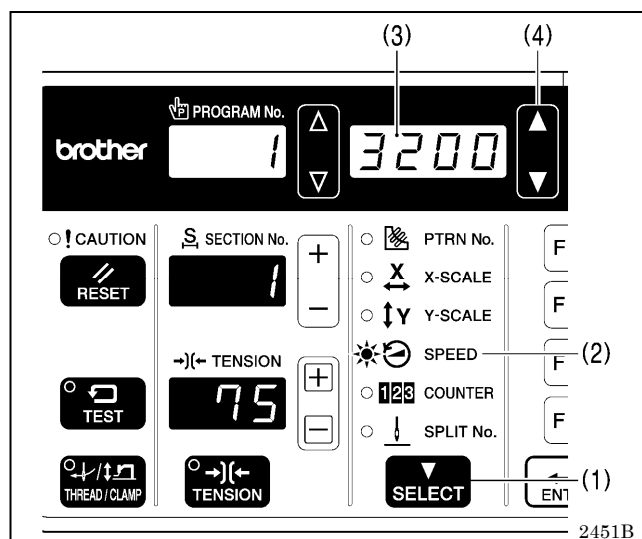


1. Press the SELECT key (1) so that the X-SCALE indicator (2) (for X-scale setting) or the Y-SCALE indicator (3) (for Y-scale setting) is illuminated.
 - The setting value (%) will be displayed in the menu display (4).
2. Press the ▲ or ▼ key (5) to set the scale (20 - 200).
 - The program number in the PROGRAM No. display (6) will flash.
3. Depress the foot switch to the 2nd step.
 - The work clamp will move to the sewing start position and the program number will change from flashing to illuminated.

NOTE:

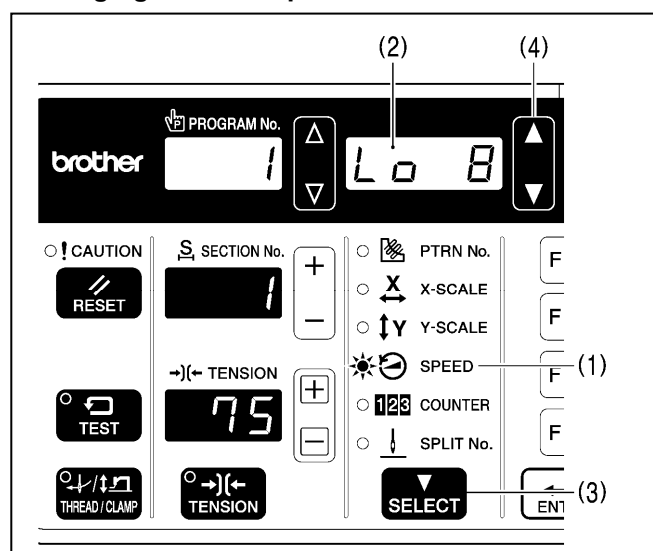
Once the setting is complete, be sure to carry out the steps in "6-4./6-5. Checking the sewing pattern" to check that the needle drop position is correct.

<Changing the sewing speed>



1. Press the SELECT key (1) so that the SPEED indicator (2) is illuminated.
 - The setting value (sti/min) will be displayed in the menu display (3).
2. Press the ▲ or ▼ key (4) to set the sewing speed. (Sewing speed values: KE-430FX·FS: 200 to 3200; BE-438FX: 200 to 2700)

<Changing slow start pattern>



* This setting cannot be made when memory switch No. 100 is set to "OFF".

1. While the SPEED indicator (1) is illuminated and the sewing speed is being displayed in the menu display (2), press the SELECT key (3).
 - The setting value will be displayed in the menu display (2).
2. Press the ▲ or ▼ key (4) to set the slow start pattern.
 - * Refer to the list of parameters in "6-2. Program setting method".

Document CD



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

3168M

Contents of the Document CD

The following documents are contained in PDF format.

- Basic Operation Manual
- Instruction Manual
- Parts Book

Recommended system configuration for using the Document CD

OS: Windows® XP Service Pack 2, Windows Vista®, Windows® 7
Browser version: Microsoft® Internet Explorer 6 Service Pack 1 or higher
Screen resolution: 1024 x 768 pixels or more
Plug in (required to access): Adobe Reader 8.0 or higher

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Windows® and Microsoft® Internet Explorer are either registered trademarks of Microsoft Corporation in the United States and/ or other countries.

* Please note that the contents of this manual may differ slightly from the actual product purchased as a result of product improvements.

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This is the original instructions.

KE-430FX/KE-430FS, BE-438FX
SB4759-001 E
2013.08.B(1)