

T-8420B

TWIN NEEDLE LOCK STITCHER

T-8450B

TWIN NEEDLE SPLIT NEEDLE BAR LOCK STITCHER

T-8720B

TWIN NEEDLE LOCK STITCHER WITH LARGE HOOK

T-8750B

TWIN NEEDLE SPLIT NEEDLE BAR LOCK STITCHER
WITH LARGE HOOK

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

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

SAFETY INSTRUCTIONS

1. Safety indications and their meanings

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

Indications

	CAUTION	The instructions which follow this term indicate situations where failure to follow the instructions could cause injury when using the machine or physical damage to equipment and surroundings.
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Symbols

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

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

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

2. Notes on safety

CAUTION

Environmental requirements

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

Installation

-  Machine installation should only be carried out by a qualified technician.
-  Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.
-  The sewing machine weighs approximately 43 kg. The installation should be carried out by two or more people.
-  Do not connect the power cord until installation is complete. The machine may operate if the treadle is depressed by mistake, which could result in injury.
-  Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.
-  All cords 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.
-  If using a work table which has casters, the casters should be secured in such a way so that they cannot move.
-  Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.
-  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 diarrhea. Keep the oil out of the reach of children.

CAUTION

Sewing



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



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



Be sure to wear protective goggles when using the machine.

If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.



Turn off the power switch at the following times.

The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.

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



Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.



If an error occurs in machine, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest Brother dealer or a qualified technician.



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

Cleaning



Turn off the power switch before carrying out cleaning.

The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.



Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.



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 diarrhea.

Keep the oil out of the reach of children.



Use only the proper replacement parts as specified by Brother.

3.Warning labels

The following warning labels appear on the sewing machine.

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

1



Safety devices:
 (A) Finger guard
 (B) Thread take-up cover
 (C) Belt cover

2

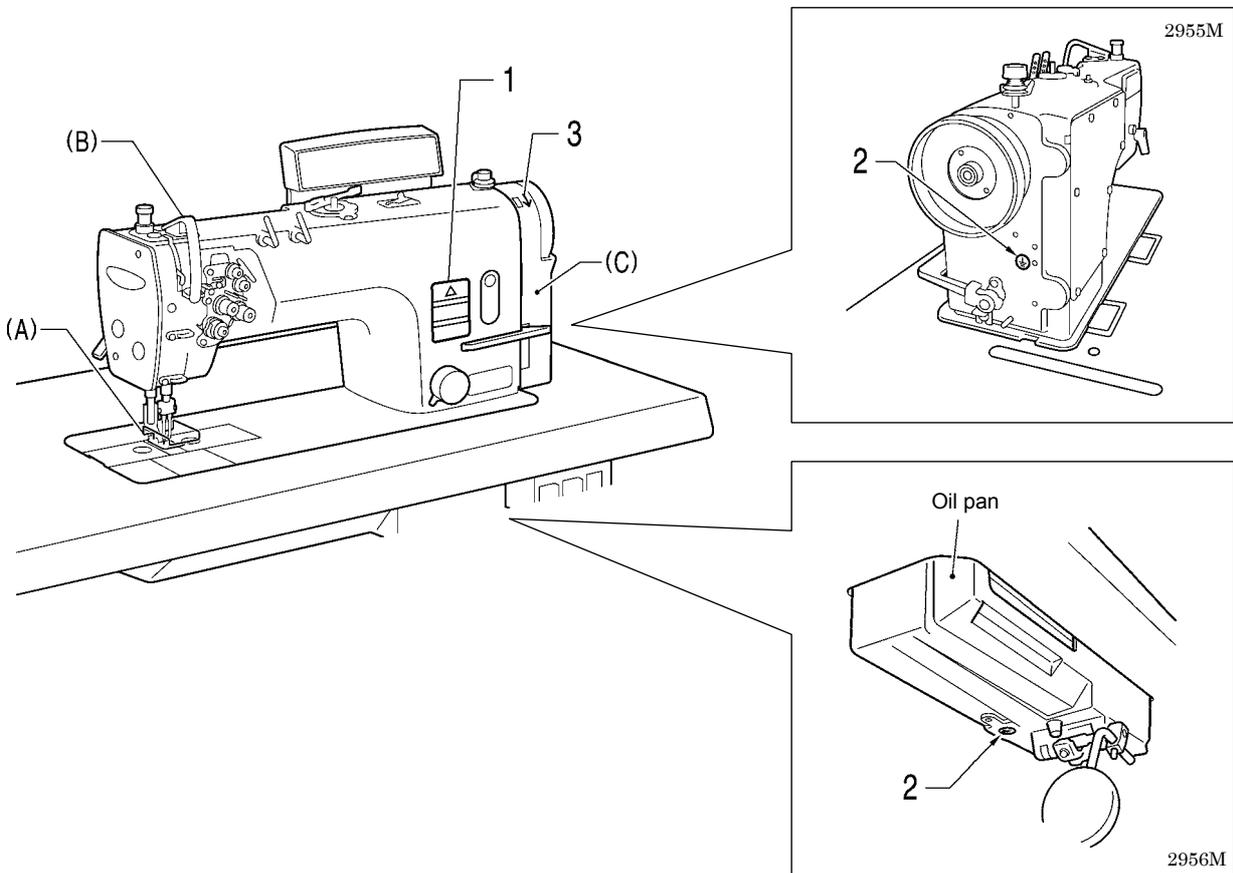


Be sure to connect the ground. If the ground connection is not secure, you run a high risk of receiving a serious electric shock, and problems with correct operation may also occur.

3



Direction of operation

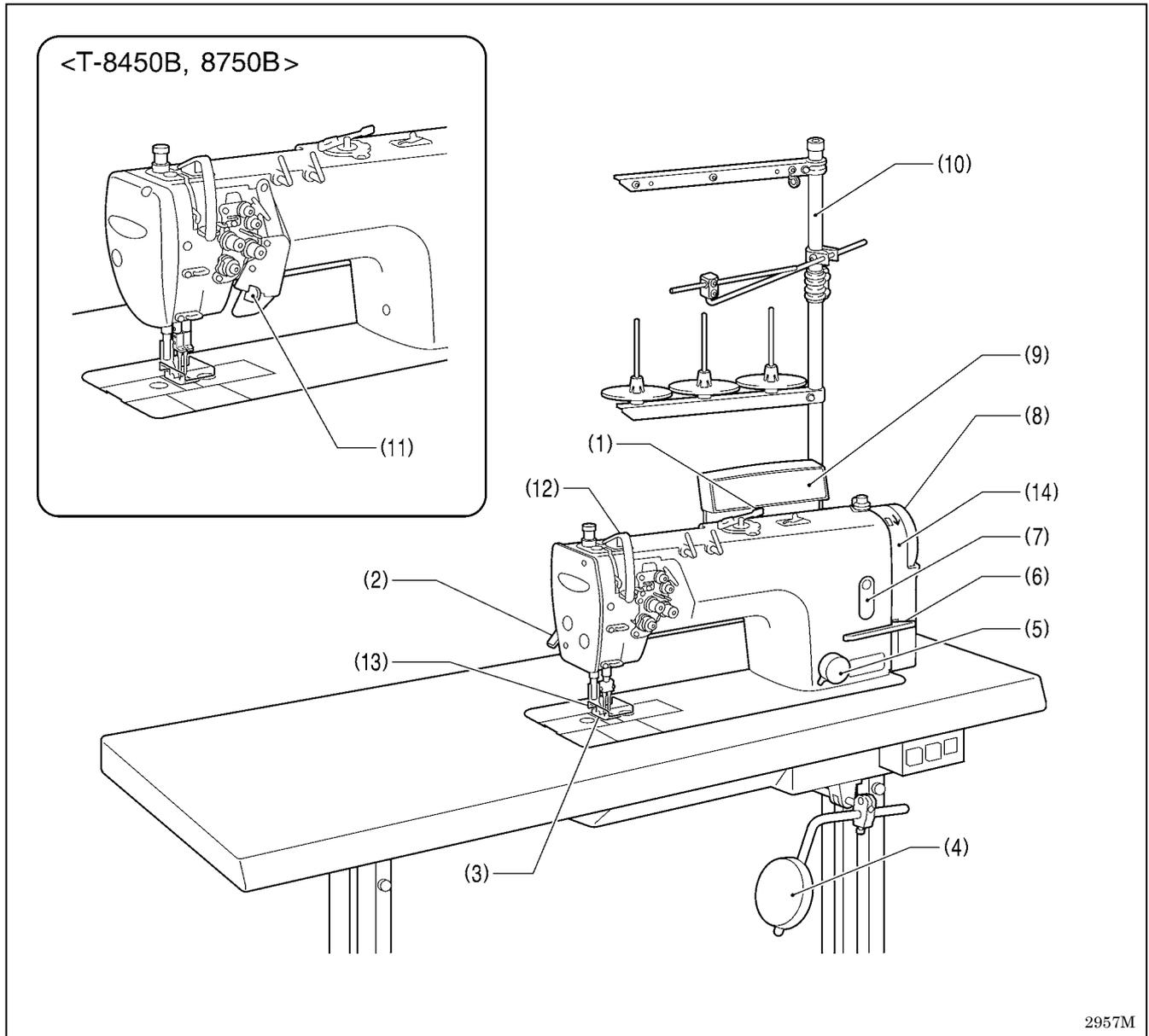


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1. NAMES OF MAJOR PARTS



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- | | |
|-----------------------------------|--------------------------|
| (1) Bobbin winder | (2) Lifting lever |
| (3) Presser foot | (4) Knee lifter assembly |
| (5) Stitch length dial | (6) Reverse lever |
| (7) Oil gauge window | (8) Machine pulley |
| (9) Alarm display (semi dry type) | (10) Cotton stand |
| (11) Stop lever (T-8450B, 8750B) | |

Safety devices

- | | |
|---------------------------|-------------------|
| (12) Thread take-up cover | (13) Finger guard |
| (14) Belt cover | |

2. MACHINE SPECIFICATIONS

BROTHER INDUSTRIES, LTD.

• T-8■■■0A-0■■■ •

	F	3	5
Use	For foundation	For light-weight and medium-weight materials	For heavy-weight materials

	0	3
Lubrication type	Minimum lubrication	Semi dry

	2	5
Stitch function	Fixed needle bar	Split needle bar

	4	7
Rotary hook	Standard hook	Large hook

T-8420B

	-00F	-03F	-003	-033	-005
Max. sewing speed	4,000 rpm	3,000 rpm	4,000 rpm	3,000 rpm	3,000 rpm
Max. stitch length	4 mm				5 mm
Presser foot height	Lifting lever	7 mm			
	Knee lifter	13 mm			
Feed dog height	1 mm				
Needle (DP×5)	#9-#14		#11-#16		#14-#22

T-8720B, 8750B

	-003	-005
Max. sewing speed	3,000 rpm	
Max. stitch length	7 mm	
Presser foot height	Lifting lever	7 mm
	Knee lifter	13 mm
Feed dog height	1 mm	
Needle (DP×5)	#11-#16	#14-#22

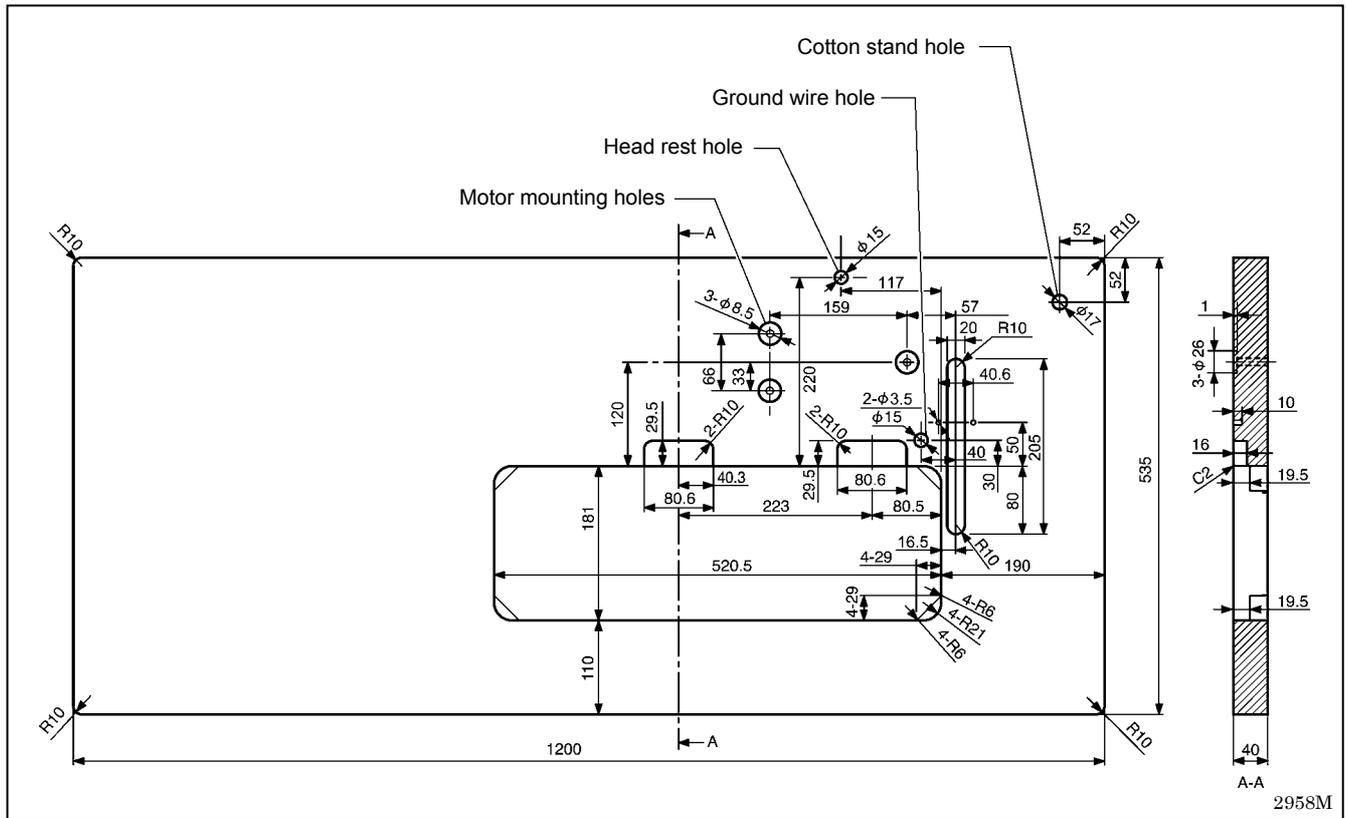
T-8450B

	-003	-005
Max. sewing speed	3,000 rpm	
Max. stitch length	5 mm	
Presser foot height	Lifting lever	7 mm
	Knee lifter	13 mm
Feed dog height	1 mm	
Needle (DP×5)	#11-#16	#14-#22

3. TABLE AND MOTOR

A. Table processing diagram

- The top of the table should be 40 mm in thickness and should be strong enough to hold the weight and with-stand the vibration of the sewing machine.
- Drill holes as indicated in the illustration below.



B. Motor

CAUTION



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.

<Motor>

- Use one of the clutch motors given in the table at right as the motor.
- Refer to the instruction manual for the motor for details on installing and using the motor.

Power	Motor
Single-phase	2-pole, 400 W motor
Three-phase	2-pole, 400 W motor

<Motor pulley and V-belt>

Select the correct motor pulley and V-belt by referring to the table below to suit the power frequency of your area.

Sewing speed	Frequency	Motor pulley (Outer diameter)	V-belt
4,000 rpm	50 Hz	Motor pulley 100	46
	60 Hz	Motor pulley 85	45
3,500 rpm	50 Hz	Motor pulley 90	45
	60 Hz	Motor pulley 70	44
3,000 rpm	50 Hz	Motor pulley 75	44
	60 Hz	Motor pulley 65	43

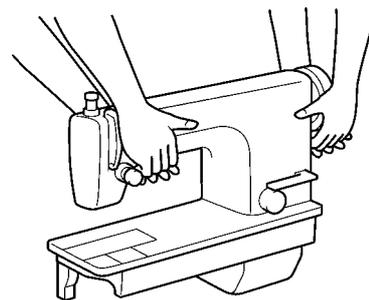
4. INSTALLATION

CAUTION

-  Machine installation should only be carried out by a qualified technician.
 -  Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.
 -  The sewing machine weighs approximately 43 kg. The installation should be carried out by two or more people.
 -  Do not connect the power cord until installation is complete. The machine may operate if the treadle is depressed by mistake, which could result in injury.
-  Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.
 -  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.

Carrying the machine

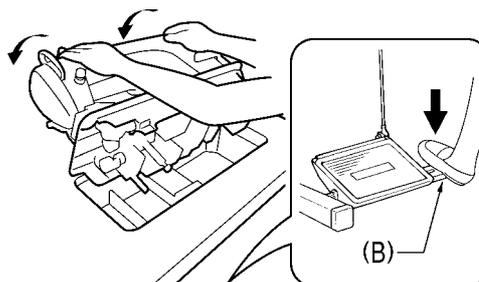
- The machine should be carried by the arm by two people as shown in the illustration.
- * Make sure that the machine pulley does not turn.



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Tilting back the machine head

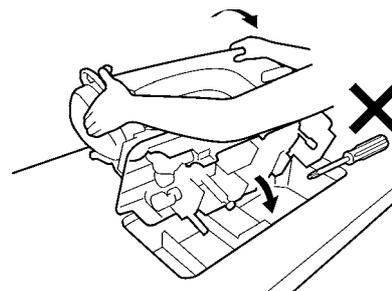
- Hold section (B) with your foot so that the table does not move, and then push the arm with both hands to tilt back the machine head.



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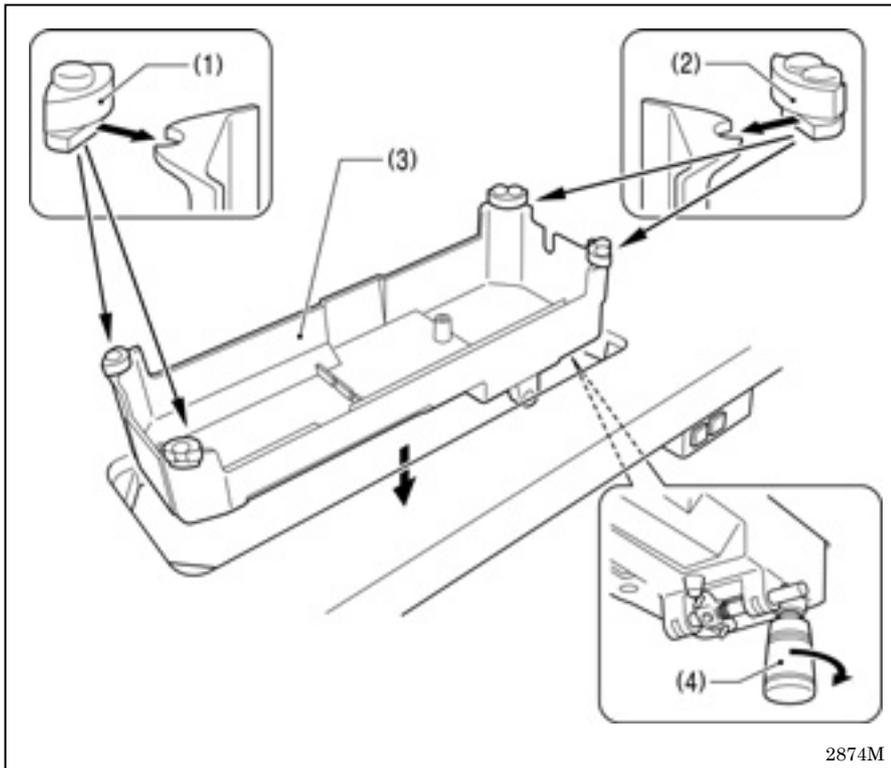
Returning the machine head to the upright position

1. Clear away any tools, etc. which may be near the table holes.
2. While holding the face plate with your left hand, gently return the machine head to the upright position with your right hand.



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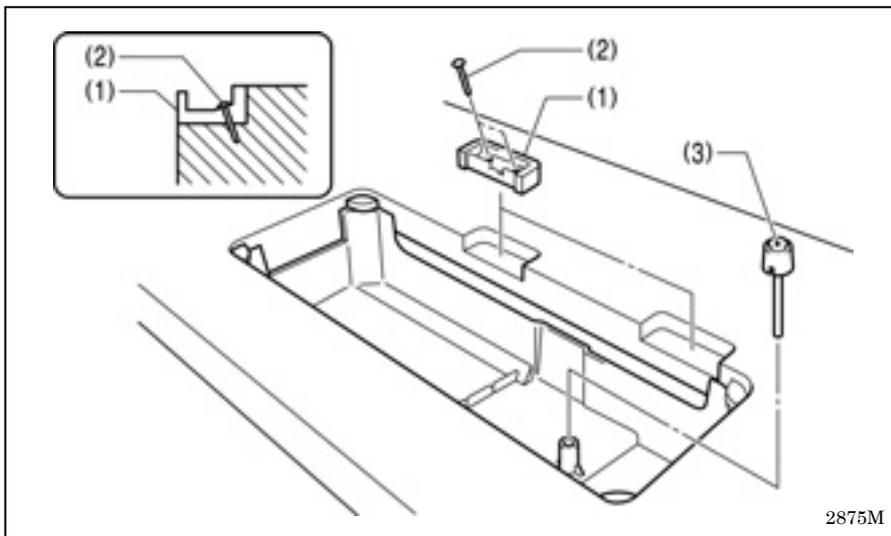
4-1. Installation



1. Oil pan

- (1) Head cushions (left) [2 pcs]
- (2) Head cushions (right) [2 pcs]
- (3) Oil pan
- (4) Oiler

2874M



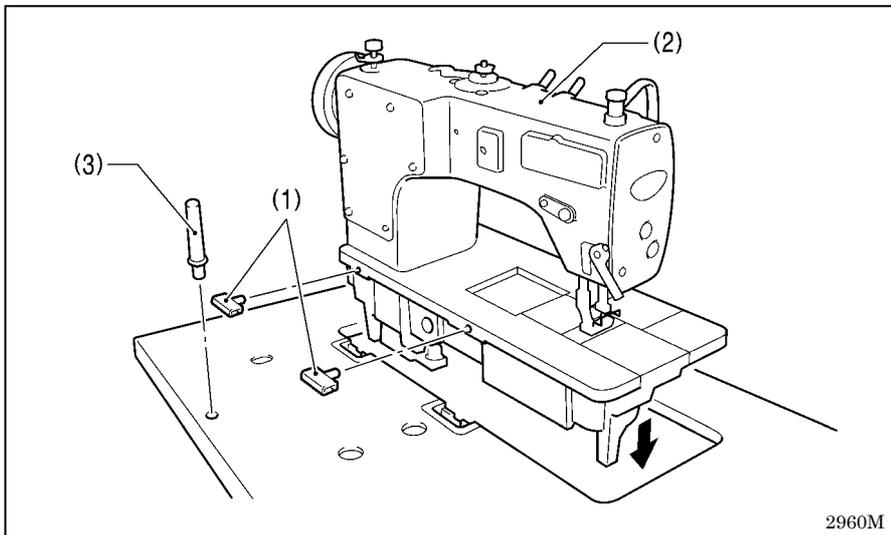
2. Rubber cushions

- (1) Rubber cushions [2 pcs]
- (2) Nails [4 pcs]

3. Knee lifter complying bar

- (3) Knee lifter complying bar

2875M



4. Machine head

- (1) Hinges [2 pcs]
- (2) Machine head
- (3) Head rest

NOTE:

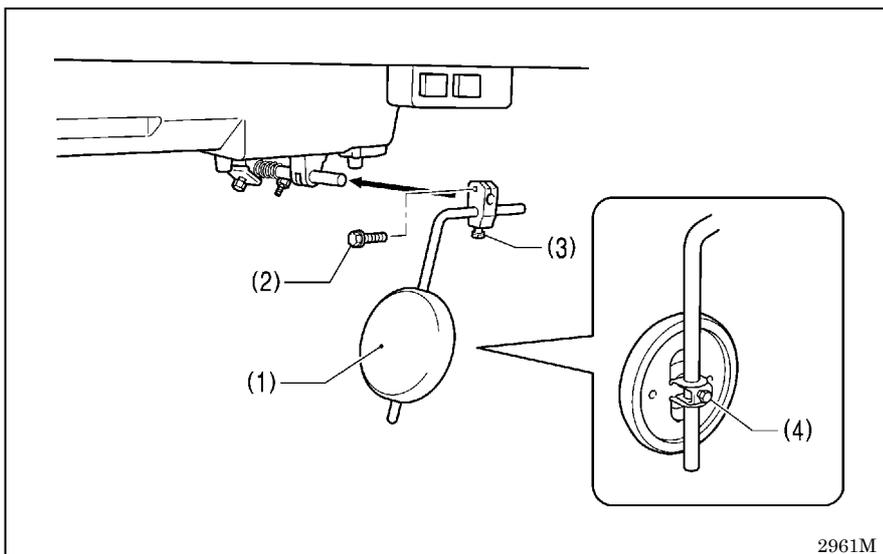
Tap the head rest (3) securely into the table hole. If the head rest (3) is not pushed in as far as it will go, the machine head will not be sufficiently stable when it is tilted back.

2960M

5. Knee lifter plate

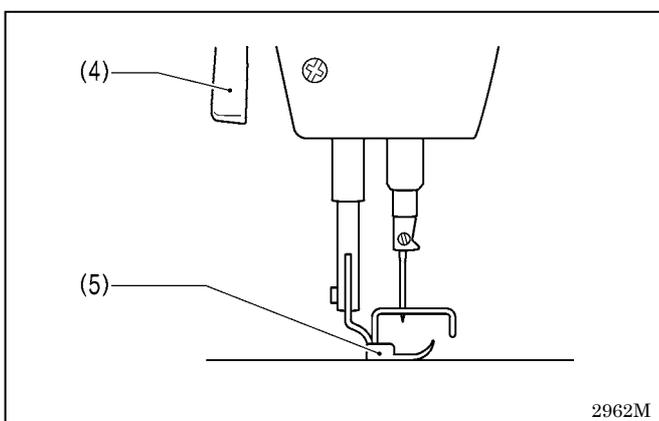
- (1) Knee lifter plate
- (2) Bolt

* Loosen the bolt (3) and the bolt (4), and move the knee lifter plate (1) to a position where it is easy to use.

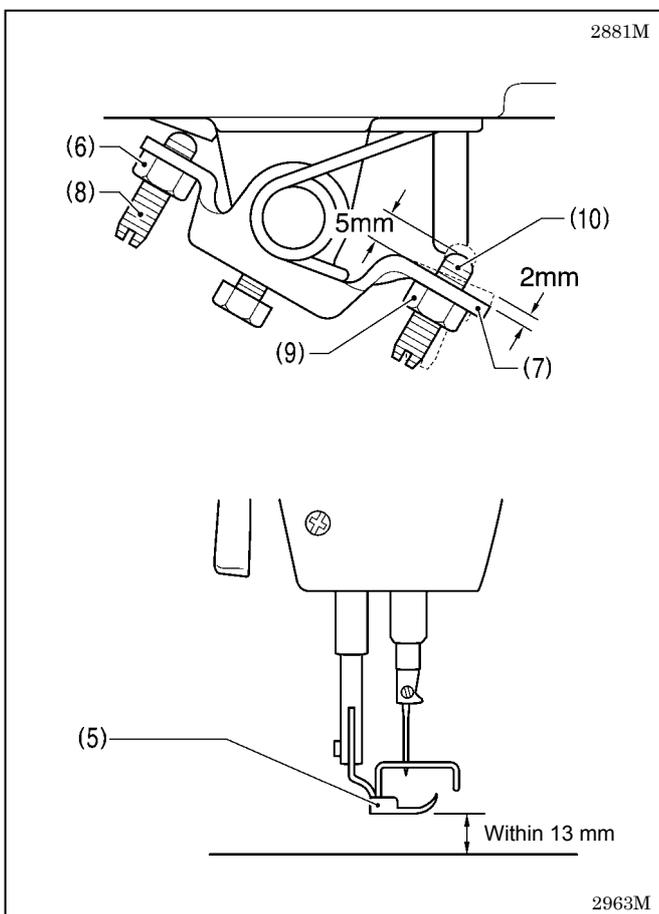


<Knee lifter adjustment>

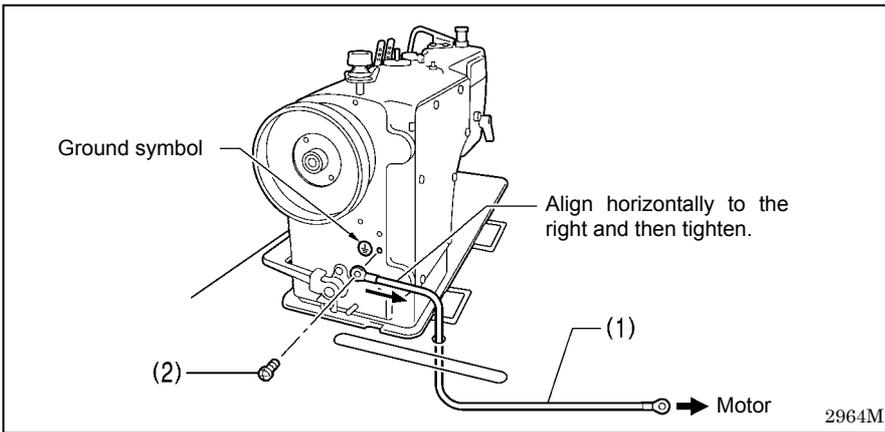
1. Turn the machine pulley so that the feed dog is below the top of the needle plate.
2. Lower the presser foot (5) by using the lifting lever (4).



3. Loosen the nut (6).
4. Turn the screw (8) to adjust so that the amount of play in the knee lifter (7) is approximately 2 mm when the knee lifter plate (1) is gently pressed.
5. Securely tighten the nut (6).
6. Loosen the nut (9).
7. Turn the screw (10) until the distance between the end of the screw (10) and the knee lifter (7) is approximately 5 mm.
8. Turn the adjusting screw (10) to adjust so that the presser foot (5) is at the desired position within a distance of 13 mm of the needle plate when the knee lifter plate (1) is fully pressed.
9. After adjustment is completed, securely tighten the nut (9).



4. INSTALLATION



6. Ground wire

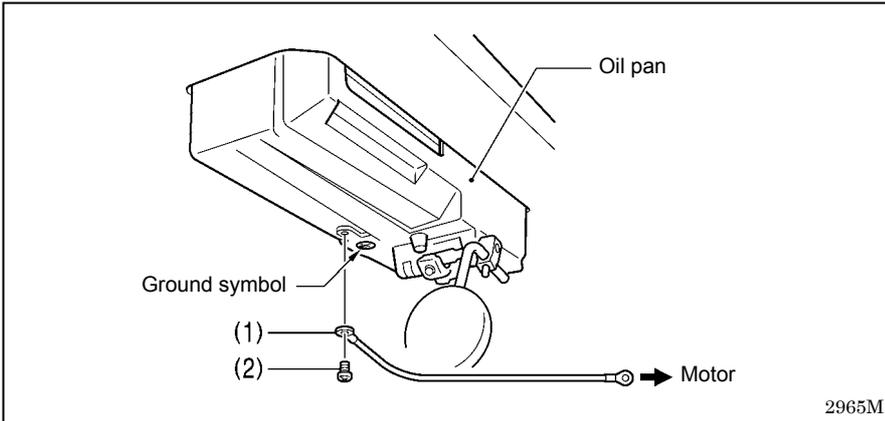
- (1) Ground wire
- (2) Screw

<Semi dry type>

Be sure to connect the accessory ground wire (1) to the motor.

< Minimum lubrication type>

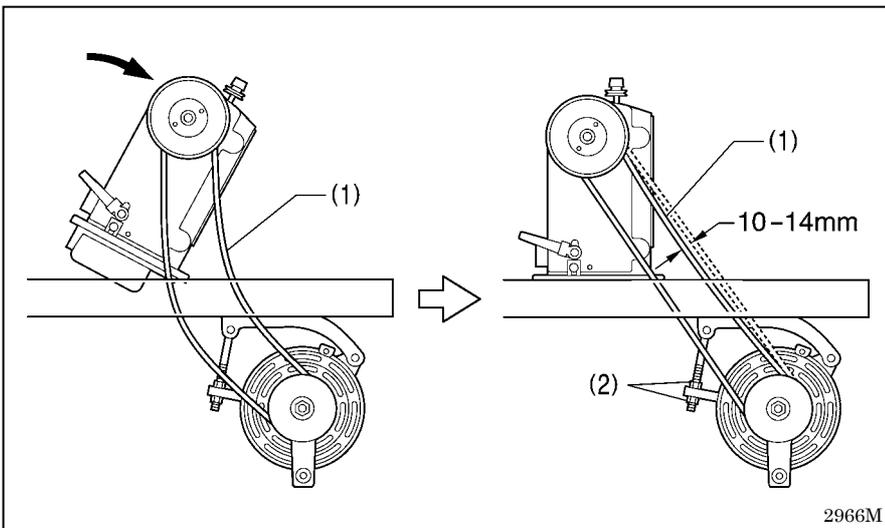
Use a suitable ground wire.



7. Ground wire

Use a suitable ground wire.

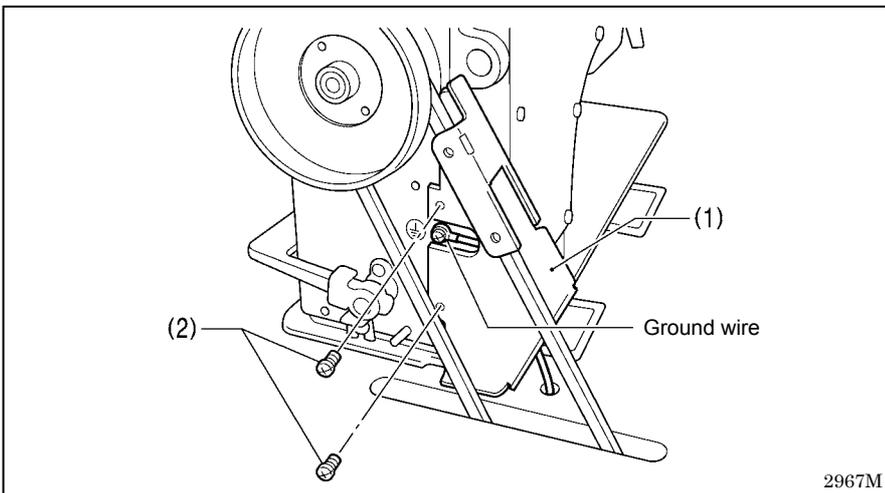
- (1) Ground wire
- (2) Screw



8. V-belt

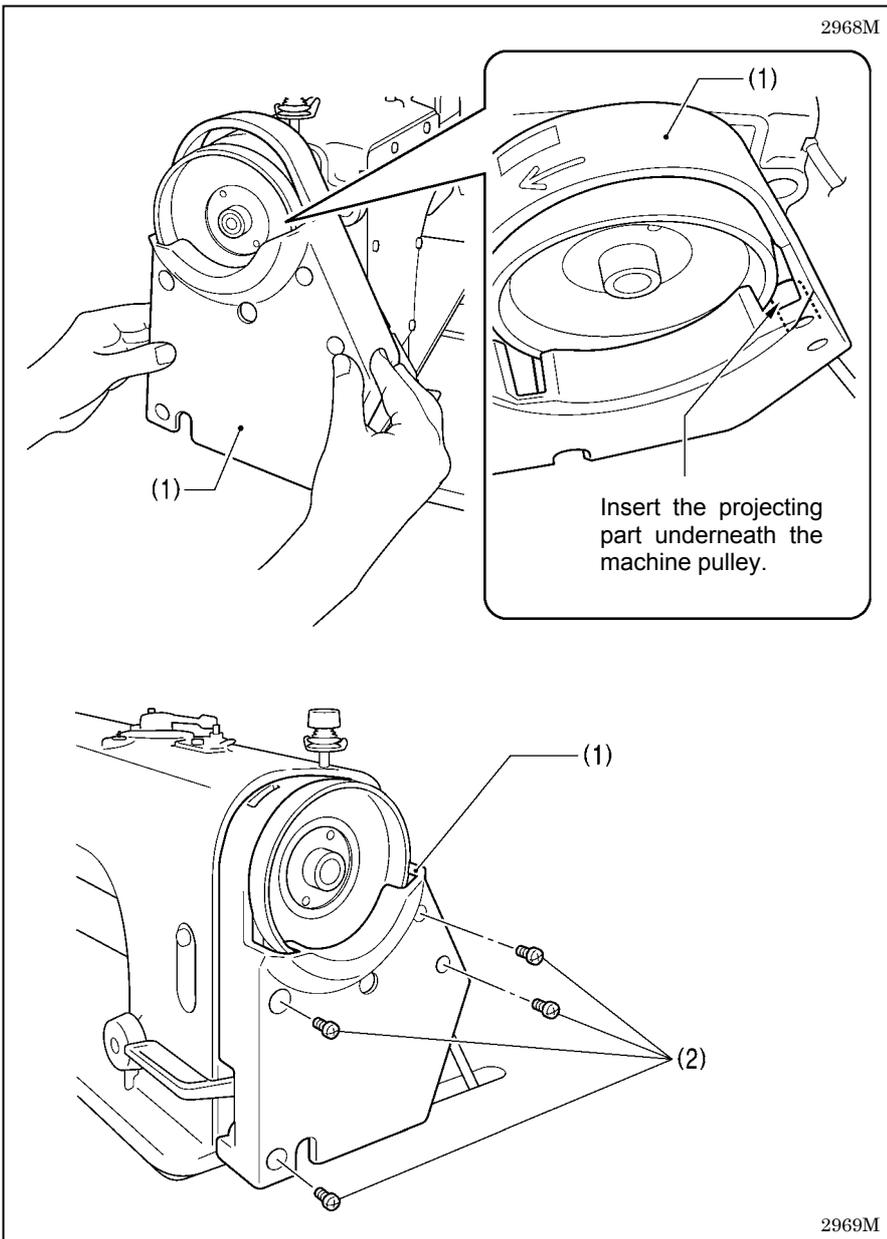
- (1) V-belt

Turn the two nuts (2) to adjust so that there is 10-14 mm of deflection in the V-belt (1) when it is pressed at the midway point with a force of 5 N.

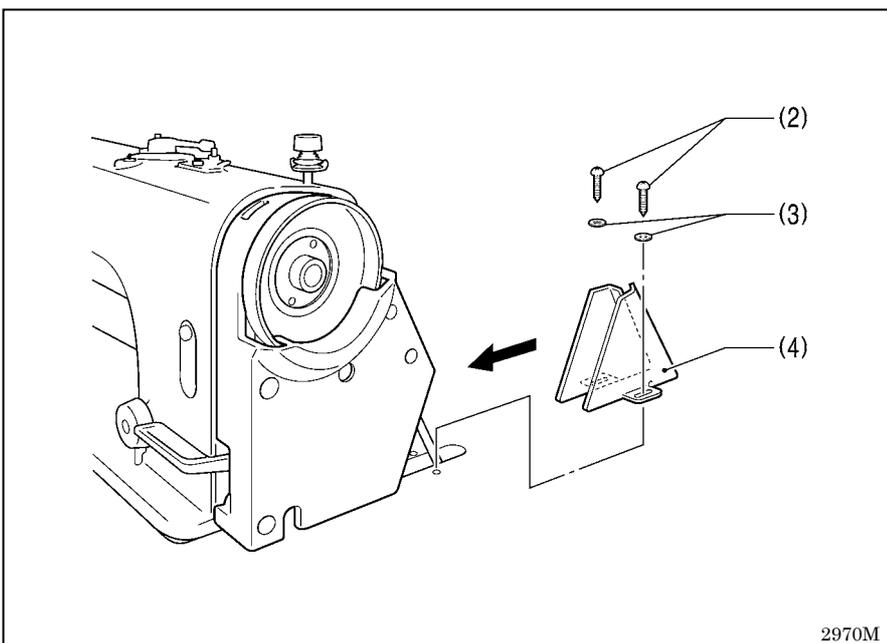


9. Belt cover bracket

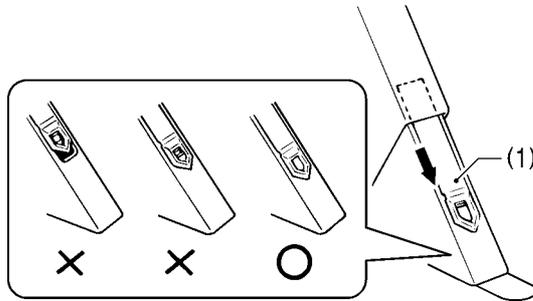
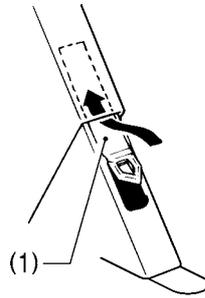
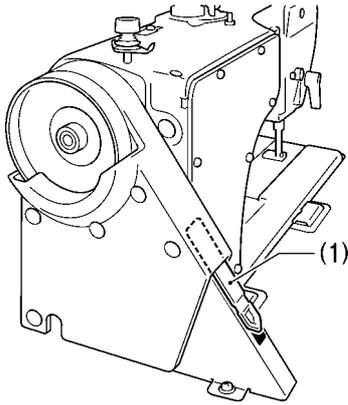
- (1) Belt cover bracket
- (2) Screws [2 pcs]



11. Belt cover D



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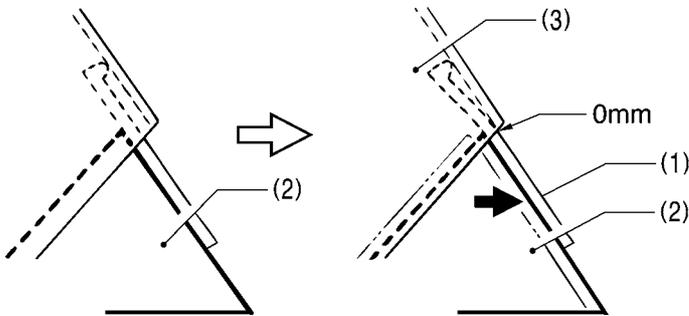


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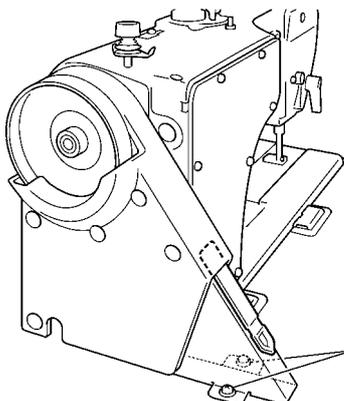
12. Belt cover D lid

(1) Belt cover D lid

Pull belt cover D (2) forward to adjust so that there is no gap between belt cover U (3) and the belt cover D lid (1).

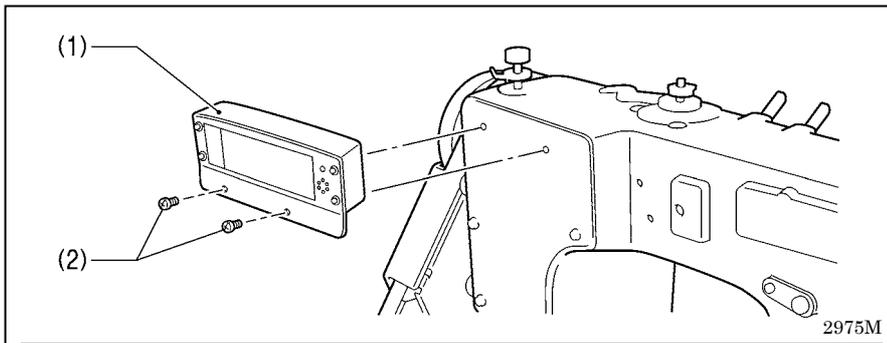


2973M



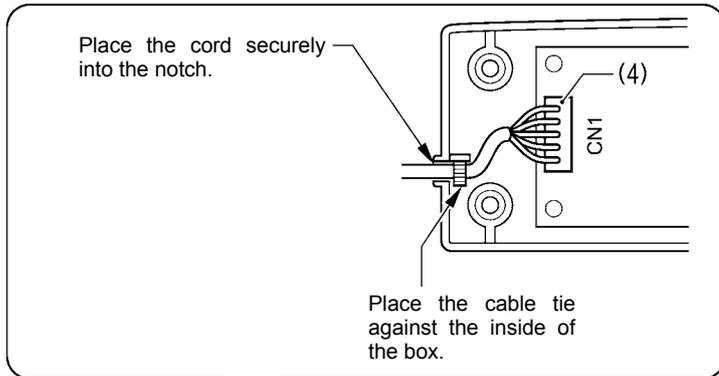
Re-tighten the wood screws.

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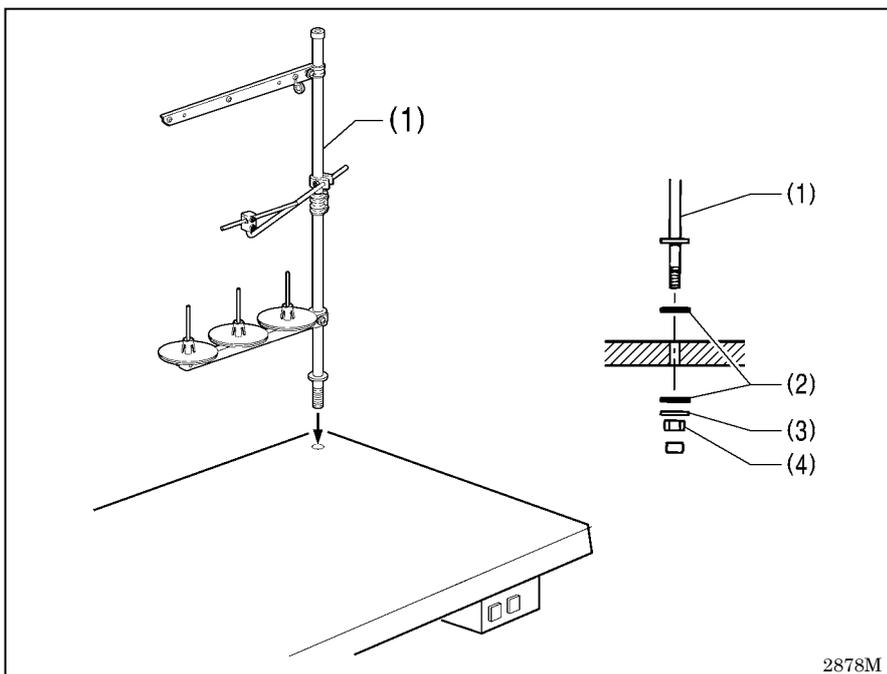
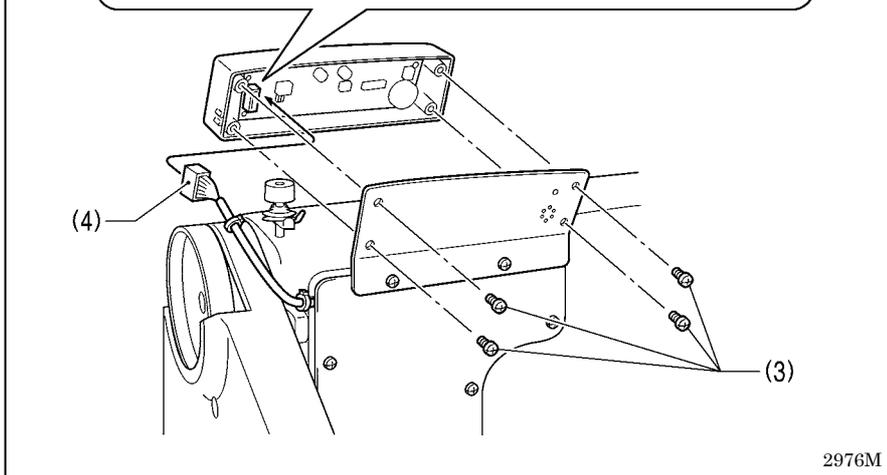
13. Alarm display (semi dry type)

- (1) Alarm display
- (2) Screws [2 pcs]
(Use for tightening rear cover)



- (3) Screws [4 pcs: removed]
- (4) Connector

After connecting the connector (4) to connector <CN1> on the P.C.B. of the alarm display (1), return the alarm display (1) to its original position and then tighten the screws (3).



14. Cotton stand

- (1) Cotton stand

NOTE:

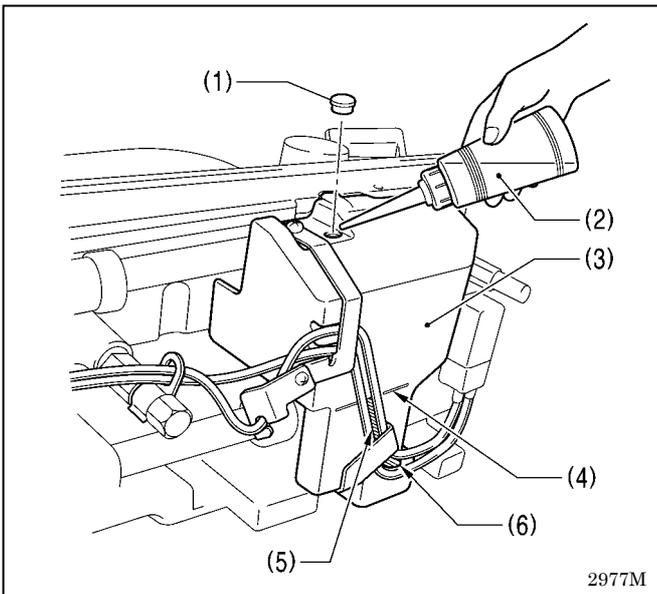
Securely tighten the nut (4) so that the two rubber cushions (2) and the washer (3) are securely clamped and so that the cotton stand (1) does not move.

4-2. Lubrication

⚠ CAUTION

- ⊘ Do not connect the power cord until lubrication has been completed, otherwise the machine may operate if the treadle 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 diarrhea. 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) specified by Brother.
 - * If this type of lubricating oil is difficult to obtain, the recommended oil to use is <Exxon Mobil Essotex SM10; VG10>.



<Lubricating via the oil cover>

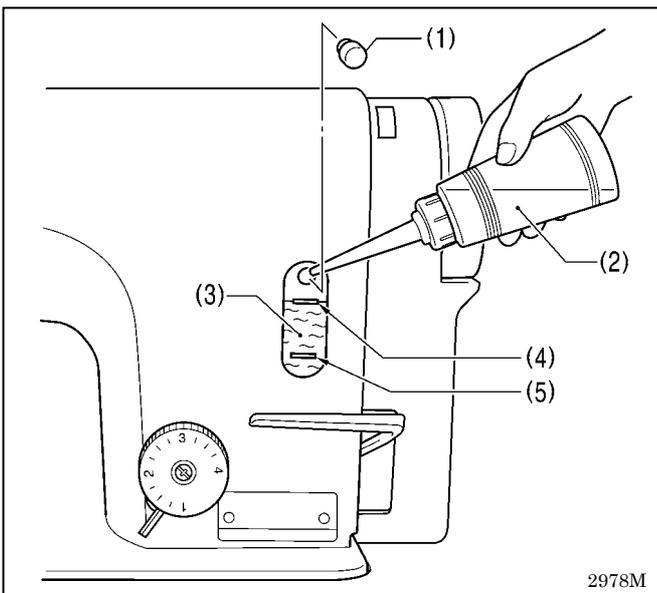
1. Tilt back the machine head.
2. Remove the rubber cap (1).
3. Use the accessory oiler (2) to pour lubricating oil into the oil cover (3) until the oil level reaches the reference line (4).

NOTE:

Do not fill with lubricating oil past the reference line (4). If you pour in too much lubricating oil, it may spill out when the machine head is tilted back.

4. Replace the rubber cap (1).
5. Return the machine head to its original position.

* If the lubricating oil level drops below the bottom (6) of the oil gauge window (5), be sure to add more oil.



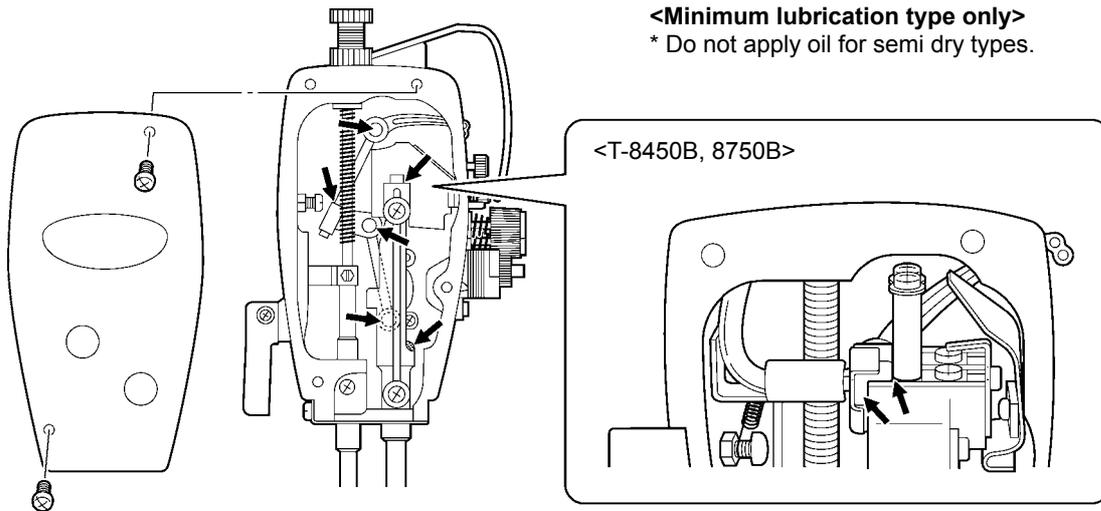
<Lubricating via the oil tank>

1. Remove the rubber cap (1).
2. Use the accessory oiler (2) to pour in lubricating oil until the oil level reaches the top reference line (4) of the oil gauge window (3).
3. Replace the rubber cap (1).

* If the lubricating oil level drops below the bottom reference line (5), be sure to add more oil.

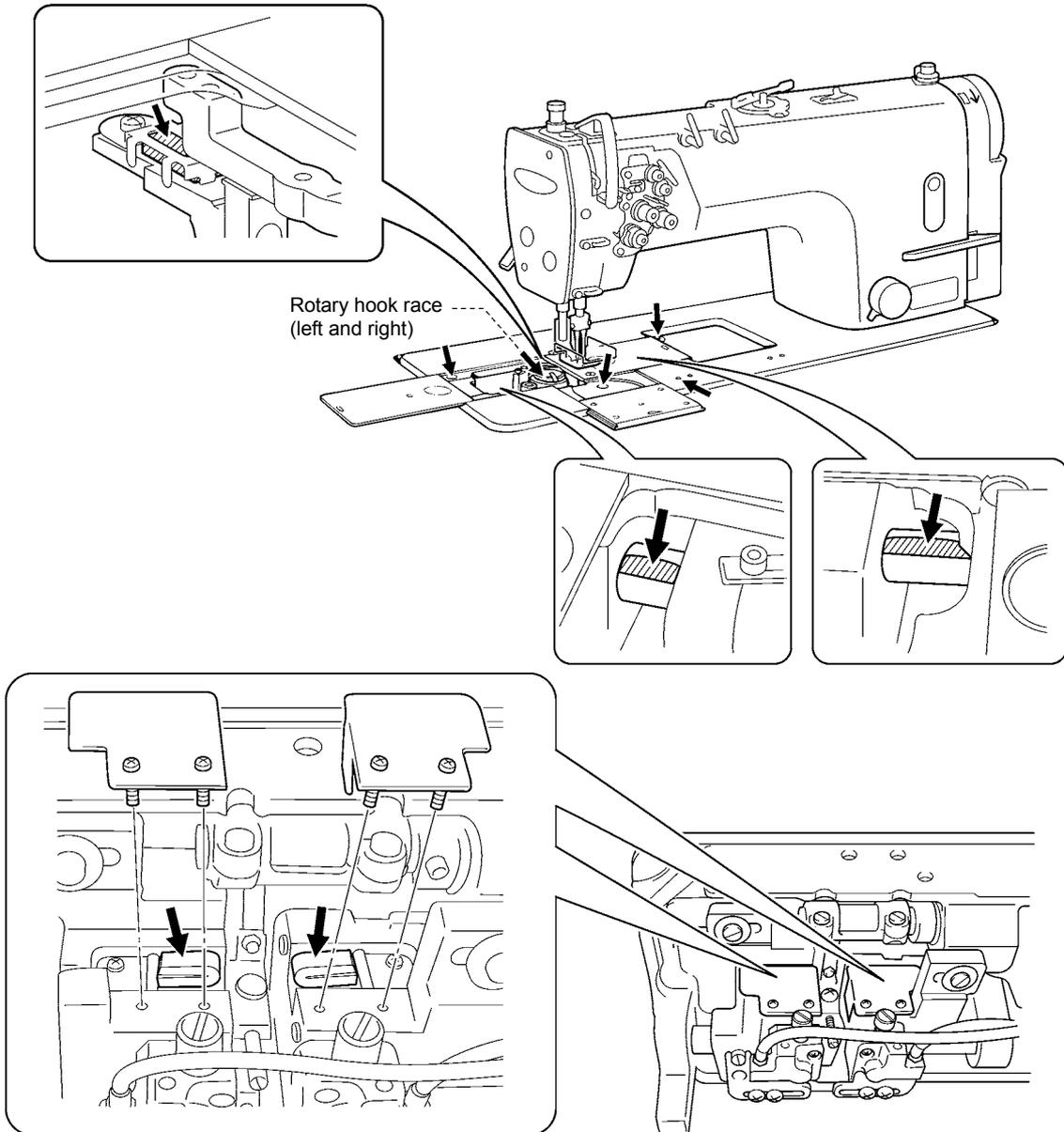
■ Lubrication

Apply 1 - 2 drops of oil to the places indicated by the arrows.



2885M

<Semi dry type and minimum lubrication type>



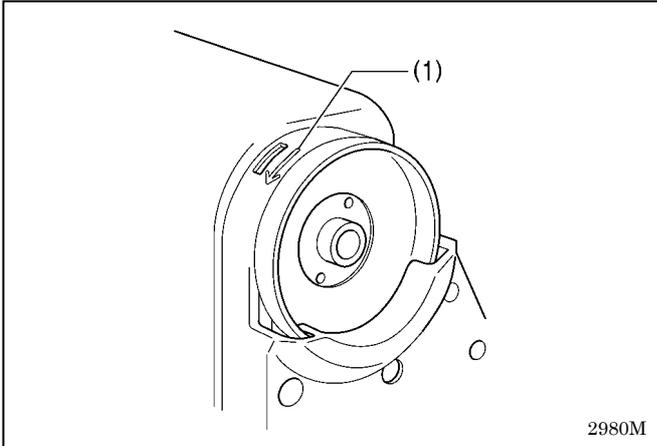
2979M

4-3. Checking the machine pulley rotating direction

⚠ CAUTION



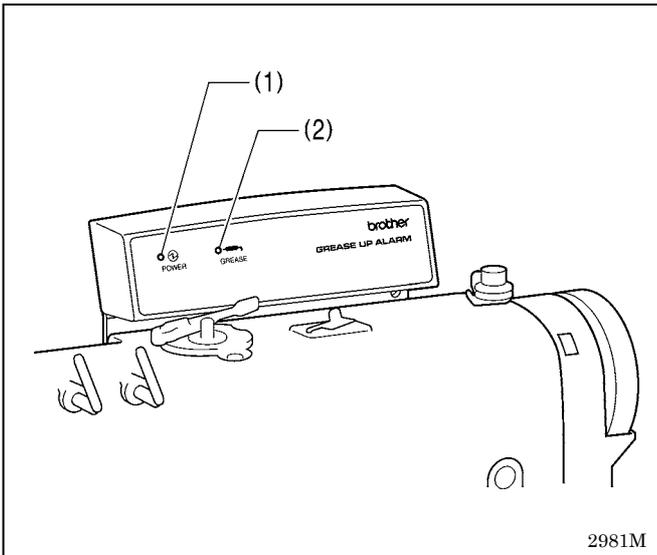
Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.



1. Insert the power cord plug into the wall outlet, and then turn on the power switch.
2. Depress the treadle slightly and check that the machine pulley starts to turn in the direction of the arrow (1).

* If the direction of rotation is reversed, change the direction of rotation to the correct direction while referring to the instruction manual for the motor.

4-4. Alarm display (Semi dry type)



The alarm display is a device that shows the time until the next greasing is required.

(1) POWER indicator (green)

The POWER indicator (1) only illuminates while the sewing machine is operating. It does not illuminate while the sewing machine is stopped.

(The alarm display makes a total of the time that the POWER indicator (1) is lit.)

NOTE:

The POWER indicator (1) may not illuminate at times such as if the sewing machine is operating at a slow speed, or when operation starts again after having been stopped for several minutes, but this is normal and is not the sign of a malfunction.

(2) GREASE indicator (red)

If the GREASE indicator (2) illuminates and the buzzer sounds each time the treadle is depressed, it is time to apply grease.
(See P. 30.)

5. PREPARATION BEFORE SEWING

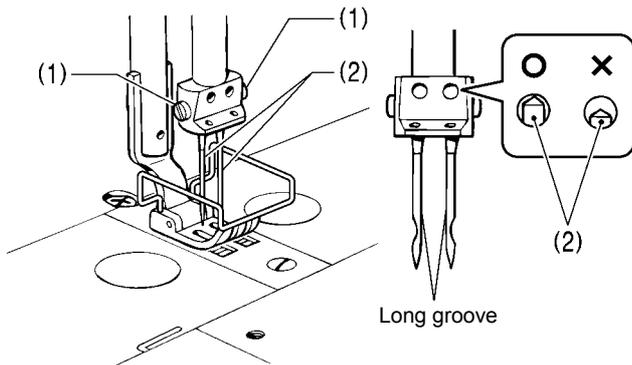
5-1. Installing the needle

CAUTION



Turn off the power switch before installing the needle. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
The machine may operate if the treadle is depressed by mistake, which could result in injury.

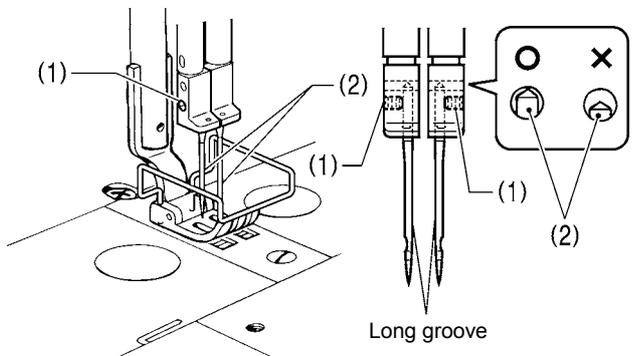
<T-8420B, 8720B>



2894M

1. Turn the machine pulley to move the needle bar to its highest position.
2. Loosen the screws (1).
3. Insert the needle (2) straight in as far as it will go so that the long groove is facing inward, and then securely tighten the screws (1).

<T-8450B, 8750B>



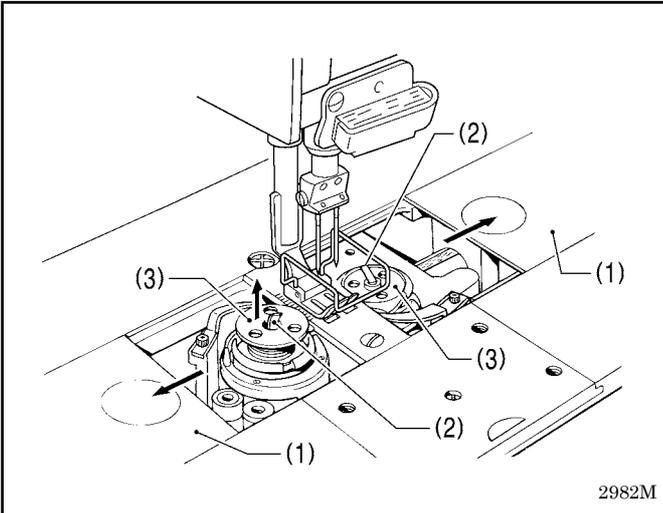
3125M

5-2. Removing the bobbin

CAUTION

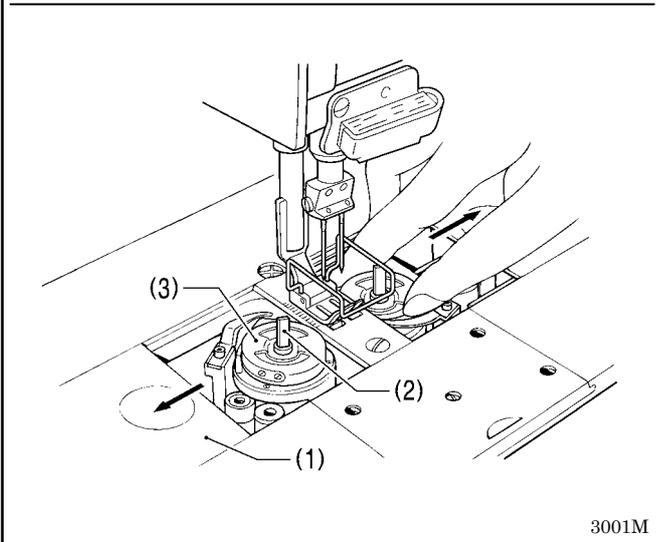


Turn off the power switch before removing the bobbin. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
The machine may operate if the treadle is depressed by mistake, which could result in injury.



<Latch type>

1. Open the slide plates (1) by moving them to the right and left.
2. Pull the rotary hook latches (2) upward, and then remove the bobbins (3).



<Bobbin case type>

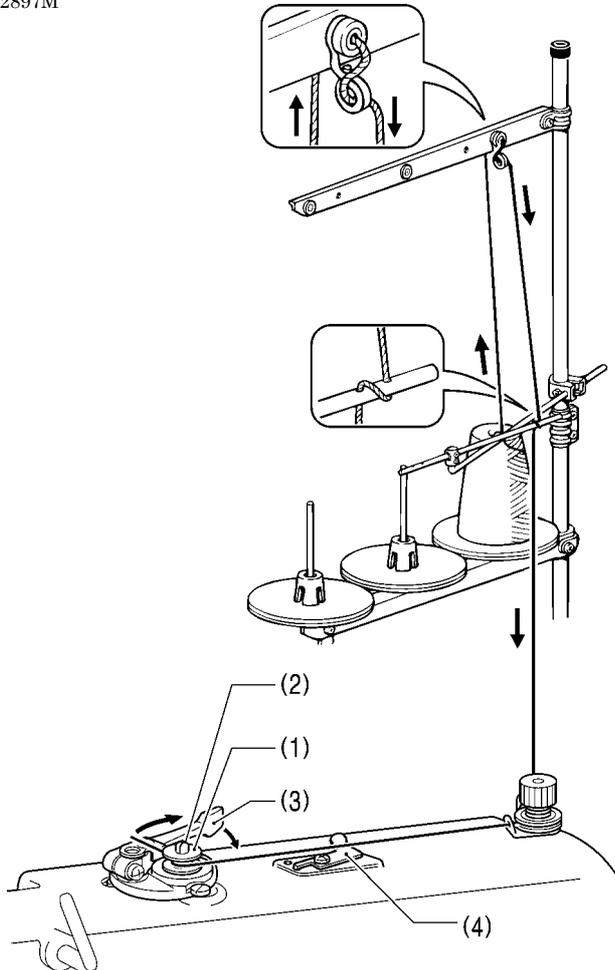
1. Open the slide plates (1) by moving them to the right and left.
2. Lift up the latch (2) of the rotary hook, and then remove the bobbin case (3).
3. Remove the bobbin.

5-3. Winding the lower thread

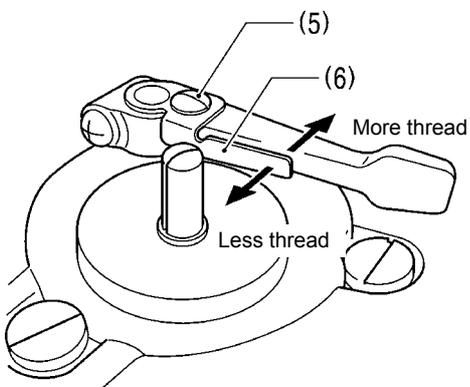
CAUTION

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

2897M



1. Turn on the power switch.
2. Place the bobbin (1) onto the bobbin winder shaft (2).
3. Wind the thread several times around the bobbin (1) in the direction indicated by the arrow.
 - * Check that the thread is not loose anywhere along the thread path.
4. Push the bobbin presser arm (3) toward the bobbin(1).
5. Raise the presser foot with the lifting lever.
6. Depress the treadle. Lower thread winding will then start.
7. Once winding of the lower thread is completed, the bobbin presser arm (3) will return automatically.
8. After the thread has been wound on, remove the bobbin and cut the thread with the knife (4).



- * Loosen the screw (5) and move the bobbin presser (6) to adjust the amount of thread wound onto the bobbin.

NOTE:

The amount of thread wound onto the bobbin should be a maximum of 80 % of the bobbin capacity.



2123M

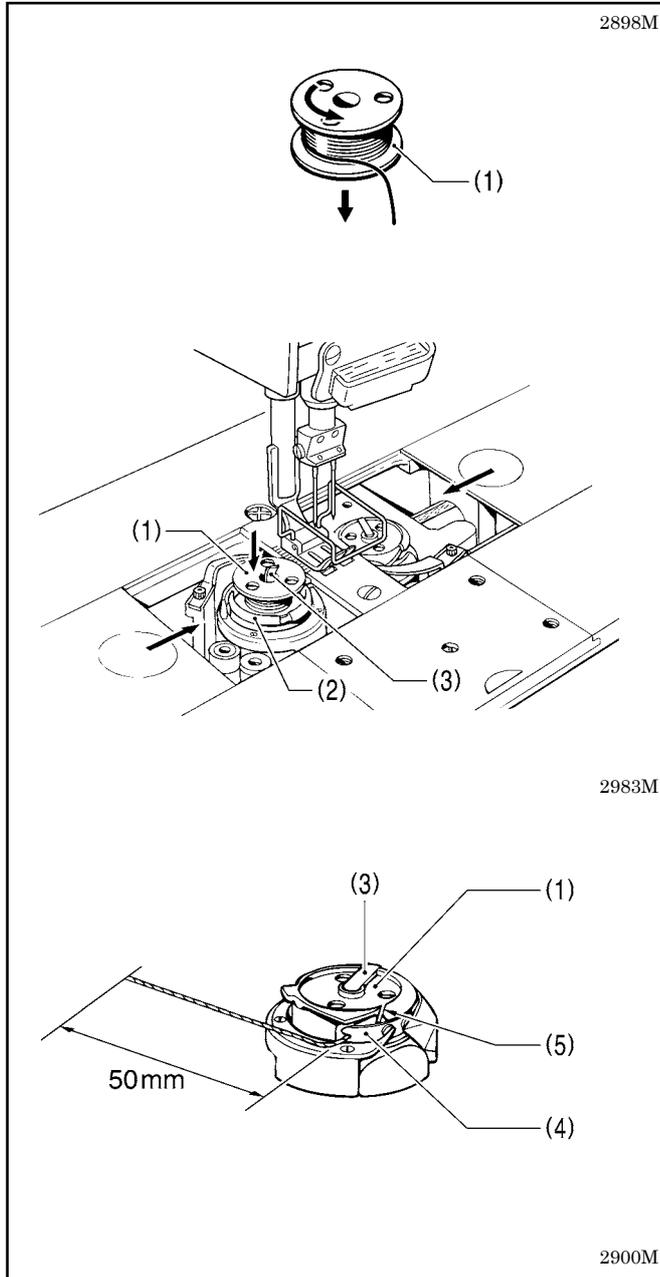
2124M

5-4. Installing the bobbin

⚠ CAUTION



Turn off the power switch before installing the bobbin. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
The machine may operate if the treadle is depressed by mistake, which could result in injury.

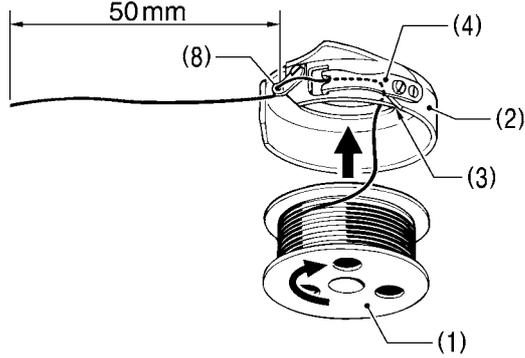


<Latch type>

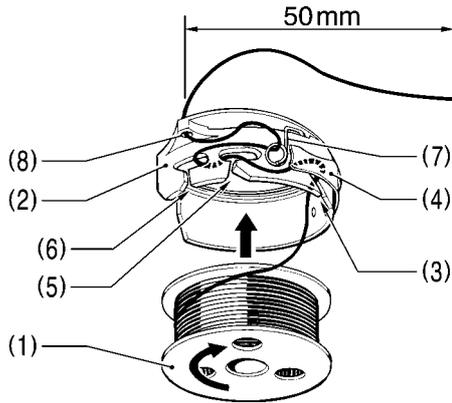
1. Insert the bobbin (1) into the rotary hook (2) so that the winding direction is as shown in the illustration.
2. Return the rotary hook latch (3) to its original position.
3. Turn the machine pulley to rotate the rotary hook (2) until the tension spring (4) is visible.
4. Pass the thread through slit (5) in the rotary hook and then pass it under the thread tension spring.
5. Pull out the thread to a length of approximately 50 mm.
6. Close the slide plates.

- Use bobbins (1) made of light alloy as specified by BROTHER.

<A>

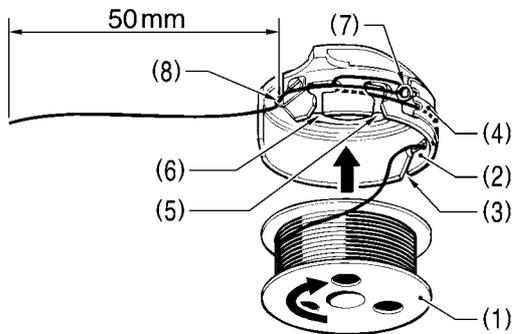


2902M

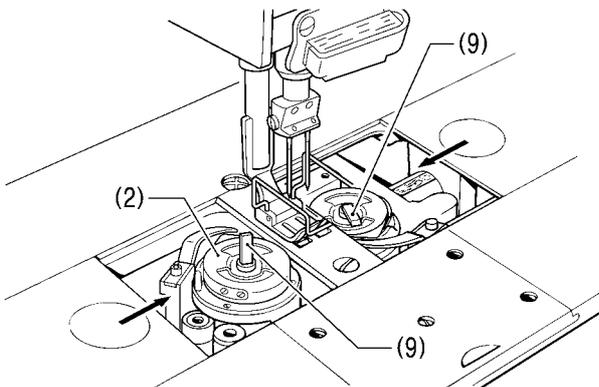


3126M

<C>



3127M



2999M

<Bobbin case type>

1. Insert the bobbin (1) into the bobbin case (2) so that the winding direction is as shown in the illustration.
2. There are three types of cap (2) (<A>, and <C>). Thread the thread by one of the following methods in accordance with the shape of the bobbin case (2) being used.

<A>

- 1) Pass the thread through slot (3) and under the thread tension spring (4).
- 2) Pass the thread through the thread hole (8) and pull out about 50 mm.

 <C>

- 1) Pass the thread through slot (3) and under the thread tension spring (4).
- 2) Pass the thread through slots (5) and (6), and then through the spring (7).
- 3) Pass the thread through the thread hole (8) and pull out about 50 mm.

3. Insert the bobbin case (2) into the rotary hook.

4. Push latch (9) of the rotary hook flat.

5. Close the slide plates.

- Use bobbins (1) made of light alloy as specified by BROTHER.

5-5. Threading the upper thread

CAUTION

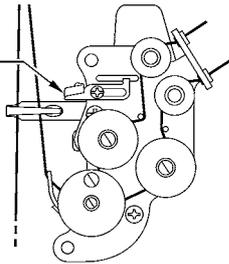


Turn off the power switch before threading the upper thread. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.
The machine may operate if the treadle is depressed by mistake, which could result in injury.

- Turn the machine pulley and raise the thread take-up (1) before threading the upper thread. This will make threading easier and it will prevent the thread from coming out at the sewing start.
- Thread the left-side thread first.

<For non-foundation specifications>

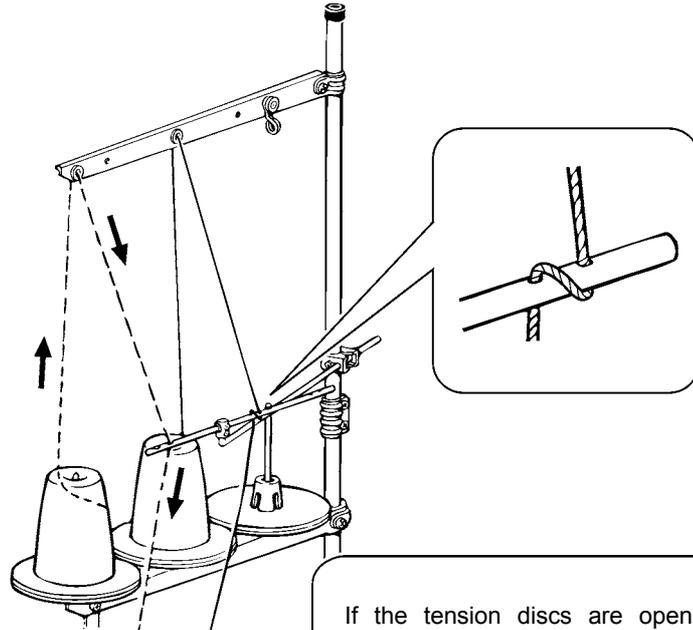
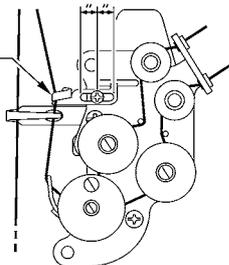
Do not pass the thread through.



<For foundation specifications>

Center

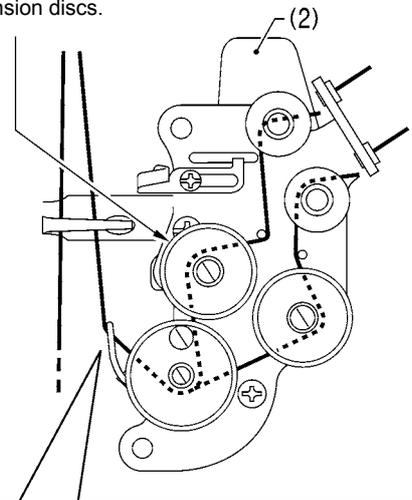
Pass the thread through.



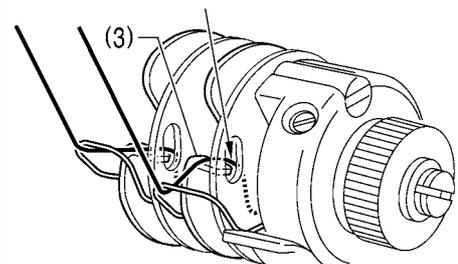
If the tension discs are opened as follows, the thread will become easier to thread.

- Press the tension release plate (2).
- Operate the lifting lever or the knee lifter to raise the presser foot.

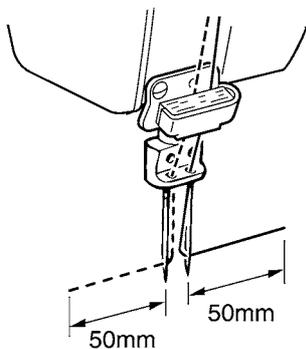
The thread can be passed securely in between the tension discs.



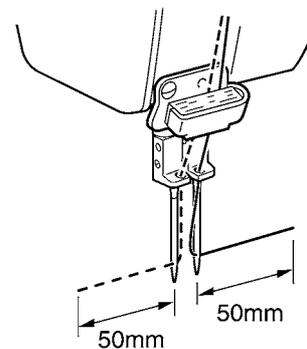
Pass the thread on the inside of the tab (3).



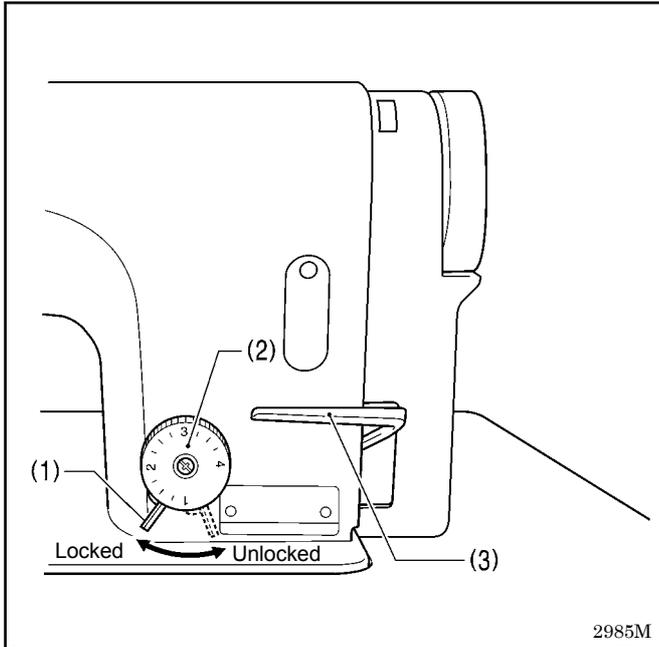
<T-8420B, 8720B>



<T-8450B, 8750B>

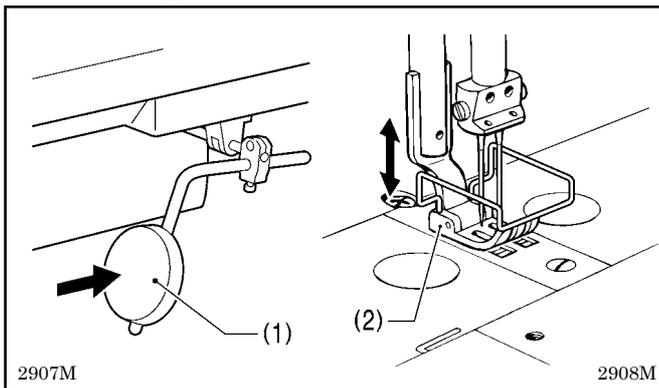


5-6. Adjusting the stitch length



1. Unlock the stitch length dial (2) by turning the dial lock lever (1) to the right until a click is heard.
 2. Turn the stitch length dial (2) clockwise or counterclockwise so that the desired stitch length is at the uppermost position on the dial.
 - The larger the number, the longer the stitch length will be. (The numbers on the dial are for use as a guide. The length of the finished stitches may vary depending on the type and thickness of material being sewn. Adjust while looking at the finished stitches.)
 - When turning the stitch length dial (2) from a larger setting to a smaller setting, it will be easier to turn the dial if the reverse lever (3) is pushed to the halfwaydown position.
 3. Turn the dial lock lever (1) firmly to the left to lock the stitch length dial (2).
- * Check that the stitch length dial (2) does not rotate.

5-7. Using the knee lifter



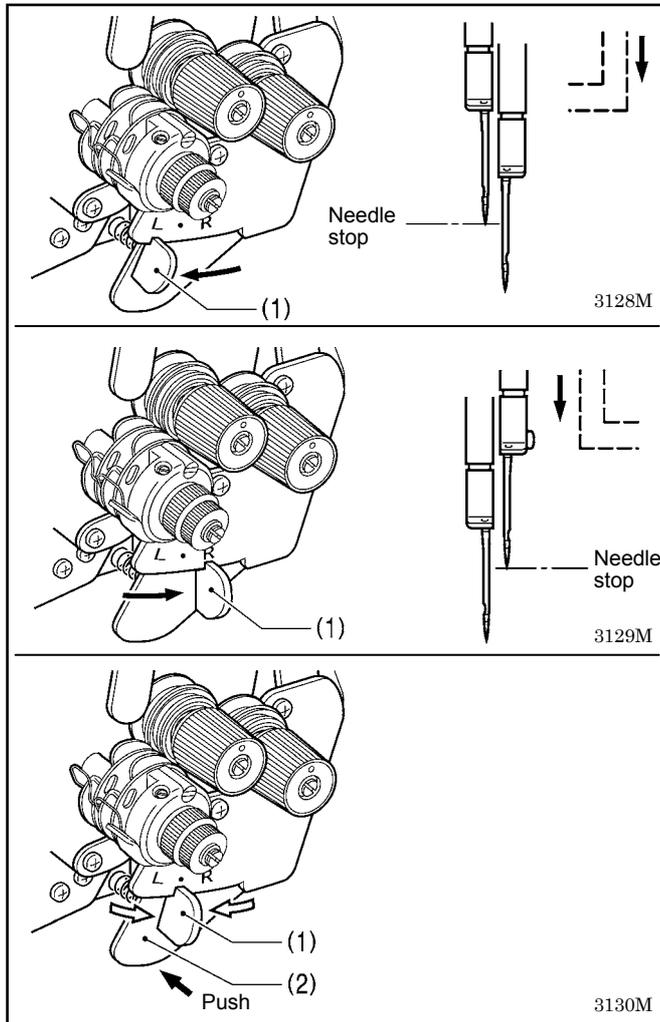
The presser foot (2) can be raised by pressing the knee lifter plate (1).

5-8. Corner sewing method (T-8450B, 8750B)

NOTE:

If using this machine in place of a single-needle machine, remove the needle which is not being used. In such cases, do not use the procedures given below to stop the unused needle bar from moving, otherwise damage to the machine may result.

5-8-1. To stop the needle bars (right and left)



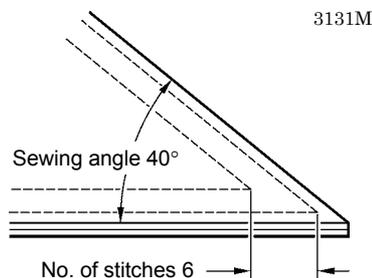
- Operate the stop lever after the needle has penetrated the material and has stopped moving.
- Do not sew at speeds of over 1,000 rpm while one of the needle bars has been stopped.

<To stop operation of the left needle bar>
Move the stop lever (1) to the "L" position.

<To stop operation of the right needle bar>
Move the stop lever (1) to the "R" position.

<To resume twin-needle sewing>
Press the push lever (2).
The stop lever (1) will then return to its original position automatically.

5-8-2. Number of stitches: quick-reference guide



Sewing angle \ No. of Stitches	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°
2					4.6	3.8	3.2	2.7	2.2	1.8	1.5	1.1
3			4.6	3.5	3.0	2.5	2.1	1.8	1.5	1.2		
4		4.4	3.4	2.8	2.3	1.9	1.6	1.3				
5	4.8	3.5	2.7	2.2	1.8	1.5	1.3					
6	4.0	2.9	2.3	1.9	1.5	1.3						
7	3.7	2.5	2.0	1.6								
8	3.0	2.2	1.7									

<For 1/4" needle width>

Determine the stitch length from the chart above to make beautiful corner stitching.
The number of stitches of the outer needle varies according to the combination of sewing angle and stitch length.

[Example]

For a sewing angle of 40° and a stitch length of 2.9 mm, the number of stitches becomes 6.

6. SEWING

⚠ CAUTION



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



Turn off the power switch at the following times. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.

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

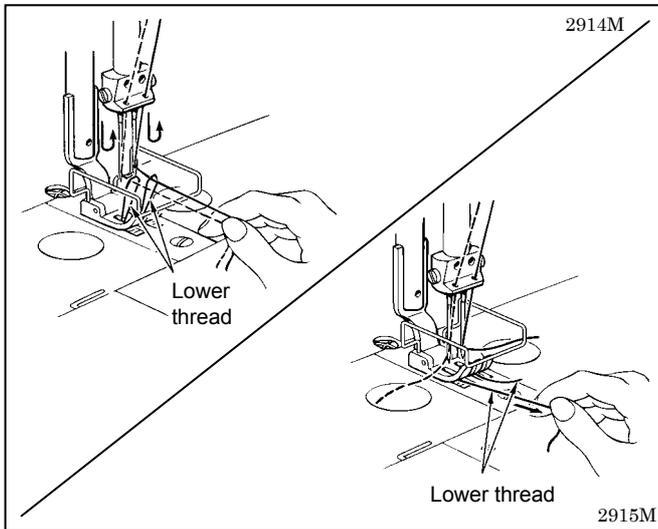


Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.



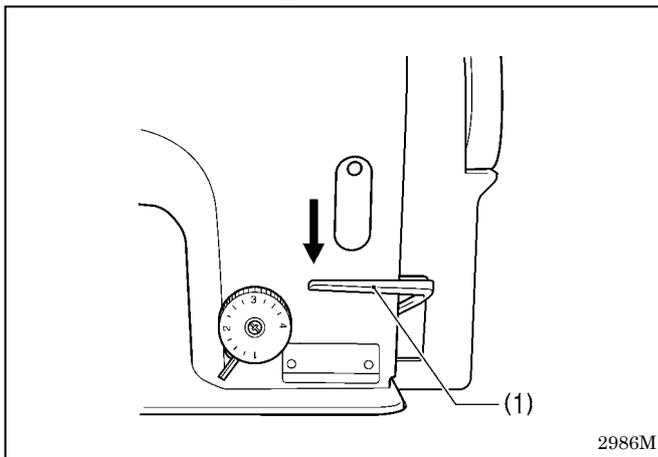
Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.

6-1. Sewing



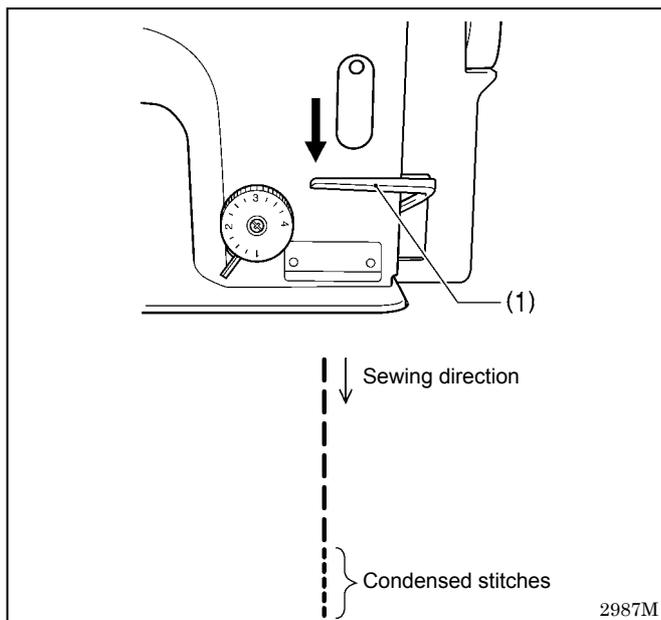
1. While holding the two upper threads with your fingers, turn the machine pulley by hand toward you until the lower threads come out onto the feed dog.
2. Pull the lower threads toward you and check that they pull out smoothly.
3. Turn on the power switch.
4. Depress the treadle to start sewing.

6-2. Backtacking

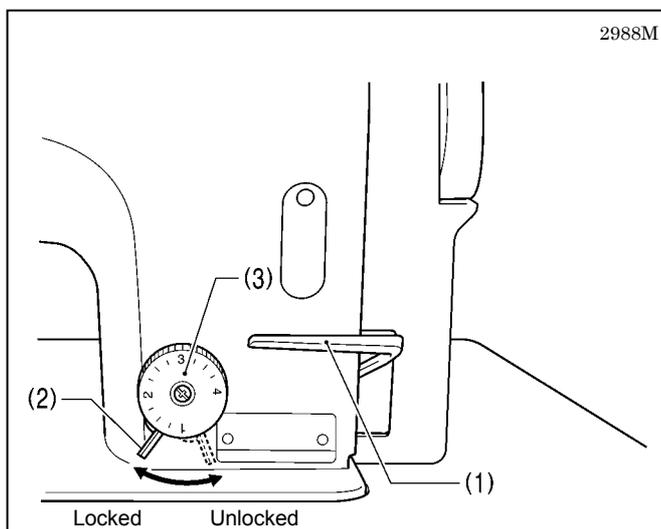


When the reverse lever (1) is pressed during sewing, the feed direction will be reversed. When it is released, the feed direction will return to normal.

6-3. Sewing condensed stitches



- If you press the reverse lever (1) while sewing is in progress, you can sew stitches (forward direction) with small stitch lengths.
- Before carrying out sewing, set the stitch length for condensed stitches as follows.



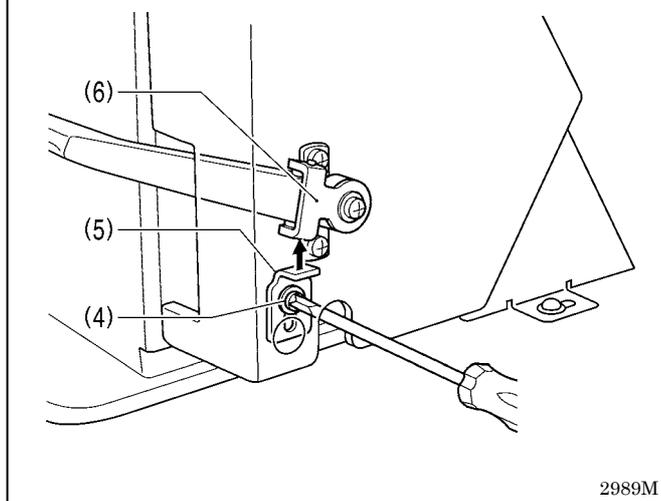
<Setting>

1. Unlock the stitch length dial (3) by turning the dial lock lever (2) to the right.
2. Turn the stitch length dial (3) to the stitch length to be used for condensed stitches.
3. Loosen the screw (4) and lift up the stopper (5) until it touches the reverse stitching lever plate (6).
4. Tighten the screw (4) to secure the stopper (5).

<Sewing>

1. Return the stitch length dial (3) to the stitch length for normal sewing.
2. Turn the dial lock lever (2) firmly to the left to lock the stitch length dial (3).
3. Start sewing.
4. At the position where you would like to start sewing condensed stitches, press the reverse lever (1). (Condensed stitches are sewn while the reverse lever (1) is being pressed.)

- * To stop sewing condensed stitches and return to using the backtack function, lower the stopper (5) so that it does not touch the reverse stitching lever plate (6).



7. THREAD TENSION

7-1. Adjusting the thread tension

Good even stitches



0573M

Upper thread tension too weak or lower thread tension too strong

→ Increase the upper thread tension.
Decrease the lower thread tension.

0574M

Upper thread tension too strong or lower thread tension too weak

→ Decrease the upper thread tension.
Increase the lower thread tension.

<Latch type> 2990M

(1)

Becomes weaker ← Becomes stronger

<Bobbin case type>

(1)

Becomes stronger
Becomes weaker

2923M

<Lower thread tension>

CAUTION

Turn off the power switch before adjusting the lower thread tension. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle is depressed by mistake, which could result in injury.

Turn the adjusting screw (1) to adjust.

Becomes stronger
Becomes weaker
(2)
Becomes weaker
Becomes stronger

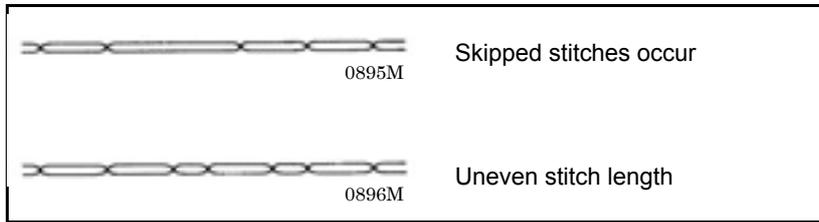
2924M

<Upper thread tension>
After the lower thread tension has been adjusted, adjust the upper thread tension so that a good, even stitch is obtained.

1. Lower the presser foot.
2. Adjust by turning the tension nut (2).

7-2. Adjusting the presser foot pressure

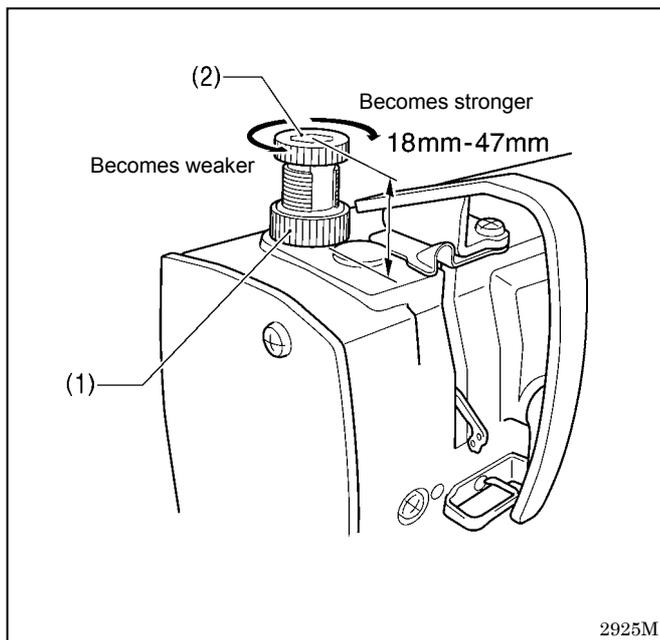
Correct stitches



→ Increase the pressure.



→ Decrease the pressure.



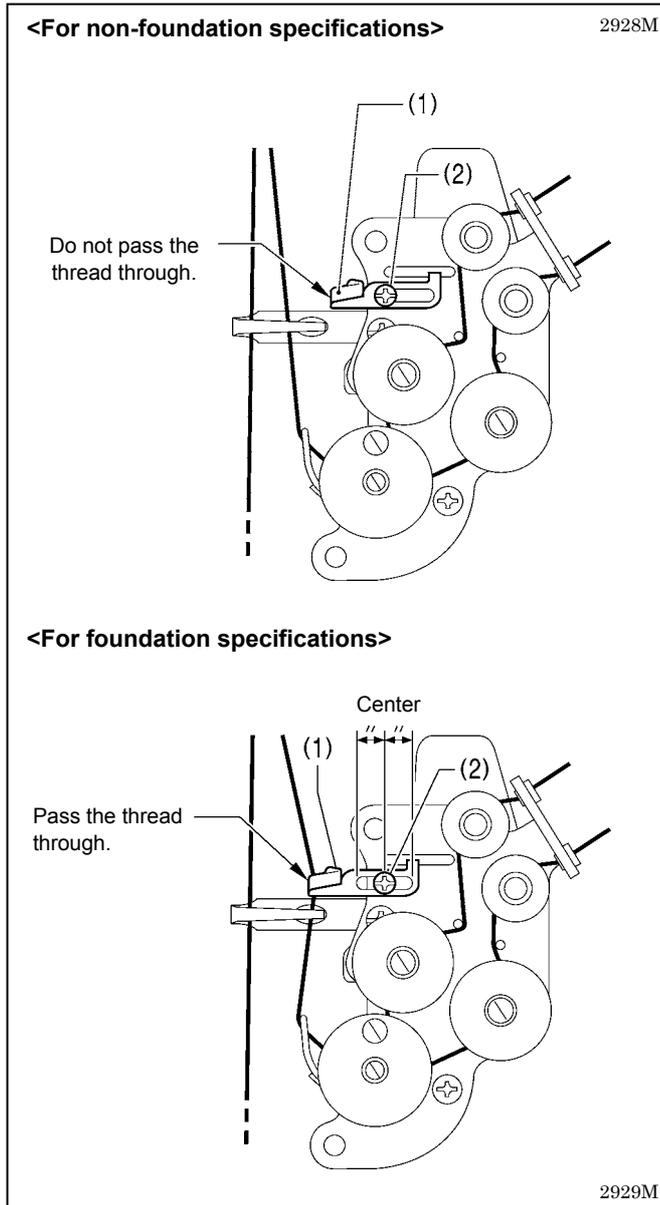
The presser foot pressure should be as weak as possible, but strong enough so that the material does not slip. (Refer to “Adjusting screw height” in the table below as a guide to adjustment.)

1. Loosen the adjusting nut (1).
2. Turn the presser adjusting screw (2) to adjust the presser foot pressure.
3. Tighten the adjusting nut (1).

Reference values

Use	Adjusting screw height
For foundation	Approx. 34mm
For light-weight and medium-weight materials	Approx. 34mm
For heavy-weight materials	Approx. 29mm

7-3. Adjusting the thread take-up amount



The thread take-up amount is adjusted by how the thread is passed through the thread amount adjuster (1).

<Using the standard thread amount adjuster (1)>

For non-foundation specifications

Do not pass the thread through the thread amount adjuster (1). Loosen the screw (2) and slide the thread amount adjuster (1) to the right-side position.

For foundation specifications

Pass the thread through the thread amount adjuster (1). The standard position of the thread amount adjuster (1) is when the screw (2) is in the center of the adjustment range.

<Adjusting the thread take-up amount>

When the thread has been passed through the thread amount adjuster (1), the thread take-up amount becomes less when the thread amount adjuster (1) is moved to the right.

It is better not to pass the thread through the thread amount adjuster (1):

- When sewing heavy materials using a sewing machine with foundation specifications
- When the thread take-up amount is not enough, such as when the stitch length is increased

It is better to pass the thread through the thread amount adjuster (1):

- When sewing with slippery threads such as synthetic yarns
- When sewing light materials
- When sewing with a stitch length of 2 mm or less
- When sewing under any of the above three conditions and you would like to prevent skipped stitches, thread tightening problems such as looping, or thread breakages

8. CLEANING

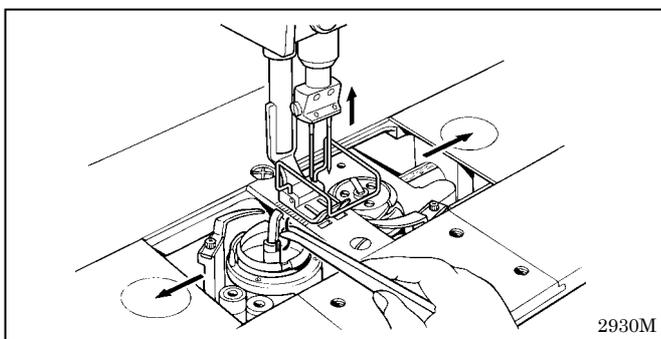
⚠ CAUTION

-  Turn off the power switch before carrying out cleaning. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work. The machine may operate if the treadle 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 diarrhea. Keep the oil out of the reach of children.
-  Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.

8-1. Daily cleaning procedures

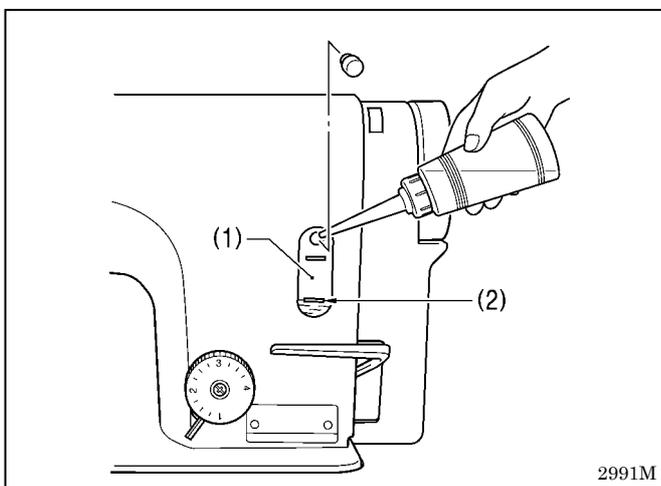
The following cleaning operations should be carried out each day in order to maintain the performance of this machine and to ensure a long service life.

Furthermore, if the sewing machine has not been used for a long period of time, carry out the following cleaning procedures before using it again.



<Cleaning>

1. Turn the machine pulley to move the needle to the needle up stop position.
2. Open the slide plates at the left and right.
3. Remove the bobbin.
4. Clean the thread scraps from the rotary hook.
5. Install the bobbin (and the bobbin case).

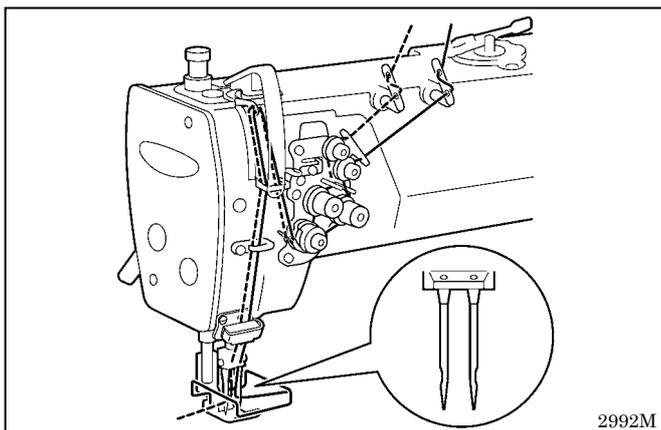


<Filling the oil tank>

Use only the lubricating oil (Nisseki Mitsubishi Sewing Lube 10N; VG10) specified by Brother.

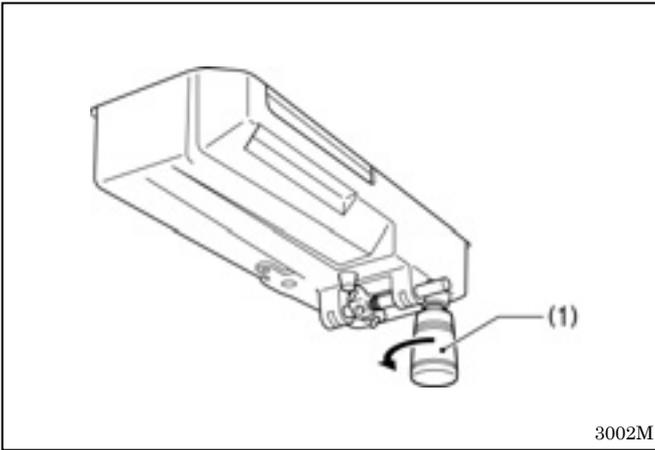
* If this type of lubricating oil is difficult to obtain, the recommended oil to use is <Exxon Mobil EssoTex SM10; VG10>.

1. If the lubricating oil level drops below the bottom reference line (2) of the oil gauge window (1), be sure to add more oil. (Refer to p.11.)



<Checking>

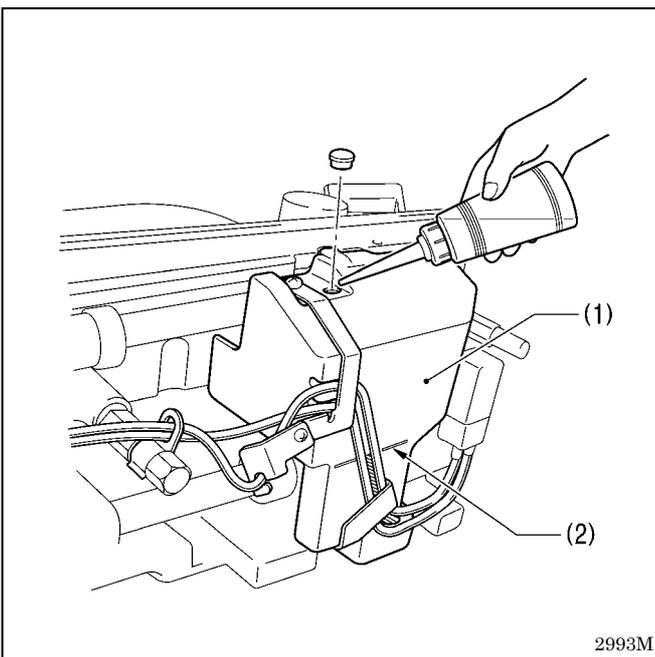
1. Replace the needle if it is bent or if the tip is broken.
2. Check that the upper threads have been threaded correctly. (Refer to page 19.)
3. Carry out a test sewing.



<Draining lubricating oil>

1. If the oiler (1) has filled with oil, unscrew the oiler (1) and dispose of the oil inside it.
2. Screw the oiler (1) back into the oil pan.

8-2. Lubricating via the oil cover (every 6 months)



<Minimum lubrication type>

Pour lubricating oil into the oil cover (1) about once every six months.

<Semi dry type>

Pour lubricating oil into the oil cover (1) about as often as grease is applied.

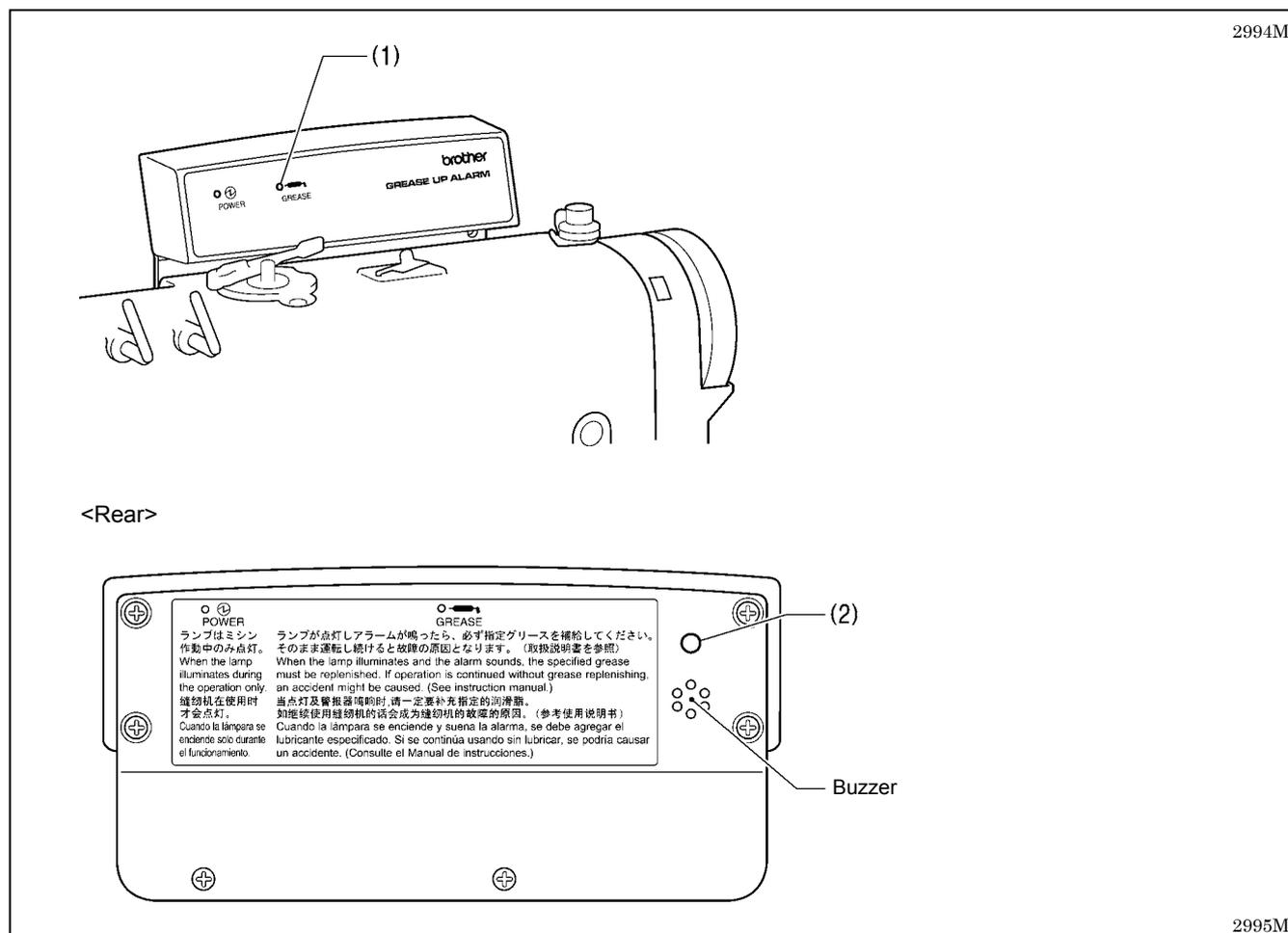
Use only the lubricating oil (Nisseki Mitsubishi Sewing Lube 10N; VG10) specified by Brother.

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

1. Tilt back the machine head.
2. Pour lubricating oil into the oil cover (1) until the oil level reaches the reference line (2). (Refer to p.11.)
3. Return the machine head to its normal position.

8-3. Applying grease - When the GREASE indicator illuminates (Semi dry type)

If the GREASE indicator (1) illuminates and the buzzer sounds each time the treadle is depressed, it means that it is time to apply grease to the sewing machine. Apply grease while referring to the following page.

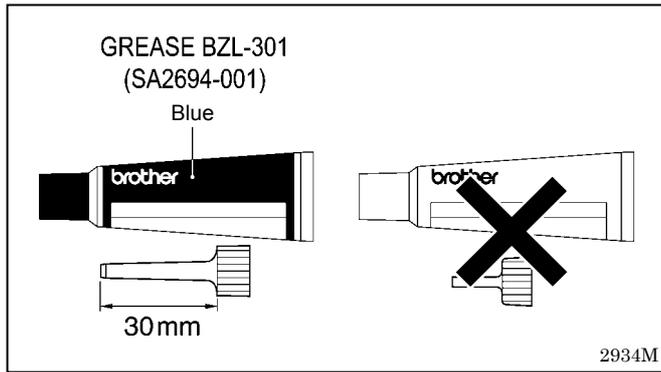


<To continue sewing temporarily without applying grease>

1. Press the RESET switch (2) for approximately one second.
(The buzzer will stop sounding but the GREASE indicator (1) will remain illuminated even when the treadle is depressed.)
* Use an object with a sharp point to firmly push in the RESET switch (2) as far as it will go.
2. Sewing can continue in this condition, but if the cumulative sewing machine operating time reaches a further 10 hours, the buzzer will start sounding again. If this happens, apply grease and then reset the alarm display by referring to the procedure on the following page.

* 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.

<Applying grease>

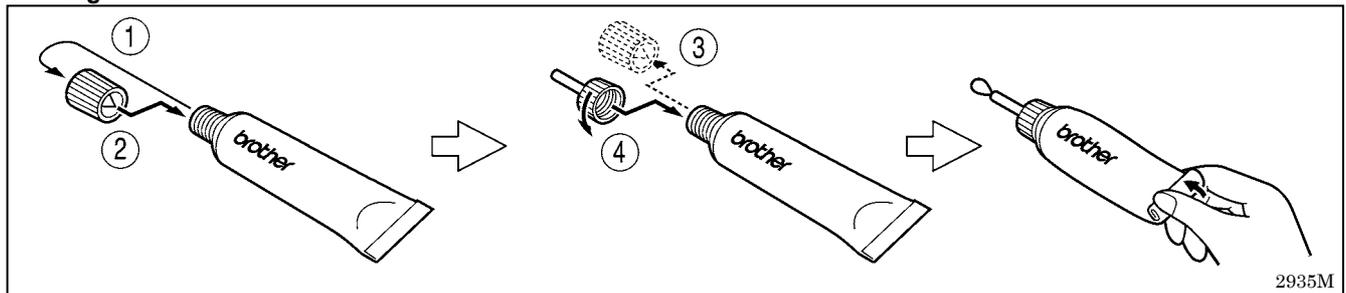


NOTE:

- Use only the grease <BZL-301 (SA2694-001) in the **blue tube**> specified by Brother.
- 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 for any models except for those which are indicated with "Use only the grease <BZL-301 (SA2694-001)> specified by Brother".

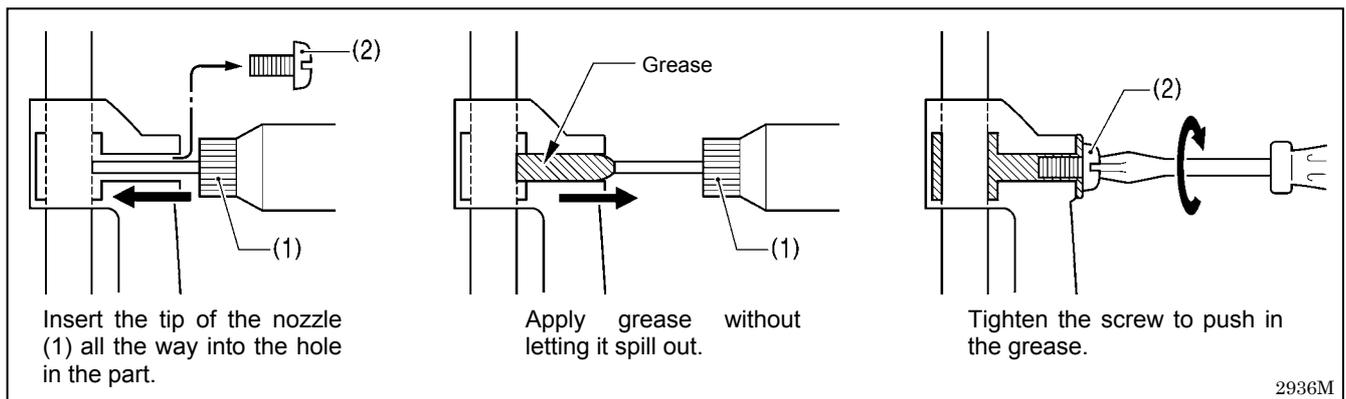
Purchase the grease unit (SA2693-001) to use for applying grease.

1. Using the tube

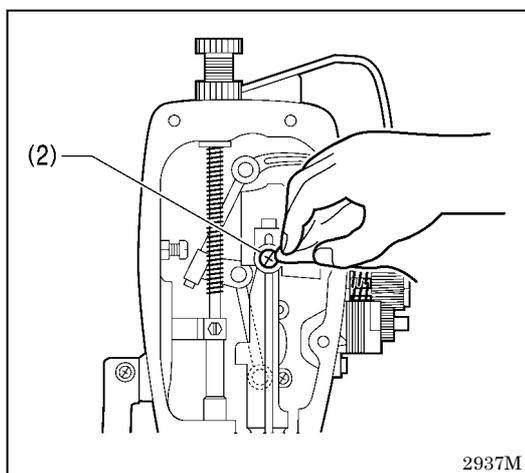


2. Applying grease

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



1. Turn the power switch to "OFF".
2. Remove the screw (2). (Refer to the next page for greasing locations.)
3. Apply grease to each of the holes until the grease overflows slightly.
4. Tighten the screw (2) to push in the grease.



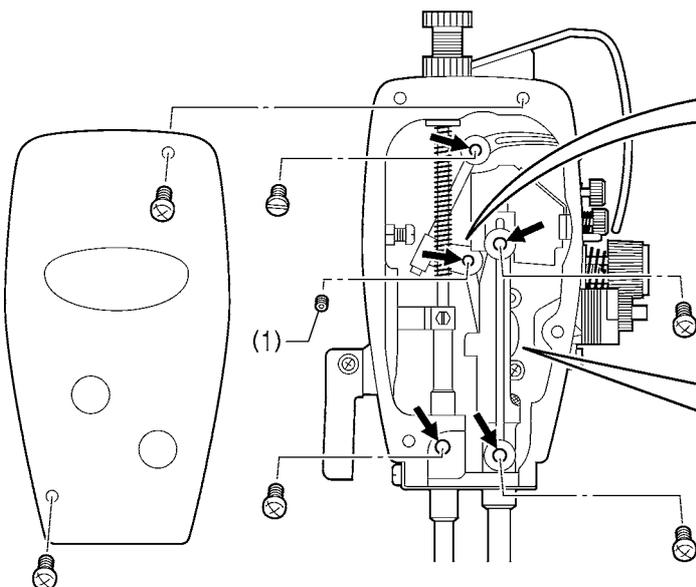
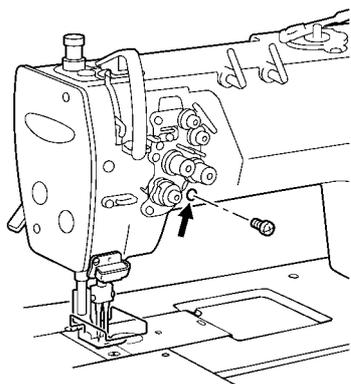
5. Use a cloth to wipe away any excess grease from around the screw (2).
6. Apply grease to all locations shown on the next page in the same way.
7. Carry out the reset procedure given on the next page.

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.)

2996M



Turn the machine pulley until the screw (1) can be seen.

Use the tip of a screwdriver or similar to apply 5-10 mm beads of grease to the slide block slider (2).

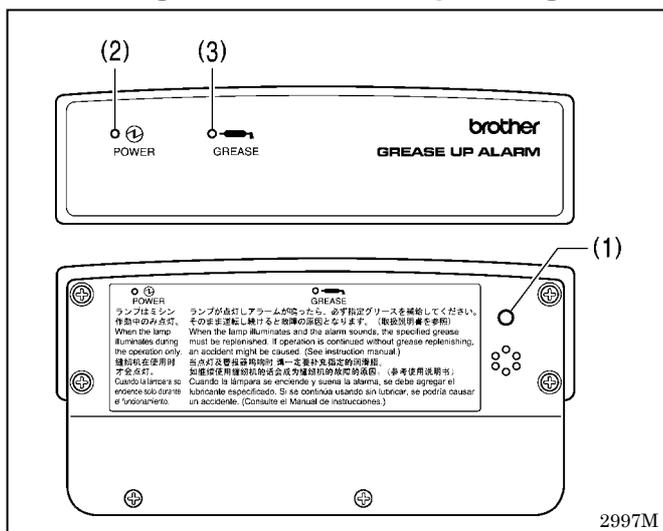
5-10 mm

4 places at top, bottom, left and right of the slide block (3)

* Pour oil into the oil cover at the same time. (Refer to p.11.)

2939M

<Resetting the cumulative operating time>



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

1. Press the RESET switch (1) for about 5 seconds until a short beep (about 0.5 seconds) sounds. (Release the switch once the buzzer sounds.)
 - * Use an object with a sharp point to firmly push in the RESET switch (1) as far as it will go.
2. Press the RESET switch (1) once more for approximately 5 seconds. A long beep (about 2 seconds) will sound, and the reset procedure will be carried out.

<Checking method after resetting>

If only the POWER indicator (2) illuminates when the sewing machine is next used, the reset procedure has been carried out successfully.

NOTE:

- If the reset procedure has not been carried out successfully, repeat steps 1 and 2 above.
- If the GREASE indicator (3) does not illuminate and the buzzer does not sound when the RESET switch (1) is pressed, operate the sewing machine for more than 30 seconds, and then carry out the reset procedure again.
- The RESET switch (1) should never be pressed except when carrying out the reset procedure after grease application.

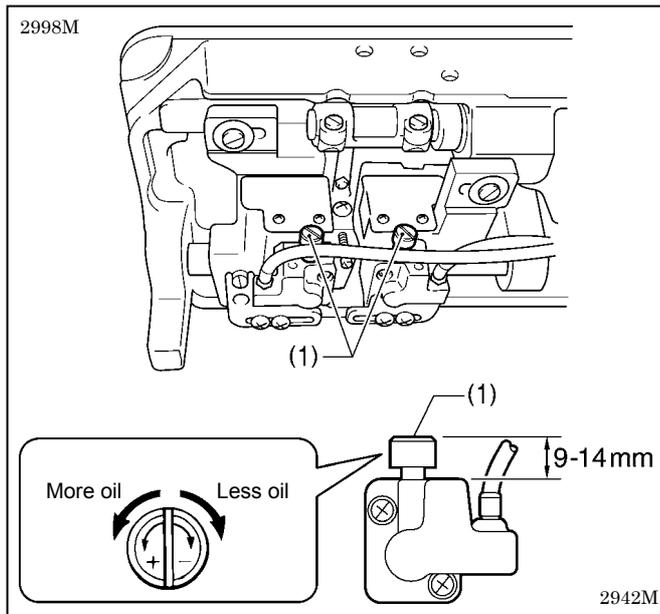
9. ADJUSTING THE ROTARY HOOK LUBRICATION AMOUNT

CAUTION



Be careful not to touch your fingers or the lubrication amount check sheet against moving parts such as the rotary hook or the feed mechanism when checking the amount of oil supplied to the rotary hook, otherwise injury may result.

Use the following procedure to check the amount of oil being supplied to the rotary hook when replacing the rotary hook or when changing the sewing speed.



<Guide to lubrication adjustment>

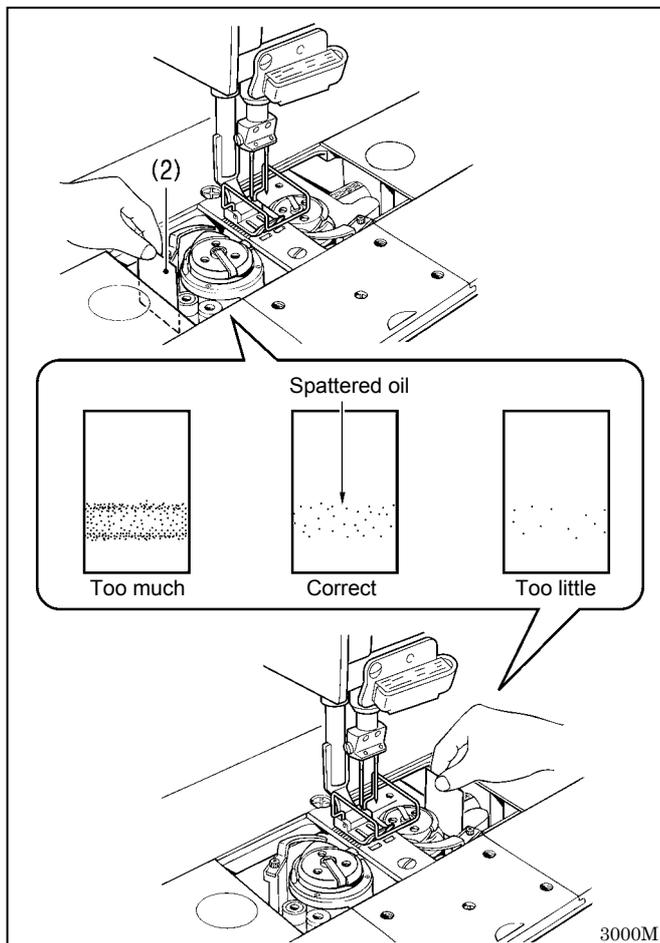
1. Tilt back the machine head.
2. Turn the oil adjusting screw (1) to adjust the height to within 9-14 mm.

<Checking the lubrication amount>

1. Turn off the power switch.
2. Remove the thread from all points from the thread take-up to the needle.
3. Remove the needle and the bobbin.
4. Use the lifting lever to lift the presser foot.
5. Turn on the power switch.
6. Run the machine at the normal sewing speed for approximately 1 minute without sewing any material (following the same start/stop pattern as when actually sewing).
7. Place the lubrication amount check sheet (2) to the left of the rotary hook (the right side is the right side of the rotary hook), and hold it in place while running the sewing machine at the normal sewing speed for approximately 8 seconds. (Any type of paper can be used as the lubrication amount check sheet (2).)
8. Check the amount of oil which has spattered onto the sheet.

<Adjusting the lubrication amount>

1. Tilt back the machine head.
2. Turn the adjusting screw (1) to adjust the lubrication amount.
 - If the rotary hook adjusting screw (1) is turned counterclockwise, the lubrication amount becomes greater.
 - If the rotary hook adjusting screw (1) is turned clockwise, the lubrication amount becomes smaller.
3. Check the lubrication amount again according to the procedure given in "Checking the lubrication amount" above.
 - * Turn the adjusting screw (1) and check the lubrication amount repeatedly until the lubrication amount is correct.
4. Check the lubrication amount again after the sewing machine has been used for approximately two hours.



10. TROUBLESHOOTING

- Please check the following points before calling for repairs or service.
- If the following remedies do not fix the problem, turn off the power switch and consult a qualified technician or the place of purchase.

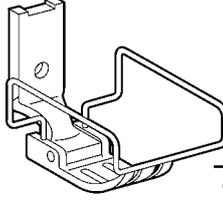
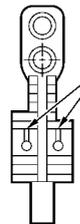
⚠ CAUTION



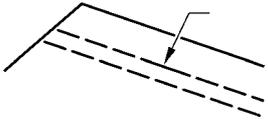
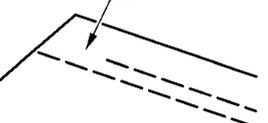
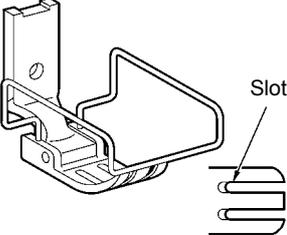
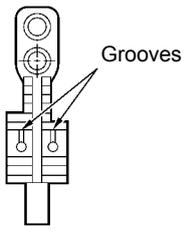
Turn off the power switch and disconnect the power cord before carrying out troubleshooting. The motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

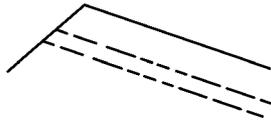
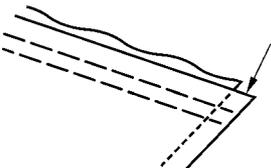
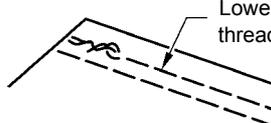
The machine may operate if the treadle is depressed by mistake, which could result in injury.

Items with a "*" in the "Page" column should only be checked by a qualified technician.

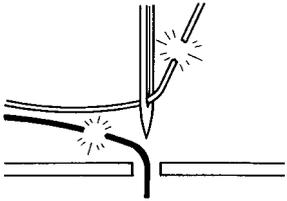
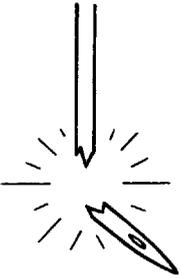
Problem	Possible cause	Page
1 Machine does not operate when power is turned on and treadle is pressed.	<ul style="list-style-type: none"> • Is a breaker or fuse blown? • Is the power cord disconnected? • Is the V-belt installed? 	* 7
2 Upper thread is not tight.  Lower thread is not tight. 	<ul style="list-style-type: none"> • Has the thread been threaded incorrectly? If the thread is threaded incorrectly, thread it correctly. • Is the upper thread tension or lower thread tension too weak? Adjust the upper thread tension or lower thread tension. • Is the thread take-up spring operating range too small? Lower the position of the stopper. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>If using a sewing machine with medium-weight material specifications, poor thread tightening may occur depending on the type of material being sewn. In such cases, replace the presser foot with one that has slots on the underside, or replace the feed dog with a grooved feed dog.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Slot</p> </div> <div style="text-align: center;">  <p>Grooves</p> </div> </div> <p style="text-align: right; margin-right: 50px;">2944M</p> </div>	16-20 25 *
3 Loops appear in seam. 	<ul style="list-style-type: none"> • Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path. • Is the bobbin not turning smoothly? Pull out the lower thread to check that there is no slackness in the thread tension, or replace the bobbin or bobbin case. • Is the thread take-up amount too large? Adjust the thread take-up amount. 	27

10. TROUBLESHOOTING

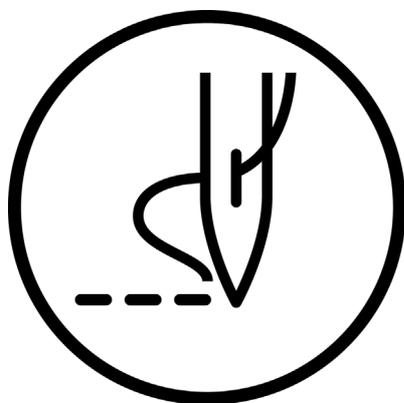
	Problem	Possible cause	Page
4	<p>Skipped stitches occur while sewing</p>  <p style="text-align: right;">2945M</p>	<ul style="list-style-type: none"> • Is the needle tip bent? Is the needle tip blunt? If the needle tip is bent or broken, replace the needle. • Is the needle properly installed? If it is incorrect, install the needle correctly. • Is the machine properly threaded? If it is incorrect, thread the thread correctly. • Is the presser foot pressure too weak? Adjust the presser foot pressure. • Is the needle too thin? Replace the needle with a needle that is one rank thicker. • Is the presser foot too high? Adjust the height of the presser foot. • Is the thread take-up spring too weak? Adjust the tension of the thread take-up spring. • Is the thread take-up amount too large? Adjust the thread take-up amount. 	<p>14</p> <p>16-20</p> <p>26</p> <p>*</p> <p>*</p> <p>27</p>
5	<p>Skipped stitches at sewing start</p> <p>Thread unravelling at sewing start</p>  <p style="text-align: right;">2946M</p>	<ul style="list-style-type: none"> • Is the thread take-up spring tension too strong? Reduce the tension of the thread take-up spring. • Is the thread take-up spring operating range too large? Raise the position of the stopper. • Is the thread take-up at its highest position at the sewing start? Set the thread take-up to its highest position at the sewing start. • Is the length of the upper thread trailing from the needle hole too short? Pull about 50 mm of thread through the needle hole at the sewing start. • Is the needle too wide? Try using a needle with a count that is one lower than the current needle. • If sewing light or medium-weight materials, is a presser foot with slots on the underside or grooved feed dog being used? Use a presser foot without slots. Use a feed dog without grooves. <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: right;">2944M</p>	<p>*</p> <p>*</p> <p>19</p> <p>20</p>

Problem		Possible cause	Page
6	<p>Uneven seam</p>  <p>2948M</p>	<ul style="list-style-type: none"> Is the presser foot pressure too weak? Adjust the presser foot pressure. Is the feed dog too low? Adjust the feed dog height. Is the bobbin scratched? If the bobbin is damaged, smooth it with an oiled grindstone or replace it. Is the V-belt tension too low? Adjust so that there is 10-14 mm of deflection in the V-belt when it is pushed with a finger. 	<p>26</p> <p>*</p> <p>7</p>
7	<p>Large degree of puckering (excess tension)</p>  <p>2949M</p>	<ul style="list-style-type: none"> Is the upper thread tension too strong? Make the upper thread tension as weak as possible. Is the lower thread tension too strong? Make the lower thread tension as weak as possible. Are the thread take-up spring tensions too strong? Make the thread take-up spring tension as weak as possible. Is the thread take-up spring operating range too large? Move the stopper to as high a position as possible. Is the presser foot pressure too strong? Adjust the presser foot pressure. Is the thread take-up amount too small? Adjust the thread take-up amount. 	<p>25</p> <p>25</p> <p>*</p> <p>*</p> <p>26</p> <p>27</p>
8	<p>Material slippage</p>  <p>2950M</p>	<ul style="list-style-type: none"> Is the presser foot pressure too strong? Adjust the presser foot pressure. 	<p>26</p>
9	<p>Lower thread is tangled at the sewing start.</p>  <p>2951M</p>	<ul style="list-style-type: none"> Is the bobbin spinning direction correct when the lower thread is being pulled? Set the bobbin so that it turns in the opposite direction to the rotary hook. Is there too much thread wound onto the bobbin? The bobbin winding amount should not be more than 80%. Is the bobbin turning smoothly? If the bobbin is not turning smoothly, replace the bobbin. Is a bobbin other than the light-alloy bobbins specified by Brother being used? Use only bobbins which are specified by Brother.  <p>2124M</p>	<p>17-18</p> <p>16</p> <p>17-18</p>

10. TROUBLESHOOTING

	Problem	Possible cause	Page
10	<p>Upper and lower threads are breaking.</p>  <p>0471M</p>	<ul style="list-style-type: none"> • Is the needle bent or is the needle tip broken? Replace the needle if it is bent or broken. • Is the needle properly installed? If it is incorrect, install the needle correctly. • Is the machine properly threaded? If it is incorrect, thread the thread correctly. • Is the oil tank filled with lubricating oil? If the level of lubricating oil is below the bottom reference line, add more oil. • Is the upper or lower thread tension too weak or too strong? Adjust the upper thread or lower thread tension. • Is the rotary hook blocked with dust or thread scraps? Clean the rotary hook. • Is the upper thread may be loose because the thread take-up spring operating range is too small? Adjust the position of the stopper. • Is the rotary hook, feed dog or other part damaged? If they are damaged, smooth them with an oiled grindstone or replace the damaged parts. • Is the thread path damaged? If the thread path is damaged, smooth it with sandpaper or replace the damaged part. • Is the thread take-up amount correct? Adjust the thread take-up amount. 	<p>14</p> <p>16-20</p> <p>11</p> <p>25</p> <p>28</p> <p>*</p> <p>*</p> <p>*</p> <p>27</p>
11	<p>Broken needles</p>  <p>0469M</p>	<ul style="list-style-type: none"> • Is the material being pushed or pulled with excessive force during sewing? • Is the needle bent, is the needle tip broken, or is the needle hole blocked? Replace the needle. • Does the needle drop into the center of the needle hole in the feed dog? Check the needle drop position. If the needle does not drop into the center of the needle hole in the feed dog, reinstall the feed dog. If the needle bar has rotated, rotate the needle bar to the correct position. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Caution</p> <ul style="list-style-type: none"> • It is extremely dangerous to leave any pieces of broken needle sticking in the material. If the needle breaks, search for all pieces until the whole of the needle is found again. • Furthermore, we recommend we recommend that through steps be taken to account for such needles to comply with product liability regulations. </div>	<p>14</p> <p>*</p> <p>*</p>
12	<p>The GREASE indicator on the alarm display illuminates and the buzzer sounds when the treadle is depressed.</p>	<ul style="list-style-type: none"> • This is a notification that it is time to apply grease. Apply grease to the sewing machine. 	<p>30</p>

brother[®]



INSTRUCTION MANUAL

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