



**MODEL BT-3200
BT-2700**

**BAR - TACKING MACHINE
BUTTON - SEWING MACHINE**

PARTS AND SERVICE MANUAL

MACHINE SERIAL No:

PART NUMBER 97.5300.0.000

This manual is valid from the machine Serial No.:

T530001



LIMITED WARRANTY ON NEW AMF REECE EQUIPMENT

Warranty provisions:

A ninety (90) day limited service labor warranty to correct defects in installation, workmanship, or material without charge for labor. This portion of the warranty applies to machines sold as "installed" only.

A one (1) year limited material warranty on major component parts to replace materials with defects. Any new part believed defective must be returned freight prepaid to AMF Reece, Inc. for inspection. If, upon inspection, the part or material is determined to be defective, AMF Reece, Inc. will replace it without charge to the customer for parts or material.

Service labor warranty period shall begin on the completed installation date. Material warranty shall begin on the date the equipment is shipped from AMF Reece, Inc.

Exclusions:

Excluded from both service labor warranty and material warranty are: (1) Consumable parts which would be normally considered replaceable in day-to-day operations. These include parts such as needles, knives, loopers and spreaders. (2) Normal adjustment and routine maintenance. This is the sole responsibility of the customer. (3) Cleaning and lubrication of equipment. (4) Parts found to be altered, broken or damaged due to neglect or improper installation or application. (5) Damage caused by the use of non-Genuine AMF Reece parts. (6) Shipping or delivery charges.

There is no service labor warranty for machines sold as "uninstalled".

Equipment installed without the assistance of a certified technician (either an AMF Reece Employee, a Certified Contractor, or that of an Authorized Distributor) will have the limited material warranty only. Only the defective material will be covered. Any charges associated with the use of an AMF Reece Technician or that of a Distributor to replace the defective part will be the customer's responsibility.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, AS TO DESCRIPTION, QUALITY, MERCHANTABILITY, and FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER IS GIVEN BY SELLER OR SELLER'S AGENT IN CONNECTION HERewith. UNDER NO CIRCUMSTANCES SHALL SELLER OR SELLER'S AGENT BE LIABLE FOR LOSS OF PROFITS OR ANY OTHER DIRECT OR INDIRECT COSTS, EXPENSES, LOSSES OR DAMAGES ARISING OUT OF DEFECTS IN OR FAILURE OF THE EQUIPMENT OR ANY PART THEREOF.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

If a machine is purchased through an authorized AMF Reece, Inc. distributor, warranty questions should be first directed to that distributor. However, the satisfaction and goodwill of our customers are of primary concern to AMF Reece, Inc. In the event that a warranty matter is not handled to your satisfaction, please contact AMF Reece office:

Prostejov, Czech Republic
Phone: (+420) 582-309-275
Fax: (+420) 582-360-608
e-mail: service@amfreece.cz



Warranty Registration Card

(Please Fax or Mail immediately after installation)

Note: All Warranty Claims Void, unless Registration Card on file at AMF Reece HQ

Machine model number:

(S101, S100, S104, S105, S311, Decostitch, S4000, EBS Mark II, etc)

Manufacturer's serial or production number:

Installation Site Information:

Customer's Name:

Customer's Mailing Address:

Customer's Telephone Number:

Supervising Mechanic's or Technician's Name:

Signature of Supervising Technician:

AMF Reece Technician's Name:

AMF Reece Technician's Signature:

Type of garment produced at this location?

Average Daily Production Expected from this machine?

(number of buttonholes, jackets sewn, pants produced, buttons sewn, etc)

Any special requirements required at this location?

What other AMF Reece Machines are at this location?

How can we serve you better?

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A - INTRODUCTION

1. BASIC INFORMATION

Thank you very much for buying an AMF Reece sewing machine. Before using your new machine, please read the safety instructions below and explanations given in this manual.

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

This manual refers to the following lockstitch sewing machines:

A) BT-3200 bar-tacking machine, intended for sewing of bartacks with fully variable pattern on medium- and heavy-weight fabric. The following three basic models are available:

BT-3200 - 001 (53.0000.0.001) for medium-weight garment

BT-3200 - 003 (53.0000.0.003) for heavy-weight garment

BT-3200 - 005 (53.0000.0.005) for light-weight garment

B) BT-2700 button-sewing machine, intended for sewing of buttons using lockstitch. The following model is available:

BT-2700 (53.0000.0.011)

Safety mechanisms protect both, operators and the machine, and respect valid safety and hygiene provisions for usual technological usage of the machine. Those safety mechanisms include electrical plug, operation switch (circuit breaker) and covers ensuring safety operation of the machine only if they are fitted onto the machine correctly.

It is very important for the operator to read this manual carefully and understand it well before he/she starts operating the machine. It will also eliminate errors during machine installation and its operation. Do not put the machine into operation unless you have read all the manuals supplied with the machine and have understood each function and procedure.

We recommend that servicemen from AMF Reece supervise the installation of the machine and initial training of your mechanics and operators. The most effective method ensuring safety of operators working on the machine is a strict safety program including instructions for safety operation. Operators and servicemen should wear safety glasses.

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2. SAFETY INSTRUCTIONS

This manual includes two categories of safety instructions:

DANGER!

Overlooking instructions may endanger operator's life.

CAUTION!

Overlooking instructions may damage the machine or cause injury of the operator.

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.

2.1. Environmental requirements

CAUTION!

- Use the sewing machine in an area which is free from sources of strong electrical noise such as high-frequency welders. Sources of strong electrical noise may cause problems with correct operation.
- Any fluctuations in the power supply voltage should be within $\pm 10\%$ of the rated voltage for the machine. Voltage fluctuations which are greater than this may cause problems with correct operation.
- The power supply capacity should be greater than the requirements for the sewing machine's electrical consumption. Insufficient power supply capacity may cause problems with correct operation.
- The ambient temperature should be within the range of 5°C to 35°C during use. Temperatures which are lower or higher than this may cause problems with correct operation.
- The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices. Excessively dry or humid environments and dew formation may cause problems with correct operation.
- Avoid exposure to direct sunlight during use. Exposure to direct sunlight may cause problems with correct operation.
- In the event of an electrical storm, turn off the power and disconnect the power cord from the wall outlet. Lightning may cause problems with correct operation.

2.2. Installation

CAUTION!

- Machine installation should only be carried out by a qualified technician.
- Contact your AMF Reece dealer or a qualified electrician for any electrical work that may need to be done.
- The sewing machine weighs approximately 56 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.

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2.3. Sewing

CAUTION!

- This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.
- The sewing machine should not be used for any applications other than sewing.
- Be sure to wear protective goggles when using the machine.
- If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.
- 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 threading the needle
 - When replacing the needle and bobbin
 - When not using the machine and when leaving the machine unattended
- If using a work table which has casters, the casters should be secured in such a way so that they cannot move.
- Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result.
- Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.
- If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest AMF Reece dealer or a qualified technician.
- If the machine develops a problem, contact your nearest AMF Reece dealer or a qualified technician.

2.4. Cleaning

CAUTION!

- 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.
- 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.

2.5. Maintenance and inspection

CAUTION!

- Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
- Ask your AMF Reece 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
- If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.
- 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.
- Use only the proper replacement parts as specified by AMF Reece.
- 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.

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2.6. 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 AMF Reece dealer.

DANGER!

Hazardous voltage will cause injury. Turn off main switch and wait 5 minutes before opening this cover.

CAUTION!

Moving parts may cause injury. Operate with safety devices. Turn off main switch before threading, changing bobbin and needle, cleaning etc.

Safety devices

- Eye guard
- Finger guard
- Tension release solenoid cover
- Thread take-up cover
- Frame side cover
- Back cover, etc.

1.

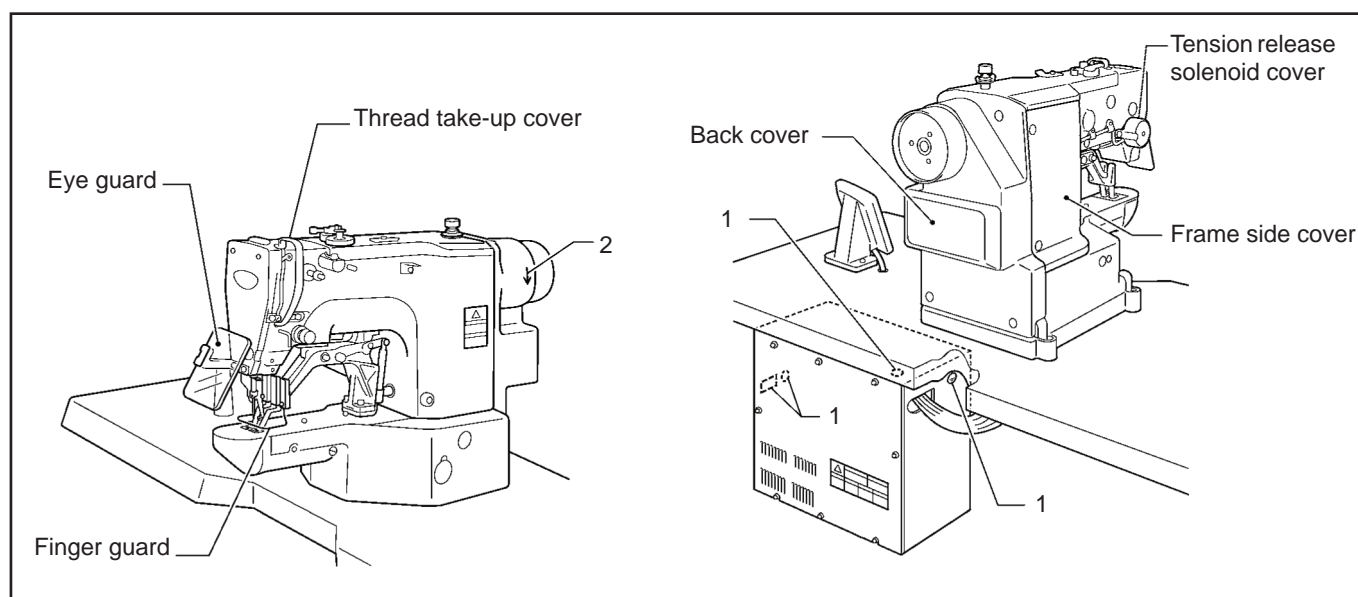


Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

2.

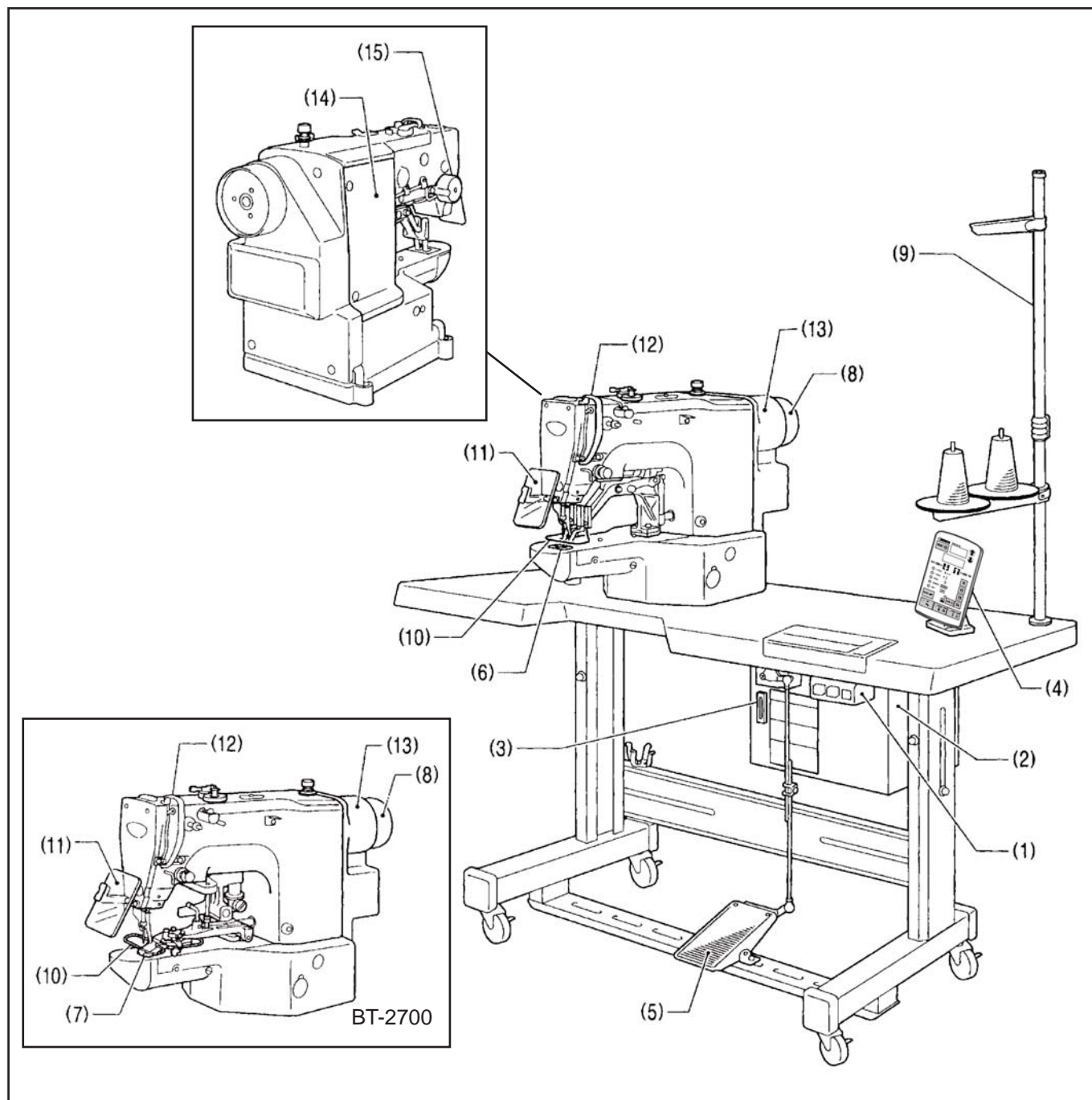


Direction of operation



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3. NAMES OF MAJOR PARTS



- (1) Power switch
- (2) Control box
- (3) CF slot
- (4) Operation panel
- (5) Foot switch
- (6) Work Clamp (BT-3200)
- (7) Button Clamp (BT-2700)
- (8) Pulley
- (9) Cotton stand

Safety devices

- (10) Finger guard
- (11) Eye guard
- (12) Thread take-up cover
- (13) Back cover
- (14) Frame side cover
- (15) Tension release solenoid cover

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4. SPECIFICATIONS

4.1. Machine specifications

	BT-3200 Electronic direct drive lockstitch bar tacker	BT-2700 Electronic direct drive lockstitch button sewer
Stitch formation	Single needle lock stitch	
Maximum sewing speed	3,200 rpm	2,700 rpm
Pattern size (X x Y)	40 x 30 mm max.	6.4 x 6.4 mm max.
Button dimensions range	-	Outer diameter of button 8 - 30 mm (Use the optional button clamp B for diameters of 20 mm or greater.)
Feed mechanism	Y-θ intermittent feed mechanism (pulse-motor driven mechanism)	
Stitch length	0.05 - 12.7 mm	
Number of stitches	Variable (Refer to "Program List" for details on the number of stitches for sewing patterns that are already preset.)	
Maximum stitch number	210,000 stitches (including 200,000 stitches which can be added)	
Work clamp lifter	Pulse-motor driven mechanism	
Work clamp height Button clamp height	17 mm max.	13 mm max.
Rotary hook	Shuttle hook (shuttle hook 2, optional)	Shuttle hook
Wiper device	Standard equipment	
Thread trimmer device	Standard equipment	
Thread nipper device	Standard equipment	
Data storage method	Flash memory (Any sewing pattern can be added using CF card)	
Number of user programs	50	
Number of cycle programs	9	
Number of stored data	89 sewing patterns are set already	49 sewing patterns are set already
	(Up to 200 patterns can be added. Total number of stitches of stored data which can be added is within 200,000)	
Motor	AC servo motor 550 W	
Weights	Machine head: approx. 56 kg, Operation panel: approx. 0.6 kg Control box: 14.2 - 16.2 kg (depending on destination)	
Power source	Single-phase 100V / 220V, 3-phase 200V / 220V / 380V / 400V 400VA	

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4.2. Program list (BT-3200)

The programs shown below have been preset into the sewing machine and can be selected according to specifications. (Any program is available as long as the sewing pattern 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 ordinary materials (-001)									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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 denim materials (-003)									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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







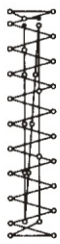




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For denim (-003)									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
1		31	16	3	83		43	24	3
4		36	16	3	84		57	24	3
5		44	16	3	85		65	24	3
For foundation garments (-005)									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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.

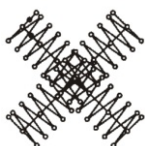
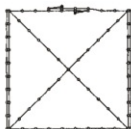

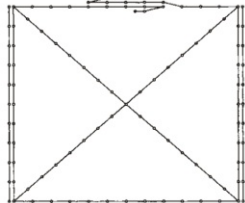
Straight bar tacking					Vertical zigzag stitching				
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
10		21	10	0.3	44		46	9	15
11		28	10	0.3					
12		28	20	0.3	45		70	9	25
23		35	25	0.3					
24		42	25	0.3		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

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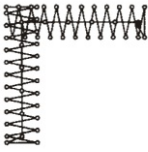
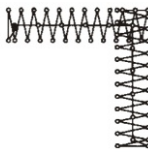
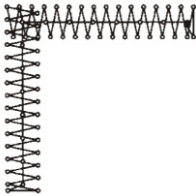
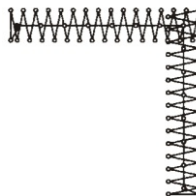









Vertical bar tacking					Vertical straight bar tacking				
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
26		28	3	10	28		19	0.3	10
27		35	3	10	29		21	0.3	10
40		32	3	16	30		28	0.3	10
41		36	3	16	46		27	0.3	20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

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Crescent bar tacking									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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

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L-pattern tacking									
No.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing 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.	Sewing pattern	No. of stitches	Tacking size (mm)		No.	Sewing pattern	No. of stitches	Tacking size (mm)	
			Length	Width				Length	Width
86		21	6	2					
87		28	6	2					
88		35	6	2					

Note when creating additional data (program nos. 200- 999)

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.

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4.3. Program list (BT-2700)

The programs shown below have been preset into the sewing machine. Any program is available as long as the needle drops down in the hole of the button.





When sewing programs 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 button holes	Sewing pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
1	2		6	—	12	3.4	0
2			8	—	14		
3			10	—	16		
4			12	—	18		
5 *1			16	—	22		
6 *1			20	—	26		
7 *2	2		6	—	12	0	3.4
23 *2			10	—	16		
8 *2			12	—	18		
9 *2	3		5-5-5	—	21	2.6	2.4
24 *2			7-7-7	—	27		
25 *2			5-5-5	—	21		
26 *2			7-7-7	—	27		
10	4		6-6	1	19	3.4	3.4
11			8-8	1	23		
12			8-8	3	25		
13			10-10	1	27		
27			12-12	1	31		

*1 Check that the button hole diameter is 2 mm or greater before using the programs.

*2 Do not use the button lifter spring.




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No.	No. of button holes	Sewing pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
14 ^{*3}	4		6-6	0	24	3.4	3.4
36 ^{*4}			6-6	0	24		
28 ^{*3}			8-8	0	28		
37 ^{*4}			8-8	0	28		
15 ^{*3}			10-10	0	32		
38 ^{*4}			10-10	0	32		
29 ^{*3}			12-12	0	36		
39 ^{*4}			12-12	0	36		
16			6-5	1	18		
17			8-7	1	22		
30			10-9	1	26		
18			6-6	1	19		
19			8-8	1	23		
31			10-10	1	27		
45			12-12	1	31		
20 ^{*3}			6-6	0	24		
40 ^{*4}			6-6	0	24		
32 ^{*3}			8-8	0	28		
41 ^{*4}			8-8	0	28		
33 ^{*3}			10-10	0	32		
42 ^{*4}			10-10	0	32		

*3 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.

*4 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.

A - INTRODUCTION

No.	No. of button holes	Sewing pattern	No. of threads	No. of crossover stitches	No. of stitches	Sewing size (mm)	
						X	Y
21 ^{*2}	4		6-6	1	19	2.4	3.4
34 ^{*2}			10-10	1	27		
22 ^{*2 *3}			6-6	0	24		
43 ^{*2 *4}			6-6	0	24		
35 ^{*2 *3}			10-10	0	32		
44 ^{*2 *4}			10-10	0	32		
46			6-6	1	19	3.4	3.4
47			8-8	1	23		
48			10-10	1	27		
49			12-12	1	31		

*2 Do not use the button lifter spring.

*3 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.

*4 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.

Note when creating additional data (program nos. 200 - 999)

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.

B - MACHINE ASSEMBLY

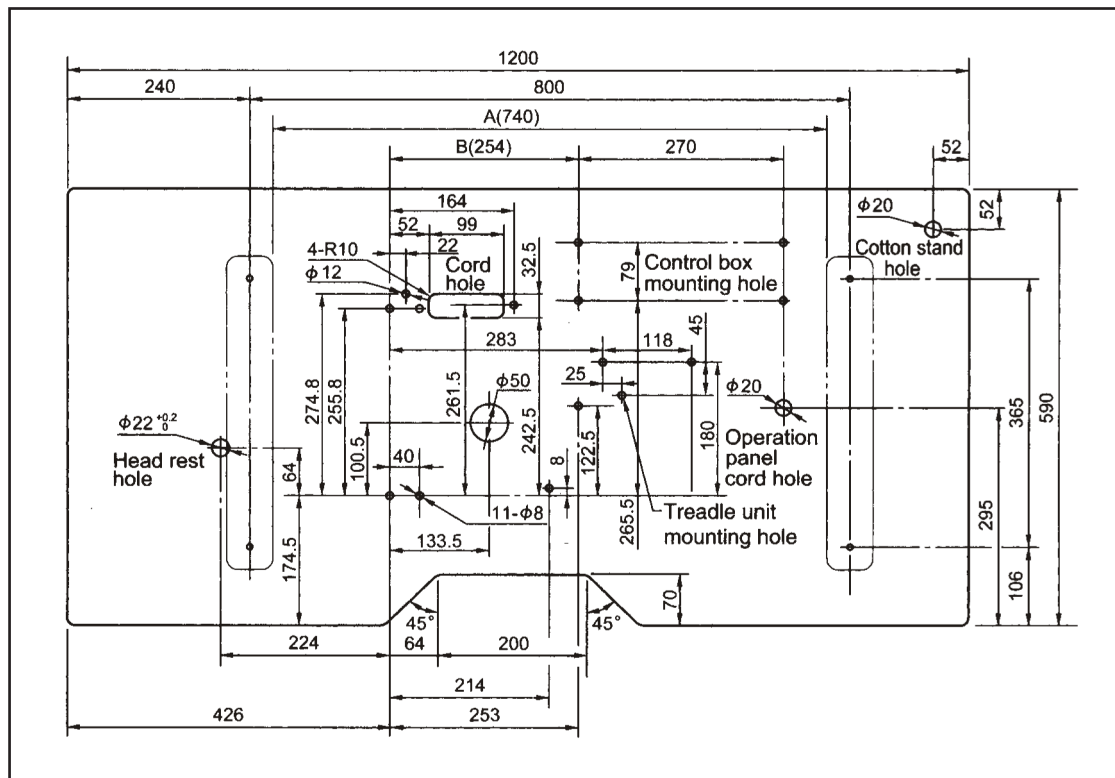
1. INSTALLATION

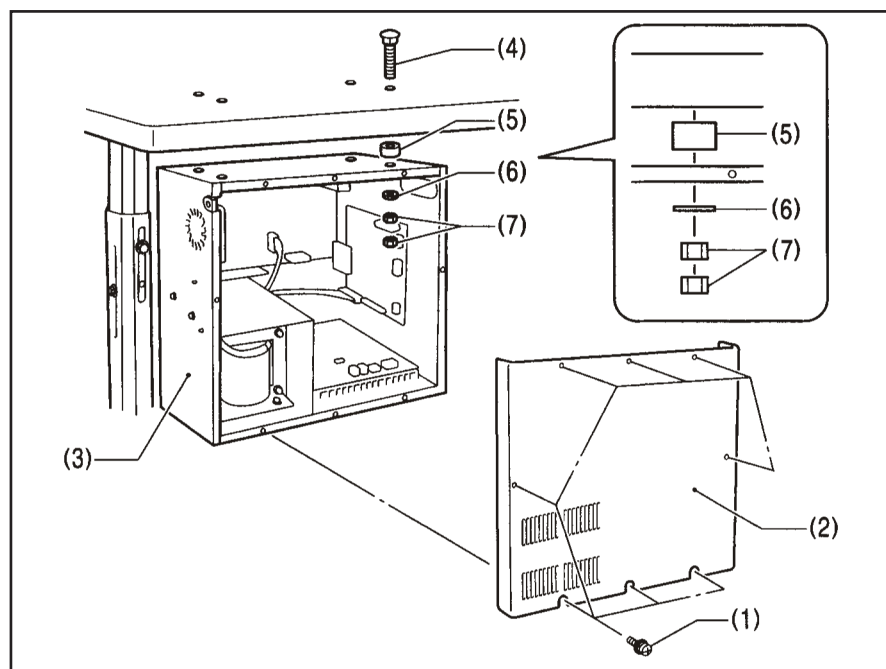
CAUTION!

- Machine installation should only be carried out by a qualified technician.
- Contact your AMF Reece dealer or a qualified electrician for any electrical work that may need to be done.
- The sewing machine head weighs approximately 56 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 horn 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 with 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.

1.1. Table processing diagram

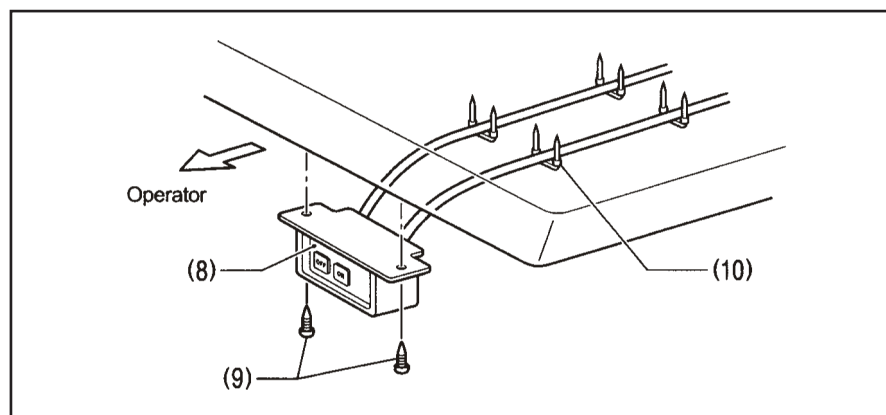
- The thickness of the table should be at least 40 mm, and it should be strong enough to bear the weight and vibration of the sewing machine.
- If the distance A between the insides of the legs is less than 740 mm, move the control box installation position to the left (B = 254 mm).
- Check that the 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.



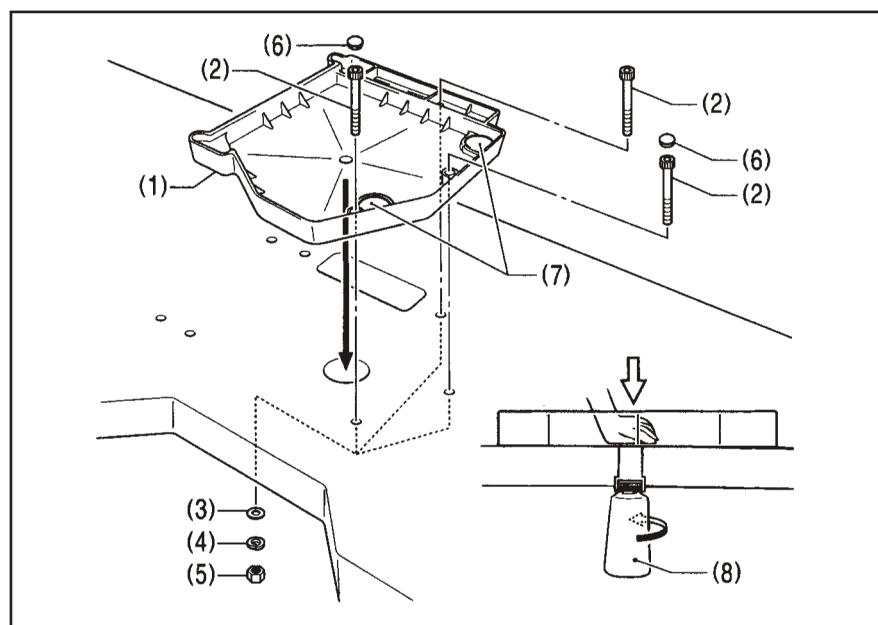
B - MACHINE ASSEMBLY**1.2. Installing the control box**

Remove the eight screw (1), and then remove the control box cover (2).

- (3) Control box
- (4) Bolts /4 pcs/
- (5) Spacers /4 pcs/
- (6) Plain washers /4 pcs/
- (7) Nuts /8 pcs/



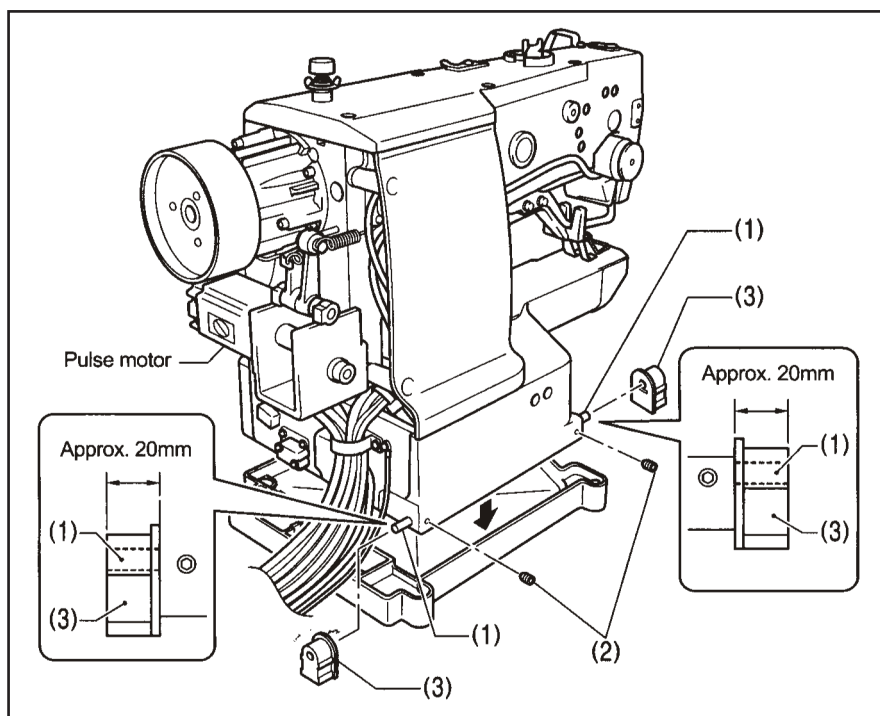
- (8) Power switch
- (9) Wood screws /2 pcs/
- (10) Staples /4 pcs/

1.3. Installing the oil pan

- (1) Oil pan
- (2) Bolts /3 pcs/
- (3) Plain washers /3 pcs/
- (4) Spring washers /3 pcs/
- (5) Nuts /3 pcs/
- (6) Rubber caps /2 pcs/
- (7) Rubber cushion /2 pcs/
- (8) Oiler

B - MACHINE ASSEMBLY

1.4. Installing the machine head

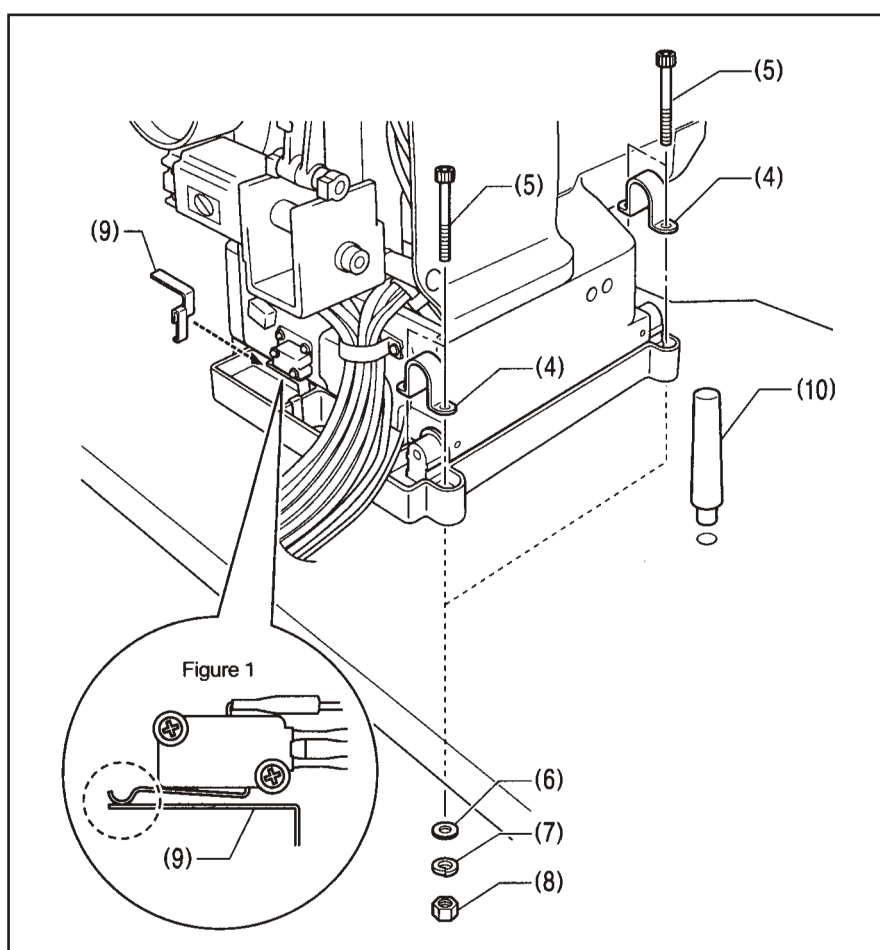


- (1) Pins /2 pcs/
- (2) Set screws /2 pcs/
- (3) Rubber cushion assembly /2 pcs/

Place the machine head gently on top of the oil pan and the rubber cushions.

Note:

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



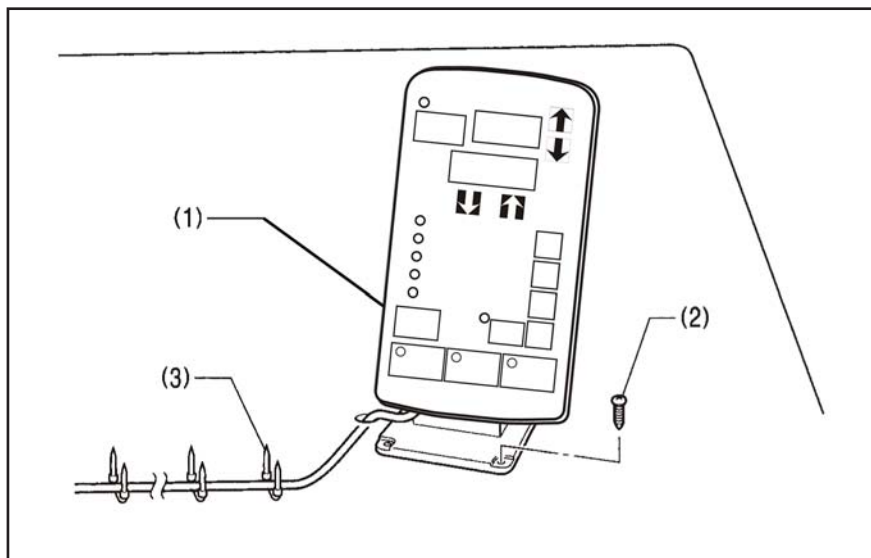
- (4) Hinge holders /2 pcs/
- (5) Bolts /4 pcs/
- (6) Plain washers /4 pcs/
- (7) Spring washers /4 pcs/
- (8) Nuts /4 pcs/
- (9) Head spring
- (10) Head rest

Note:

- Check that the machine head switch is turned on as shown in Figure 1.
- Tap the head rest (10) securely into the table hole.

B - MACHINE ASSEMBLY

1.5. Installing the operation panel

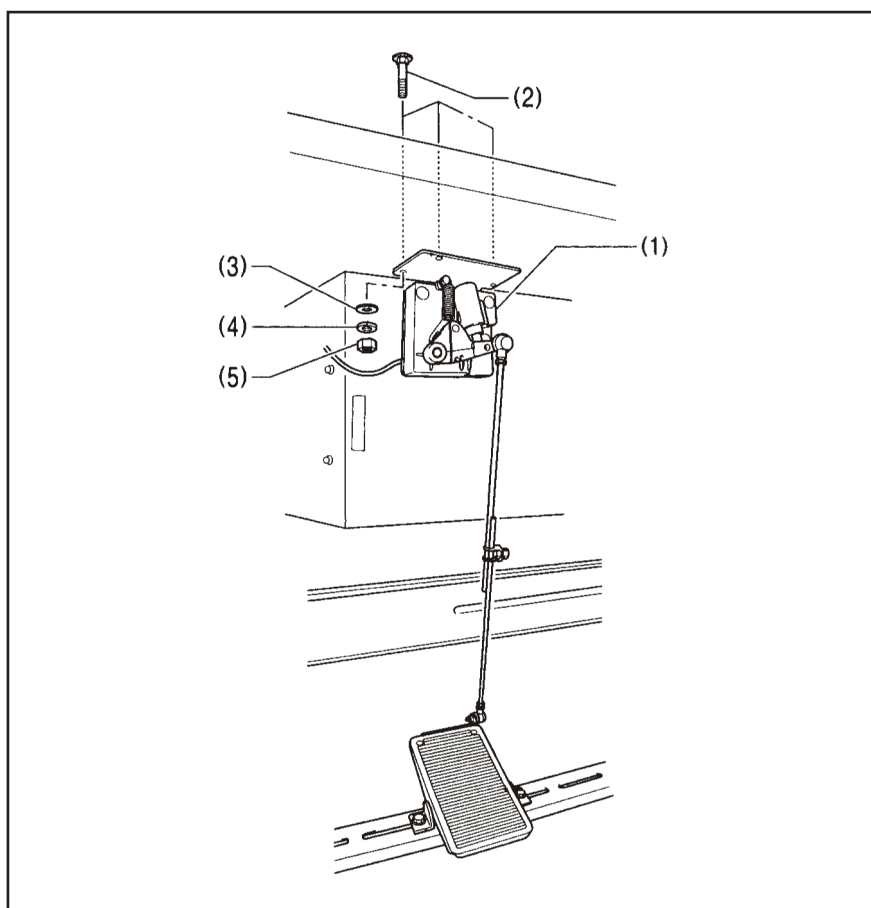


- (1) Operation panel
- (2) Wood screws /4 pcs/

* 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/

1.6. Installing the treadle unit

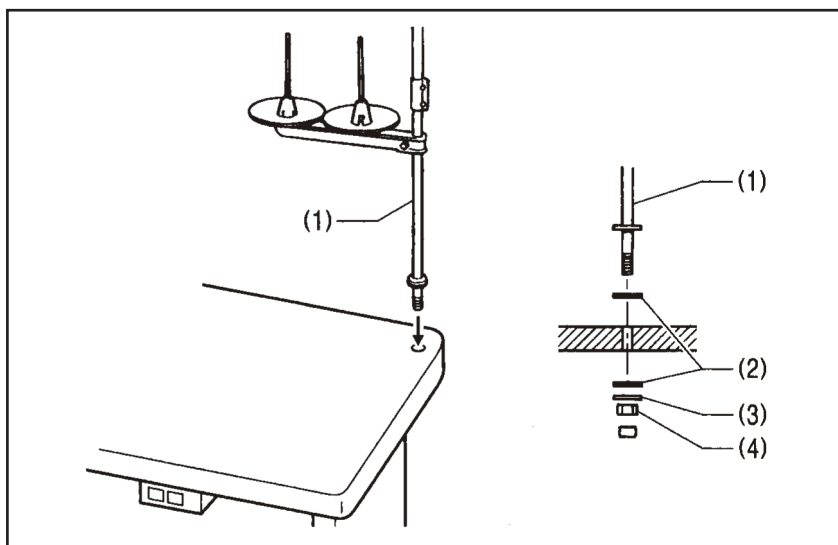


- (1) Treadle unit
- (2) Bolts /3 pcs/
- (3) Plain washers /3 pcs/
- (4) Spring washers /3 pcs/
- (5) Nuts /3 pcs/

* Use a commercially-available foot switch and connecting rod.

B - MACHINE ASSEMBLY

1.7. Installing the cotton stand

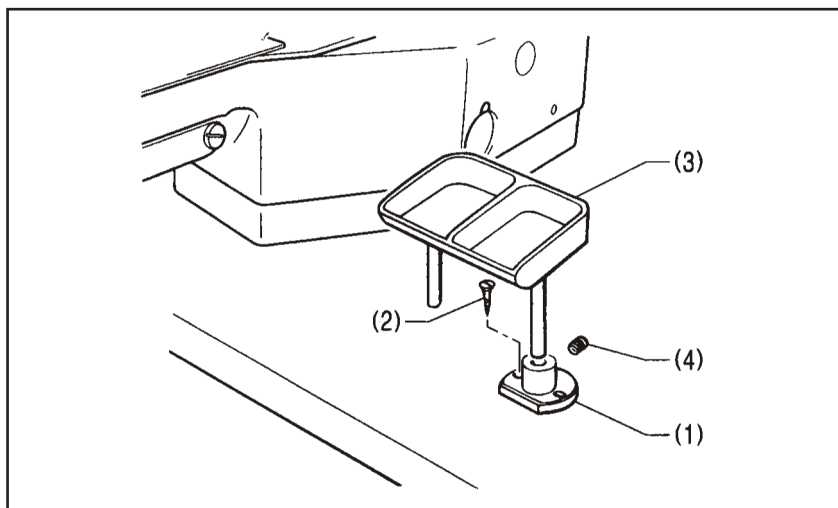


(1) Cotton stand

Note:

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

1.8. Installing the button tray (BT-2700)



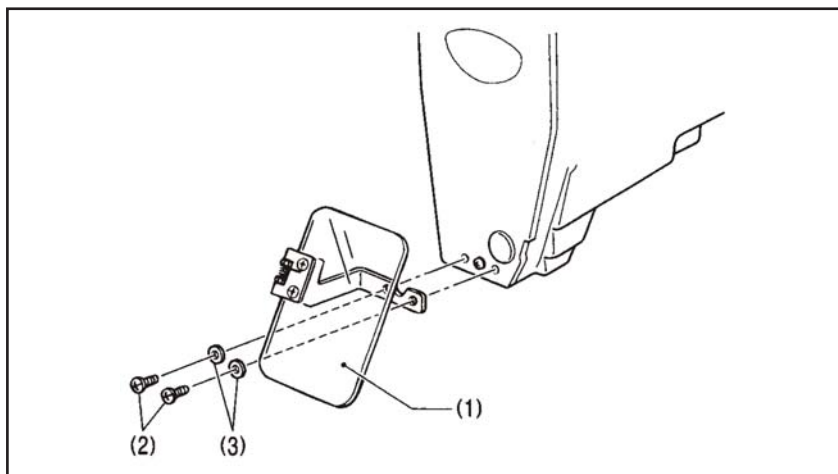
Install the button tray at a place convenient for operation.

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

1.9. Installing the eye guard

CAUTION!

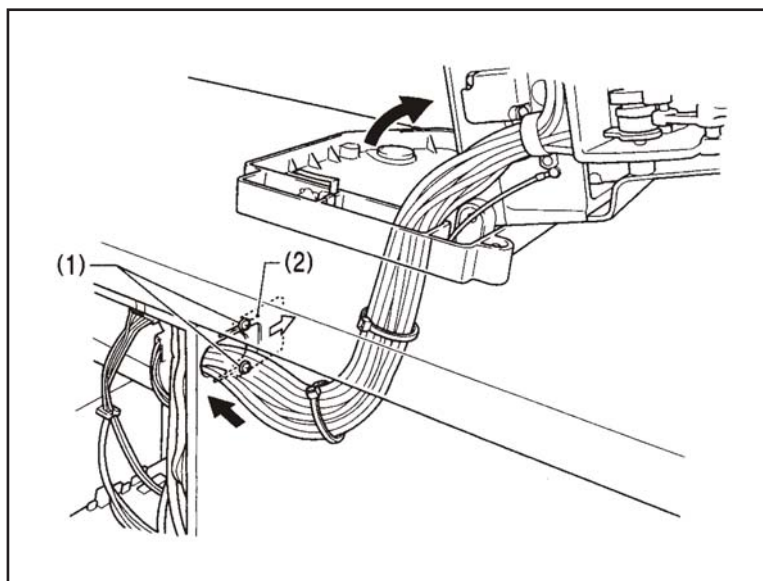
Attach all safety devices before using the sewing machine.
If the machine is used without these devices attached, injury may result.



- (1) Eye guard assembly
- (2) Screws /2 pcs/
- (3) Plain washers /2 pcs/

B - MACHINE ASSEMBLY

1.10. Connecting the cords

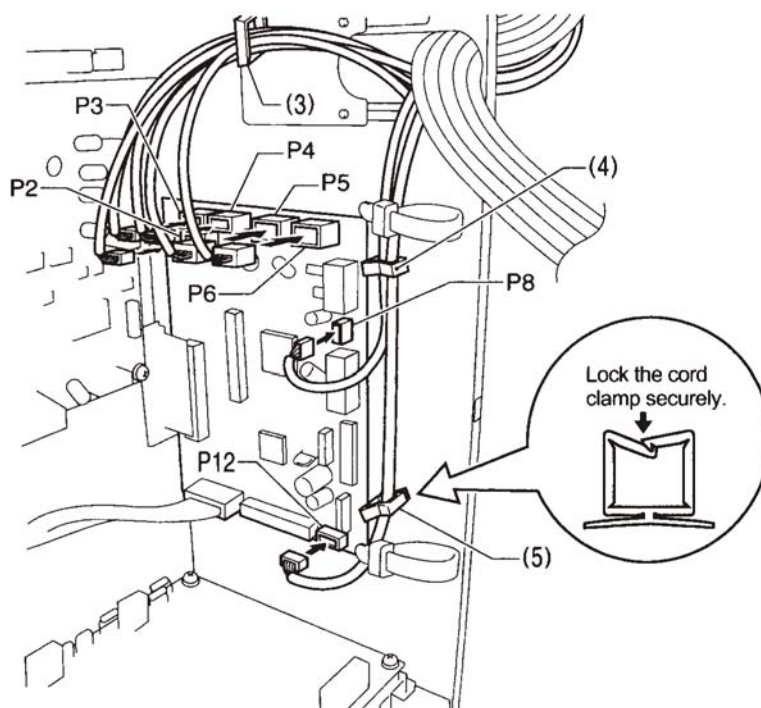


1. Gently tilt back the machine head.
2. Pass the cord bundle through the hole in the work table.
3. Loosen the two screws (1), and then open the cord presser plate (2) in the direction of the white arrow and pass the cord bundle through the opening.
4. Securely connect the connectors as indicated in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

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.

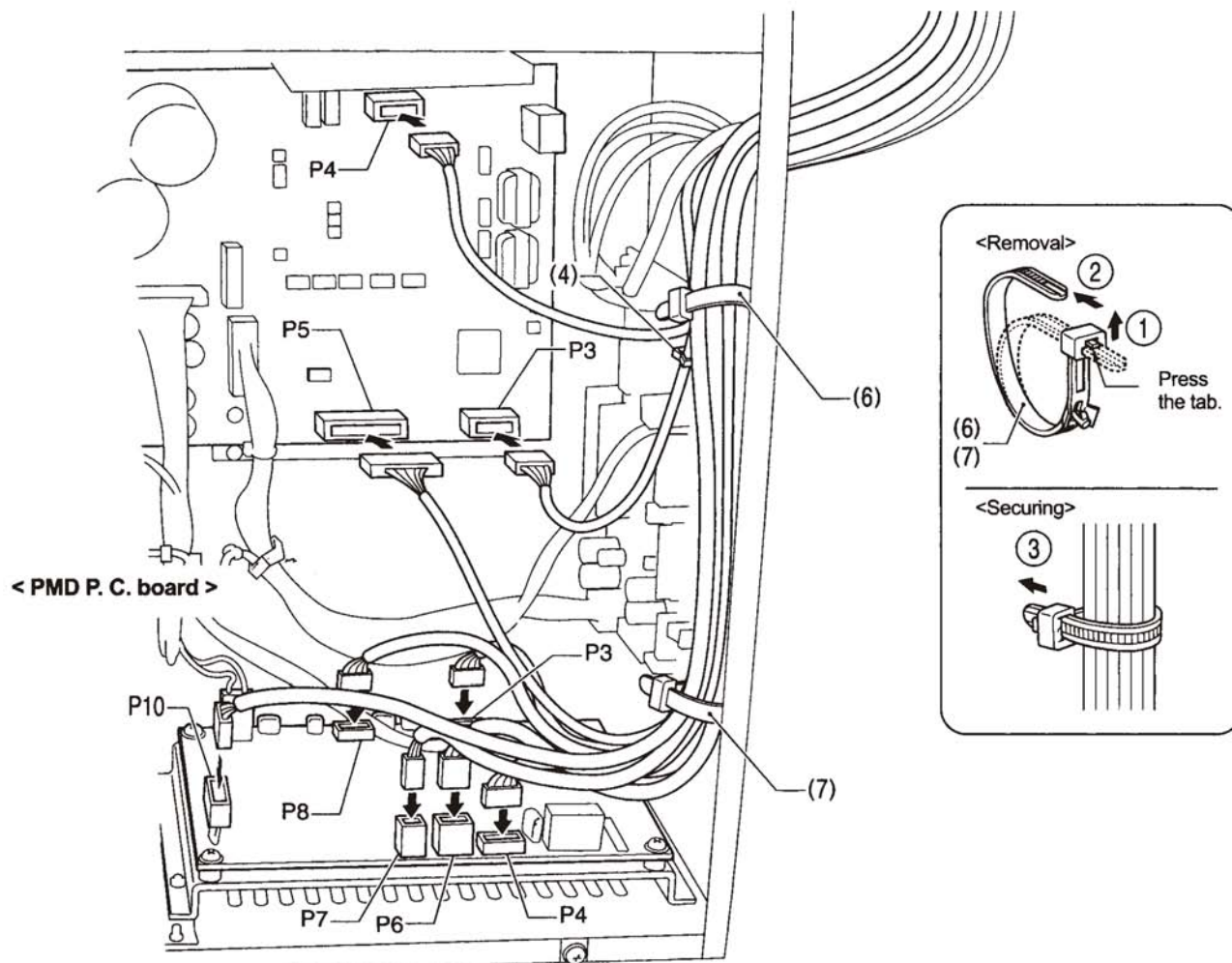
Main P. C. board



Connectors	Connection location on main P. C. board	Cord clamps
X pulse motor encoder /5-pin/ White	P2 (X-ENC)	(3)
Y pulse motor encoder /5-pin/ Blue	P3 (Y-ENC)	(3)
Work clamp encoder /5-pin/ Black	P4 (P-ENC)	(3)
Foot switch /10-pin/	P5 (FOOT)	(3)
Operation panel /8-pin/	P6 (PANEL)	(3)
Machine head switch /3-pin/	P8 (HEAD-SW)	(4)
Thread clamp sensor /6-pin/	P12 (TPK-SEN)	(4), (5)

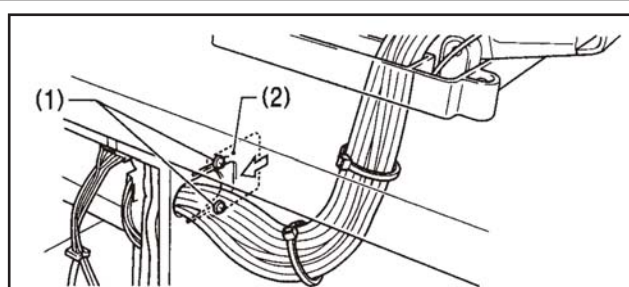
B - MACHINE ASSEMBLY

< Power supply motor P. C. board >



Connectors	Connection location on power supply motor P. C. board	Cord clamps / Cable ties
Machine head memory [7-pin]	P3 (HEAD-M)	(4)
Upper shaft motor [3-pin]	P4 (UVW)	(6)
Synchronizer [14-pin]	P5 (SYNC)	(6), (7)
Connectors	Connection location on PMD P. C. board	Cable ties
Work clamp pulse motor [4-pin] Black	P3 (PPM)	(6), (7)
Thread clamp pulse motor [6-pin]	P4 (BT-PICK)	(6), (7)
Thread trimmer solenoid [6-pin]	P6 (SOL1)	(6), (7)
Tension release solenoid [4-pin]	P7 (SOL2)	(6), (7)
Y pulse motor [4-pin] Blue	P8 (YPM)	(6), (7)
X pulse motor [4-pin] White	P10 (XPM)	(6), (7)

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



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

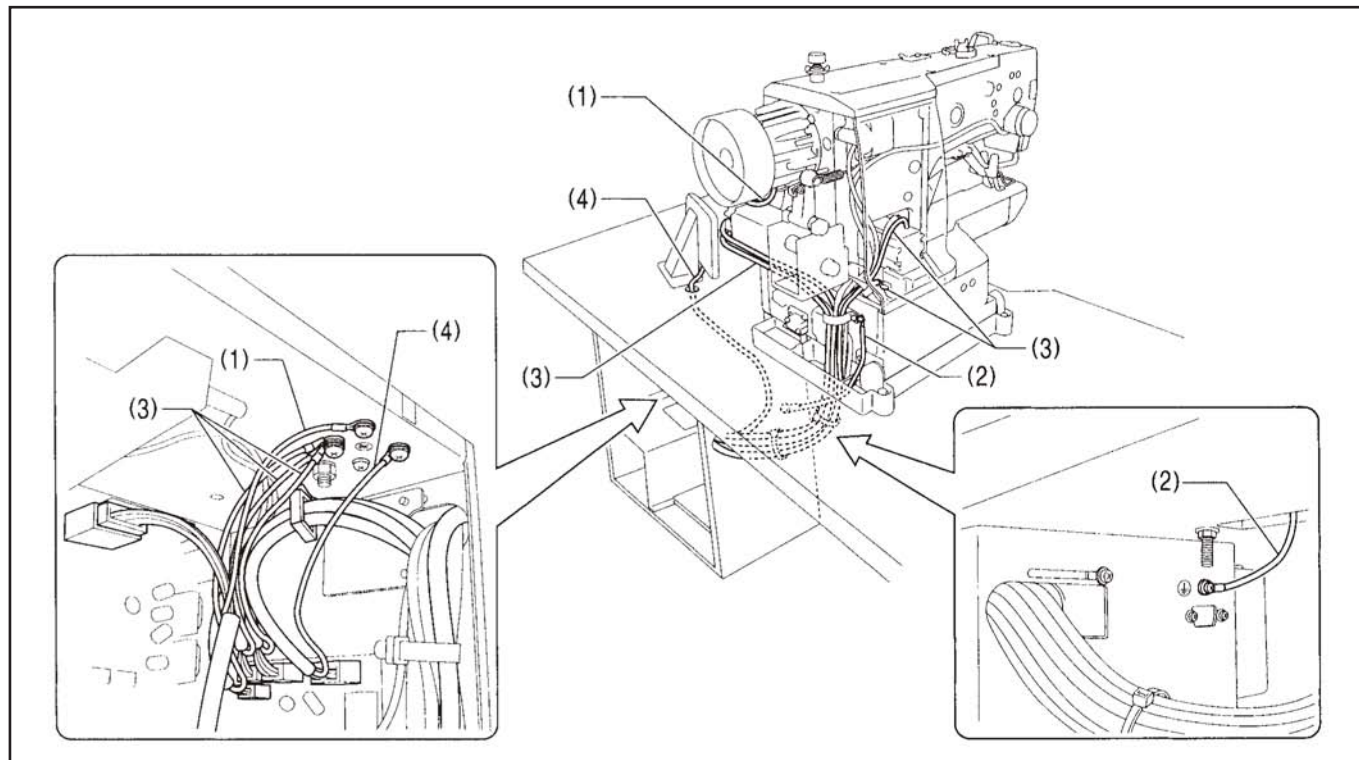
6. Check that the cords do not get pulled, and then gently return the machine head to its original position.

B - MACHINE ASSEMBLY

1.11. Connecting the ground wire

CAUTION!

Be sure to conned 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.

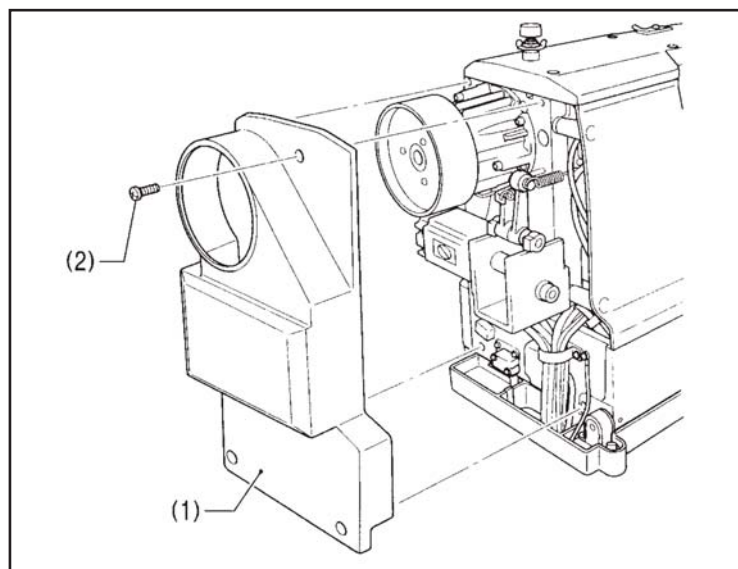


- (1) Ground wire from upper shaft motor harness
- (2) Ground wire from the machine head
- (3) Ground wires from X, Y and work clamp encoder harnesses (3wires)
- (4) Ground wire from operation panel harness

- Tighten the control box cover with the eight screws. Check that the cords are not clamped by the cover at this time.

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

1.12. Installing the back cover



- (1) Back cover
- (2) Screws /4 pcs/

Note:

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

C - PROPER USAGE

1. LUBRICATION

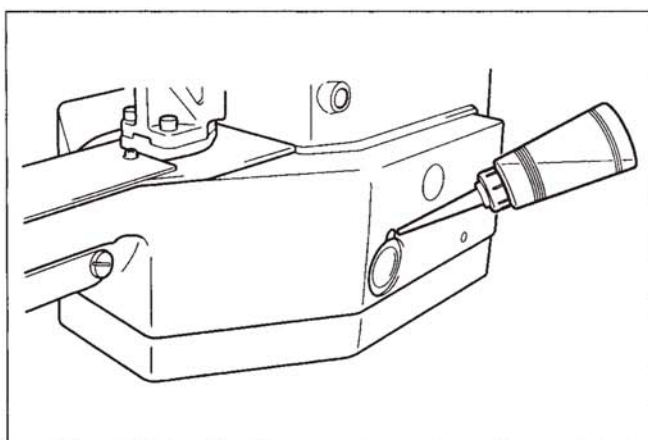
CAUTION!

- 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 <Nisseki Mitsubishi Sewing Lube 10N; VG10>.

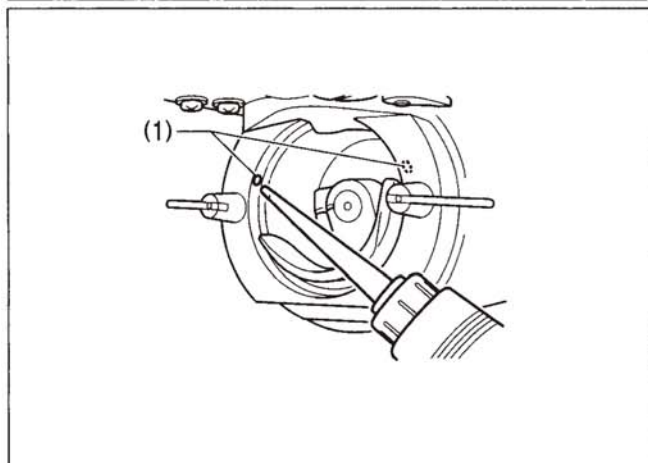
* If this type of lubricating oil is difficult to obtain, the recommended oil to use is <Exxon Mobil Essotex SM10, VG10>



1. Fill the oil tank with oil.

Note:

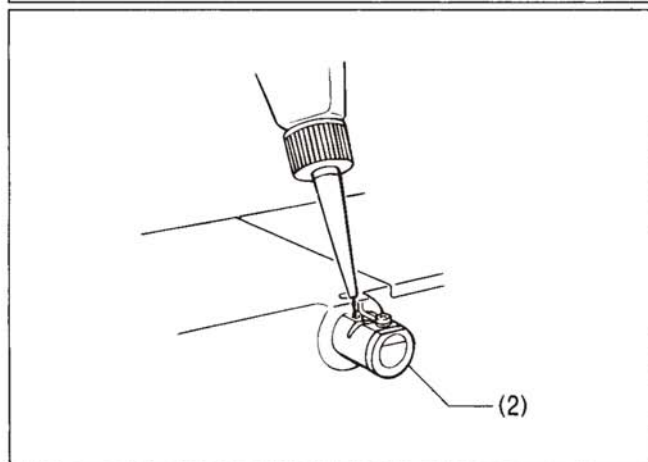
Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass, if the oil drops below this level, there is the danger that the machine may seize during operation.



2. Pour oil in through the two holes (1) of the shuttle race base assembly so that the felts lightly moistened.

Note:

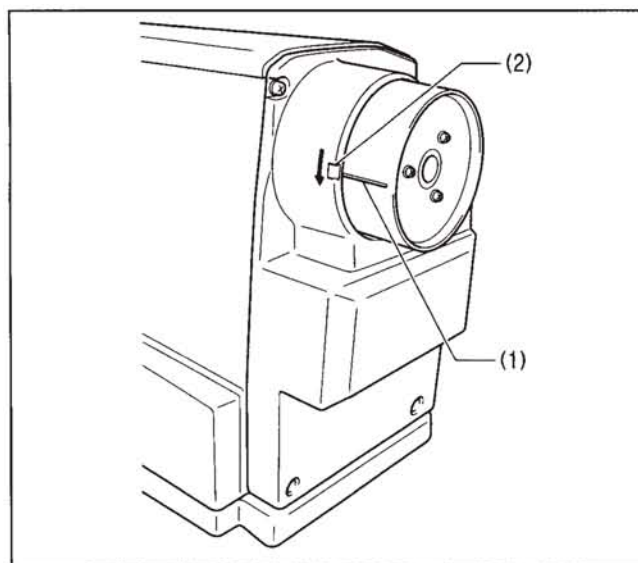
If there is no more oil on the felt of the shuttle race base assembly problems with sewing may result.



3. If using the liquid coding tank (2), fill it with silicon oil (100 mm²/s).

C - PROPER USAGE

2. STARTING UP

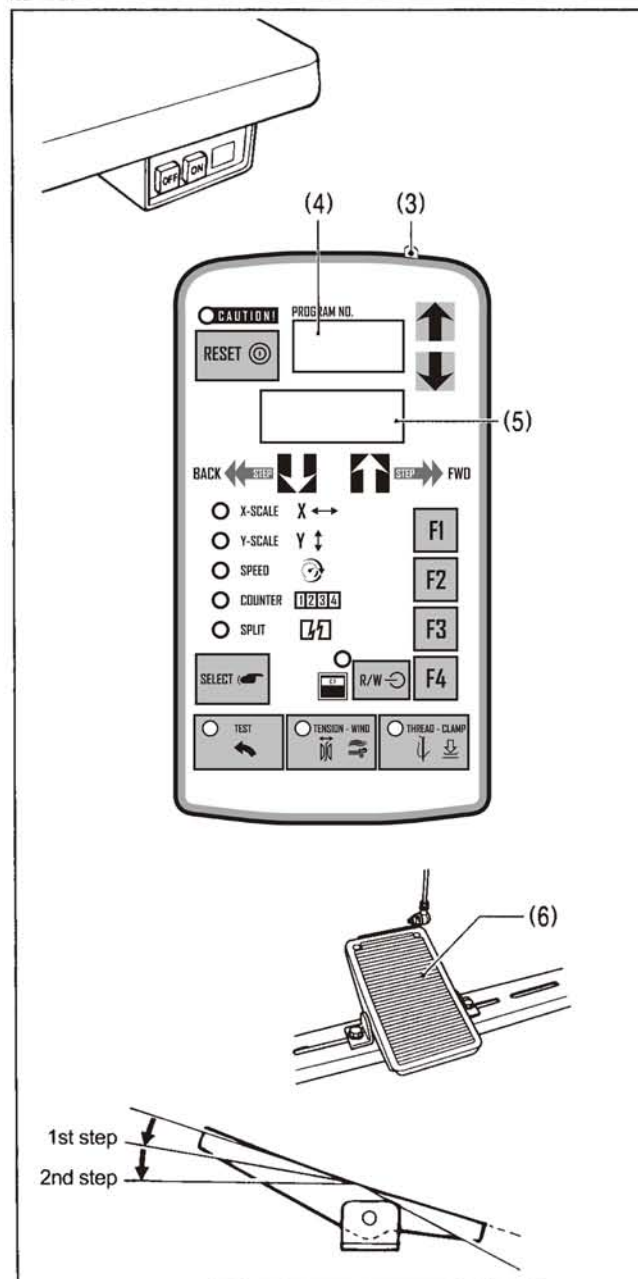


Before starting home position detection, check that the needle bar is at its highest position.

Turn the machine pulley so that the index mark (1) on the pulley is inside the mark (2) on the back cover.

Note:

If the machine is started while the index mark (1) is not inside the mark (2), error code "E110" will be displayed. (At this time, the error will be cleared if you turn the machine pulley to set the needle to the needle up stop position.)



1. Turn on the power switch.

The POWER indicator (3) will illuminate, and the model name will appear in the program No. display (4) and the specifications will appear in the menu display (5).

Specifications	
Ordinary materials	[-01]
Denim	[-02]
Foundation garments	[-07]

After this, the program number will flash in the program No. display (4).

2. Depress the foot switch (6) to the 2nd step. The feed mechanism will move to the home position and the work clamp / button clamp will rise.

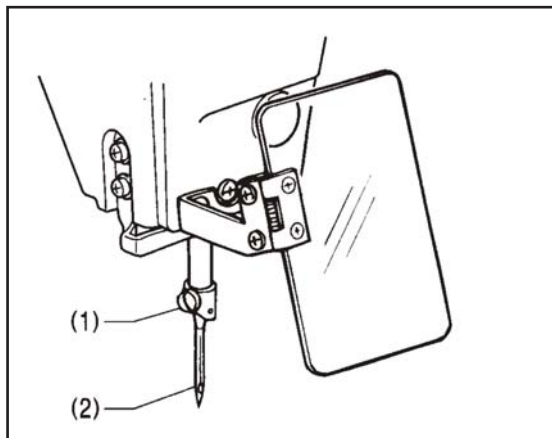
C - PROPER USAGE

3. PREPARATION BEFORE SEWING

3.1. 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.

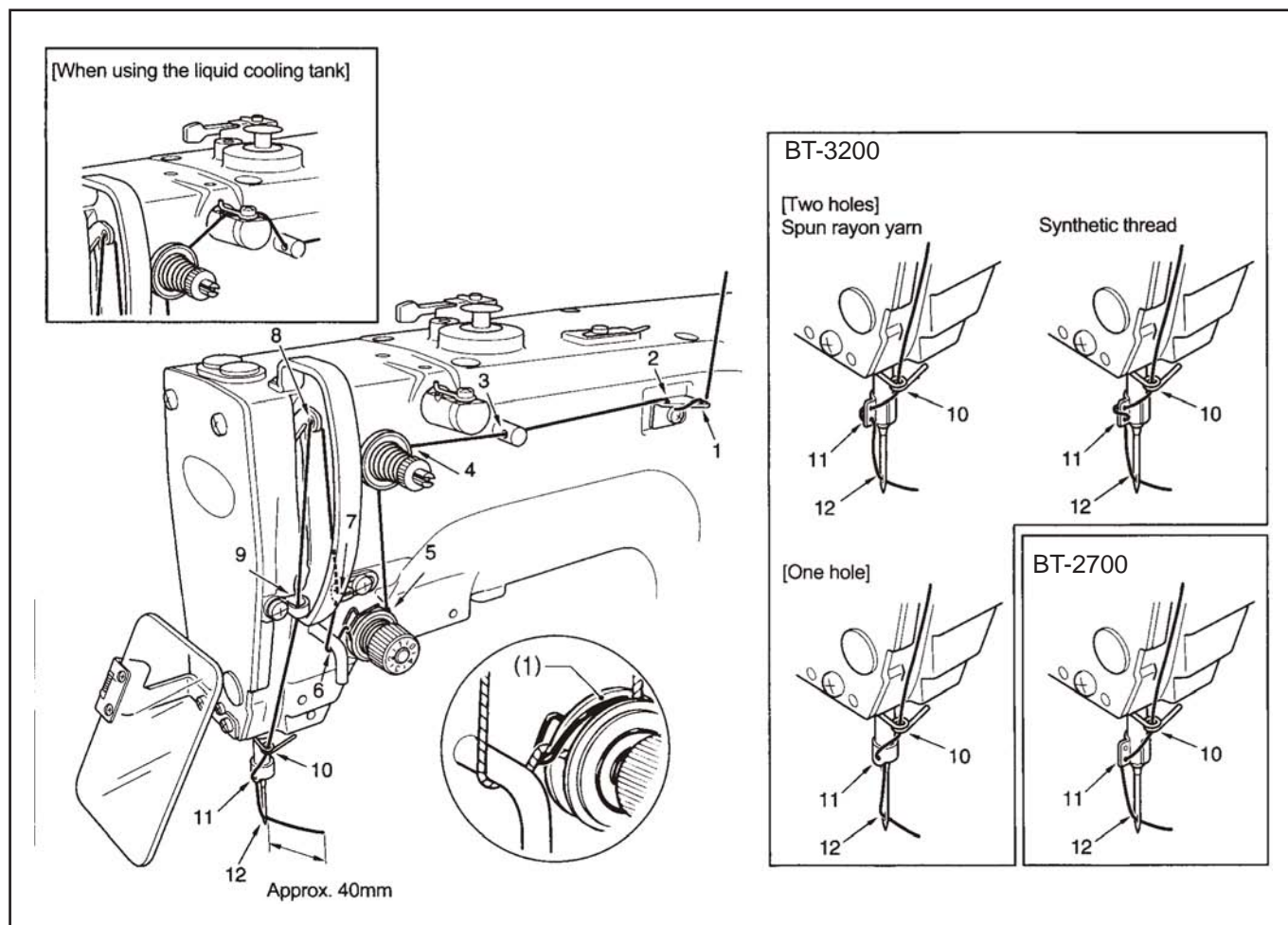


1. Loosen the set screw (1).
2. Insert the needle (2) in a straight line as far as it will go, making sure that the long groove on the needle is at the front, and then securely tighten the screw (1).

3.2. Threading the upper thread

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

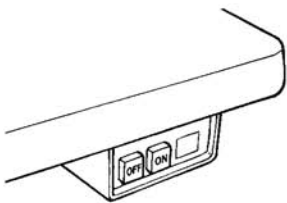
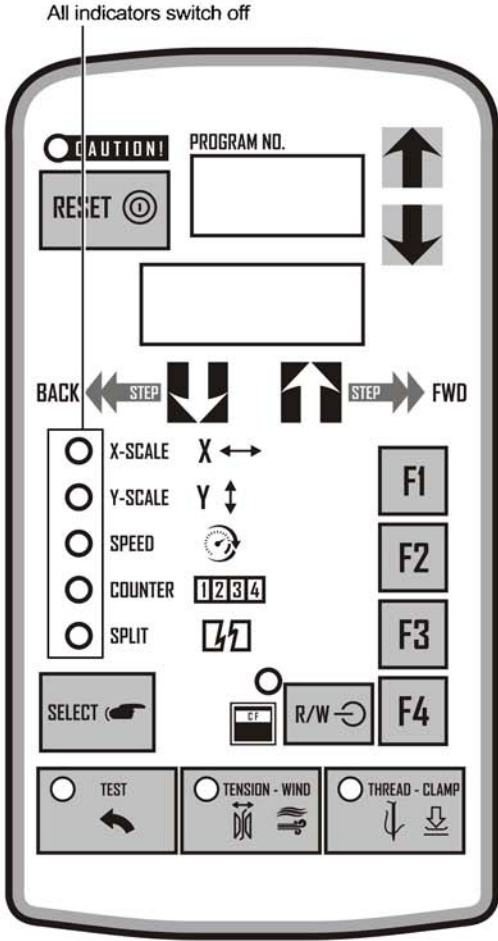

* When using threading mode for threading, the tension discs (1) will open so that the thread can be threaded more easily. (Refer to following page.)



C - PROPER USAGE

<Threading mode>

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

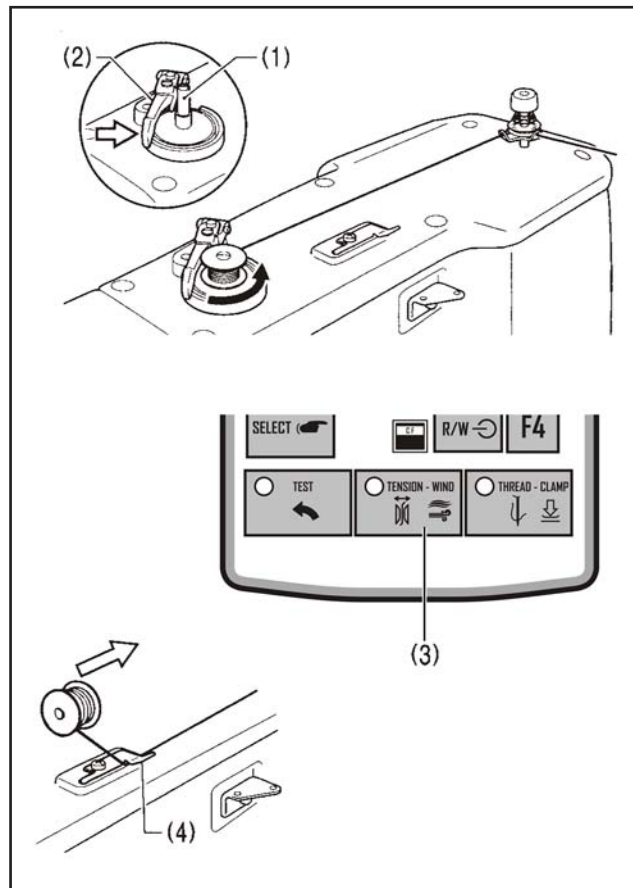
1	<p>Turn on the power switch.</p> 
2	<p>Press the THREAD/CLAMP key.</p>  <p>THREAD/CLAMP indicator lights Menu indicators switch off</p> <ul style="list-style-type: none"> • The work clamp /button clamp will lower. • The tension discs will open.
3	<p>Threading the thread.</p> <ul style="list-style-type: none"> • When 5 minutes have passed, the buzzer will sound and the tension discs will close.
4	<p>Ending threading mode</p> <p>Press the THREAD/CLAMP key.</p> <ul style="list-style-type: none"> • The work clamp/button clamp will return to where it was before threading mode was started.  <p>THREAD/CLAMP indicator switches off</p>

C - PROPER USAGE

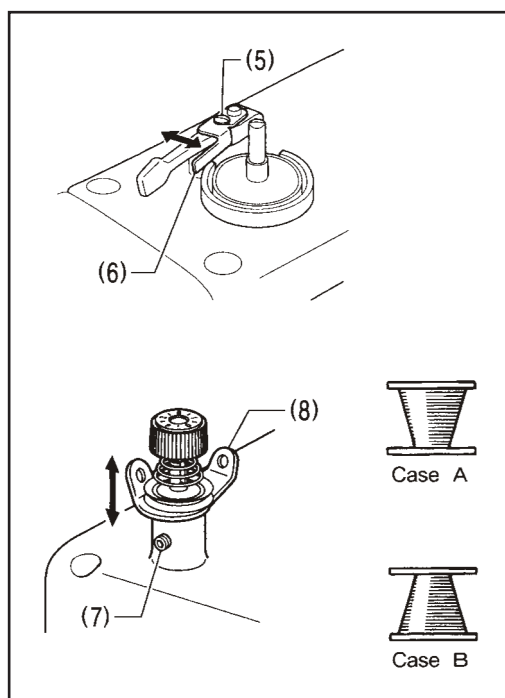
3.3. Winding the lower thread

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.



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, and then while pressing the TENSION WIND key (3), depress the foot switch to the second step.
6. Release the TENSION WIND 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 TENSION/ WIND 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.



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

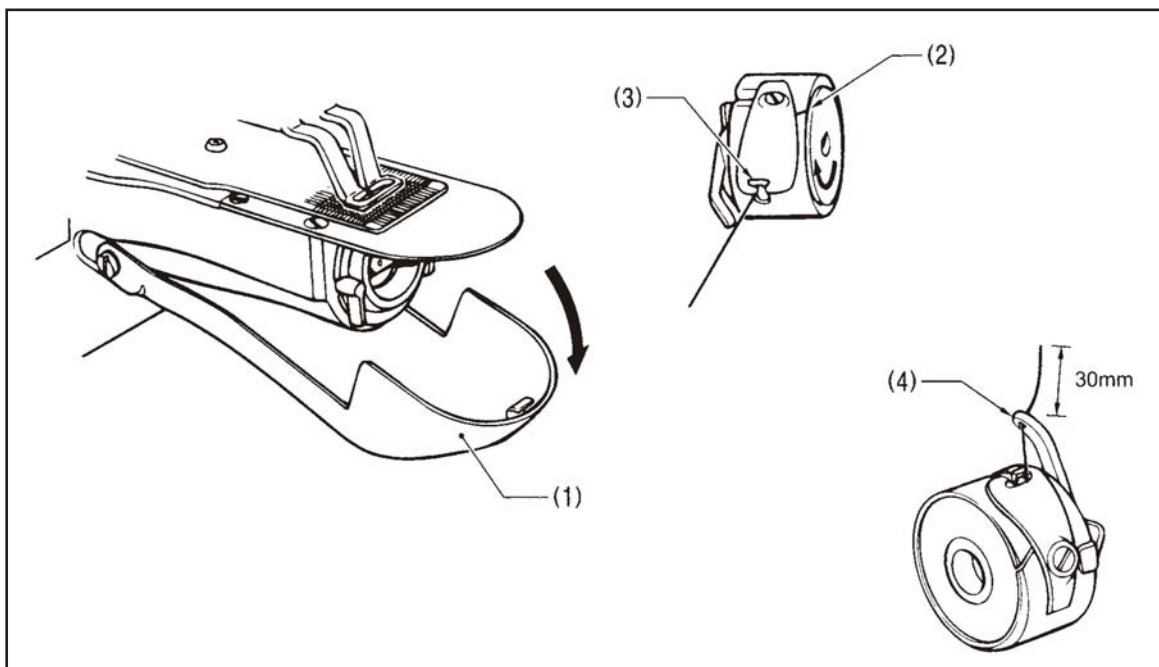
* For case A, move the bobbin winder tension assembly (8) down, and for case B, move it upward.

C - PROPER USAGE

3.4. Installing the bobbin case

CAUTION!

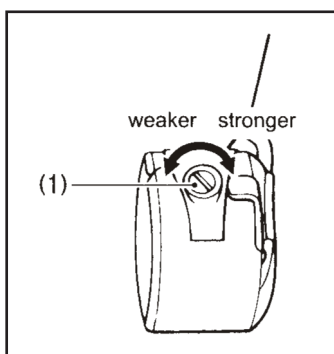
Turn off the power switch before installing the bobbin case, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



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.

3.5. Thread tension

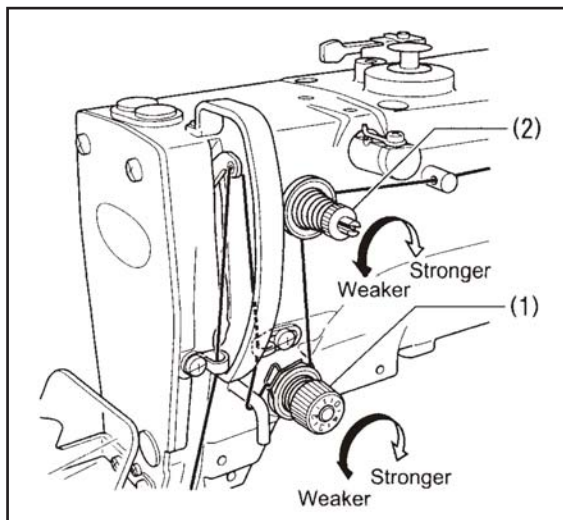
3.5.1. Lower thread tension



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.

C - PROPER USAGE

3.5.2. Upper thread tension



Turn the tension nut (1) (main tension) to adjust the tension as appropriate for the material being sewn. Furthermore, turn the tension nut (2) (sub-tension) to adjust the remaining length of upper thread to 35 - 40 mm, when the thread take-up lever is not used.

Reference thread tension

Use	BT-3200			BT-2700
	Ordinary materials (-01)	Foundation garments (-07)	Denim (-02)	
Upper thread	#50 or equivalent	#60 or equivalent	#30 or equivalent	#60 or equivalent
Lower thread	#60 or equivalent	#80 or equivalent	#50 or equivalent	#60 or equivalent
Upper thread tension (N)	0.8 - 1.2		1.6 - 2.0	1.0 - 1.8
Lower thread tension (N)	0.2 - 0.3			0.2 - 0.4
Pre-tension (N)	0.05 - 0.3			0.1 - 0.4
Needle	DP x 5 #14	DP x 5 #9	DPx17NY#19	DPx17NY#12

Guide to maximum sewing speed for BT-3200

Use	Max. sewing speed (rpm)	
	Standard hook	Large hook
8 layers of denim	3,200	2,500
12 layers of denim	2,700	
Ordinary materials	2,700	2,500
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 liquid cooling tank.

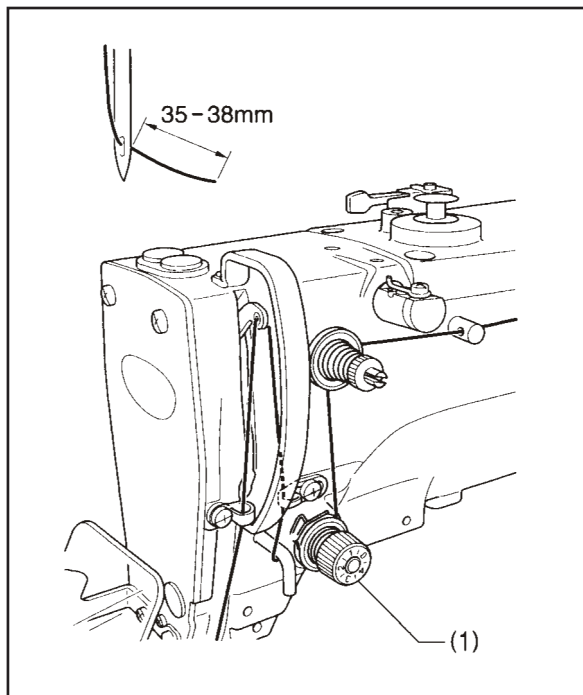
C - PROPER USAGE

3.6. Thread nipper device

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 "D 2.3. List of memory switches" for details.

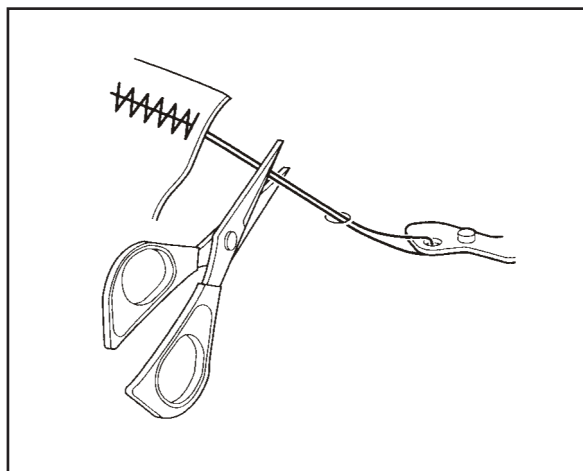
* The default setting for this memory switch is "OFF".

[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.

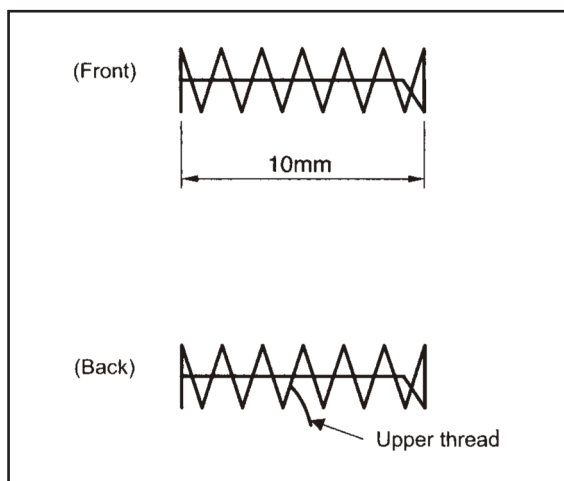
* Adjust the upper thread trailing length to less than 40 mm after replacing the upper thread also.



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.

C - PROPER USAGE



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 BT-3200, 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.

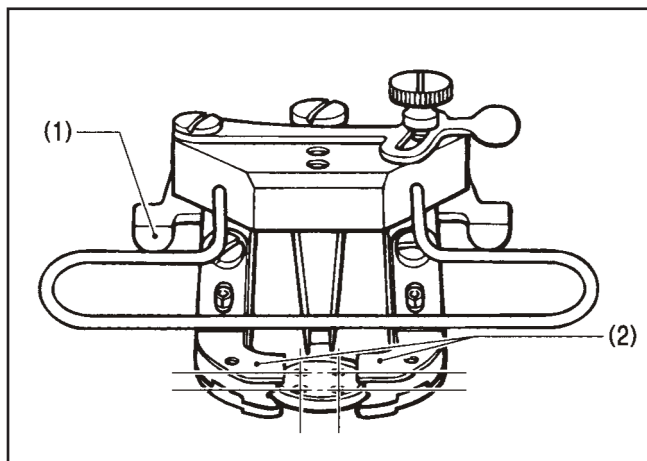
Refer to A "4.2. Program list (BT-3200)" for details of the sewing patterns.

<Program No. Reference Table>

Specifications	Standard program No.	Program No. for thread nipper device
For ordinary materials (-001)	1	65
	4	66
	5	67
	8	68
	13	69
	15	70
	20	71
For denim (-003)	21	72
	2	78
	3	79
	6	80
	14	81
	16	82
	17	83
For foundation garments (-005)	18	84
	19	85
	7	73
	9	74
	22	75
	31	76
	32	77

C - PROPER USAGE

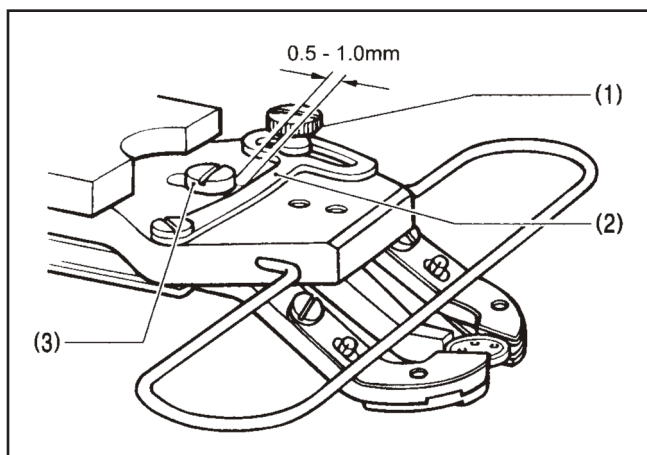
3.7. Inserting the button (BT-2700)



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 show in the illustration, then release the button clamp plate cam (1).

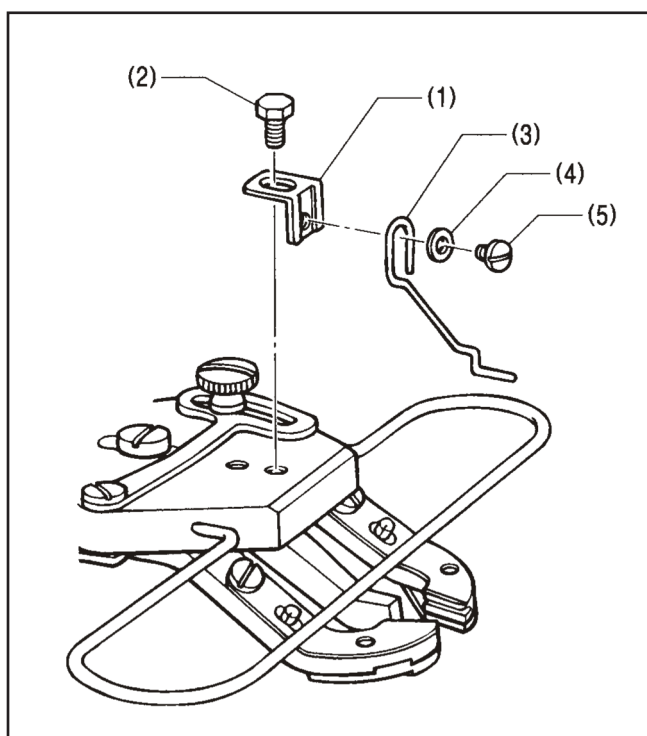
3.8. Adjusting the button clamp (BT-2700)



1. Insert the button in the button clamp. Confirm that the button is securely held by the clamp.

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).

3.9. Installing the accessory spring (BT-2700)



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

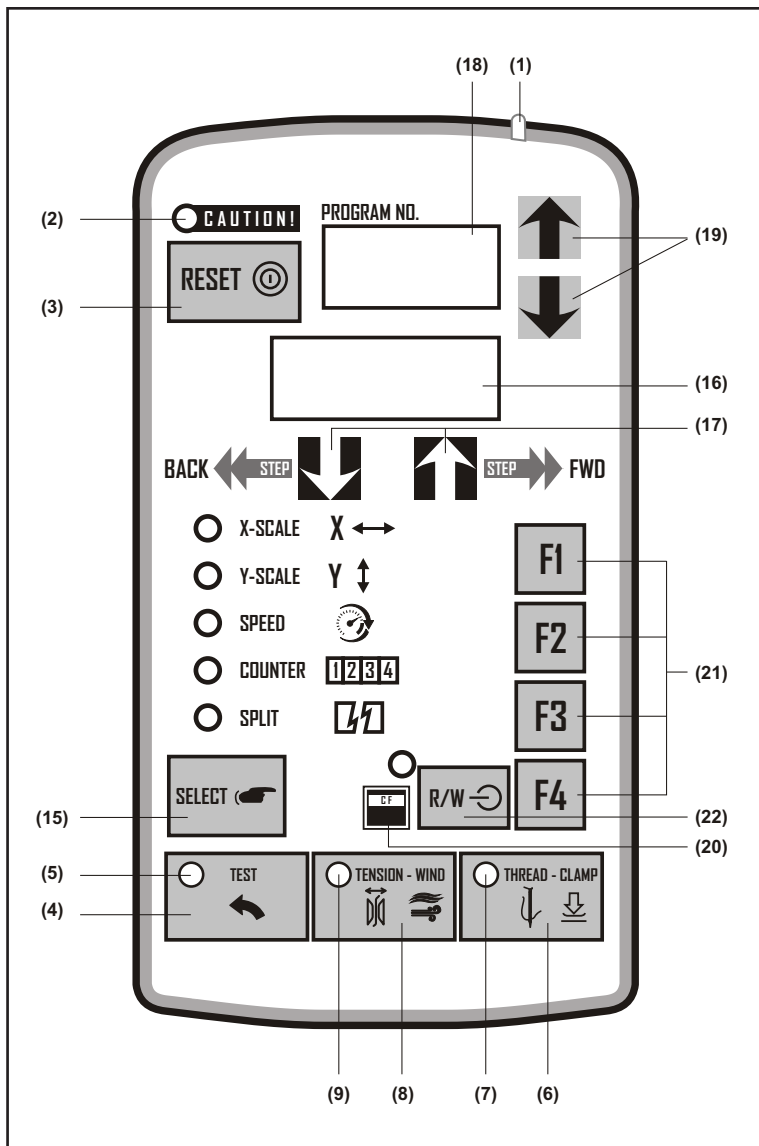
1. Install the spring support (1) with the bolt (2).

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

D - MACHINE CONTROLS

1. USING THE OPERATION PANEL (BASIC OPERATIONS)

1.1. Name and function of each operation panel item



(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 start test mode.

(5) TEST indicator

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

(6) THREAD/CLAMP key

Used to start threading mode or work clamp height setting mode.

(7) THREAD/CLAMP indicator

Illuminates when the THREAD/CLAMP key (6) has been pressed.

(8) TENSION/WIND key

Used to wind the lower thread.

(9) TENSION/WIND indicator

Spare

(10) X-SCALE indicator

Illuminates when the SELECT key (15) is pressed to shown the X-scale setting.

(11) Y-SCALE indicator

Illuminates when the SELECT key (15) is pressed to shown the Y-scale setting.

(12) SPEED indicator

Illuminates when the SELECT key (15) is pressed to shown the sewing speed setting.

(13) COUNTER indicator

Illuminates when the SELECT key (15) is pressed to shown the lower thread or production counter setting.

(14) SPLIT No. indicator

Illuminates when the SELECT key (15) is pressed to show the split setting when split data (for specifying a pause while the program is running) exists.

(15) SELECT key

Used to select a menu (X-scale, Y-scale, sewing speed and counter).

(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 menu display (16).

(18) PROGRAM No. display

Displays information such as program numbers.

(19) Setting keys

Used to change the value which is displayed in the PROGRAM No. display (18).

(20) CF media indicator

Illuminates when a CF card (external media) is inserted.

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

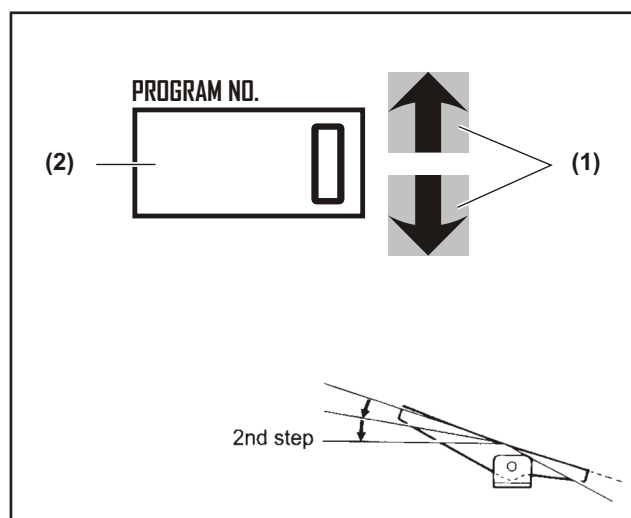
Used to select user programs and to set and select cycle programs.

(22) R/W key

Used to read data from and write data to external media.

D - MACHINE CONTROLS

1.2. Setting the program number



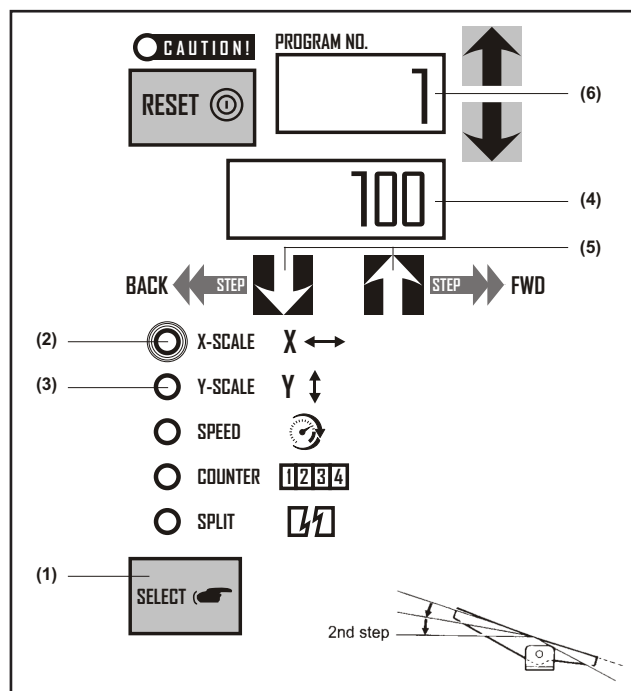
The program number is set to 0 (feed home position check) at the time of shipment from the factory.

1. Press the or key (1) to select the program number.
 - The program number will flash in the PROGRAM No. display (2).
2. Depress the foot switch to the 2nd step.
 - The feed mechanism will move to the home position and the program number will be accepted.
 - The program number will stop flashing and illuminate steadily.

Note:

Once the setting is complete, be sure to carry out the steps in D "1.5. Checking the sewing pattern (BT-3200)" to check that the needle drop position is correct.

1.3. Setting the X-scale and Y-scale



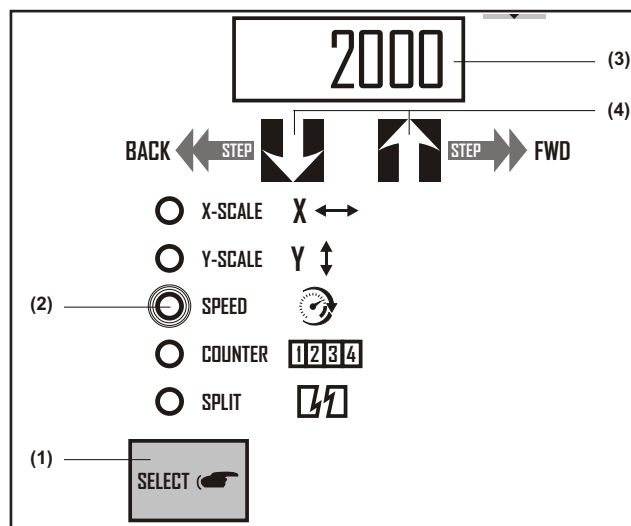
The scales are set to 100 (%) at the time of shipment from the factory.

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 display in the menu display (4).
 - When memory switch no. 402 is set to "ON", the settings will be displayed in units of mm.
2. Press the or key (5) to set the scale (20 - 200).
 - The program number will flash in the PROGRAM No. display (6).
3. Depress the foot switch to the 2nd step.
 - The feed mechanism will move to the home position and the scale will be accepted.
 - The program number will stop flashing and illuminate steadily.

Note:

Once the setting is complete, be sure to carry out the steps in D "1.5. Checking the sewing pattern (BT-3200)" to check that the needle drop position is correct.

1.4. Setting the sewing speed



The sewing speed is set to 2000 (rpm) at the time of shipment from the factory.

1. Press the SELECT key (1) until the SPEED indicator (2) illuminates.
 - The setting value (rpm) will display in the menu display (3).

2. Press the or key (4) to set the sewing speed.


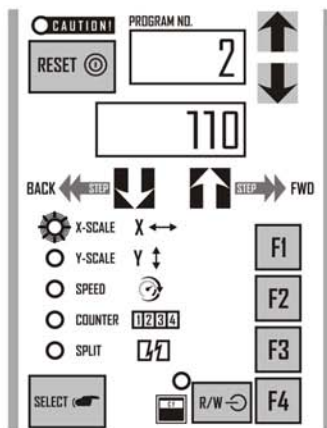
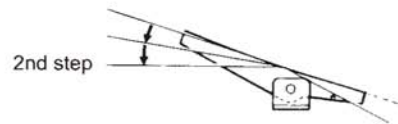







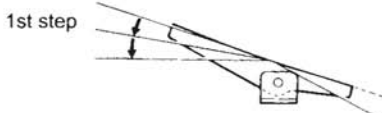
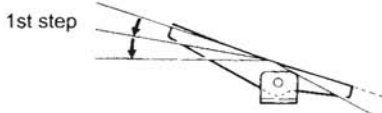
(Sewing speed setting values:

BT-3200: 400 - 3200; BT-2700: 400 - 2700)

D - MACHINE CONTROLS

1.5. Checking the sewing pattern (BT-3200)


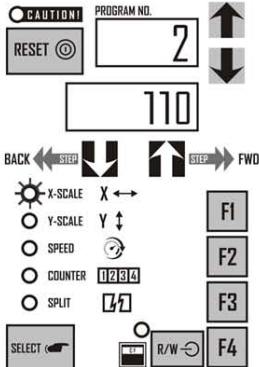
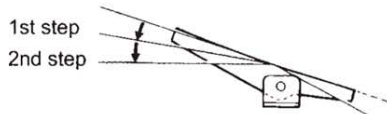

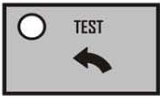





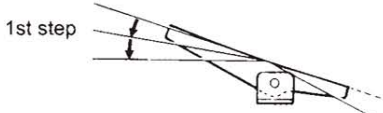
Use test feed mode to check the needle movement with only the feed mechanism operating.
Check that the needle hole does not come out from the frame of the work clamp.

1	 <p>Press the TEST key.</p>
2	<p>TEST indicator lights</p>  <p>Program number flashing → lit</p> <p>Select the program number to be checked, and then set the X-scale and the Y-scale.</p> <ul style="list-style-type: none"> The program number will flash. <p>Depress the foot switch to the 2nd step.</p> <ul style="list-style-type: none"> The feed mechanism will move to the home position and the program number will stop flashing and illuminate steadily. 
3	<p>Starting continuous test feed mode</p>  <p>Depress the foot switch to the 2nd step and then release it.</p> <ul style="list-style-type: none"> Feed mechanism starts moving continuously one stitch at a time. <p>[Fast-forward test mode] If you depress the foot switch to the 1st step while the feed mechanism is moving, the feeding speed will become faster while the foot switch is being depressed.</p> <p>[Sewing standby mode]</p>   <p>TEST indicator switches off</p>  <ul style="list-style-type: none"> If you press the  key when in this mode, the feed will move forward one stitch, and if you press the  key, the feed will move backward one stitch. (The feed will move quicker if you keep the key pressed down.) If you would like to start test feed once more, press the TEST key.  <p>TEST indicator lights</p> <p>If you would like sewing to start while test feeding is in progress, press the TEST key to switch off the TEST indicator. When you depress the foot switch to the 2nd step, sewing will start.</p>
4	<p>If test feeding continues to the final stitch, it will then stop.</p>  <p>Press the TEST key.</p> <p>TEST indicator switches off</p>
5	 <p>Depress the foot switch to the 1st step. The work clamp will rise and the preparation for sewing will be completed.</p>

D - MACHINE CONTROLS

1.6. Checking the sewing pattern (BT-2700)

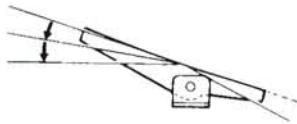
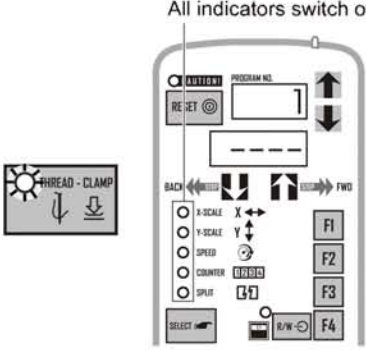
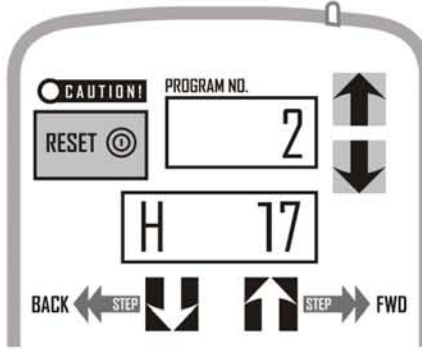
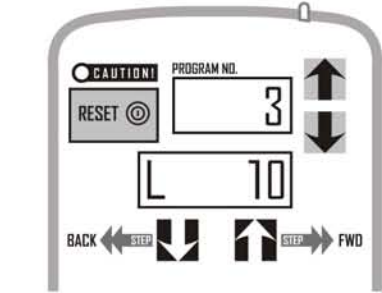




















Use test feed mode to check the needle movement with only the feed mechanism operating.

1	 <p>Press the TEST key.</p>
2	<p>TEST indicator lights</p>  <p>CAUTION! PROGRAM NO. 2</p> <p>RESET</p> <p>110</p> <p>BACK STEP STEP FWD</p> <p>X-SCALE X</p> <p>Y-SCALE Y</p> <p>SPEED</p> <p>COUNTER 1234</p> <p>SPLIT</p> <p>SELECT</p> <p>R/W</p> <p>F1 F2 F3 F4</p> <p>Program number flashing → lit</p> <p>Select the program number to be checked, and then set the X-scale and the Y-scale.</p> <ul style="list-style-type: none"> The program number will flash. <p>Depress the foot switch to the 2nd step.</p> <ul style="list-style-type: none"> The feed mechanism will move to the home position and the program number will stop flashing and illuminate steadily. 
3	<p>Set the button. (Refer to C "3.7. Inserting the button (BT-2700)").</p>
4	<p>Starting single-stitch test feed mode</p> <p>Depress the foot switch to the 2nd step and then release it.</p> <ul style="list-style-type: none"> The feed mechanism will move by one stitch only.  <p>1st step</p> <p>2nd step</p> <p>After this, the feed mechanism 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 mechanism 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 feed mechanism will move forward by one stitch when the needle bar is near the needle up position.)</p> <p>In addition, if you depress the foot switch to the 2nd step again, the feed mechanism will start moving continuously one stitch at a time.</p> <div data-bbox="188 1294 1369 1816"> <p>[Sewing standby mode]</p>   <p>2nd step</p> <p>TEST indicator switches off</p> <p>BACK STEP STEP FWD</p> <ul style="list-style-type: none"> If you press the  key when in this mode, the feed will move forward one stitch, and if you press the  key, the feed will move backward one stitch. (The feed 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.  <p>TEST indicator lights</p> <p>If you would like sewing to start while test feeding is in progress, press the TEST key to switch off the TEST indicator. When you depress the foot switch to the 2nd step, sewing will start.</p> </div>
5	<p>Ending test feed mode Press the TEST key.</p>  <p>TEST indicator switches off</p>
6	<p>Depress the foot switch to the 1st step. The work clamp will rise and the preparation for sewing will be completed.</p>  <p>1st step</p>

D - MACHINE CONTROLS

1.7. Adjusting the work clamp / button clamp lift amount

The setting for the work clamp/button clamp lift amount can be changed using the operation panel.

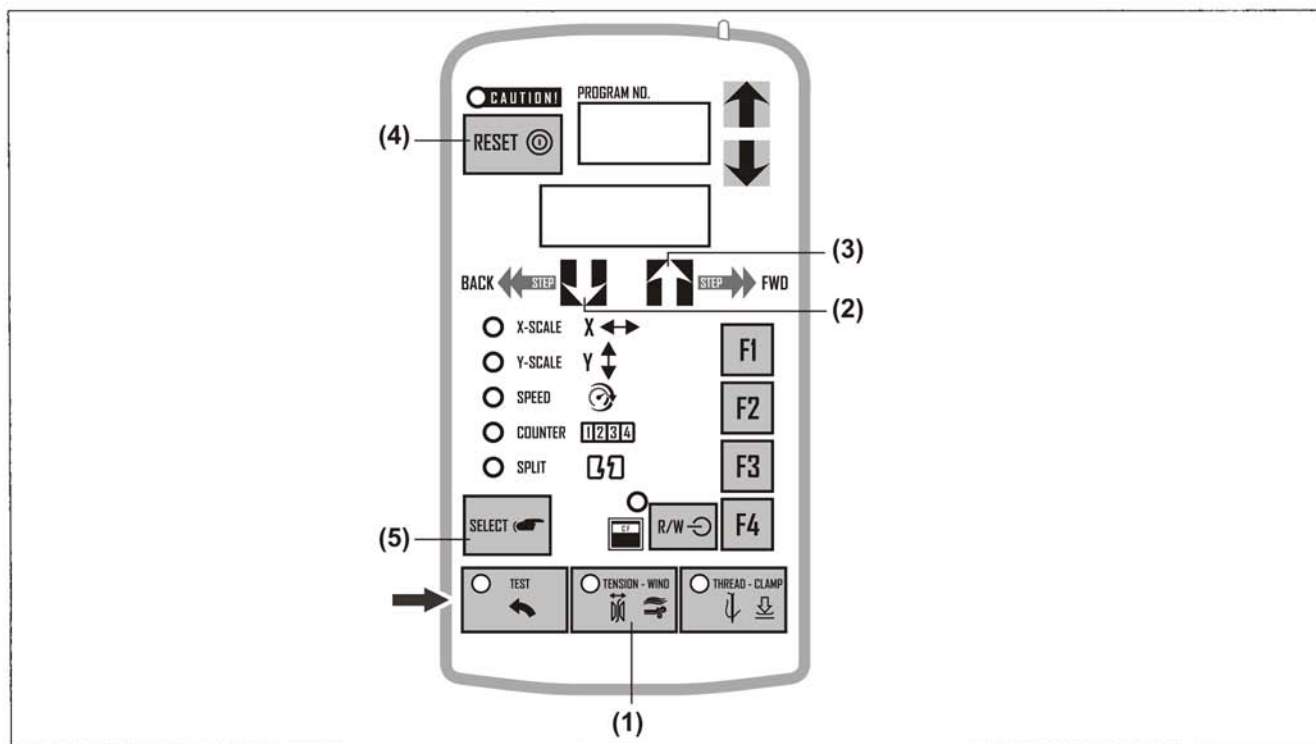
1		<p>Carry out home position detection.</p>				
2	<p>All indicators switch off</p> 	<p>Press the THREAD/CLAMP key. The sewing machine will switch to threading mode. " 1" will appear in the PROGRAM No. display, and the work clamp / button clamp will be lowered.</p> <p>THREAD/CLAMP indicator lights Menu indicators switch off</p>				
3	 <p>When memory switch no.003 is "ON"</p> 	<p>Press the  key. The sewing machine will switch to work clamp height setting mode.</p> <ul style="list-style-type: none"> " 2" will appear in the PROGRAM No. display and the work clamp/button clamp will rise to the setting value that appears in the menu display. (Work clamp height setting values: BT-3200: 10 - 17; BT-2700: 6 - 13). <p>Note: If you press the  key before home position detection has been carried out, the sewing machine will not switch to work clamp height setting mode. (The buzzer will sound.) Press the THREAD/CLAMP key to end setting mode and then repeat the procedure from step 1.</p> <p>Press the  or  key to set the work clamp height.</p> <ul style="list-style-type: none"> The work clamp/button clamp will rise or drop to the height of the new value that has been set. <p>Press the  key. The sewing machine will switch to intermediate work clamp height setting mode.</p> <ul style="list-style-type: none"> " 3" will appear in the PROGRAM No. display and the work clamp/button clamp will move to the setting value that appears in the menu display. (Intermediate work clamp height setting values: BT-3200: 1 - 17; BT-2700: 1 - 13). <p>Press the  or  key to set the intermediate work clamp height.</p> <ul style="list-style-type: none"> The work clamp/button clamp will rise or drop to the height of the new value that has been set. 				
<p><Switching modes></p> <table border="0"> <tr> <td>[2] Work clamp height setting mode</td> <td rowspan="3">     </td> </tr> <tr> <td>([3] Intermediate work clamp height setting mode)</td> </tr> <tr> <td>[1] Threading mode</td> </tr> </table>			[2] Work clamp height setting mode	   	([3] Intermediate work clamp height setting mode)	[1] Threading mode
[2] Work clamp height setting mode	   					
([3] Intermediate work clamp height setting mode)						
[1] Threading mode						
4	<p>Ending setting mode</p>  <p>THREAD/CLAMP indicator switches off</p>	<p>Press the THREAD/CLAMP key.</p> <ul style="list-style-type: none"> The setting values will be memorized. The work clamp/button clamp will return to the status that it was at before the sewing machine was switched to setting mode. 				











D - MACHINE CONTROLS

2. USING THE OPERATION PANEL (ADVANCED OPERATIONS)

2.1. List of advanced functions

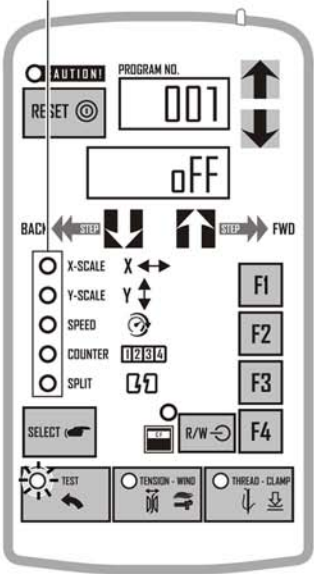

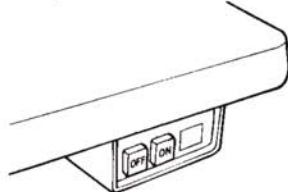


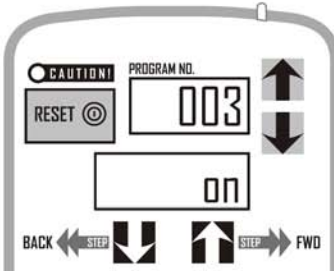









While holding down the TEST key, press the corresponding combination key.




1	 + 	Memory switch setting mode Refer to D2.2 Setting memory switches".
2	 + 	Lower thread counter setting mode Refer to D2.4 Using the lower thread counter".
3	 + 	Production counter setting mode Refer to D2.5 Using the production counter".
4	When the SPEED indicator lights  + 	Production counter temporary display function Refer to D2.5 Using the production counter".
5	 + 	User program setting mode Refer to D2.6 Using user programs".

D - MACHINE CONTROLS

2.2. Setting memory switches

1	<p>All indicators switch off</p> 	<p>While pressing the SELECT key, turn on the power switch. * Keep pressing the SELECT key until the model name is displayed and the buzzer beeps once.</p>   <p>Or With the power turned on, press the TEST key and the TENSION/WIND key simultaneously.</p>   <p>• The memory switch number will appear in the PROGRAM No. display, and its setting value will appear in the menu display.</p>
2		<p>Press the  or  key to select the memory switch number.</p> <p>Press the  or  key to change the setting value.</p>
	<p>If you would like to display only the numbers of memory switches that have been changed from default settings</p>  	<p>While pressing the SELECT key, press the  or  key.</p> <ul style="list-style-type: none"> • The numbers of memory switches that have been changed from default settings will appear in order. • If no memory switches have been changed from their default settings, the display will not change and the buzzer will beep twice.
3	<p>Ending setting mode</p>  <p>TEST indicator switches off</p>	<p>Press the TEST key.</p> <ul style="list-style-type: none"> • The changes will be memorized and the sewing machine will switch to home position detection standby.



- If you would like to return the setting for a single memory switch to the default setting, press the RESET key while the number for that memory switch is displayed.
- To return the settings for all memory switches to the default settings, keep pressing the RESET key for **two or more seconds** until the buzzer makes a long beep.

D - MACHINE CONTROLS

2.3. List of memory switches

No.	Setting range	Setting items	Default
001		Work clamp/button clamp lift timing when sewing is complete	OFF
	OFF	Lifts at the final stitch position.	
	ON	Lifts after moving to the home position.	
003		2-step work clamp	OFF
	OFF	Disable	
	ON	Stops at intermediate work clamp height setting mode when foot switch is depressed to 1st step, and then drops fully and sewing starts when foot switch is depressed to 2nd step.	
100		Sewing start speed	*1
	OFF	The sewing speed for the first 1 - 5 stitches is set by memory switch nos. 151 - 155. (Refer to the Service Manual for details of memory switch nos. 151 - 155.)	
	ON	BT-3200: 1st stitch sewn at 400 rpm and 2nd stitch sewn at 800 rpm BT-2700: 1st and 2nd stitch sewn at 400 rpm	
200		Single-stitch test feed	*1
	OFF	Test feed starts when the foot switch is depressed, and it continues automatically until the final stitch.	
	ON	Test feeding is carried out stitch by stitch when the foot switch is depressed. In addition, when the test indicator is illuminated, test feeding will move forward one stitch at a time when the machine pulley is turned by hand.	
300		Production counter display	OFF
	OFF	Lower thread counter display	
	ON	Production counter display	
400		User programs	OFF
	OFF	Disable	
	ON	User program mode is enabled.	
401		Cycle programs	OFF
	OFF	Disable	
	ON	When sewing user programs, the set programs are sewn in numeric order.	
402		Units display for pattern zoom ratio (*2)	OFF
	OFF	Displayed as %.	
	ON	Displayed as mm.	
500		Thread clamp device	OFF
	OFF	Disable	
	ON	Thread clamp device can be used. (*3)	

*1 Off for BT-3200, On for BT-2700.

*2 The mm display may differ slightly from the actual sewing size.

*3 May not operate if the settings for the memory switch nos. 151 and 152 have been changed, or at some sewing speeds.

D - MACHINE CONTROLS

2.4. Using the lower thread counter

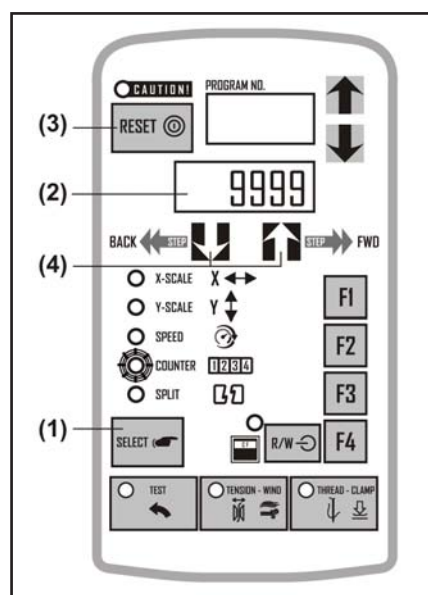
If you use the bobbin thread counter to set the number of articles which can be sewn with the amount of bobbin thread available, you can stop the bobbin thread running out in the middle of sewing a pattern.

<Initial value setting>

1		<p>While pressing the TEST key press the key.</p> <p> </p> <ul style="list-style-type: none"> The initial value which was set previously will appear in the menu display. <p>TEST indicator lights, COUNTER indicator flashes</p>
2		<p>Press the or key to set the initial value.</p> <ul style="list-style-type: none"> The initial value can be set from 1 ("0001") to 9999 ("9999"). If the initial value is set to "0000", the lower thread counter will not operate. If you press the RESET key during setting mode, the value will become "0000".
3	<p>Ending setting mode</p>	<p>Press the TEST key.</p> <ul style="list-style-type: none"> The initial value will be memorized. <p>TEST indicator switches off</p>

<Lower thread counter operation>

If you press the SELECT key (1) to select the counter display menu when memory switch no. 300 is set to "OFF", the COUNTER indicator will illuminate and the lower thread counter will appear in the menu display (2).



1. Each time the sewing of a single article is completed, the value shown in the menu display (2) is reduced by 1.

2. When the lower thread counter reaches "0000", the buzzer will sound. The sewing machine will not operate during this time, even if the foot switch is depressed.

3. When you press the RESET key (3), the buzzer will stop, the initial value will appear in the menu display (2) and sewing will be possible.

- If no initial value has been set, the display will be "0000".

* You can press the or key (4) to set the lower thread counter to the desired value. However, this value will not be memorized as the initial value.

* If a lower thread counter value is set, the lower thread counter will operate even if the lower thread counter is not being displayed.

D - MACHINE CONTROLS

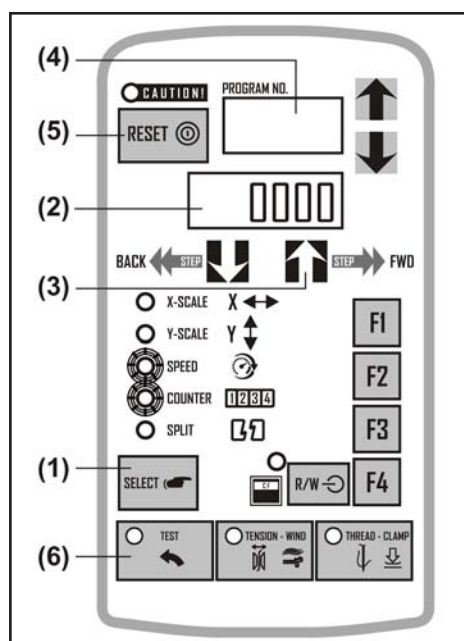
2.5. Using the production counter

<Setting the counter value>

1		<p>While pressing the TEST key, press the key.</p> <ul style="list-style-type: none"> The counter value will appear in the PROGRAM No. display and the menu display as a 7-digit number. <p>TEST indicator and SPEED indicator light COUNTER indicator flashes</p>
2		<p>Press the or key to set the counter value.</p> <ul style="list-style-type: none"> The counter value can be set from [000][0000] to [999][9999]. If you press the RESET key during setting mode, the value will become [000][0000].
3	<p>Ending setting mode</p>	<p>Press the TEST key.</p> <ul style="list-style-type: none"> The counter value will be memorized. <p>TEST indicator switches off</p>

<Production counter operation>

If you press the SELECT key (1) to select the counter display menu when memory switch no. 300 is set to "ON", the SPEED and COUNTER indicators will illuminate and the production counter will appear in the menu display (2).



- Each time the sewing of a single article is completed, the value shown in the menu display (2) is increased by 1.
- The first three digits will appear in the PROGRAM No. display (4) while the key (3) is being pressed, so that the total number of digits displayed will be 7.
- If you press the RESET key (5) for 2 seconds or more, the counter value will be reset to [0000].

Temporary display function

You can display the production counter temporarily while the lower thread counter is being displayed. When the SPEED indicator is illuminated, hold down the TEST key (6) and then press the RESET key (5) to display the production counter in the menu display (2). Press the TEST key (6) or the SELECT key (1) to switch the menu back to the normal menu display.

* Sewing can continue as normal while the temporary display is active.

D - MACHINE CONTROLS

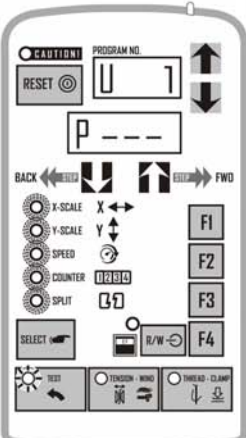


















2.6. Using user programs

Up to 50 different combinations of settings including program no., X-scale, Y-scale, sewing speed and work clamp height can be memorized as user programs (U1 to U50).





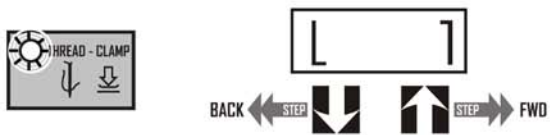



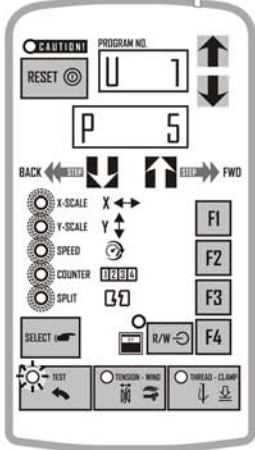

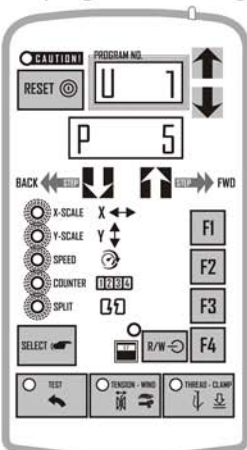

If you are sewing certain patterns over and over again, it is useful to record the settings for these patterns into a user program.

User programs are enabled when memory switch no. 400 is set to "ON".

<Recording the user programs>

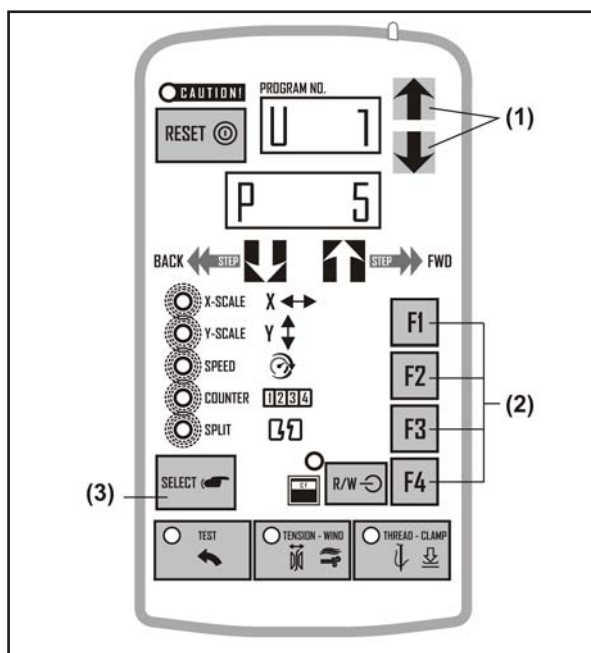
<p>1</p>	<p>Select a user program number.</p>  <p>TEST indicator lights Menu indicators flash</p>	<p>While pressing the TEST key, press the SELECT key.</p>  <ul style="list-style-type: none"> Switch to user program recording mode. Check that the menu indicators are flashing. User program number will appear in the PROGRAM No. display, and "P ---" will appear in the menu display. <p>Press the  or  key to select a user program number.</p>
<p>2</p>	<p>First, set the program number.</p> 	<p>Press the  or  key to set the program number that you would like to record.</p>
<p>3</p>	<p>Next, set the X-scale.</p>  <p>X-SCALE indicator flashes</p>	<p>Press the SELECT key.</p>  <p>Press the  or  key to set the X-scale that you would like to record.</p>
<p>4</p>	<p>Next, set the Y-scale.</p>  <p>Y-SCALE indicator flashes</p>	<p>Press the SELECT key.</p>  <p>Press the  or  key to set the Y-scale that you would like to record.</p>
<p>5</p>	<p>Next, set the sewing speed.</p>  <p>SPEED indicator flashes</p>	<p>Press the SELECT key.</p>  <p>Press the  or  key to set the sewing speed that you would like to record.</p>

D - MACHINE CONTROLS

6	<p>Next, set the work clamp height.</p>  <p>THREAD/CLAMP indicator flashes</p>	<p>Press the SELECT key.</p>  <p>Press the  or  key to set the desired work clamp height.</p>
7	<p>Next, set the intermediate work clamp height (only when memory switch no. 003 is "ON").</p>  <p>THREAD/CLAMP indicator flashes</p>	<p>Press the SELECT key.</p>  <p>Press the  or  key to set the desired intermediate work clamp height.</p>
8	 <p>TEST indicator lights Menu indicators flash</p>	<p>Press the SELECT key.</p>  <ul style="list-style-type: none"> If setting further user programs, select the user program number and then repeat steps 2 to 8.
9	 <p>TEST indicator switches off Menu indicators light</p>	<p>Press the TEST key.</p>  <p>This completes the recording of a user program.</p> <ul style="list-style-type: none"> The user program number will flash in the PROGRAM No. display, and the sewing machine will switch to home position detection standby.

D - MACHINE CONTROLS

<Using a user program>



1. Press the or key (1) to select the user program number that you would like to use.
 - If the user program number is flashing, depress the foot switch to move the feed mechanism to the home position. After this, it is not necessary to detect the home position until the next time the power is turned off and back on, even if you change the user program number.
 - User programs U1 to U10 can be selected directly using function keys F1 to F4 (2). (Refer to D"2.8. Direct selection".)
2. Check that the needle drop position is correct, and then start sewing. (Refer to D1.5/D1.6 Checking the sewing pattern".)

- If you press the SELECT key (3), you can check the settings for the displayed user program (such as X-scale, Y-scale and sewing speed).

<Clearing a user program>

1	<p>TEST indicator lights Menu indicators flash</p>	<p>While pressing the TEST key, press the SELECT key.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <ul style="list-style-type: none"> • Switch to user program recording mode. Check that the menu indicators are flashing. • User program number will appear in the PROGRAM No. display, and the program number will appear in the menu display. <p>Press the or key to select the user program number which is to be cleared of data.</p>
2	<p>Clearing all user programs</p>	<p>Press the RESET key.</p> <ul style="list-style-type: none"> • The buzzer will sound and the user program with the number selected will be cleared. <p>Note: If a cleared user program has been stored as part of a cycle program, the step that involves that user program will become blank. The cycle program itself will not be cleared.</p> <p>Press and hold the RESET key for 2 seconds or more.</p> <ul style="list-style-type: none"> • The buzzer will sound and the all user programs will be cleared. <p>Note: If any cycle programs have been memorized, all of the memorized cycle programs will also be cleared.</p>

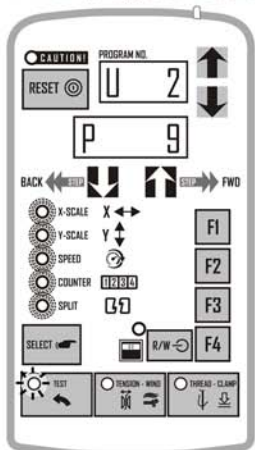
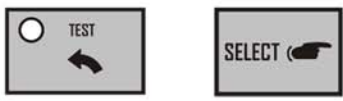
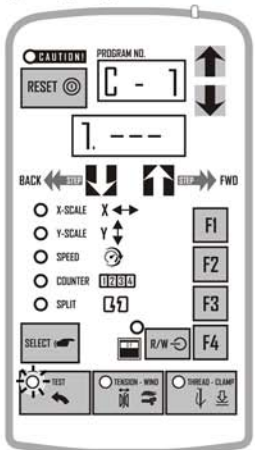









D - MACHINE CONTROLS

2.7. Using cycle programs

Sewing patterns that have been recorded in user programs can be recorded in up to nine cycle programs (C-1 to C-9). One cycle program can contain up to a maximum of fifteen steps.

When sewing the sewing patterns in numerical order, it can be useful to record them in a cycle program beforehand. **Cycle programs are enabled when memory switch nos. 400 and 401 are set to "ON".**

<Recording the cycle programs>

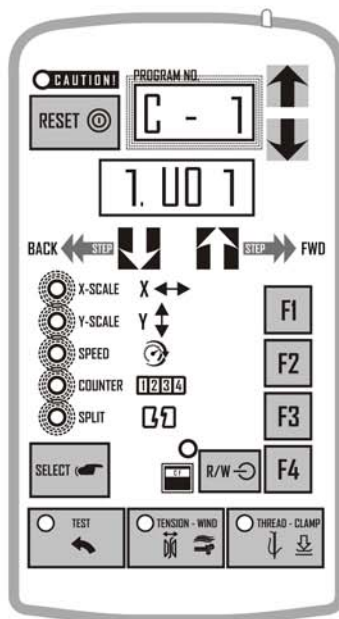
<p>1 Switch to user program recording mode.</p>  <p>TEST indicator lights Menu indicators flash</p>	<p>While pressing the TEST key, press the SELECT key.</p>  <ul style="list-style-type: none"> Check that the menu indicators are flashing. User program number will appear in the PROGRAM No. display, and the program number will appear in the menu display. <p>Record the sewing patterns into a user program so that they can be recorded in a cycle program.</p>
<p>2 Switch to cycle program recording mode, and select the cycle program number.</p>  <p>Menu indicators switch off</p>	<p>Press a function key from F1 to F4.</p>  <ul style="list-style-type: none"> Cycle program number will appear in the PROGRAM No. display, and "1. - - -" will appear in the menu display. <p>Press a function key from F1 to F4, or press the  or  key to select a cycle program number.</p>
<p>3 Set the step 1.</p> 	<p>Press the  or  key to set the program number that you would like to record.</p> <p>Press the SELECT key.</p> 
<p>4 Set the rest of the steps in the same way from step 2 onward. From step 9 onward, "A.---", "b.---", "c.---", "d.---", "E.---" and "F.---" will be displayed.</p> <p>If you would like to return to a previous step during the setting procedure</p> <p><For cycle programs C-1 to C-4></p> <ol style="list-style-type: none"> Press the respective function key from F1 to F4 to return to the display for step 1. Press the SELECT key until the desired step is reached. <p><For cycle programs C-5 to C-9></p> <ol style="list-style-type: none"> Press the  or  key to change the cycle program number. Select the desired cycle program number again, and then press the SELECT key until the desired step is reached. 	

D - MACHINE CONTROLS

5 To record another cycle program, repeat steps 2 to 4.

6 End cycle program recording mode.

Press the TEST key.

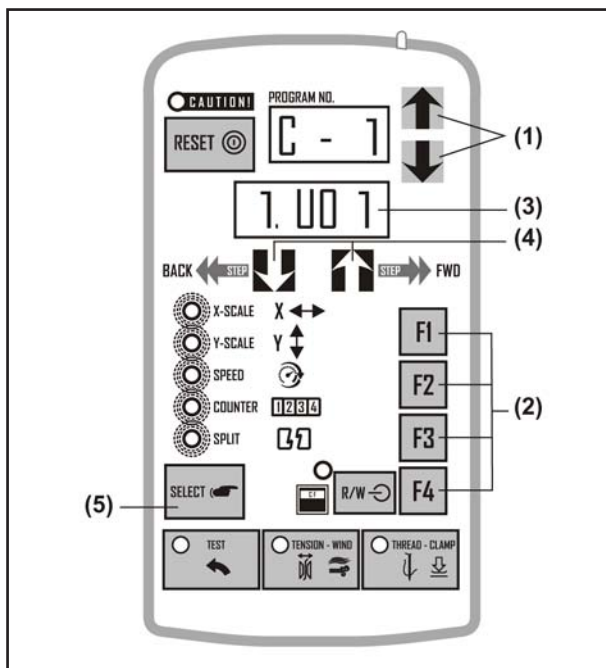


This completes the recording of cycle programs.

- The cycle program number will flash in the PROGRAM No. display, and the sewing machine will switch to home position detection standby.

TEST indicator switches off
Menu indicators light

<Using a cycle program>



1. Press the **↑** or **↓** key (1) to select the cycle program number that you would like to use.

- If the cycle program number is flashing, depress the foot switch to move the feed mechanism to the home position. After this, it is not necessary to detect the home position until the next time the power is turned off and back on, even if you change the cycle program number.
- The cycle program number can be selected directly by pressing function keys F1 to F4 (2). (Refer to D"2.8. Direct selection")

2. Check that the needle drop position is correct, and then start sewing. (Refer to D1.5/D1.6 Checking the sewing pattern")

3. The recorded user program will be sewn step by step, and when the final step is complete, the menu display (3) will return to showing step 1.

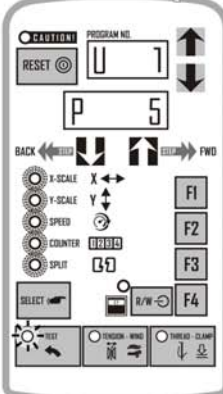
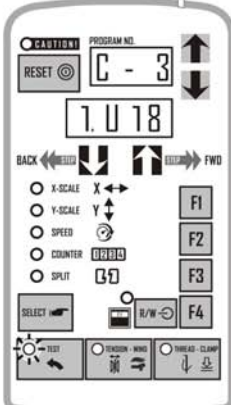

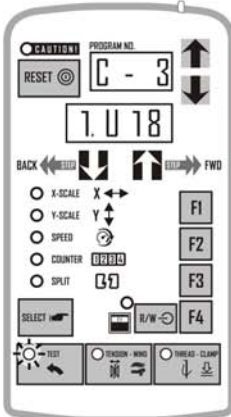


- If you press the **↑** or **↓** key (4), you can return to the previous step or skip to the next step respectively. (You do not need to carry out home position detection again.)
- If you press the SELECT key (5), you can check the details (such as X-scale, Y-scale and sewing speed) of the user program for the displayed step. The setting cannot be changed at this time.

Note:

If cycle program sewing mode is active (when memory switch no. 401 is "ON") but no cycle programs have been recorded, the user programs will be sewn in numeric order.

D - MACHINE CONTROLS

< Clearing a cycle program>

1	 <p>While pressing the TEST key, press the SELECT key.</p>   <ul style="list-style-type: none"> Switch to user program recording mode. Check that the menu indicators are flashing. <p>TEST indicator lights Menu indicators flash</p>
2	 <p>Press a function key from F1 to F4.</p>  <ul style="list-style-type: none"> Switch to cycle program recording mode. <p>Press a function key from F1 to F4, or press the Δ or ∇ key to select the cycle program number to be cleared.</p> <p>Menu indicators switch off</p>
3	 <p>Press the RESET key.</p> <ul style="list-style-type: none"> The buzzer will sound and the cycle program with the number selected will be cleared. <hr/> <p>Clearing all cycle programs</p> <p>Press and hold the RESET key for 2 seconds or more.</p> <ul style="list-style-type: none"> The buzzer will sound and the all cycle programs will be cleared. <hr/> <p>Note: If you clear all user programs after any cycle programs have been recorded, all recorded cycle programs will also be cleared.</p>

2.8. Direct selection

You can use the function keys to directly select user program numbers and cycle program numbers.

U1 to U4 and C-1 to C-4 can be selected using function keys F1 to F4.

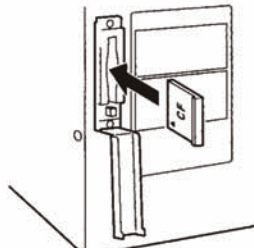
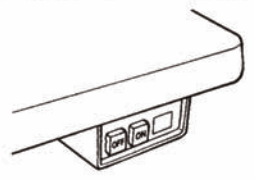
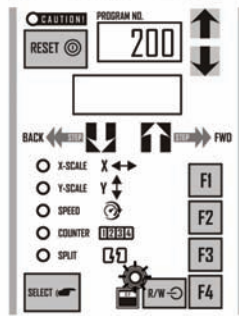
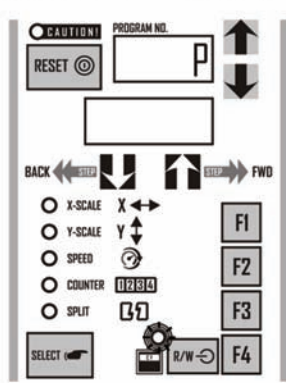

U5 to U10 and C-5 to C-9 can be selected by simultaneously pressing combinations of function keys F1 to F4 (addition).

<Key combination table>

U5 / C-5	U6 / C-6	U7 / C-7
F1 + F4	F2 + F4	F3 + F4
Or	Or	Or
F2 + F3	F1 + F2 + F3	F1 + F2 + F4
U8 / C-8	U9 / C-9	U10
F1 + F3 + F4	F2 + F3 + F4	F1 + F2 + F3 + F4

D - MACHINE CONTROLS

2.9. Loading additional data

1		<p>With the power turned off, insert the CF card into the CF slot.</p> <p>Note:</p> <ul style="list-style-type: none"> • Make sure the CF card is facing the correct way. • The cover should be closed at all times except when the CF card is inserted and removed, otherwise dust may cause trouble.
2	  <p>CF media indicator lights</p>	<p>Turn on the power switch. Press the Δ or ∇ key to select the program number (200 to 999).</p>
3	 <p>While reading</p>	<p>Press the R/W key.</p>  <ul style="list-style-type: none"> • The buzzer will sound and the selected sewing data will be loaded from the CF card and copied into the sewing machine's internal memory.
4	<p>End reading.</p>	<ul style="list-style-type: none"> • The program No. display will change from " P" to the selected program number.

2.10. Using CF cards

Notes on handling CF cards (purchase at local retailers)

- Use only 32MB, 4MB, 128MB or 256MB CF cards.
- Do not disassemble or alter CF cards.
- Do not bend, drop, scratch or place heavy objects on top of the CF cards.
- Do not allow the CF cards to become wet, such as with water, oil, solvents, drinks or any other liquids.
- Do not use or store the CF cards in a locations exposed to strong static electricity or electrical interference.
- Do not use or store the CF cards in a locations exposed to vibrations or impacts, direct sunlight, extreme dust (or lint), high temperatures, high humidity, severe temperature fluctuations, or strong magnetic forces (such as from speakers).
- While data is being read in from or written to the CF cards, do not allow the machine to be exposed to vibrations or impacts, and do not attempt to remove the CF cards from the machine.
- Data on the CF cards may be lost or damaged due to some malfunction or accident. We recommend backing up important data.
- Only insert or remove CF cards while the machine power is turned off.
- The CF cards that you purchased is already formatted. We recommend that the CF cards not be reformatted.
- The recommended CF cards are commercially-available ones from SanDisk or HAGIWARA SYS-COM. CF cards from other manufacturers can be used, but different formatting methods may mean that reading or writing to such cards may not be possible.

D - MACHINE CONTROLS

For additional information, refer to the instruction manual included with the CF cards that you have purchased.

* This product is compatible with CF cards that have been formatted using the FAT16 method. Cards that have been formatted using the FAT32 method cannot be used.

* CF™ is a trademark of SanDisk Corporation.

* All other company and product names mentioned in this instruction manual are trademarks or registered trademarks of their respective companies. However, the explanations for markings such as TM are not clearly described within the text.

Structure of a CF card folder

\AMFREEC\ISM\ISMSYS\ISM01MN.MOT :Control program
 \AMFREEC\ISM\ISMDA00\ISMNISW.SEW :Memory switch data
 (*1)\ISMUPG.SEW :User program data
 \ISMHST.SEW :Error log data
 \ISMS0200.SEW :Additional sewing data Program No.200
 \ISMS0201.SEW :Additional sewing data Program No.201
 \ISMS0202.SEW :Additional sewing data Program No.202

*1 The underlined portion of the name of the \AMFREEC\ISM\ISMDA00 folder for additional sewing data can be changed by changing the setting for memory switch No. 752. Change the folder name if you would like to store additional sewing data for different sewing machines on a single CF card.

3. 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 threading the needle
- When replacing the needle and bobbin
- 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 the machine.

1. Turn on the power switch.

2. Press the  or  key (1) to select the number for the program to be sewn.

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 BT-2700, insert the button and place the material under the button clamp (3). (Refer to C"3.7. Inserting the button (BT-2700)".

5. Depress the foot switch to the 1st step.

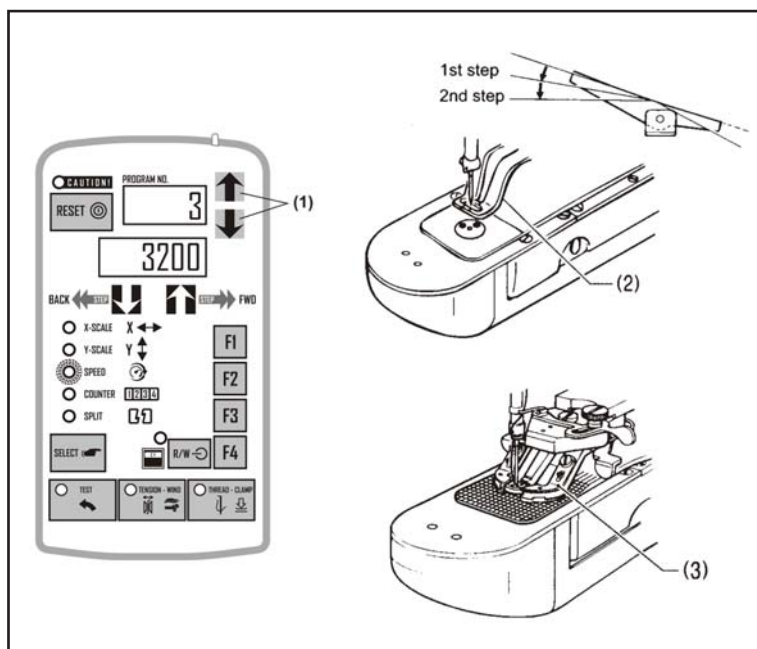
The work clamp (2) / button clamp (3) will be lowered.

6. Depress the foot switch to the 2nd step.

The sewing machine will start sewing.

* If memory switch no. 003 is set to "ON", the work clamp (2) will drop to the intermediate stop position when the foot switch is depressed to the 1st step, and when it is depressed to the 2nd step, the material will be held and sewing will start.

7. Once sewing is completed and the thread has been trimmed, the work clamp (2) / button clamp (3) will rise.



E - MACHINE MAINTENANCE

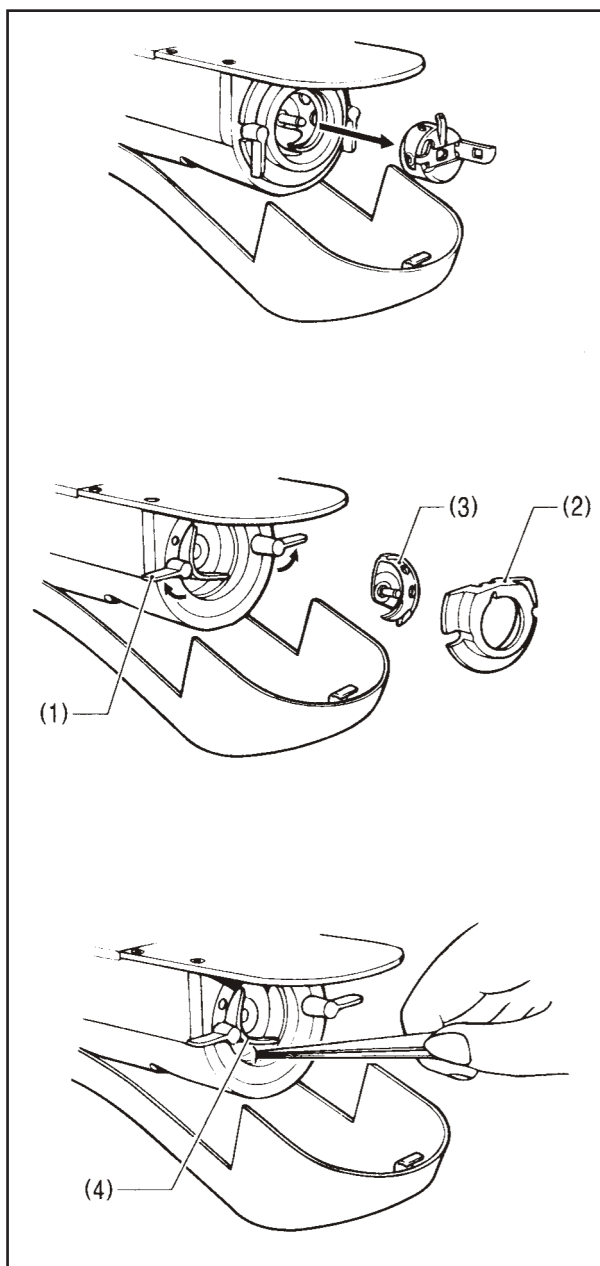
1. MAINTENANCE

CAUTION

- Turn off the power switch before carrying out cleaning, otherwise the machine may operate if the foot switch is pressed by mistake, which could result in injury.
- Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result.

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

1.1. Cleaning the rotary hook



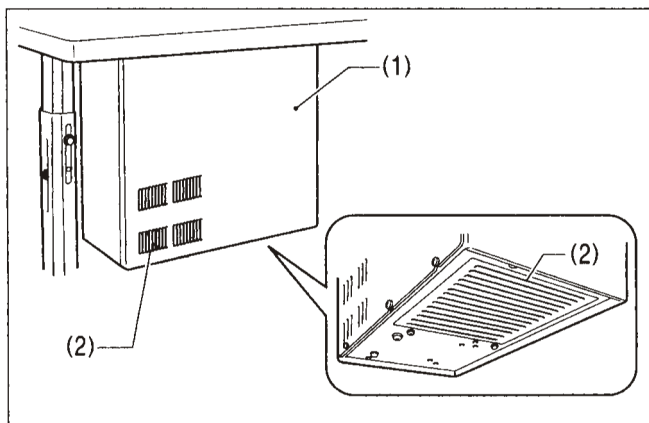
1. Pull the shuttle race cover downward to open it, and then remove the bobbin case.

2. Open the setting claw (1) in the direction indicated by the arrow, and then remove the shuttle race base (2) and the shuttle hook (3).

3. Clean all the dust and thread ends from around the driver (4), the top of the rotary hook thread guide and the shuttle race.

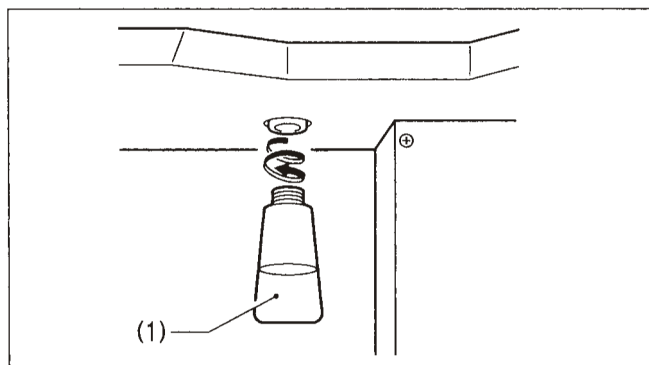
E - MACHINE MAINTENANCE

1.2. Cleaning the control box air inlet ports



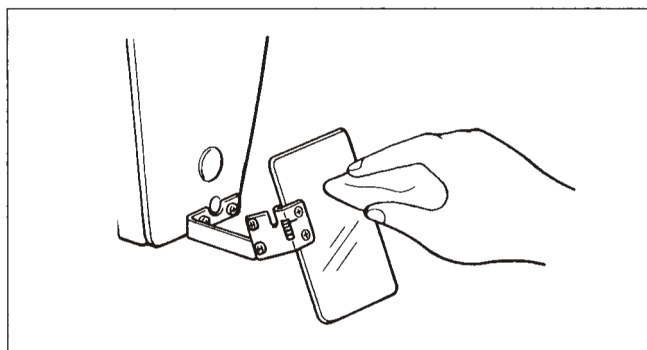
Use a vacuum cleaner to clean the filter in the air inlet ports (2) of the control box (1) at least once a month.

1.3. Draining the oil



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

1.4. Cleaning the eye guard

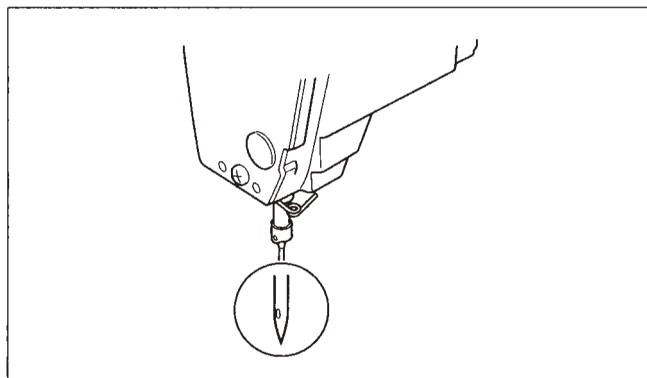


Wipe the eye guard clean with a soft cloth.

Note:

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

1.5. Checking the needle



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

1.6. Lubrication

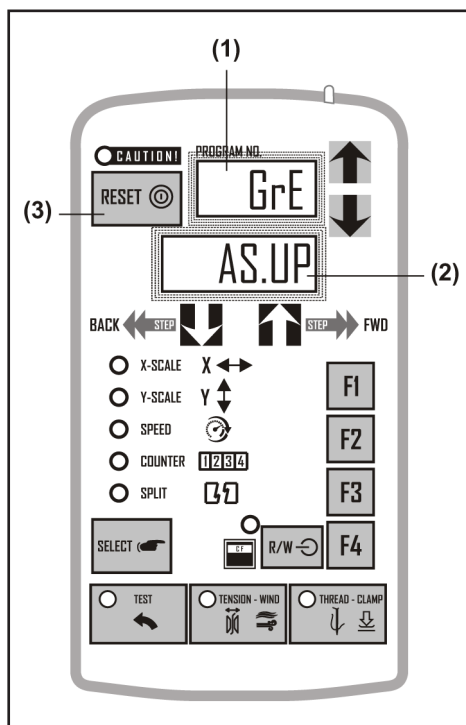
Carry out the lubrication referring to C"1. LUBRICATION".

E - MACHINE MAINTENANCE

1.7. Applying grease (When “GREASEUP” appears)

If “GrE” and “AS.UP” flash on the PROGRAM No. display (1) and the menu display (2) respectively, and a buzzer sounds when the power switch is turned on, it means that grease needs to be applied. (The sewing machine will not operate at this time, even if the foot switch. is depressed.)

Apply grease as required, while referring to the following for details.



<To continue sewing temporarily without applying grease>

1. Press the RESET key (3).

2. The PROGRAM No. display (1) and the menu display (2) will change to the normal displays, and sewing can be carried out by depressing the foot switch.

Note:

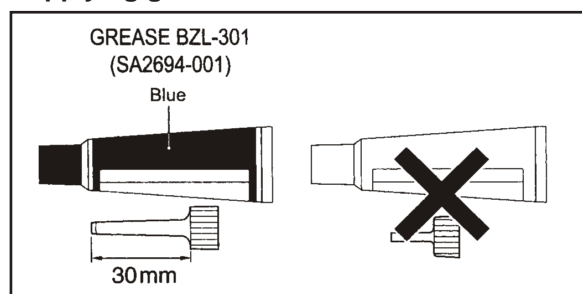
- “GrE” and “AS.UP” will continue to be displayed each time the power is turned on until grease is applied and the notification is reset by carrying out the procedure on the separate page.
- If you continue to use the sewing machine after the “GrE” and “AS.UP” notification appears without applying grease (or without carrying out the reset procedure), “E100” will appear after a certain period of time and the sewing machine will be forcibly prevented from operating for safety reasons.

If this happens, apply grease and carry out the reset procedure.

*** If you continue to use the sewing machine after carrying out the reset procedure but without applying grease, problems with the sewing machine may result.**

E - MACHINE MAINTENANCE

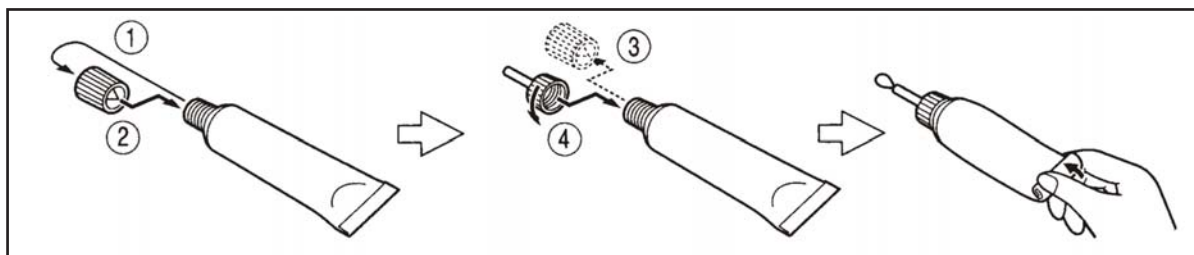
<Applying grease>

**Note:**

- Use only the grease <BZL-301 (SA2694-001) in the blue tube>
- Do not use the BZL-300 (SA2355-001) grease in the white tube with this sewing machine.
- Do not use the BZL-301 (SA2694-001) grease in the blue tube.

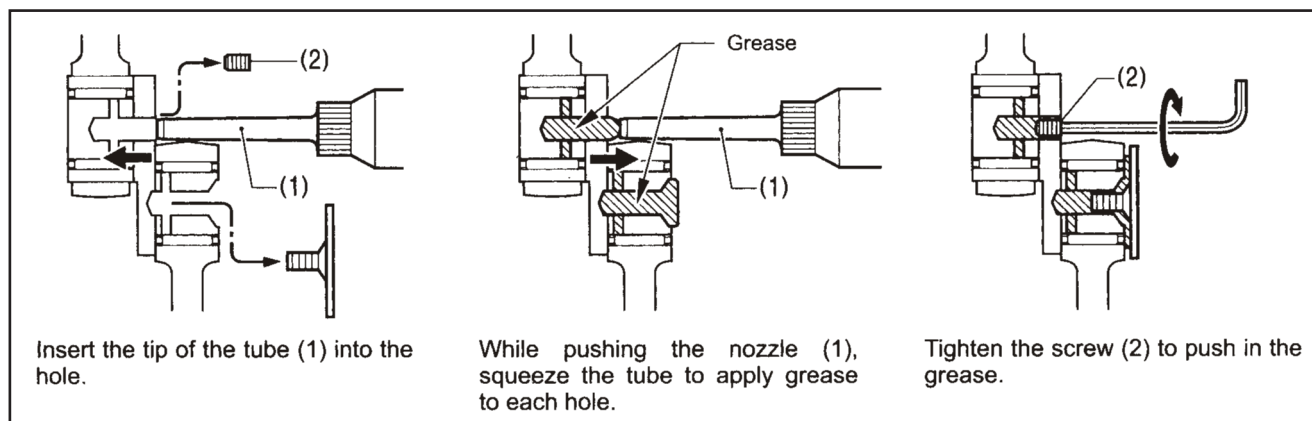
Purchase the “grease unit” (SA2693-001) to use for applying grease.

Using the tube

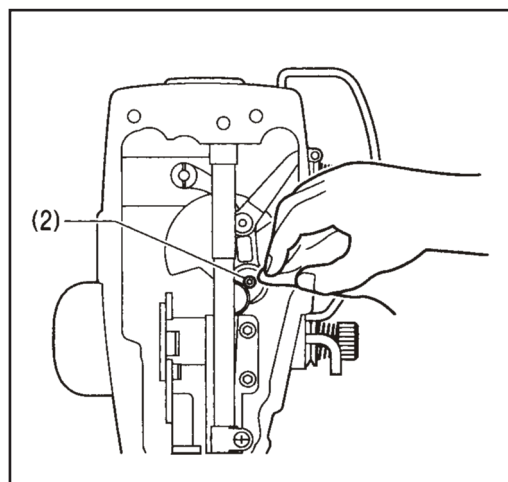


Applying grease

Follow the procedure below to apply grease to the places indicated by arrows on the separate page.



1. Turn off the power switch.
2. Remove the screw (2). (Refer to the separate page for greasing locations.)
3. While turning the machine pulley by hand to move the needle bar up and down, apply grease to each hole until the grease overflows slightly.
4. Tighten the screw (2) to push in the grease.
5. Turn the machine pulley by hand to move the needle bar up and down several times in order to disperse the grease.
6. Use a cloth to wipe away any excess grease from around the screw (2).



7. Apply grease to all locations shown on the separate page in the same way.
8. After this, carry out the reset procedure given on the separate page.

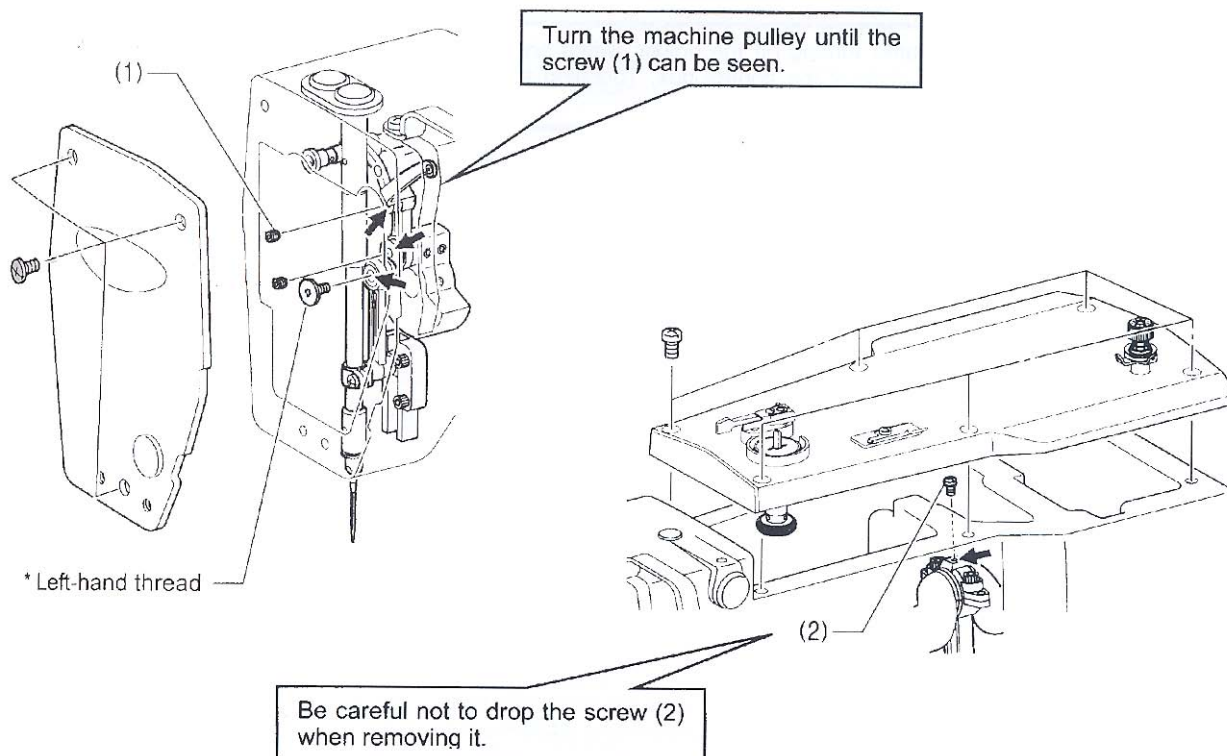
Note:

- Once the grease tube has been opened, remove the nozzle from the tube, attach the cap securely and store the tube in a cool dark place.
- The grease should be used as quickly as possible.
- When using the grease again, remove any old grease from inside the nozzle first.

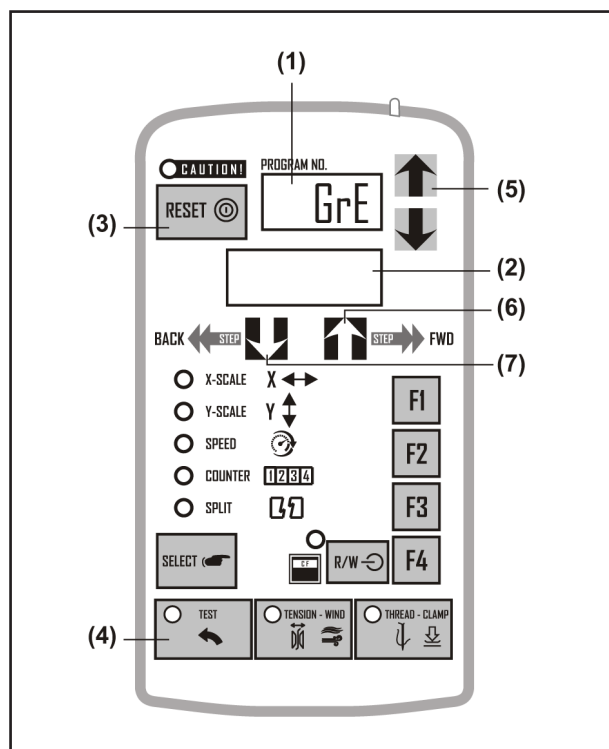
(Store the tube away carefully once the tube has been opened, otherwise the grease remaining inside the tube may deteriorate, and this may affect its lubricating performance.)

E - MACHINE MAINTENANCE

2. GREASE APPLICATION LOCATIONS



3. RESETTING THE GREASE UP COUNTER



Once the grease has been applied, follow the procedure below to reset the cumulative number of stitches between grease applications.

1. Turn on the power switch. "GrE" and "AS.UP" will flash in the program No. display (1) and the menu display (2) and the buzzer will sound.
2. Press the RESET key (3). The program No. display (1) and the menu display (2) will return to their normal displays.
3. While pressing the TEST key (4), press the UP key (5). "GrS" will appear in the program No. display (1), and the cumulative number of stitches until greasing is required will appear in the menu display (2) in units of 100,000 stitches. (The number of stitches will be displayed in all seven digits of the program No. display (1) and menu display (2) in units of 100 stitches while the DOWN key (6) is being pressed .)
4. Press the DOWN key (7). The cumulative number of stitches will be reset to "0000".
5. Press and hold the RESET key (3) for 2 seconds or more. (This completes the reset procedure.)
6. When you press the TEST key (4), the displays will return to their normal displays.

