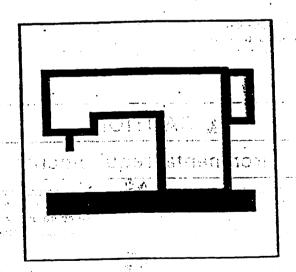


INSTRUCTION MANUAL

BBW Series





SEIKO SEWING MACHINE CO., LTD.

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

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

SAFETY INSTRUCTIONS

1. Safety indications and their meanings

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

Indications



CAUTION

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

Symbols





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

Ŏ

This symbol () indicates something that you <u>must</u> do. The picture inside the circle indicates the nature of the thing that must be done.

ri. The respondence

(For example, the symbol at left means "you must make the ground connection".)

2. Notes on safety

A CAUTION

Environmental requirements



 Use the sewing machine in an area which is free from sources of strong electrical noise such as highfrequency welders.

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



 Any fluctuations in the power supply voltage should be within ±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 pneumatic delivery capability should be greater than the requirements for the sewing machine's total air consumption.

Insufficient pneumatic delivery capability 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.

From the library of: Superior Sewing Machine & Supply LLC

A CAUTION

Installation



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



 Contact your SEIKO dealer or qualified electrician for any electriacal work that may need to be done.



 The sewing machine weighs more than 52 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 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.



 Install the belt guards 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.



 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, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.

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



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.



- Turn off the power switch at the following times, otherwise the machine may operate if the treadle is depressed by mistake, which could result in intury.
 - When threading the needle
 - · When replacing the bobbin and needle
 - When not using the machine and when leaving the machine unattended
 - * When using a clutch motor, 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.



 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 operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest SEIKO dealer or a qualified technician.



 If the machine develops a ploblem, contact your nearest SEIKO dealer or a qualified technician.

A CAUTION

Cleaning



- Turn off the power switch before carrying out cleaning, otherwise the machine may operate if the treadle is pressed by mistake, which could result in
- When using a clutch motor, 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.



. 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, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.

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

Attribute your ask list to be passed to a Maintenance and inspection



មាន ១៩ ភូមិ ស្រាស់ មាន **អនីការ៉ា**ក្សា ម៉ា អ៊ីស សុរាម៉ាស់ សា គ

Attach a massar and a

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



 Ask your SEIKO 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 treadle 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.
 - * When using a clutch motor, 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.



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



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



 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. ...



When checking the rotary hook lubrication, do not touch moving parts such as the rotary hook, needle and needle bar with your finger or paper nor push them with other objects, otherwise injury or damage to the machine may result.



 Use only the proper replacement parts as specified by SEIKO



 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.



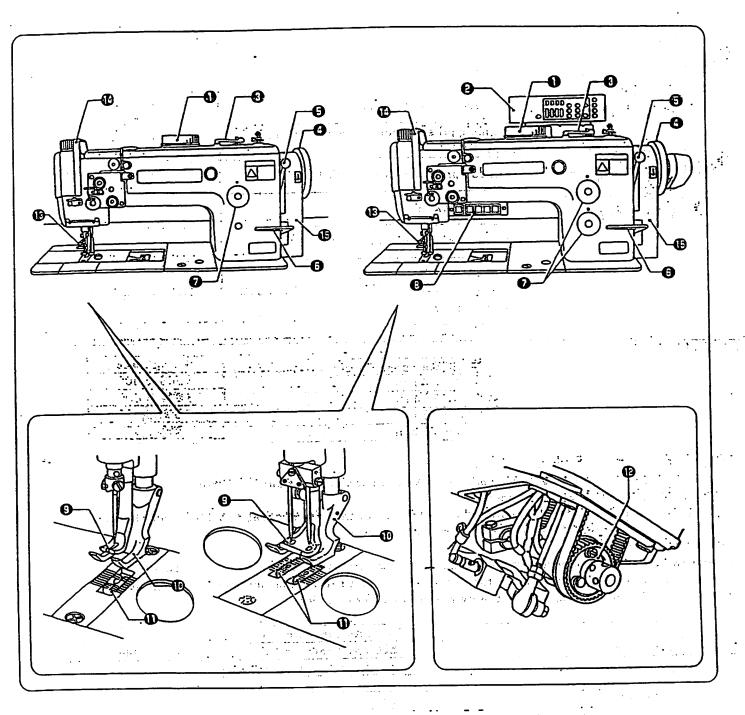
Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.

* 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 SEIKO dealer. Be sure to connect the ground. If the **A** CAUTION ground connection is not secure, you run a high risk of receiving a serious electric Moving parts shock, and problems with correct operamay cause injury. tion may also occur. Operate with safety devices Turn off main switch before threading, changing bobbin and needle, cleaning etc. Direction of operation Salely devices Needle thread take-up cover **1** Finger guard 1 Belt guard, etc.

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1. NAMES OF MAJOR PARTS



- Alternating presser foot movement dial
- O Machine pulley
- O Feed adjustment dial
- Outer presser foot

- Operation panel
- Presser lifter bar
- Manual switch
- 1 Feed dog

- Bobbin winder
- Reverse lever
- Inner presser foot
- Safety clutch mechanism

Salety devices

(D) Finger guard

- (f) Thread take-up cover
- (B) Bell guard

2. MACHINE SPECIFICATIONS

BBW-8BLC-BTFL-CD- DS	
SEIKO SEWING MACHINE CO. LTD	

ONE NEEDLE

BBW-28BLC-BTFL- CD-DS
 SEIKO SEWING MACHINE CO LTD
TWO NEEDLE

	(2)8BL	(2)88LC-8TFL- CD-DS	(2)8BLC
Thread trimmer (C)	-	0	0
Quick reverse switch (BT)	_	0	-
Alternating presser foot movement change switch (CD)	•	0	-
Automatic presser foot lifter (FL)	- (0	-
Half stitch switch	: - , ;	0	
Stitch length change switch (DS)	- 7	0	-:-
Auto backtack select switch		0	_
Operation panel	-	0	-

Sewing speed table

Alternating presser foot movement amount	Sewing speed
1.0 - 2.4 mm	3,500
2.5 - 3.9 mm	3,000
4.0 – 4.7 mm	2,500
4.8 - 7.0 mm	2,000

<-(2)8BLC-BTFL-CD-DS SPECIFICATIONS>

The sewing speed is controlled automatically to the values shown in the table in accordance with the alternating presser foot movement amount setting.

* However, if sewing with a stitch length of 6 mm or more, set the sewing speed to 2,000 rpm or less on the motor or on the operation panel before carrying out sewing.

<-(2)8BL SPECIFICATIONS>

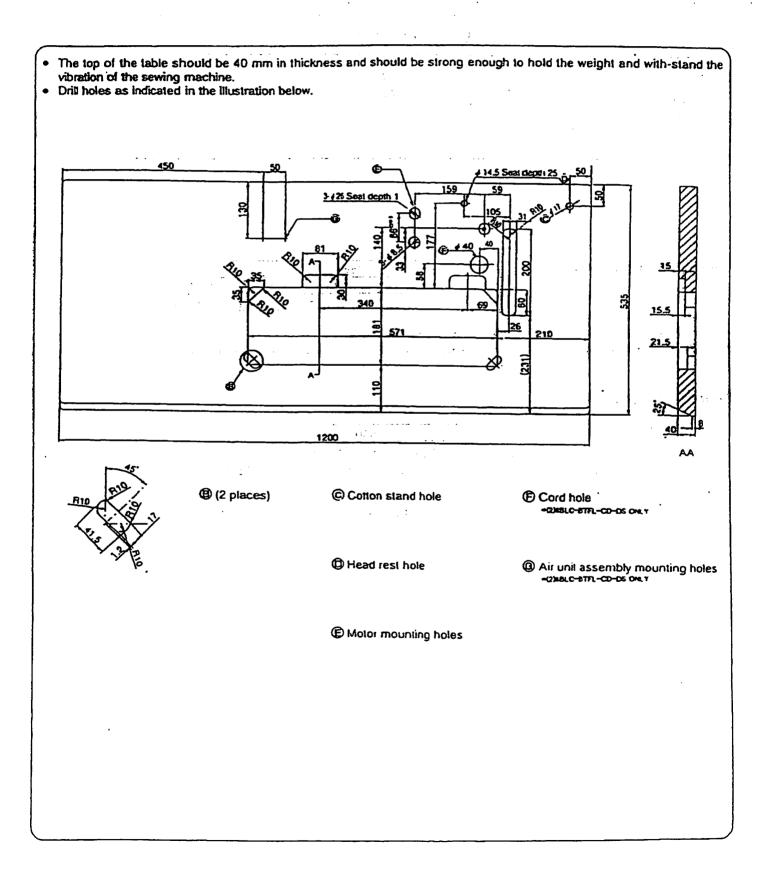
Set the sewing speed to the value which is equal to or less than the value shown in the table in accordance with the alternating presser foot movement amount setting. Furthermore, if sewing with a stitch length of 6 mm or more, set the sewing speed to 2,000 rpm or less.

Use		Car seats, furniture, bags, etc.	
Maximum Sewing speed Maximum stitch length		3,500 spm (Refer to the "Sewing Speed Table") 9 mm (both forward and reverse)	
Presser foot height	Knee lifter	16 mm	
	Automatic presser foot lifter	16 mm	
Alternating presser foot movement amount		1 – 7 mm	
Feed dog height		0.5 mm	
Needle		DP X 17 (#22)	
Arm pocket size		300 mm	

Standard needle gauge (-28BL/-28BLC-BTFL-CD-DS)	3 mm	8 mm
	4 mm	10 mm
	6 mm	12 mm

3. WORK TABLE

If using a commercially-evailable table



4. MOTOR AND V-BELT

A CAUTION



 All cords which are connected to the motor 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 correct belt guard which corresponds to the motor being used.

■ Motor (-(2)8BL specifications)

Power	Motor
Single-phase	2-pole, 550 W motor
Three-phase	2-pole, 550 W motor

- e Select the correct motor from those listed in the above table.
- Refer to the instruction manual for the motor for details on installing and using the motor.

■ Motor pulley and V-belt

<-(2)8BL> Sewing speed		Frequency	Motor pulley	V-belt	
	3500 rpm/min	50 Hz	Motor pulley Φ90	43 inches	
<u></u>		60 Hz	Motor pulley Φ75	43 inches	

<-(2)8BLC-BTFL-CD-DS>

Use the V-belt which is 43 inches in size.

5. INSTALLATION

A CAUTION



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



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.



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



Install the belt guard to the machine head.



 The sewing machine weighs more than 52 kg. The installation should be carried out by two or more people.

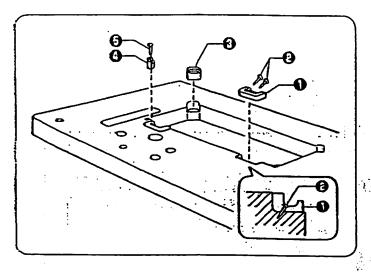


 Use both hands to hold the machine head when tilling it back or returning it to its original position. If only one hands is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.



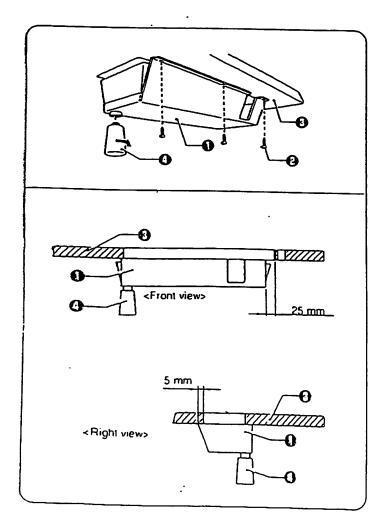
 Do not connect the power cord until installation is complete, otherwise the machine may operate if the treadle is depressed by mistake, which could result in injury.

5-1. Rubber cushion



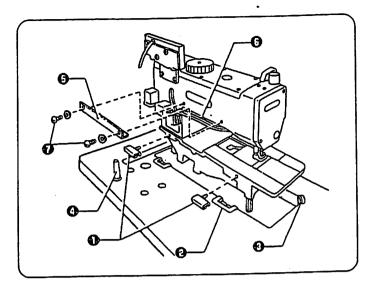
- Insert the rubber cushions into the cut-away sections of the work table (2 places), and secure each of them with the two nails •.
- 2. Insert the corner supports into the front cut-away sections of the work table (2 places).
- 3. Insert the head cushions Θ into the rear cut-away sections of the work table (2 places), and secure each of them with the two nails Θ .

5-2. Oil pan



- Install the oil pan to the underside of the work table in the place shown in the illustration using the six wood screws
 .
- 2. Screw the poly oiler **①** into the oil pan **①**.

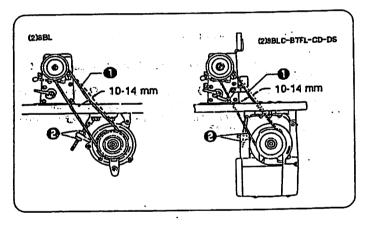
5-3. Machine head



- 1. Insert the two hinges 🚱 into the holes in the machine bed.
- Clamp the hinges onto the rubber cushions on in the work table, and then lower the machine head onto the corner supports on
- ports **3**. Tap the head rest **3** into the table hole.
 - NOTE: Tap the head rest securely into the table hole.
 If the head rest is not pushed in as far as it will go,
 the machine head will not be sufficiently stable when
 it is tilted back
- 4. Place the cord cover **6** on the rear of the arm so that it covers the cords **6**, and then secure it with the two screws **6**.

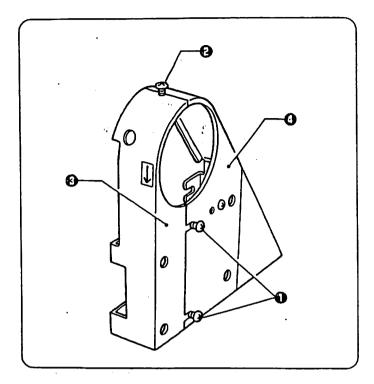
 *(2)*BLC-BTFL-CD-DS ONLY

5-4. V-belt

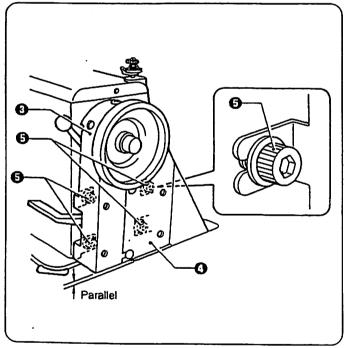


- 1. Tilt back the machine head, and then place the belt **0** onto the motor pulley and the machine pulley.
- Turn the two nuts ② to adjust so that there is 10 14 mm of deflection in the V-belt ③ when it is pressed at the midway point with a force of 4.9 N (500 gf).

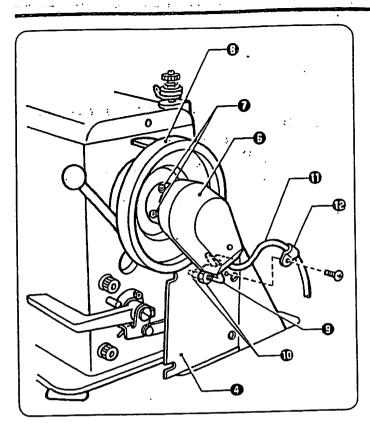
5-5. Belt guard



1. Loosen the two screws **①** and the screw **②**, and then disconnect belt guard L **②** and belt guard R **①**.



- 2. Loosen the four bolts (3) which are screwed into the machine head.
- 3. Align the grooves in belt guard L ② and belt guard R ④ with the bolts ⑤.
 4. Position belt guard L ③ and belt guard R ④ so that there is
- 4. Position belt guard L ② and belt guard R ③ so that there is no gap between them and so that they are parallel to the work table, and then secure only belt guard R ④ by tightening two of the bolts ⑤.

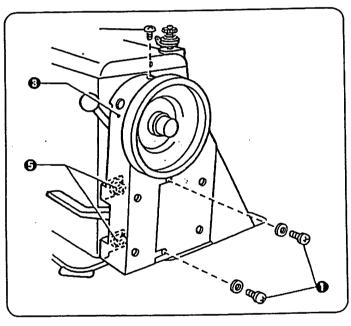


[For -(2)8BLC-BTFL-CD-DS specifications] ...

- (1) Install the synchronizer \odot to the machine pulley \odot with the two set screws \odot .
- (2) Align the synchronizer holder bar **9** with the groove in the synchronizer **6**, and then secure it to belt guard R **6** with the two nuts **10**.
- (3) Secure the cord **①** of the synchronizer **③** to belt guard R **④** with the cord holder **①**.

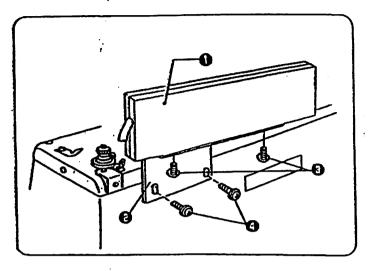
NOTE:

Once machine head installation and lubrication is complete, carry out the procedure given in "8. Adjusting the needle stop position" on page



5. Install belt guard L **②** with the two bolts **③**, the two screws **①** and the screw **②**.

5-6. Operation panel [(2)8BLC-BTFL-CD-DS]

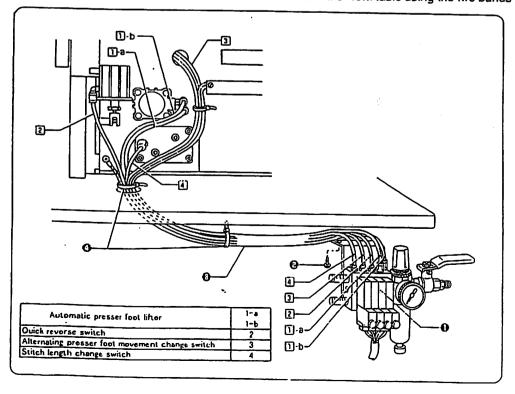


- Install the operating panel to the set plate with the three screws •.
- 2. Install the set plate 2 to the rear of the machine head with the two screws 3.
- The screws 10 are M4 screws with a length of 10 mm, and the screws 10 are M4 screws with a length of 12 mm. Be careful not to get these screws mixed up.

5-7. Air unit [(2)8BLC-BTFL-CD-DS]

5-7-1. Installation

- 1. Install the air unit ① to the underside of the work table with the two wood screws ②. (Refer to the work table processing diagram on page 3.)
- 2. Connect the five air tubes (9 as shown in the illustration at right.
- 3. Bind the air tubes 1 and other cords above and below the work table using the two bands 1.

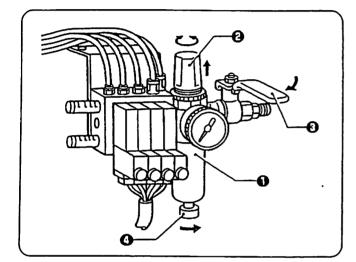


5-7-2. Adjusting the air pressure

CAUTION



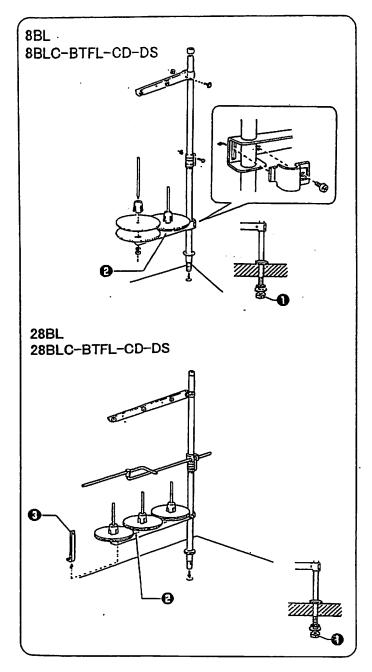
e If the power switch and air need to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.



The air pressure should be set to 0.49 MPa (5 kgf/cm²) before use.

- Pull up the knob ② of the air unit ①, and turn it to adjust the air pressure.
- 2. After adjusting, push the knob @ back in.
- When releasing the air, close the cock of and loosen the knob of by turning it in the direction of the arrow.

5-8. Cotton stand



Assemble the cotton stand as shown in the illustration, and then install it to the work table.

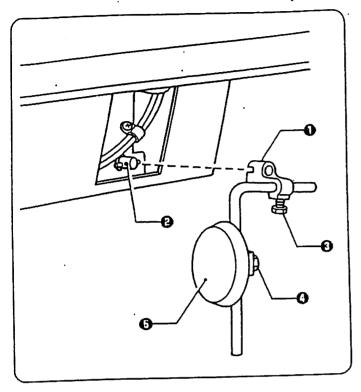
- Securely tighten the nut

 so that the cotton stand does not move.
- When installing the cotton stand, raise the spool holder 2 to a position where it does not touch the machine head when the machine head is tilted back.

<FOR 28BL/28BLC-BTFL-CD-DS>

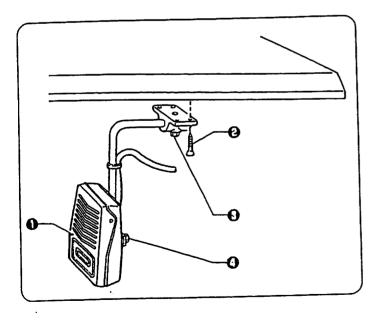
Do not use the spool holder support 3.

5-9. Knee lifter



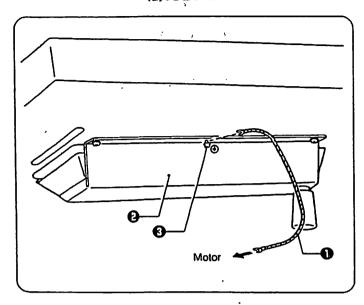
- Push the knee litter lever into the knee litter shaft in the base of the machine head.
- 2. Loosen the bolts (a) and (b), and then adjust the position of the knee lifter (b) so that it can be operated easily with your knee.
- 3. Tighten the bolts (and (a).
- Remove the knee lifter lever when tilting back the machine head.

5-10. Knee switch



- Install the knee switch 1 to the underside of the work table with the four wood screws 2.
- 2. Loosen the bolts 3 and 3, and then adjust the position of the knee switch 3 so that it can be operated easily with your knee
- 3. Tighten the bolts (and ().

5-11. Ground wire connections (2)8BLC-BTFL-CD-DS



- 1. Loosen the center wood screw **3** which was used to install the oil pan **3**, and then attach the ground wire **1**. (The ground symbol appears as shown.)
- symbol appears as shown.)

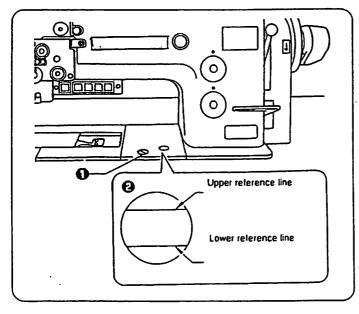
 2. Attach the ground wire ① to the motor according to the instructions given in the instruction manual for the motor.

6. LUBRICATION

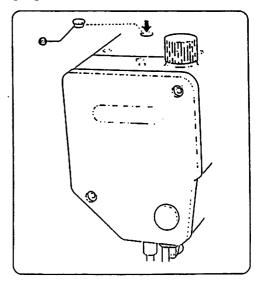
CAUTION

- Do not connect the power cord until lubrication has been completed, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil under any circumstances, as it 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 white spindle oil specified by SEIKO.

Lubrication



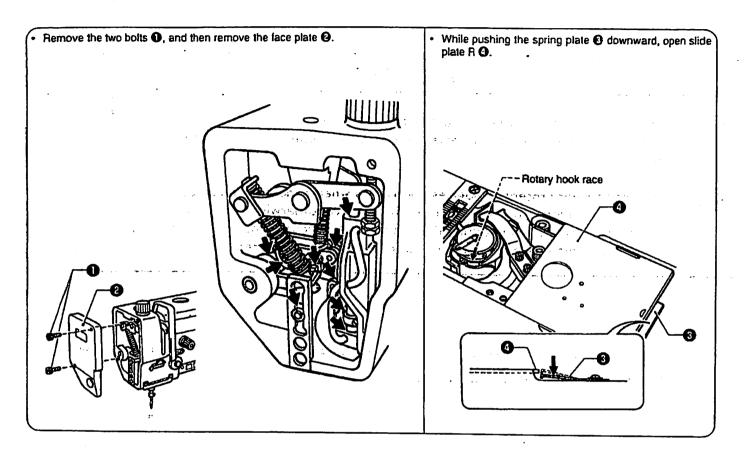
- 1. Remove the screw 1 of the oil tank filler hole.
- 2. Pour lubricating oil into the oil tank from the filler hole unt the oil level reaches the upper reference line on the oil gauge
- 3. Tighten the screw 0.
 - If the oil level drops to the lower reference line on the o gauge (a), add more oil.



- Remove the rubber cap O.
- 5. Pour about 10 ml of lubricating oil in through the oil hole.
- 6. Replace the rubber cap O.

■ Oiling

Add 1-2 drops of oil in the places indicated by the arrows.



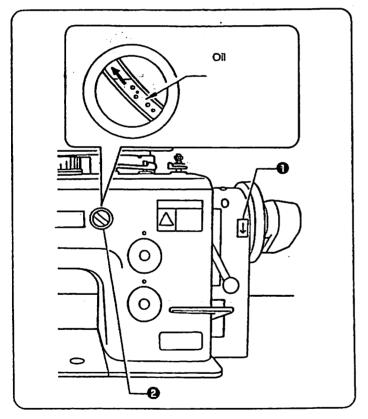
7. CHECKING THE MACHINE PULLEY ROTATING DIRECTION

A

CAUTION



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



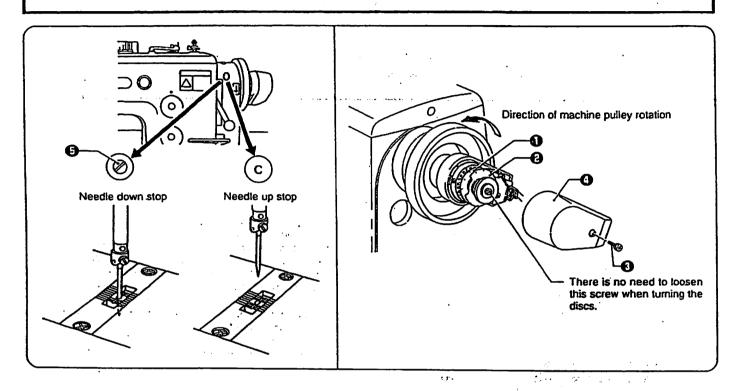
- Insert the power cord plug into the wall outlet, and then turn on the power switch.
- 2. Depress the treadle slightly and check that the machine pulley starts to turn in the direction of the arrow ①.
 - If the direction of rotation is reversed, change the direction of rotation to the correct direction while referring to the instruction manual for the motor.
- 3. Depress the treadle gently and check that the oil level rises in the oil sight glass ②.
 - It takes approximately one minute for the oil to travel through the machine head.

8. ADJUSTING THE NEEDLE STOP POSITION

CAUTION

A

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



The synchronizer detects the needle position by means of two discs $\mathbf{0}$ and $\mathbf{0}$.

Adjusting the needle up stop position

When the sewing machine stops in the needle up stop position and the treadle is pressed back, the "C" mark should be visible in the window of the belt guard.

- If the "C" mark is not visible in the window of the belt guard, thread trimming errors may occur, so adjust by the following procedure.
- 1. Turn off the power switch.
- 2. Loosen the screw 10, and then remove the cover 10.
- 3. When the needle up stop position disc ① is turned in the same direction as the direction of machine pulley rotation, the "C" mark will stop in a position before the position before adjustment. If the disc ② is turned in the opposite direction, the "C" mark will stop in the position after the position before adjustment.

■ Adjusting the needle down stop position (thread trimming signal position)

When the sewing machine stops in the needle down stop position, the set screw 9 should be visible in the window of the belt guard.

- If the set screw (3) is not visible in the window of the belt guard, lower thread take-up errors may occur, so adjust by the following procedure.
- 1. Turn off the power switch.
- 2. When the needle down stop position disc 3 is turned in the same direction as the direction of machine pulley rotation, the set screw 3 will stop in a position before the position before adjustment. If the disc 3 is turned in the opposite direction, the set screw 3 will stop in the position after the position before adjustment.
- 3. After adjusting, install the cover **①** with the screw **③**.

9. PREPARATION BEFORE SEWING

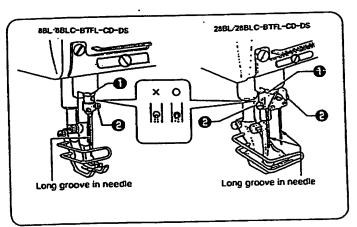
9-1. Installing the needle

A

CAUTION



- Turn off th power switch before installing the needle, otherwiese the machine may operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, 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.



- 1. Turn the machine pulley to move the needle bar 10 to its highest position.
- 2. Loosen the screw Q.
- 3. SEL-SEL-CO-OS
 Insert the needle (a) in a straight line as far as it will go, making sure that the long groove on the needle is at the left, and then securely tighten the screw (a).

28BL/28BL0-BTN-CD-DS Insert the needle **③** in a straight line as far as it will go, making sure that the long groove is facing toward the inside, and then securely tighten the screw **④**.

9-2. Removing the bobbin

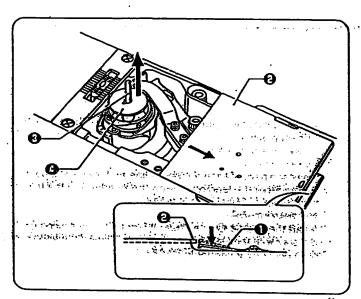
A

CAUTION



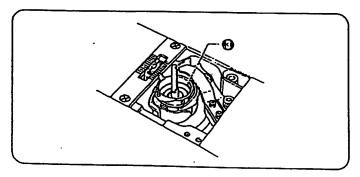
- Turn off th power switch before removing the bobbin, otherwiese the machine will operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.

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- 1. White pushing the spring plate 10 downward, open slide plate
 - 2. Lift up the latch Θ of the rotary hook, and then remove the bobbin Θ .

■ Anti-racing spring



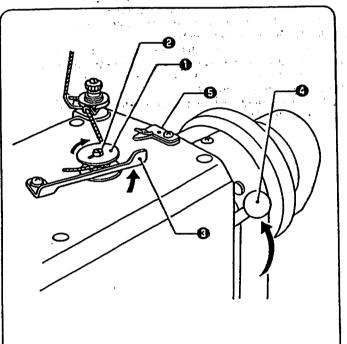
9-3. Winding the lower thread

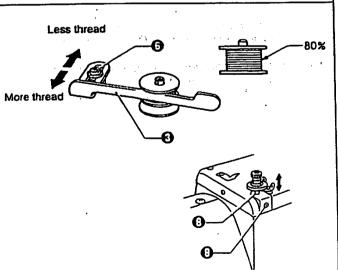
A

CAUTION

A

 Do not touch any of the moving parts of 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. Place the bobbin 1 onto the bobbin winder shalt 1

Wind the thread several times around the bobbin
in the direction indicated by the arrow.

4. Push the bobbin presser 10 toward the bobbin.

5. Raise the presser toot using the presser lifter bar 4.

6. Depress the treadle. Lower thread winding will then start.

7. Once winding of the lower thread is completed, the bobbin presser arm ② will return automatically.

8. After the thread has been wound on, remove the bobbin and cut the thread with the thread trimming knife **9**.

Loosen the screw 3 and move the bobbin presser 3 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.

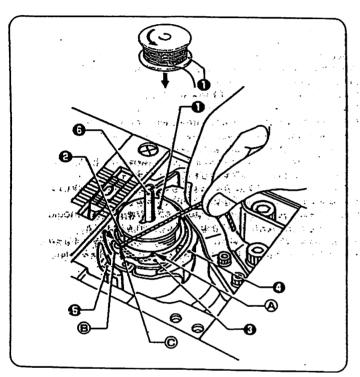
If the thread does not wind on evenly, loosen the set screw and move the pre-tension stud 3 up or down to adjust.

9-4. Installing the bobbin

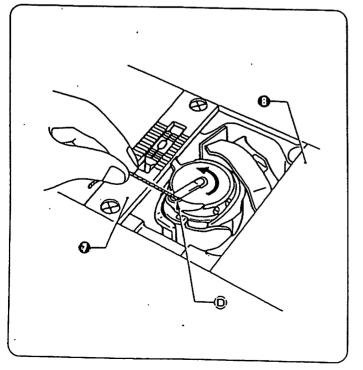
CAUTION



- Turn off the power switch before installing the bobbin, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
 - *When using a clutch motor, 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.



- 1. Place the bobbin ① onto the rotary hook ② so that the thread winding direction is as shown in the illustration.
- 2. Turn the machine pulley to rotate the outer rotary hook 4 until the tension spring 6 can be seen.
- 3. Pass the lower thread through the groove (a) in the inner rotary hook, pull it around between the opener (a) and the projection (a) on the inner rotary hook, and then pass it along the inside of the tension spring (b).
- 4. Pull the lower thread out from the back of the groove ©, and then lower latch ⑤.



- 5. Pull the lower thread to check that it comes out smoothly from the hole © and that the bobbin turns in the direction of the arrow.
- Pull the lower thread until there is a length of about 50 mm of thread above the needle plate •
- Close slide plate ①, but leave a gap which is just enough for the thread to pass through.

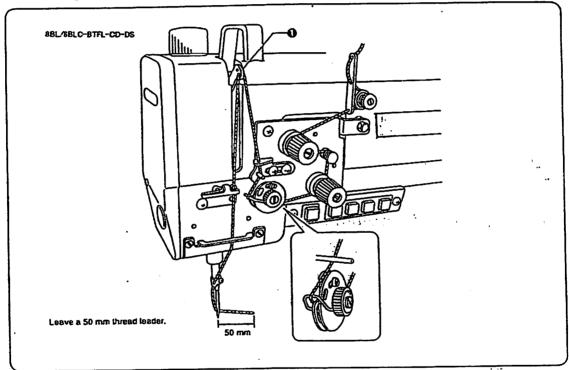
9-5. Threading the upper thread

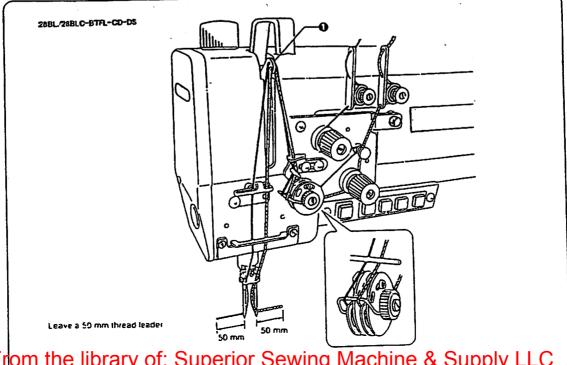
CAUTION



- Turn off the power switch before threading the upper thread, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, 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.

Raise the thread take-up lever 1 before threading the upper thread. This will make threading easier and it will prevent the thread from coming out at the sewing start.

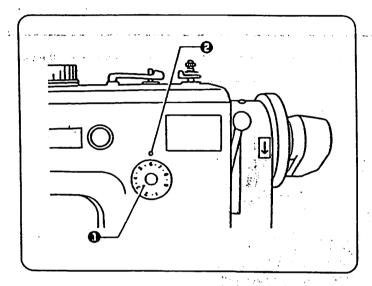




From the library of: Superior Sewing Machine & Supply LLC

9-6. Adjusting the stitch length

(2)8BL

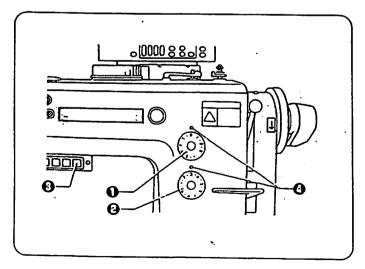


The greater the number, the longer the stilch length.

9-7. Adjusting the stitch length

(2)8BLC-BTFL-CD-DS

- The feed adjustment dials and can be used to set two different types of stitch length. The machine switches between the two different stitch lengths each time the stitch length change switch is pressed.
- Set the stitch lengths by turning feed adjustment dials **0** and **2** clockwise or counterclockwise to align the numbers with the marks **0**.
 - The greater the number, the longer the stitch length.



CAUTION: Forcibly turning the dial may damage the sewing machine.

Set the upper dial to a higher number than the lower dial.

- Adjusting the normal stitch length (When using only one type of stitch length) In this case adjust feed adjustment dial U ① only. NOTE:
- Feed adjustment dial D @ is not used at this time, so set it to the smallest number.
- Check that the indicator for the stitch length change switch
 is turned off.

- Setting two different stitch lengths
- 1. Use feed adjustment dial U 10 to set the longer stitch length.
- 2. Use feed adjustment dial D 2 to set the shorter stitch length.
 - It is not possible to use feed adjustment dial U 0 to set the shorter stitch length and feed adjustment dial D 0 to set the longer stitch length.
- 3. The sewing machine will switch between the two stitch lengths each time the stitch length change sw 0 is pressed. (The stitch length will be changed momentarily even if sewing is in progress.)

Stitch length change switch @

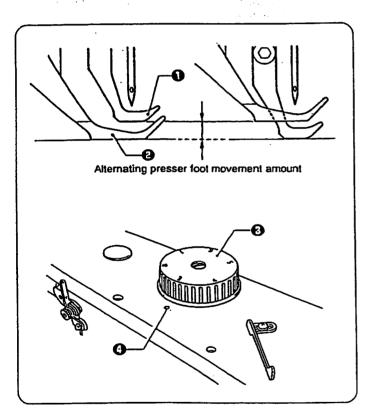


OFF Sewing is carried out using the stitch length set by feed adjustment dial U 1 (longer stitch length).



ON Sewing is carried out using the stitch length set by feed adjustment dial D $oldsymbol{\Theta}$ (shorter stitch length).

9-8. Alternating presser foot movement amount



The alternating movement amount for the inner presser foot and the outer presser foot 2 can be adjusted within the reange of 1-7 mm using the alternating presser foot movement dial 3.

Turn the alternating presser foot movement dial 3 clockwise or counterclockwise to align the number (mm) with the mark 4.

* For machines with (2)8BLC-BTFL-CD-DS specifications, the sewing speed is controlled automatically in accordance with the alternating presser foot movement amount setting. (Refer to "Sewing speed table" on page 2.)

■ Using the alternating presser foot movement change switch (2)8BLC-BTFL-CD-DS

This switch can be used to change between two types of alternating movement: the movement amount set by the alternating presser foot movement dial 10 and the maximum movement amount [7 mm].

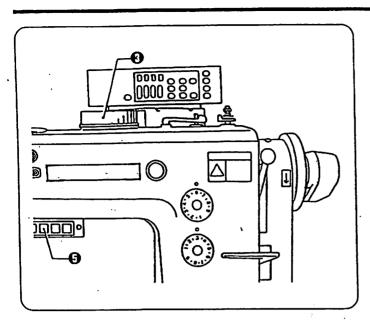
Alternating presser foot movement change switch 6.



OFF The alternating presser foot movement amount equals the amount set by the alternating presser foot movement dial **3**.



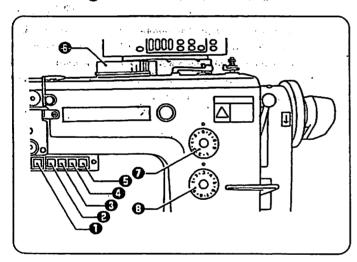
ON The alternating presser foot movement amount equals the maximum movement amount [7 mm].



- 1. Turn the alternating presser foot movement dial **②** to set the alternating presser foot movement amount in accordance with the material which is normally sewn.
- Check that the indicator for the alternating presser foot movement change switch is turned off, and then start sewing.
- When you reach a thick joint in the material while sewing, press the alternating presser foot movement change switch
 (The indicator will turn on and the alternating presser foot movement amount will change to the maximum amount [7 mm].)
- The knee switch can also be used to change the alternating presser foot movement amount.
 - ① Change the setting for DIP switch DIPA-4 inside the motor control box. (Refer to the separate instruction manual for the motor.)
 - ② The alternating presser foot will change between the movement amount set by the alternating presser foot movement dial ③ and the maximum movement amount [7 mm] each time the knee switch is pressed. (The indicator for the alternating presser foot movement change switch ⑤ will turn on and off in accordance with the knee switch operation so that you can check the current movement amount.)

9-9. Using the manual switches

(2)8BLC-BTFL-CD-DS



1 Quick reverse switch

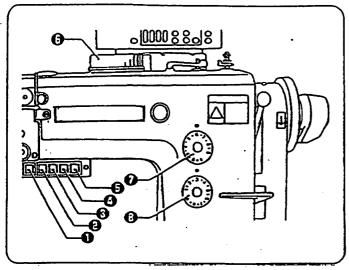


Backtacking is carried out during sewing only while this switch is being pressed.

② Alternating presser foot movement change switch



- The sewing machine can be switched between two different alternating presser foot movement amounts each time this switch ② is pressed.
- If the indicator is turned off, the alternating presser foot movement amount equals the amount set by the alternating presser foot movement dial **3**.
- If the indicator is turned on, the alternating presser foot movement amount equals the maximum movement amount (7 mm).
 (Refer to page 25 for details)



3 Auto backtack select switch



If this switch ③ is pressed when either start backtacking or end backtacking has been set to ON at the operation
panel, backtacking is canceled for the first time only.
 Furthermore, if this switch ⑤ is pressed when neither start nor end backtacking has been set, backtacking is
carried out for the first time only. (The number of backtack stitches sewn at this time will equal the number
previously set.)

4 Half stitch switch



• If this switch is pressed while the sewing machine has been stopped during sewing, the needle can then be moved up and down. (It will not move after thread trimming has been carried out.)

(5) Stitch length change switch



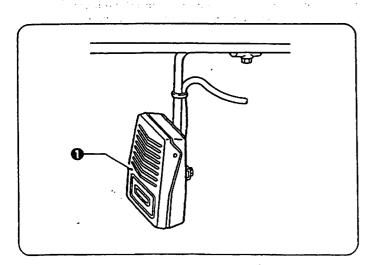
The stitch length changes alternately between two different stitch length settings each time this switch is pressed.
 OFF Sewing is carried out using the stitch length set by feed adjustment dial U (longer stitch length).

OFF Sewing is carried out using the stitch length set by feed adjustment dial D (Innger stitch length).

ON Sewing is carried out using the stitch length set by feed adjustment dial D (Shorter stitch length).

(Refer to page for details.)

9-10. Using the knee switch (2)8BLC-BTFL-CD-DS



- When the knee switch is pressed, the presser foot is raised. Furthermore, the knee switch can also be used as an alternating presser foot movement change switch by changing the setting for DIP switch DIPA-4 inside the motor control box. (Refer to page 18.)
 - However, if this is done, the presser foot lifting function will not be available.

10. SEWING

A

SHARING A

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, otherwise the machine may operate if the treadle is pressed 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
 - . When using a cluth motor, 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.

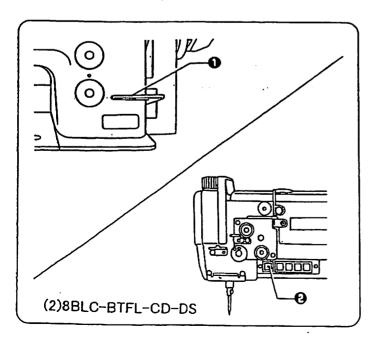


• Do not touch any of the moving parts or place any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

10-1. Sewing

- 1. Turn on the power switch.
- 2. Depress the treadle to start sewing.

10-2. Backtacking



When the reverse lever ① or the quick reverse switch ② is pressed during sewing, the feed direction will be reversed. When it is released, the feed direction will return to normal.

11. THREAD TENSION

11-1. Adjusting the thread tension

Good even stitches

Upper thread tension too strong or lower thread tension too weak

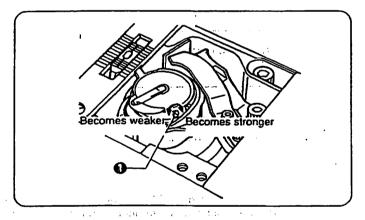
Upper thread tension too weak or lower thread tension too strong

Lower thread tension

CAUTION

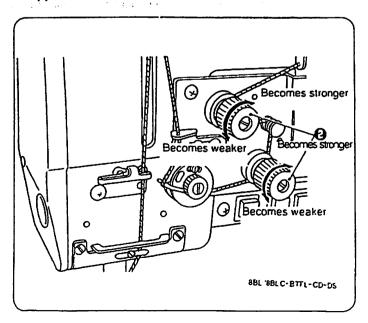


- Turn off the power switch before adjusting the thread tension, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
- * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait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



Turn the adjustment screw 1 to adjust the lower thread tension.

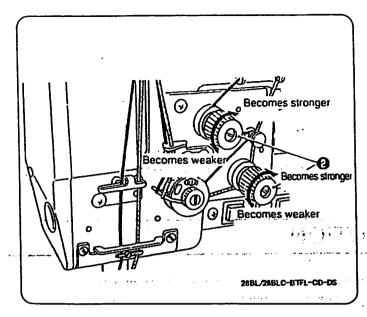
■ Upper thread tension



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 thread tension nut 2.
 - * Adjust so that the two nuts ② are tightened to the same degree of tension.

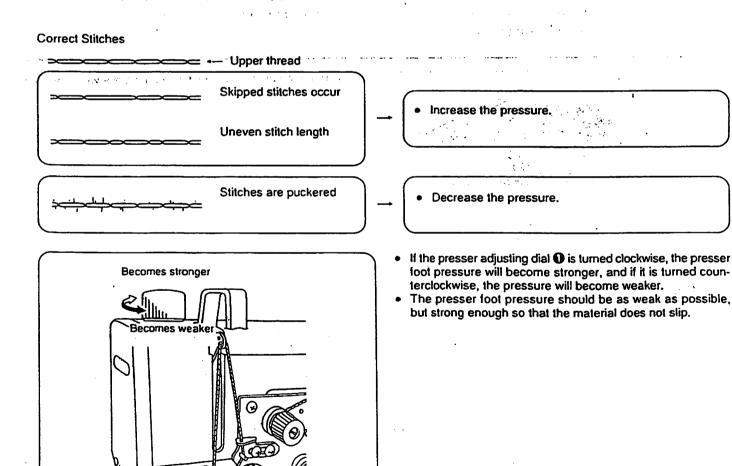
Upper thread tension



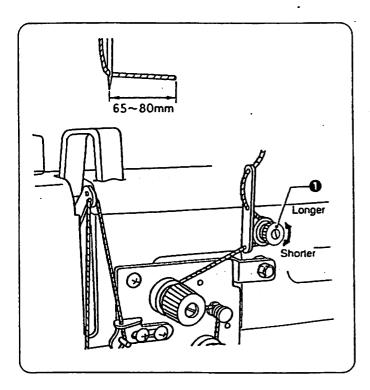
After the lower thread tension has been adjusted, adjust the upper thread tension so that a good, even stitch is obtained.

- 1. Lower the presser foot.
- 2. Adjust by turning the thread tension nut **3**.
 - * Adjust the right thread using the right-side nut **3**, and adjust the left thread using the left-side nut **3**.

11-2. Adjusting the presser foot pressure



11-3. Adjusting the trailing length after thread trimming (2)8BLC-BTFL-CD-DS



Adjust by turning the pretension **0**.

- At the time of thread trimming, the thread tension is loosened and tension is applied by the pretension ① only.
- The standard trailing length for the upper thread is 65 80 mm (when the highest needle position stop function has been set to ON).
- If the tension of the pretension ① is increased, the lengths of the threads trailing from the needle tips will be reduced; if the tension is reduced, the lengths will be increased.

12. CLEANING

A

CAUTION



- Turn off the power switch before carrying out cleaning, otherwise the machine may operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, 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.



 Be sure to wear protective goggles and gloves when handling the lubricating oil, so that no oil gets into your eyes or onto your skin, otherwise inflammation can result.

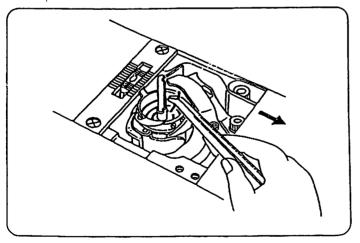


• Use both hands to hold the machine head when tilting it back or returning it to its original position. If only one hand is used, the weight of the machine head may cause your hand to slip, and your hand may get caught.

12-1. Daily cleaning procedures

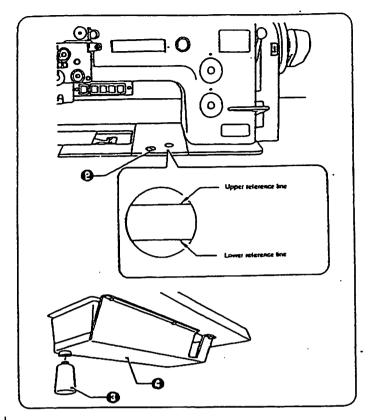
The following cleaning operations should be carried out each day in order to maintain the performance of this machine and to
ensure a long service life.
 Furthermore, if the sewing machine has not been used for a long period of time, carry out the following cleaning procedures
before using it again.

■ Cleaning



- 1. Open slide plate, and then remove the bobbin.
- 2. Remove any thread scraps from inside the rotary hook.
- 3. Install the bobbin.

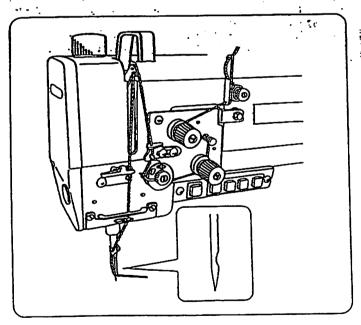
■ Lubrication



Use only white spindle oil specified by Seiko.

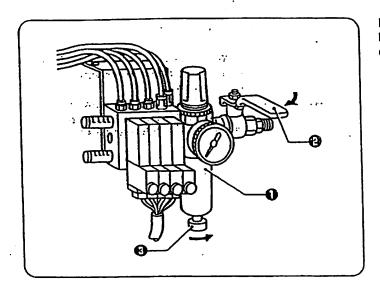
- If the oil level drops to the lower reference line on the oil gauge ①, add more oil.
 Remove the screw ②, and then pour lubricating oil into the oil tank from the filler hole until the oil level reaches the upper reference line on the oil gauge ①.
- 2. If oil has collected in the poly oiler ②, unscrew and remove the poly oiler ② and discard the oil which it contains.
- 3. Screw the poly oiler 3 back into the oil pan 3.

■ Checking



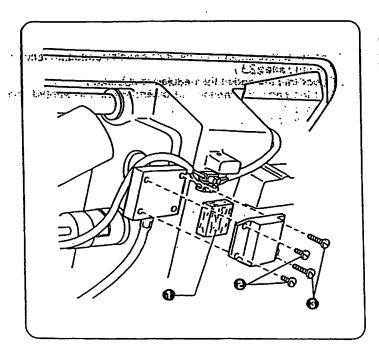
- 1. Check that the upper threads have been threaded correctly. (Refer to page 23.)
- Check that the end of the needle is not broken.
 If the end of the needle is broken, the needle should be replaced.
- 3. Carry out a test sewing.

■ Draining water from the air system (2)8BLC-BTFL-CD-DS



If water has collected in the bottle **①**, close the cock **②** and loosen the knob **③** by turning it in the direction of the arrow to drain the water.

12-2. Cleaning the oil filter (carry-out-once a month)



If the filter **①** is dirty, or if the amount of oil consumption increases dramatically, remove the two screws **②** and the two screws **③**, and then remove the filter **①**. Clean or replace the filter **①** as required.

The two screws @ have a length of 8 mm, and the screws @ have a length of 19 mm. Be careful not to get the screws @ and @ mixed up when installing the filter .

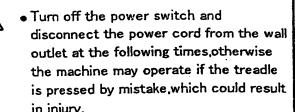
13. STANDARD ADJUSTMENTS

CAUTION



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







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

. When carrying out inspection, adjustment and maintenance



 If any sefety 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.

. When replacing consumable parts such as the rotary hook



. When using a clutch motor, 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.

c Use both hands to hold the machine head 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.



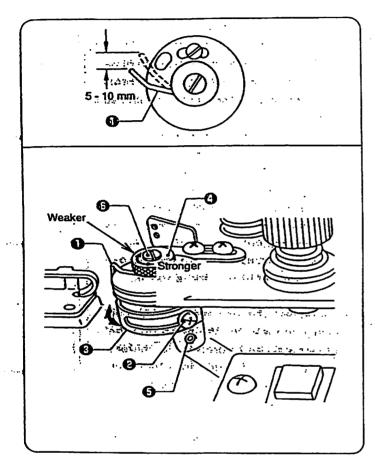
 Disconnect the air hoses from the air supply and wait for the needle on the pressure gauge to drop to "0" before carrying out inspection, adjustment and repair of any parts which use the pneumatic equipment.



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

13-1. Adjusting the machine head

13-1-1. Adjusting the thread tension spring



Thread tension spring position

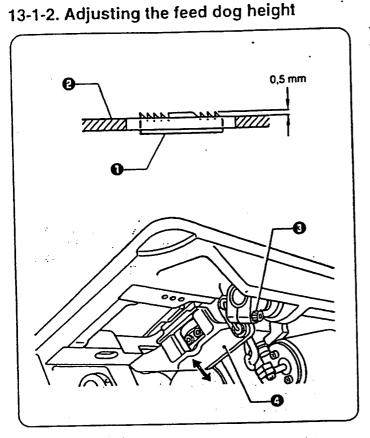
The standard operating range for the thread tension spring $\boldsymbol{\Theta}$ is

- 1. Loosen the screw 2 and then turn the stopper 3 to adjust the operating range.
- 2. Tighten the screw **3**.
- Thread tension spring tension:

The standard tension for the thread tension spring 1 is 0.39 - 0.78 N (40 - 80 gf).

1. Loosen the nut 1.

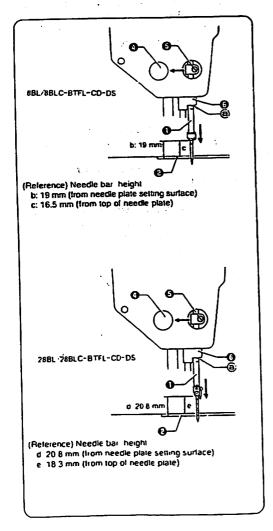
- 2. Loosen the screw 6, and then turn the tension adjusting stud Oto adjust the tension.
- 3. Tighten the screw 6, and then tighten the nut 6.



The standard height when the feed dog 10 is at its highest position above the needle plate **Q** is 0.5 mm.

- 1. Turn the machine pulley to set the feed dog 0 to its highest position.
- 2. Till back the machine head.
- 3. Loosen the bolt **3**, and then move the feed bracket **3** up or down to adjust the height of the feed dog $\mathbf{0}$.
- 4. Tighten the bolt 0.

13-1-3. Adjusting the needle bar height



Set the feed adjustment dials to the minimum settings. The distances from the setting surface of the needle plate @ when the needle bar 10 is at its lowest position are as given below.

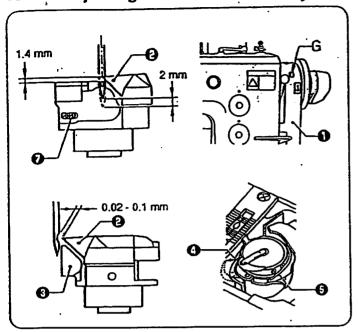
Set so that the distance from the setting surface of the needle plate 2 to the end of the needle bar. 1 is 19 mm. BBL/EBLC-BTFL-CD-DS

Set so that the distance from the setting surface of the needle plate 2 to the bottom of the needle clamp 3 is 20.8 mm. 288L/288LC-BTFL-CD-DS

- 1. Remove the rubber cap 2.
- 2. Set the feed adjustment dials to the minimum settings For models 8BLC/28BLC-BTFL-CD-DS SPECIFICATIONS, Set feed adjustment dial D to the minimum setting first and then set feed adjustment dial U to the minimum setting.

 3. Turn the machine pulley to set the needle bar to its lowest
- 4. Loosen the screw 6, and then move the needle bar 0 up or down to adjust the height of the needle bar 1 above the setting surface of the needle plate 2. (At this time, the standard distance can be obtained fairly closely by aligning upper reference line "@" on the needle bar 1 with the bottom edge of the needle bar bracket (9.)
- 5. Securely tighten the screw 0.

13-1-4. Adjusting the needle and rotary hook timing

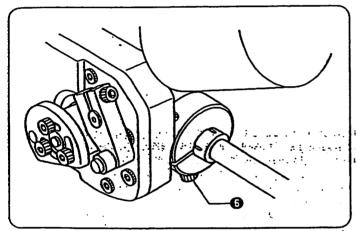


Set the feed adjustment dials to the minimum settings. Then turn the machine pulley to raise the needle bar from its lowest position to the point where "G" is visible in the window of the belt guard ①. The rotary hook tip ② should be aligned with the center of the needle at this time.

Furthermore, the clearance between the needle and the rotary hook tip ② should be 0.02 - 0.1 mm when the needle guard ③ is not touching the needle.

NOTF:

- Be sure to adjust the clearance between the needle and the rotary hook tip after adjusting the needle and rotary hook timing.
- The rotary hook ① rotates twice for each single rotation of the machine pulley. Consequently, the rotary hook ② will rotate twice during a single stroke of the opener ③. Carry out the following adjustments when the opener ③ is at its closest position to the rotary hook ④.

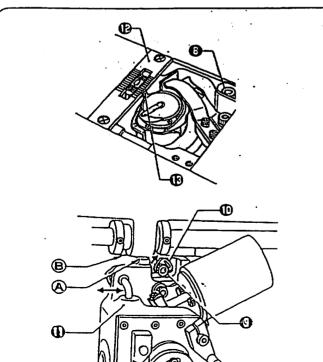


■ Needle and rotary hook timing

- 1. Set the feed adjustment dials to the minimum settings.
- 2. Remove the needle plate.
- 3. Tilt back the machine head.
- 4. Loosen the bolt G.
- 5. Turn the machine pulley to raise the needle bar from its low est position to the point where "G" is visible in the window of the belt guard 1.

(The needle will rise 2 mm, and the distance from the needle hole to the rotary hook tip ② will be 1.4 mm.)

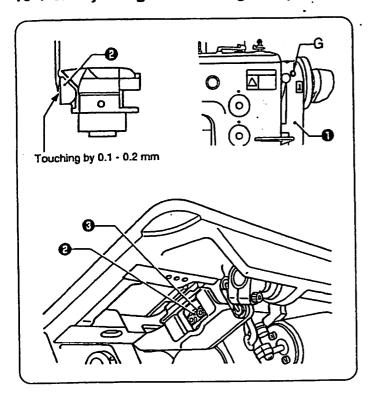
6. Turn the rotary hook ② to align the rotary hook tip ② with the center of the needle, and then securely tighten the bolt ③.



Clearance between needle and rotary hook tip

- 7. Turn the bolt (right) O clockwise so that the needle guard o is away from the needle. (Refer to the illustration in 13-1-5 on page 65 for the position of the bolt (right) O.)
- 8. Loosen the bolts 3 and 4.
- 9. Turn the horizontal hook base collar @ clockwise so that side @ of the horizontal hook base @ gently touches the bed worked surface B. In this condition, move the horizontal hook base @ to the left or right to adjust so that the clearance between the needle and the rotary hook tip @ becomes 0.02 0.1 mm.
- 10. Tighten the bolt 9.
- 11. Tighten the bolt 3.
- 12. Install the needle plate **B**. At this time, insert the stopper **B** of the inner rotary hook into the notch in the needle plate **B**.
- 13. Adjust the position of the needle guard **3**. (Refer to page 39.)

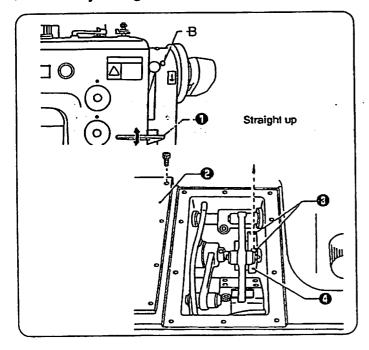
13-1-5. Adjusting the needle guard position



Turn the machine pulley to raise the needle bar from its lowest position to the point where "G" is visible in the window of the belt guard ①. The needle guard ② should touch the needle by 0.1-0.2 mm at this time.

- First carry out the "Needle and rotary hook timing" and "Clearance between needle and rotary hook tip" adjustments. (Refer to page 38)
- 2. Tilt back the machine head.
- Turn the bolt (right) to adjust so that the needle guard touches the needle by 0.1 0.2 mm.
 - If the boit (right) 3 is turned clockwise, the needle guard 3 will move away from the needle, and if it is turned counter clockwise, the needle guard 3 will move toward the needle.

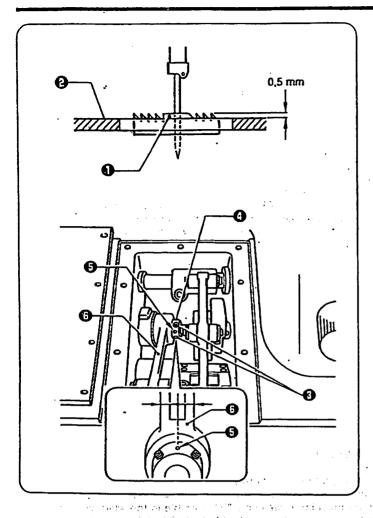
13-1-6. Adjusting the needle and feed mechanism timing



■ Horizontal feed direction

Set the feed adjustment dials to the maximum settings. Then turn the machine pulley until "B" is visible in the window of the belt guard. Then adjust so that the needle and the feed dog do not move even when the reverse lever • is moved up and down at this time.

- 1. Remove the bed upper cover @
- Set the feed adjustment dial to the maximum settings.
 For models with (2)8BLC-BTFL-CD-DS specifications,
 set feed adjustment dial U to the maximum setting.
- 3. Loosen the two set screws 3.
- 4. Turn the machine pulley until "B" is visible in the window of the belt guard.
- 5. Turn the lower feed carn ① until the set screw ② nearest to you (at the front relative to the direction of pulley rotation) is provisionally facing straight up.
- 6. Turn the lower feed cam **(a)** gradually until it is at the position where the needle and the feed dog do not move even when the reverse lever **(a)** is moved up and down.
- 7. Tighten the two set screws 1.

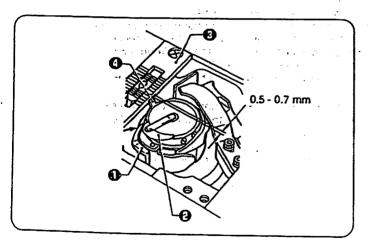


■ Vertical feed direction

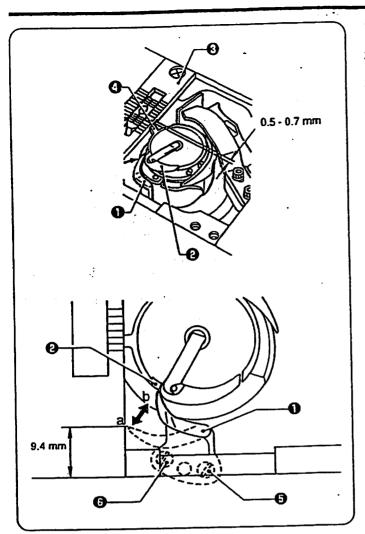
Set the feed adjustment dials to the minimum settings. Then adjust as follows so that the feed dog • is at its highest position (0.5 mm above the top of the needle plate •) when the needle bar is at its lowest position.

- 1. Loosen the two set screws 0.
- 2. Turn the machine pulley to set the needle bar to its lowest position.
- 3. Turn feed cam UD **④** to align the point **⑤** of feed cam UD **⑤** with the center line of feed rod UD **⑥**.
- 4. Tighten the set screws 1.

13-1-7. Adjusting the opener position



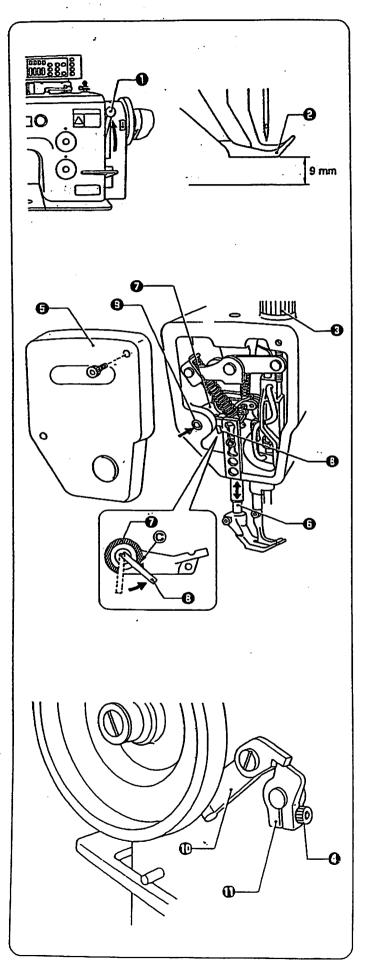
Adjust so that the clearance between the needle plate ② and the stopper ③ of the inner rotary hook ② is 0.5 - 0.7 mm when the opener ③ is at its closest position to the inner rotary hook ②.



- Turn the machine pulley to move the opener in direction "a" (opening direction), and then loosen the set screw .
- 2. Turn the machine pulley to move the opener **0** in direction "b" (closing direction), and then loosen the set screw **6**.
- 3. Turn the machine pulley to move the opener 1 as close to the inner rotary hook 2 as possible.
- 4. While pressing the opener against the inner rotary hook with your finger, adjust so that the clearance between the needle plate and the stopper of the inner rotary hook is 0.5 0.7 mm.
- 5. Tighten the set screw 6.
- 6. Turn the machine pulley to move the opener in direction *a* (opening direction), and then tighten the set screw •.
 (Reference) Opener stroke

The distance from the tip of the opener **①** to the inside of the bed is approximately 9.4 mm when the opener **①** has moved as far as it will go in direction "a" (opening direction).

13-1-8. Adjusting the presser foot height

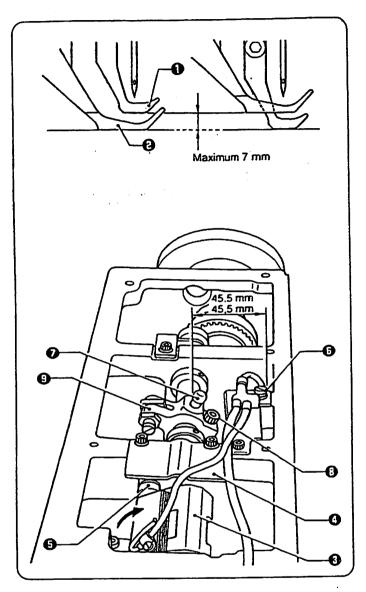


The standard height of the outer presser foot @ is 9 mm when it is raised by the presser lifter bar 0.

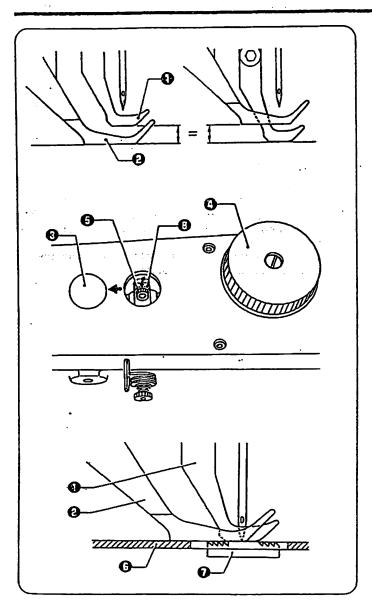
- 1. Remove the belt guards.
- 2. Loosen the presser adjusting dial 3, to release the presser foot pressure.
- 3. Raise the presser lifter bar 1 and then loosen the screw 1.
- 4. Remove the face plate 6.
- 5. Move the outer presser bar 9 up or down to adjust so that
- the height of the outer presser foot 3 is 9 mm.

 6. While the stopper pin 3 is touching against the notch in the presser foot lifter connection 3 and while pushing the presser lifter shaft 9 so that there is no play in the thrust direction, tighten the screw (4).
 - Tighten the screw @ while presser bar lifter cam A @ is meshed with presser bar lifter cam B 10 as shown in the Ilustration.
- 7. Turn the presser adjusting dial 10 to adjust the presser foot pressure. (Refer to page 30.)
- 8. Install the belt guards. (Refer to page 7.)

13-1-9. Adjusting the alternating presser foot movement amount



- Maximum alternating presser foot movement amount Carry out the following adjustment to set the maximum alternating movement amounts for the inner presser foot 1 and outer presser foot 2 to the maximum of 7 mm.
- 1. Remove the upper plate.
- Lift up adjusting bracket UD so that adjusting bracket collar UD touches the stopper support plate .
 Loosen the bolt and turn connecting lever CD to adjust
- 3. Loosen the bolt 3 and turn connecting lever CD 3 to adjust so that the distance from the outer edge of the screw 3 to the outer edge of the pin 3 is 45.5 mm at this time. Then tighten the bolt 3.
- When installing the upper plate, set the alternating presser foot movement dial to the "1" position.

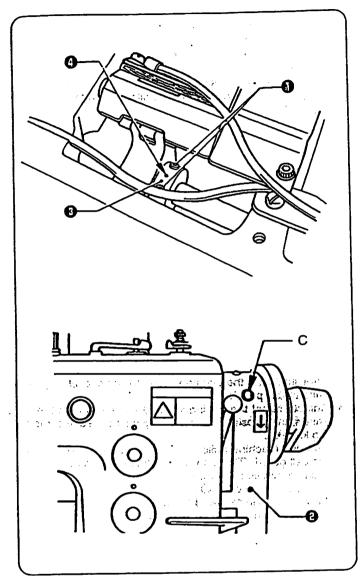


Inner presser foot and outer presser foot movement amounts

Carry out the following adjustment to make the movement amounts for the inner presser foot ① and outer presser foot ② equal when the presser feet are lowered and the machine pulley is turned.

- First, carry out the "Feed dog height", "Needle bar height" and "Needle and feed mechanism timing" adjustments. (Refer to pages 58, 59 and 66.)
- 2. Set the feed adjustment dials to the maximum settings.
- 3. Remove the rubber cap 0.
- Turn the alternating presser foot movement dial
 o the "3" position.
- 5. Loosen the screw 6.
- 7. Move the connecting lever ① to adjust so that both the inner presser foot ① and outer presser foot ② are in contact with the top of the needle plate ③ at this time. Then tighten the screw ⑤.

13-1-10. Adjusting the presser foot timing



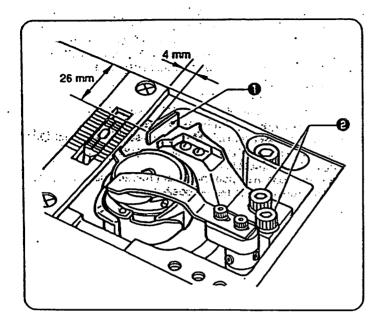
When the presser feet are lowered and the machine pulley is turned toward you, the inner presser foot should touch the feed dog before the needle arrives at the feed dog. Then when the needle lifts up, the tip of the needle should move away from the feed dog before the inner presser foot moves away.

- 1. Remove the upper cover.
- 2. Loosen the two screws 1.
- 3. Turn the machine pulley until "C" is visible in the window of
- the belt guard ② (highest take-up lever position).

 4. Turn inner presser cam UD ③ to adjust so that the point ④ of inner presser cam UD 1 is facing straight up.
- 5. Tighten the screws **0**.
- When installing the upper plate, set the alternating presser foot movement dial to the "1" position.

13-2. Adjusting the thread trimmer (2)8BLC-BTFL-CD-DS

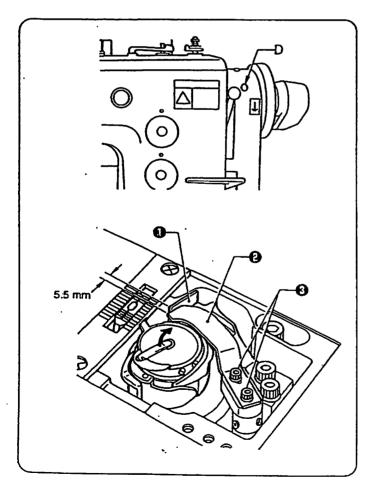
13-2-1. Adjusting the fixed knife position



The distance from the groove of slide plate to the fixed knife 1 should be 26 mm. Furthermore, the distance from the edge o the needle plate to the left edge of the tip of the fixed knife 1 should be 4 mm.

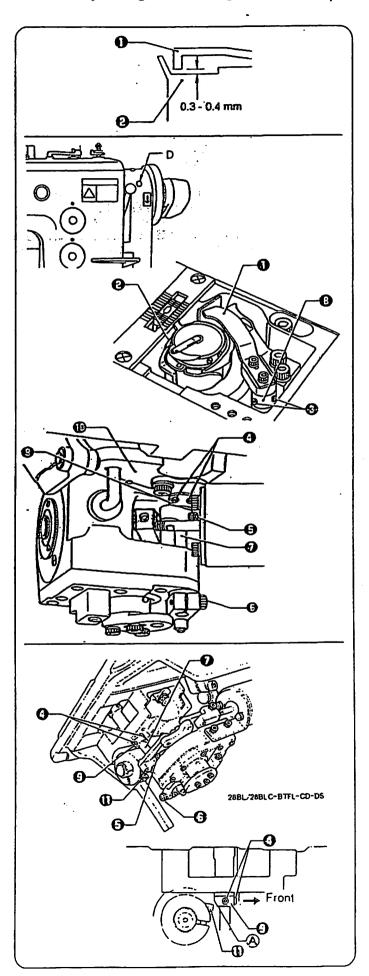
- 1. Loosen the two bolts 3.
- 2. Adjust the position of the fixed knife 10, and then tighten the bolts @.

13-2-2. Adjusting the knife timing position



- After adjusting the position of the fixed knife $m{0}$, adjust the knife timing position.
- Adjust so that the driving knife @ starts touching the fixed knife 1 at a position 5.5 mm along the front edge of the driving knife 2.
- 1. Turn the machine pulley until "D" is visible in the window of the belt guard. (This is to set the driving knile ② so that it can then be moved by hand.)
 2. Loosen the two bolts ①
- 3. Move the driving knile 3 to the left or right to adjust its position, and then tighten the bolts 3.

13-2-3. Adjusting the driving knife height



The clearance between the lower blade edge of the driving knife
and the lower surface of the inner rotary hook
should be
0.3 - 0.4 mm.

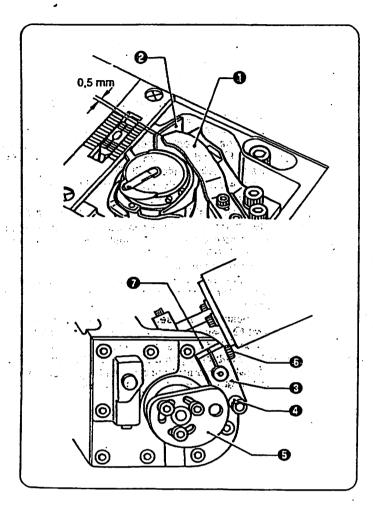
- 1. Turn the machine pulley until "D" is visible in the window of the bell guard. (This is to set the driving knife ① so that it can then be moved by hand.)
- 2. Loosen the two set screws 1.
- 3. Tilt back the machine head.
- 4. Loosen the two set screws (), the bolt () and the bolt ().
- 5. Move the driving knile shaft **0** up or down to adjust the position of the driving knile **0** %
- 6. Clamp the horizontal hook base (1) with the set screw collars (2) and (2), and then tighten the set screws (3) and (4) to secure the driving knife shaft (7).
 - Check that the driving knife shaft turns smoothly at this time with no vertical play.
- 7. Provisionally tighten the bolt 1 and the bolt 1.
 - After this, carry out the procedures in "Adjusting the driving knife stop position" and "Adjusting the driving knife operating position". (Refer to page 49.)

FOR 28BL-28BLC-B7FL-CD-DS

Adjusting the height of the left driving knife is done in the same way as for the right driving knife, but be sure to note the following points.

- The positions of the set screws ①, bolt ③ and driving knife shaft ② are as shown in the illustration at left.
- When tightening the set screws ② in step 6, tighten them so that one is facing to the front and the other is facing to the left. (Make sure that the notch ③ is positioned so that the collar bolt ③ does not touch the collar ④.)

13-2-4. Adjusting the driving knife stop position

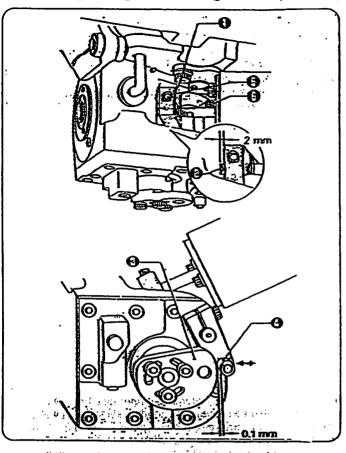


The distance from the blade of the fixed knife 2 to the end of the driving knife 10 should be 0.5 mm when the driving knife 1 has moved as far as possible toward the fixed knile 0.

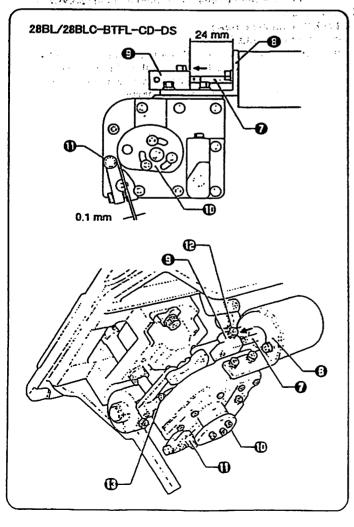
- 1. Tilt back the machine head.
- 2. Turn the machine pulley to move the roller ② of the driving knife arm ③ to the outermost side (right side) of the threat trimmer cam 6.
- 3. Loosen the bolt 6.
- 4. Move the driving knife 1 so that the distance between the blade of the fixed knife ② to the end of the driving knife ① is 0.5 mm, and then tighten the bolt ③.

 Tighten the bolt ⑤ so that the driving knife arm ③ is firmly
 - in contact with the horizontal hook base 1.

13-2-5. Adjusting the driving knife operating position



- The standard distance from the left side of driving knife arm
 A to the screw tip on the plunger of the thread trimming
 solenoid is 2 mm.
- The clearance between the outermost side (right side) of the thread trimmer cam ② and the roller ③ of the driving knile arm should be 0.1 mm.
- 1. Till back the machine head.
- 2. Loosen the bolt 3.
- 3. Turn the plunger ② of the thread trimming solenoid so that the distance from the left side of driving knile arm A ① to the screw tip on the plunger ② of the thread trimming solenoid is 2 mm, and then tighten the bolt ③.
- 4. Loosen the bolt 6.
- 5. Set the plunger ② to the position where it projects as far as possible to the left.
- Turn the machine pulley to move the roller @ of the driving knife arm to the outermost side (right side) of the thread trimmer cam @.
- 7. Move the roller 3 so that the clearance between the outermost side (right side) of the thread trimmer cam 3 and the roller 3 is 0.1 mm, and then tighten the bolt 3.

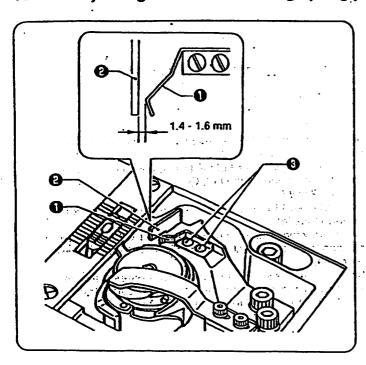


28BL/28BLC-BTFL-CD-DS

Refer to the following when adjusting the operating position for the left driving knife.

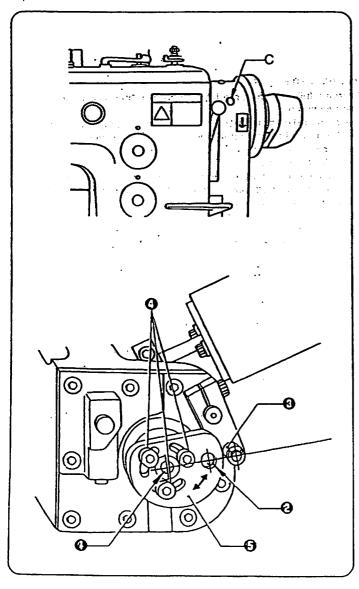
- The standard distance between the solenoid setting plate @ and the thread trimmer solenoid arm @ is 24 mm when the plunger @ of the thread trimmer solenoid is extended to the left as far as it will go.
- 1. Tilt back the machine head.
- 2. Loosen the bolt (B.
- Move the plunger so that it is extended to the left as far as it will go.
- 4. Turn the plunger ② so that the distance between the solenoid setting plate ③ and the thread trimmer solenoid arm ④ is 24 mm, and then tighten the bolt ⑤.
- Loosen the bott (B).
- 6. Move the plunger once more so that it is extended to the left as far as it will go.
- Turn the machine pulley to move the roller ① of the driving knife arm to the outermost side (left side) of the rim of the thread trimmer cam ①.
- 8. Move the roller ① so that the clearance between the outermost side (left side) of the rim of the thread trimmer cam ① and the roller ① is 0.1 mm, and then tighten the bolt ①.

13-2-6. Adjusting the thread holding spring position



- The thread holding spring holds the lower thread after thread trimming to prepare it for the next sewing operation.
- The clearance between the thread holding spring and the side of the fixed knile should be 1.4 1.6 mm.
- 1. Loosen the two screws 3.
- 2. Move the thread holding spring 10 to adjust its position, and then tighten the screws 12.

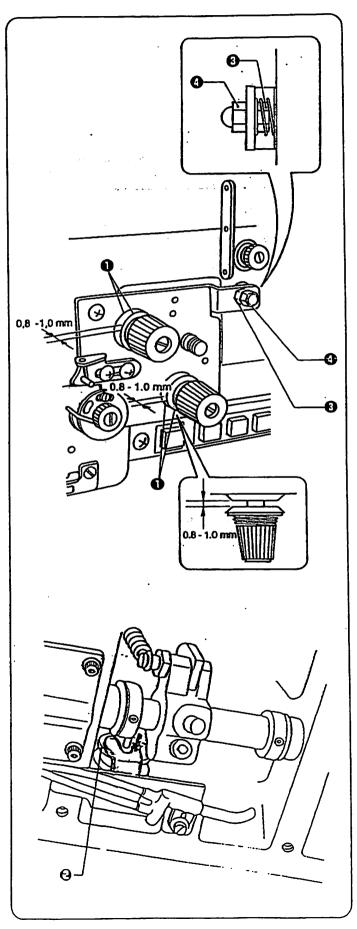
13-2-7. Adjusting the thread trimming timing



The center of the pin **①**, the center of the reference hole **②** and the center of the roller **③** of the driving knife arm should be in a straight line when the machine pulley is turned so that "C" is visible in the window of the belt guard.

- 1. Turn the machine pulley until "C" is visible in the window of the belt guard.
- 2. Tilt back the machine head.
- 3. Loosen the three bolts **Q**.
- 4. Turn the thread trimmer cam Θ to adjust the position of the thread trimmer cam Θ so that the center of the pin Ω , the center of the reference hole Θ and the center of the roller Θ of the driving knife arm are in a straight line.
- 5. Tighten the bolts 4.

13-2-8. Adjusting the tension release amount



The standard opening amount for the tension discs 1 is 0.8. 1.0 mm when the thread is trimmed.

- 1. Remove the upper cover.
- 2. Lower the presser feet.
- 3. Push the solenoid ② by hand to turn it on.4. Loosen the nut ③ and turn the nut ④ to adjust so that the tension discs 1 open by 0.8 - 1.0 mm at this time. The tension discs 1 open in accordance with the tight-

ness of the nut 4.

5. Tighten the nut 3. When installing the upper plate, set the alternating presser foot movement dial to the "1" position.

13-3. Adjusting the rotary hook lubrication amount

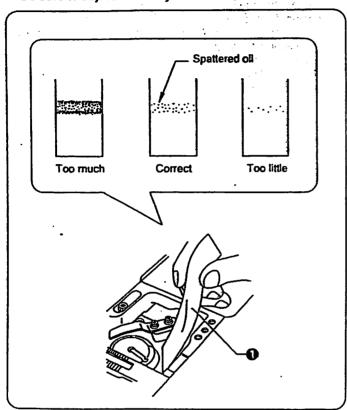
A CAUTION

A

 When checking the rotary hook lubrication, do not touch moving parts such as the rotary hook, needle and needle bar with your finger or paper nor push them with other objects, otherwise injury or damage to the machine may result.

Adjust the rotary hook lubrication amount by the following procedure.

Be sure to adjust the rotary hook lubrication amount whenever the rotary hook is replaced.

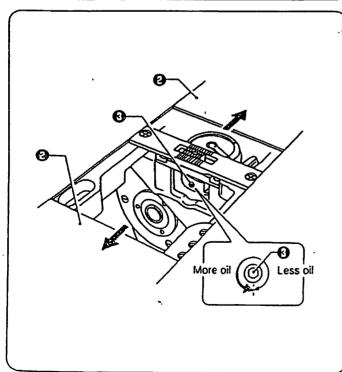


■ Checking the lubrication amount

After adjusting the lubrication adjustment screw, run the sewing machine for approximately 1 minute to allow the lubrication amount to stabilize before checking the lubrication amount.

- Insert the lubrication amount check sheet from the right side of the rotary hook and hold it there. Then run the sewing machine at high speed for 10 seconds.
 - (Any type of paper can be used as the lubrication amount check sheet ①.)
- Check the amount of oil which has spattered onto the lubrication amount check sheet ①.

(After approximately 10 seconds, the amount of oil spattered by the rotary hook should be as shown in the illustration at left.)



Adjusting the Jubrication amount

1. Open slide plate **②**.

 Turn the machine pulley to rotate the rotary hook until the lubrication adjustment screw 9 becomes visible.

Turn the lubrication adjustment screw approximately 45° to adjust the lubrication amount.

 If the lubrication adjustment screw (3) is turned clockwise, the lubrication amount decreases, and if it is turned counterclockwise, the lubrication amount increases.

4 Check the lubrication amount again according to the procedure given in "Checking the lubrication amount" above.

Turn the lubrication adjustment screw 3 approximately 45° and then check the lubrication amount; repeat this procedure until the lubrication amount is correct.

(Reference)

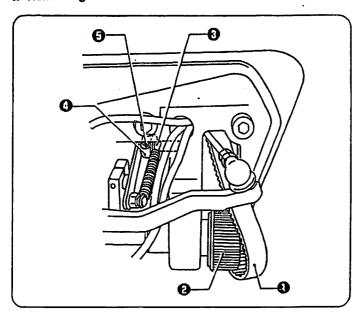
If the lubrication adjustment screw Θ is continually tightened until it becomes stiffer to turn, this indicates that the minimum lubrication amount setting has been reached. (Do not tighten any more than this.)

Adjust the position of the screw within a maximum of one rotation from this point.

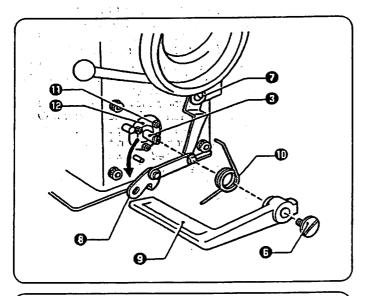
 For 28BL/28BLC-BTFL-CD-DS, adjust the lubrication amou for the left rotary hook in the same way.

13-4. Replacing the timing belt

Removing the timing belt



- Remove the bell guards. (For models with (2)8BLC-BTFL-CD-DS specifications, remove the synchronizer at the time also (3, while referring to page 9.)
- 2. Remove the upper cover.
- 3. Tilt back the machine head.
- 4. Remove the timing belt 1 from the lower belt pulley 2.
 5. Loosen the screw 5 of the feed adjusting lever 0 which is attached to the reverse stitching lever shaft 19.



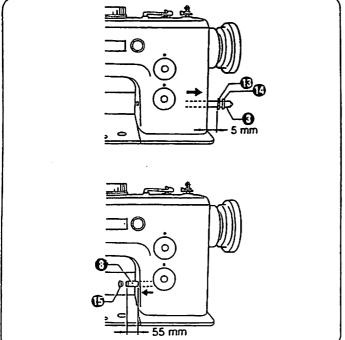
6. Remove the reverse stitching lever screw 3.

7. Loosen the screw 10 by half a turn, and then remove the reverse stitching lever plate 3 from the reverse stitching lever shaft @.

Be careful not to use too much force when removing the reverse stitching lever plate 3.

8. Remove the reverse stitching lever 9 and the spring 10.

9. Remove the three bolts (1), and then remove the washer (2).



10. Pull the reverse stitching lever shaft 9 so that it projects 5. mm from retaining ring E .

If the reverse stitching lever shaft 19 is pulled out by more than 5 mm, the parts inside the arm will become disengaged and assembly will become more difficult.

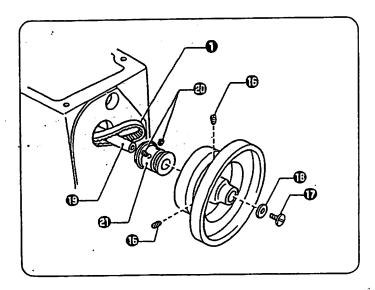
Be careful not to damage the reverse stitching lever shaft

11. Remove the washer @ and retaining ring E® from the reverse stitching lever shaft 19.

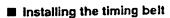
12. Hold the flat parts at the end of the reverse stitching lever shaft 1 with pliers and turn the shaft while pushing it back

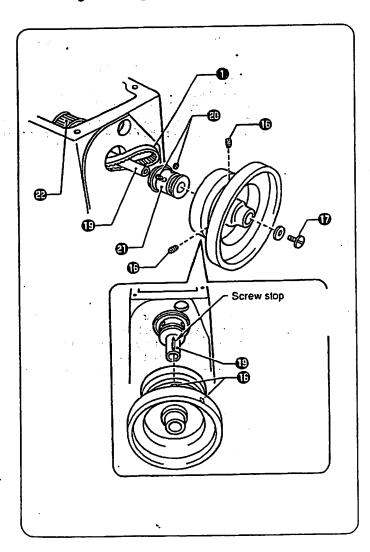
(The rubber plug will come out of the arm.) 13. Pull the reverse stitching lever shaft @ 55 mm out from the arm to allow space for the timing belt 10 to pass inside the

If the reverse stitching lever shaft 6 is pulled out more than 55 mm, the parts inside the arm will become disengaged and assembly will become more difficult.



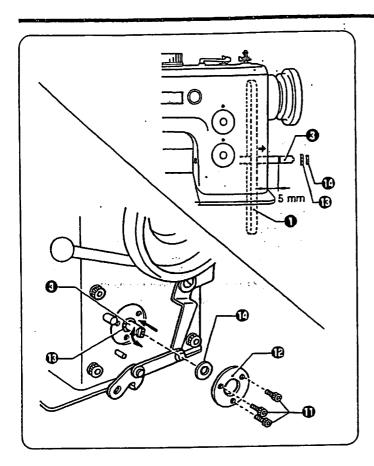
- 14. Loosen the two set screws (1), remove the screw (1) and the washer (1), and then remove the machine pulley from the upper shaft (1).
- 15. Loosen the two set screws ②, and then take out the bearin ③.
- 16. Remove the timing belt 1 from the hole in the arm.



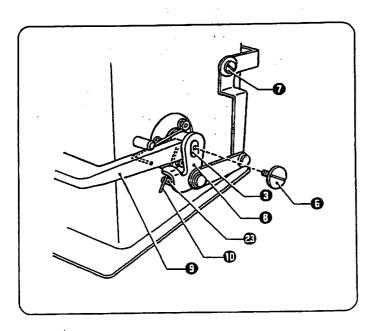


- 1. Insert the new timing belt 1 into the hole in the arm, and provisionally hook it onto the upper belt pulley 2.
- Do not bend or break the timing belt ①, otherwise the glass fibers inside the timing belt ① may become broker

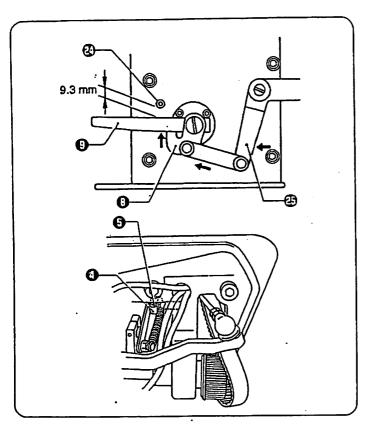
 2. Place the bearing ② onto the upper shaft ①, push the bear
- Place the bearing @ onto the upper shaft @, push the bearing @ into the hole in the arm as far as the flange, and the tighten the set screws @.
- 3. Place the machine pulley onto the upper shaft (1), and the tighten the set screws (1) and the screw (1).
 - NOTE: Install the machine pulley so that the set screw (1) o the turning direction side of the pulley is aligned wit the V-shaped screw stop on the upper shaft (1).
- 4. Set the feed adjustment dial to the "2" position. For models with (2)8BLC-BTFL-CD-DS specifications, set feed adjustment dial U to the "2" position.



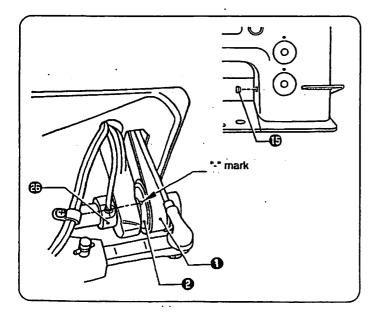
- 5. Insert the reverse stitching lever shaft **1** through the loop of the timing belt **1**.
- 6. Push the reverse stitching lever shaft \odot out 5 mm from the groove for installing retaining ring E \odot .
 - If the reverse stitching lever shaft e is pulled out by more than 5 mm, the parts inside the arm will become disengaged and assembly will become more difficult.
- 7. Install retaining ring E (19) to the reverse stitching lever shaft
- 8. Push the reverse stitching lever shaft ② all the way into the arm. (Push in until retaining ring E ③ is against the deeper part of the hollow.)
- 9. Place the washer (1) onto the reverse stitching lever shaft
- 10. Place the washer **®** onto the reverse stitching lever shaft **®**, and then tighten the boll **®**.
- 11. Check that the reverse stitching lever shaft 3 turns easily.



- 12. Hook the spring **①** onto the reverse stitching lever **②** and stop pin D **②** as shown in the illustration, and then insert the reverse stitching lever shaft **③** into the reverse stitching lever **③**.
- 13. Place the reverse stitching lever plate ③ onto the reverse stitching lever shaft ④, and then tighten the reverse stitching lever screw ⑤.
- 14. Tighten the screw 2.



- 15. Set the feed adjustment dial to the minimum setting.
- 16. Till back the machine head.
- 17. Set that the distance between the reverse stitching lever ①
 and stop pin U ② to 9.3 mm, and then push the connecting plate BT ③ so that the reverse stitching lever plate ③ touches against the reverse stitching lever ①.
 In this condition, tighten the screw ④ of the feed adjusting lever ④
- 18. Set the feed adjustment dial to the maximum setting.
- 19. Push the reverse stitching lever **9** and check that it moves
 - If it moves stiffly, it indicates that the feed adjusting lever
 was moved to the left and right in step 17, so carry out the following to adjust.
 - Set the feed adjustment dial to the minimum setting.
 - ② Tilt back the machine head.
 - 3 Loosen the screw and then move the feed adjusing lever to the left or right to adjust.
 - A Repeat the procedure in steps 17 to 19.



- 20. Install the rubber plug (19 to the arm.
- 21. Turn the machine pulley to move the thread take-up lever to its highest position.
- 22. Turn the lower belt pulley ② to align the "-" mark on the left side of the lower belt pulley ③ with the center line of the oil tube setting hole ② in lower shaft bushing B ④.
- 23. In this position, hook the timing belt onto the lower belt pulley •.
- 24. Carry out a test sewing and check that the stitch lengths are the same when sewing forward and backtacking.
 - If the forward and backtack stitch lengths are different, it indicates that the distance between the reverse stitching lever
 and stop pin U
 in step 17 is not 9.3 mm.
 Repeat the procedure from step 15 to adjust.
- 25. After setting the alternating presser foot movement dial to the "1" position, install the upper plate.
- 26. Install the belt guards. (Refer to page 8.)

14. REPLACING GAUGE PARTS (CHANGING THE NEEDLE GAUGE)

CAUTION



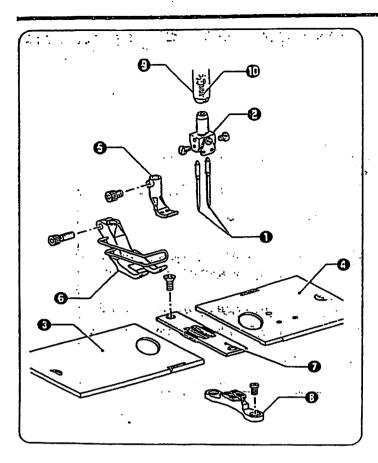
• Replacement of gauge parts should only be carried out by a qualified technician.



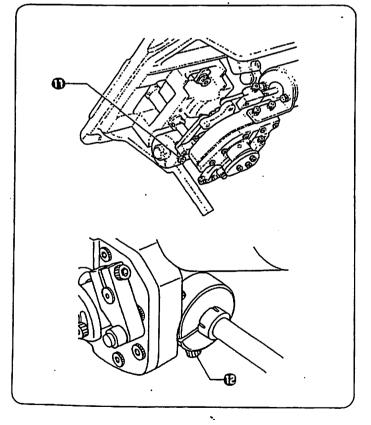
- Turn off the power switch and disconnect the power cord before replacing the gauge parts, otherwise the machine will operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



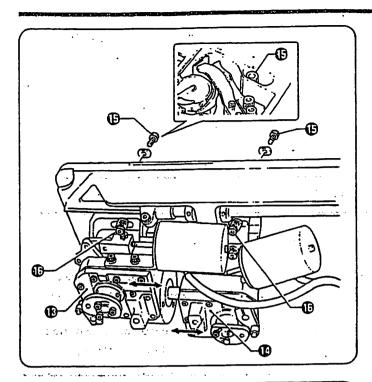
• Gauge parts should only be replaced with parts specified by SEIKO.



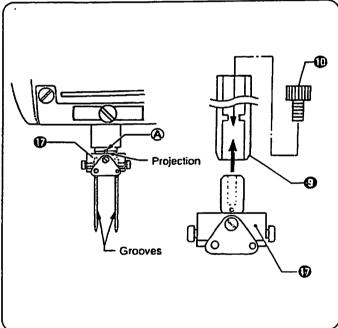
- Remove parts to as shown in the illustration.
 Use the accessory screwdriver to loosen the bolt inside the needle bar and then remove the needle clamp
- 2. Till back the machine head.



3. Loosen the bolts 1 and 1.



- 5. Install the replacement feed dog and needle plate.



- 6. Install the replacement needle clamp **①** to the needle bar **②** with the bolt **①**.
 - At this time, insert the projection of the needle clamp pinto the notch a in the needle bar.
- 7. Install the two needles into the needle clamp 1.
- 8. Carry out the steps in "Adjusting the needle bar height", "Needle and rotary hook timing", "Adjusting the needle guard position" and "Adjusting the opener position" while referring to pages 40-41.
- Install the replacement inner presser foot and outer presser foot.

15. INSTALLING THE CONVERSION PARTS SET (SINGLE NEEDLE TO TWIN NEEDLE)

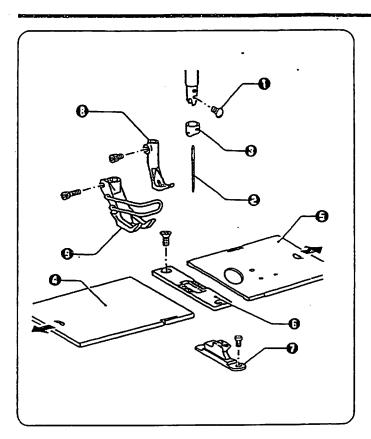
CAUTION



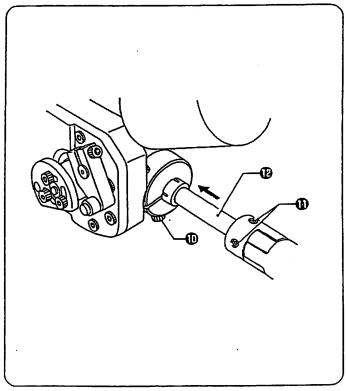
• Installation of parts should only be carried out by a qualified technician.



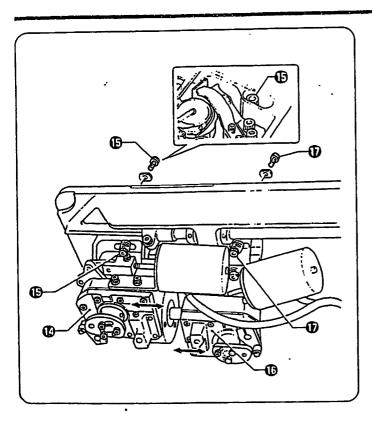
- Turn off the power switch and disconnect the power cord before replacing the gauge parts, otherwise the machine will operate if the treadle is pressed by mistake, which could result in injury
 - * When using a clutch motor, the motor will keep turning even after the power is switched off as a result of the motor's inertia. Wait until the motor stops fully before starting work.



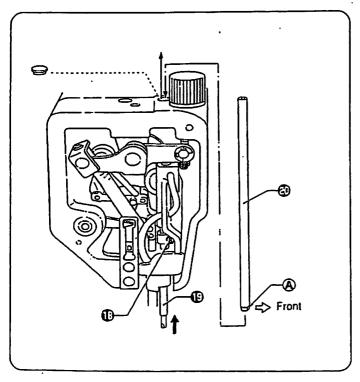
- Remove parts to as shown in the illustration.
 Tilt back the machine head.



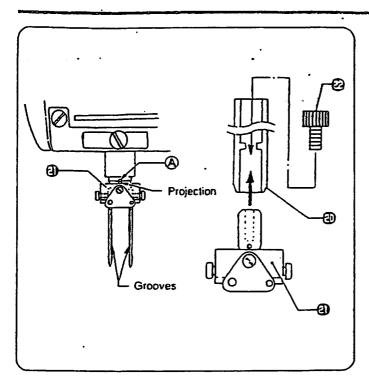
- 3. Loosen the bolt and the two set screws .
 4. Pull the lower shaft out from the left.



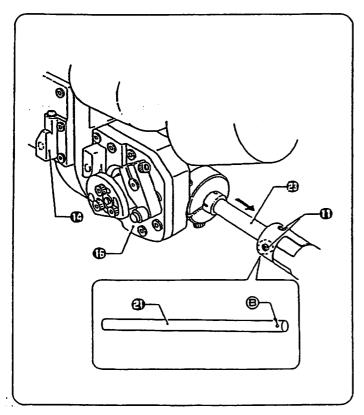
- 5. Provisionally install horizontal hook base L to the bed with the two bolts •.
- 6. Loosen the two bolts **①** enough so that horizontal hook base R **③** can be moved to the left and right.
- 7. Install the feed dog and needle plate for twin needle use.



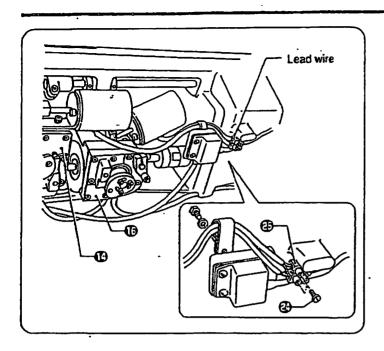
- 8. Loosen the screw (1), and then pull the needle bar (1) up to remove it.
- 9. Insert the needle bar @ for twin-needle use from above, and then provisionally tighten it in place with the screw . (The notch @ should face toward the front.)



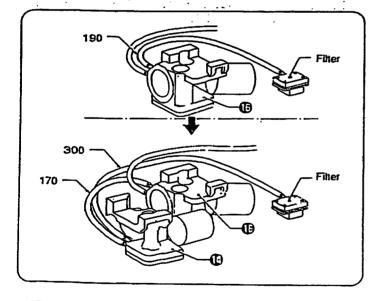
- 10. Install the needle clamp (a) for twin-needle use to the needle bar (b) with the bolt (a).
- 11. Install the two needles to the needle clamp @.



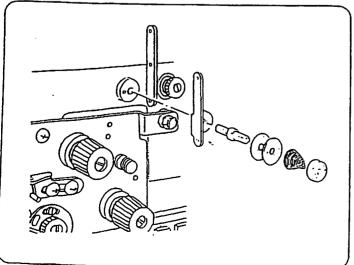
- 12. Pass the lower shaft ② for twin-needle use through horizontal hook base L ② and horizontal hook base R ③.
- 13. Tighten the two set screws **①**, so that the front set screw **①** is at screw stop **②** when seen from the machine pulley turning direction.
- 14. Carry out the adjustments described in sections 13-1-3, 13-1-4, 13-1-5, 13-1-7 and 13-3.



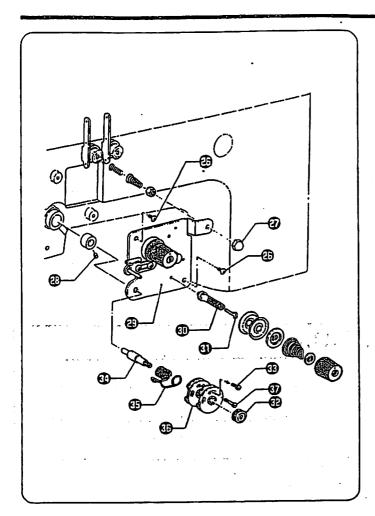
15. For thread trimming specifications, secure the lead wires for both horizontal hook base L ⊕ and horizontal hook base R ⊕ to the terminal block ⊕ with the two screws ⊕. Adjust horizontal hook base L ⊕ and horizontal hook base R ⊕ while referring to the "Thread trimming" sections (13-2-1 to 13-2-7).



 Disconnect oil tube 190, and connect oil tubes 170 and 300 as shown in the illustration.



Install the parts for the left thread hook as shown in the illustration.



- 18. Remove the two screws @ and the nut @, loosen the set screw @, and then remove the tension plate @.
- 19. Remove the right thread tension nut, and then replace the tension adjusting stud ① and the shoulder pin ① with the corresponding parts for twin-needle use.
- 20. Remove the nut
 and the screw
 , and then replace the tension adjusting stud
 and tension spring
 with the corresponding parts for twin-needle use. Then install the tension spring guide
 and tighten the screw
 for twin-needle use.
- 21. Re-install the tension plate @ in its original position.
- 22. Carry out the adjustments described in sections 13-1-1 and 13-2-8,
- Install the inner presser foot and outer presser foot for twinneedle use.

16. SAFETY EQUIPMENT

If the thread becomes tangled up in the rotary hook during sewing, the lower belt pulley safety equipment will operate to protect
parts such as the rotary hook and the timing belt from damage. The lower shaft will stop rotating, and only the lower belt pulley
will rotate.

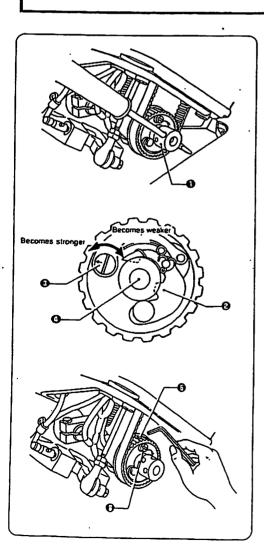
Refer to the following to reset the sewing machine.



CAUTION



- Turn off the power switch before starting work, otherwise the machine will operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, 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.



Resetting the safety equipment

- Remove the thread which has become tangled up in the rotary hook.
 - Do not use a sharp-tipped instrument to do this, otherwise the rotary hook may become damaged.
- Insert a screwdriver into the hole in the lower belt shaft ①, hold the screwdriver so that it does not turn, and then turn the machine pulley in reverse (clockwise) by hand.
- Turn the machine pulley again but harder. The safety equipment will then be reset.
 (Check that the lock lever ② is fitting securely into the groove of the lower belt shaft ①.)

■ Safety equipment engagement strength

The engagement strength of the safety equipment is weakest when the arrow on the lock lever spring shaft 3 is pointing toward the center of the shaft 3, and strongest when it is pointing toward the outside.

- Turn the machine pulley to the position where an Allen key can be inserted into the set screw 6.
- Loosen the set screw →, and then turn the lock lever spring shaft → to adjust.
- 3. After adjusting, securely tighten the set screw 9.

17. TROUBLESHOOTING

- Please check the following points before calling for repairs or service.
- If the following suggestions do not solve the problem, turn off the machine power supply and contact your nearest SEIKO dealer.

A CAUTION



- Turn off the power switch and disconnect the power cord before carrying out troubleshooting, otherwise the machine
 will operate if the treadle is pressed by mistake, which could result in injury.
 - * When using a clutch motor, 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.

A

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

17-1. Machine head

	Possible cause	Page
1. Upper thread is not tight.	Is the upper thraed tension too weak, or is the lower thread tension too strong? Adjust the upper thread tension or lower thread tension.	29-30
	Is the thread tension spring too weak? Adjust the tension of the thread tension spring.	36
	Is the operating range for the thread take-up spring too small? Increase the operating range for the thread take-up spring.	36
	 Is the clearance between the needle plate and the inner rotary hook stopper correct? Adjust the position of the opener. 	40-41
2. Lower thread is not tight.	Is the lower thread tension too weak, or is the upper thread tension too	
	strong? Adjust the lower thread tension or upper thread tension.	29-30
3. Loops appear in seam.	Is the tip of the needle burred? If the tip of the needle is burred, replace the needle.	19
	 Is the needle hole facing in the correct direction? If the direction of the hole is incorrect, install the needle correctly. 	19
	 Is the needle too thin for the thread? Replace with a needle which is one rank thicker. 	19
e de la companya de	 Is the upper thread tension too weak? Adjust the upper thread tension. 	29-30
	 Is the thread tension spring too weak? Adjust the tension of the thread tension spring. 	36
•	Is the operating range for the thread take-up spring too small? Increase the operating range for the thread take-up spring.	36
	 Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path. 	·.
	 Is there too much thread wound onto the bobbin? The bobbin winding amount should not be more than 80%. 	21
	Is the bobbin winding tension too strong or too weak? Wind the thread onto the bobbin at an appropriate tension.	

Problem	Possible cause	Page
·	 Is the bobbin turning smoothly? Pull out the lower thread to check the turning of the bobbin, and replace the bobbin if necessary. 	_
	Is the inner rotary hook tension spring defective? Replace the rotary hook.	_
	 Is the bobbin racing? Pull the anti-racing spring up or down to increase the spring tension, or replace the anti-racing spring. 	20
	Is the rotary hook scratched? Replace the rotary hook.	_
	 Is the feed dog height correct? Adjust the feed dog height so that it is 0.5 mm when the feed dog is at its highest position. 	37
	 Is the needle and feed timing correct? Adjust the needle and feed timing. 	39
	 Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing. 	38
	Is the clearance between the needle plate and the inner rotary hook stop- per correct? Adjust the position of the opener.	40–41
	Is the rotary hook lubrication amount too small? If the oil level has dropped to the lower reference line on the oil gauge, add more oil.	
	Adjust the rotary hook lubrication amount.	52
	Is there any rubbish sticking to the rear of the inner rotary hook? Clean the inner rotary hook.	-
4. Skipped stitches at sewing start	 Is the feed dog height correct? Adjust the feed dog height so that it is 0.5 mm when the feed dog is at its highest position. 	37
	 Are the thread take-up spring tensions too strong? Reduce the tension of the thread take-up springs. 	36
	 Is the operating range for the thread take-up spring too large? Decrease the operating range for the thread take-up spring. 	36
	 Is the presser foot pressure too weak? Adjust the presser foot pressure. 	30
Thread unravelling at sewing start	 Is the needle too wide? Try using a needle with a count that is one lower than the current needle. (2)8BL 	19
Upper	 Is the thread take-up lever at its highest position at the sewing start? Set the thread take-up lever to its highest position at the sewing start. 	23
thread	 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. 	22
V		
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Problem	Possible cause	Page
	 (2)8BLC-BTFL-CD-DS Is the trailing length of the upper thread too short after thread trimming? Adjust the pretension. Check if the upper thread is tangled somewhere in the thread path from the thread stand to the needle tip. 	31
	Are the thread tension discs open during thread trimming? Adjust the tension release amount.	51
	Is the thread trimming timing too advanced? Adjust the thread trimming timing.	50
·	Does the thread holding spring hold the lower thread after thread trimming? Adjust the position of the thread holding spring. If the thread holding spring tension is too weak, replace the thread holding	50
	spring. If the thread holding spring is scratched or damaged, replace the thread holding spring.	-
	Is the driving knife damaged? If the knife is damaged, smooth it with an oiled grindstone or replace it.	46–49
5. Skipped stitches occur while sewing	Is the needle tip bent? Is the needle tip blunt? If the needle tip is bent or broken, replace the needle.	19
	Is the needle properly installed? If it is incorrect, install the needle correctly.	19
	Is the needle too thin or too thick for the thread? Replace with a needle which is suitable for the thread.	19
	Is the machine properly threaded? If it is incorrect, thread the thread correctly.	. 23
	Are the presser feet riding too high? Adjust the height of the presser feet.	42
	Is the presser foot pressure too weak? Adjust the presser foot pressure.	30
	Is the rotary hook tip broken or worn? Sharpen the rotary hook tip or replace the rotary hook.	_
	Is the height of the needle bar correct? Adjust the height of the needle bar.	37
	 Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing. 	37–38.
	Is the needle guard position correct? Adjust the position of the needle guard.	39
	Is the needle and feed timing correct? Adjust the needle and feed timing.	39

Problem	Possible cause	Page
6. Uneven seam	Is the needle and feed timing correct? Adjust the needle and feed timing.	39
	 Is the feed dog height correct? Adjust the feed dog height so that it is 0.5 mm when the feed dog is at its highest position. 	37
	Is the presser foot pressure too weak? Adjust the presser foot pressure.	30
·		
7. Upper thread breaks	Is the needle bent or is the needle tip broken? Replace the needle if it is bent or broken.	19
	Is the needle scratched? Replace the needle.	19
	Is the needle properly installed? If it is incorrect, install the needle correctly.	19
V	 Is the needle too thin or too thick for the thread? Replace with a needle which is suitable for the thread. 	19
	 Is the upper thread tension too strong or to weak? Adjust the upper thread tension. 	29–30
	Is the tension of the thread take-up spring too strong or too weak? Adjust the tension of the thread take-up spring.	36
	Is the operating range for the thread take-up spring too large or too small? Decrease or increase the operating range for the thread take-up spring.	36
	Is the thread path not smooth enough? Use a file with a fine grain or sandpaper to polish smooth the thread path.	_
	 Is the rotary hook tip broken or worn? Sharpen the rotary hook tip or replace the rotary hook. 	_
	Is the rotary hook thread path damaged? Smooth the rotary hook thread path or replace the rotary hook.	_
·	 Is the clearance between the needle plate and the inner rotary hook stop- per correct? Adjust the position of the opener. 	40–41
	Has the needle been pushed in fully during installation? Install the needle correctly.	19
	Is the height of the needle bar too low? Adjust the height of the needle bar.	37
	Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook.	
	timing. Is the sewing speed too fast, causing the thread to break due to heat?	37–38
·	Reduce the sewing machine speed. • Is the material feeding correctly at sections where the thickness changes	Motor Instruc- tion Manual
	(such as joints and pockets)? Increase the presser foot pressure.	30

Problem	Possible cause	Page
8. Needle breaks	 Is the material being pushed or pulled with excessive force during sewing? 	
	 Is the needle properly installed? If it is incorrect, install the needle correctly. 	19
	 Is the needle bent, is the needle tip broken, or is the needle hole blocked? Replace the needle. 	19
- NY	Is the needle and feed timing correct? Adjust the needle and feed timing.	39 ·
	 Is the needle and rotary hook timing correct? After adjusting the needle bar height, adjust the needle and rotary hook timing. 	37–38
	 Is the needle guard position correct? Adjust the position of the needle guard. 	39
	Ouick reverse sewing, start backtacking and end backtacking (2)8BLC-BTFL-CD-DS Adjust the needle down stop position.	18
	Caution It is extremely dangerous to leave any pieces of broken needle sticking in the material. If the needle breaks, searh for all pieces until the whole of the needle is found again. Furthermore, we recommend that through steps be taken to account for such needles to comply with product liability regulations.	

17-2. Thread trimming errors (2)8BLC-BTFL-CD-DS

Problem	Possible cause	Page
Upper thread or lower thread is not trimmed. One thread remains untrimmed.	 Are the blades of the driving knife and fixed knife at the wrong height relative to each other? Adjust the height of the driving knife. 	47
·	Are the blades of the driving knife or fixed knife worn or damaged? Replace the driving knife or fixed knife.	· _
	 Is the knife engagement position correct? Adjust the knife engagement position. 	46
	e de la companya de	
Neither upper thread nor lower thread is trimmed.	Is the driving knife operating? Adjust the stop position for the driving knife. Adjust the needle up stop position. Adjust the thread trimming timing.	48 18 50
3. Upper thread is not held.	Are skipped stitches occurring at the end of sewing? Check that the needle is installed correctly. After adjusting the needle bar height, adjust the needle and rotary hook timing.	19 37–38
	Is the thread trimming timing correct? Adjust the thread trimming timing.	50
	Is the tip of the driving knife scratched or damaged? Replace the driving knife.	_
·	Is the driving knife position too high or too low? Adjust the height of the driving knife.	47
4. Lower thread is not held.	Is the movement amount for the driving knife too small? Adjust the stop position for the driving knife.	48
	Is the lower thread threaded correctly? If the lower thread has been threaded incorrectly, thread it correctly.	
	Is the tip of the driving knife scratched or damaged? Replace the driving knife.	_
	Is the position of the driving knife too high or too low? Adjust the height of the driving knife.	47
	Is the driving knife operating? Adjust the stop position for the driving knife.	48
•	Adjust the needle down stop position. Adjust the thread trimming timing.	18 50
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11-3, Imado 1-chome, Taito-ku, Tokyo 111-8534, Japan TEL:+81-3-3872-6173,4(Overseas group) FAX:+81-3-3873-6596 E-Mail:seik0001@tctv.ne.jp www.tctv.ne.jp/seik0001/