ENGLISH

MEB-3200C
INSTRUCTION MANUAL

CONTENTS

1. SPECIFICATIONS

Specifications	S type, R type	J type	C type
Application	Men's and ladies' wear	Jeans, working wear	Cotton pants, working wear
Sewing speed	400 to 2,200 sti/min (adjustable in 100 sti/min steps)		
Thread trimming type	Long thread trimming	Short thread trimming	
Stitch length (Note 1)	10 to 38 mm (with thread trimmer) 10 to 50 mm (In case looper thread trimming device is removed) * For taper bar shapes, stitch length can be set from "8 mm + taper bar length (S006)" to 50 mm.	24 to 32 mm * In case of taper bar, up to 34 mm	16 to 24 mm * In case of taper bar, up to 26 mm
Stitch bite width (Notes 2 and 3)	2.0 to 3.2 mm	2.6 to 4.0 mm	2.0 to 3.2 mm
Taper bar length	0 mm, 3 to 15 mm		
Lift of presser foot	13 mm (Max. 16 mm)		
Method of changing sewing shape	Program selection method		
Buttonhole cutting system	Cut-before knife, cut-after knife, without knife		
Feed system	Intermittent feed by stepping motor		
Cloth cutting drive	Vertical drive by stepping motor (Pressure can be adjusted.)		
Needle (Note 2)	DO×558 #90 to #110	DO×558 #90 to #110	DO×558 #110 to #120
Safety device	Temporary stop switch and automatic stop function at the time of detection of trouble		
Lubricating oil	JUKI New Defrix Oil No. 2 (Oiling system)		
Air pressure	0.49 Mpa		
Air consumption	6R/ min (8-cycle/min)		
Dimensions	1,060 mm (W) × 790 mm (L) × 1,230 mm (H) (Excluding thread stand)		
Power consumption	300 VA		
Gross weight	179 kg		
Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 81.0 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 2,200 sti/min. - Sound power level (L_{WA}) ; A-weighted value of 88.0 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 2,200 sti/min.		

Note 1. **For the short thread trimming type, stitch length can be changed by changing the optional presser set.**
S set : 16 to 24 mm, M set : 24 to 32 mm, L set : 32 to 40 mm
Note 2. **Stitch bite width and needle size at the time of delivery are as follows.**

	S and R types	J type	C type
Stitch bite width	2.3 mm	3.6 mm	2.5 mm
Needle size	#100	#110	#110

When changing stitch bite width or needle size, check installing position and open/close timing of needle, looper, and spreader, and clearance between needle and needle guard.

Note 3. **By changing to the optional looper, left and spreader, left, the range of stitch bite width can be changed to 2.0 to 3.2 ,↔ 2.6 to 4.0.**
Note 4. **In case of the machine with the needle thread clamp unit or with the multi cutting device, refer to the respective Instruction Manuals together with this Instruction Manual.**

2. NAME OF EACH COMPONENT

(1) Names of the sewing machine main unit
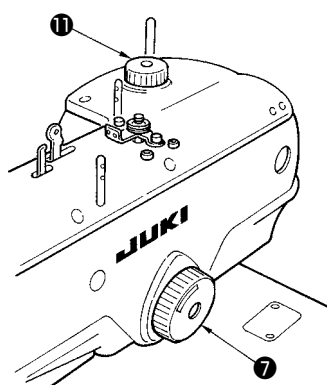
· Hand pulley ❼

The needle bar can be lifted or lowered by hand with the hand-pulley.

· Cloth cutting dial ⓫

The cloth cutting knife can be lifted or lowered by hand with the cloth cutting dial. (When the power is turned OFF.)

> **Caution**
>
> **Hand pulley ❼ and cloth cutting knife ⓫ rotate in accordance with the rotation of the sewing machine and the drive of the cloth cutting knife.**
> **Be careful not to allow your hands or the like to touch to them during operation of the sewing machine.**
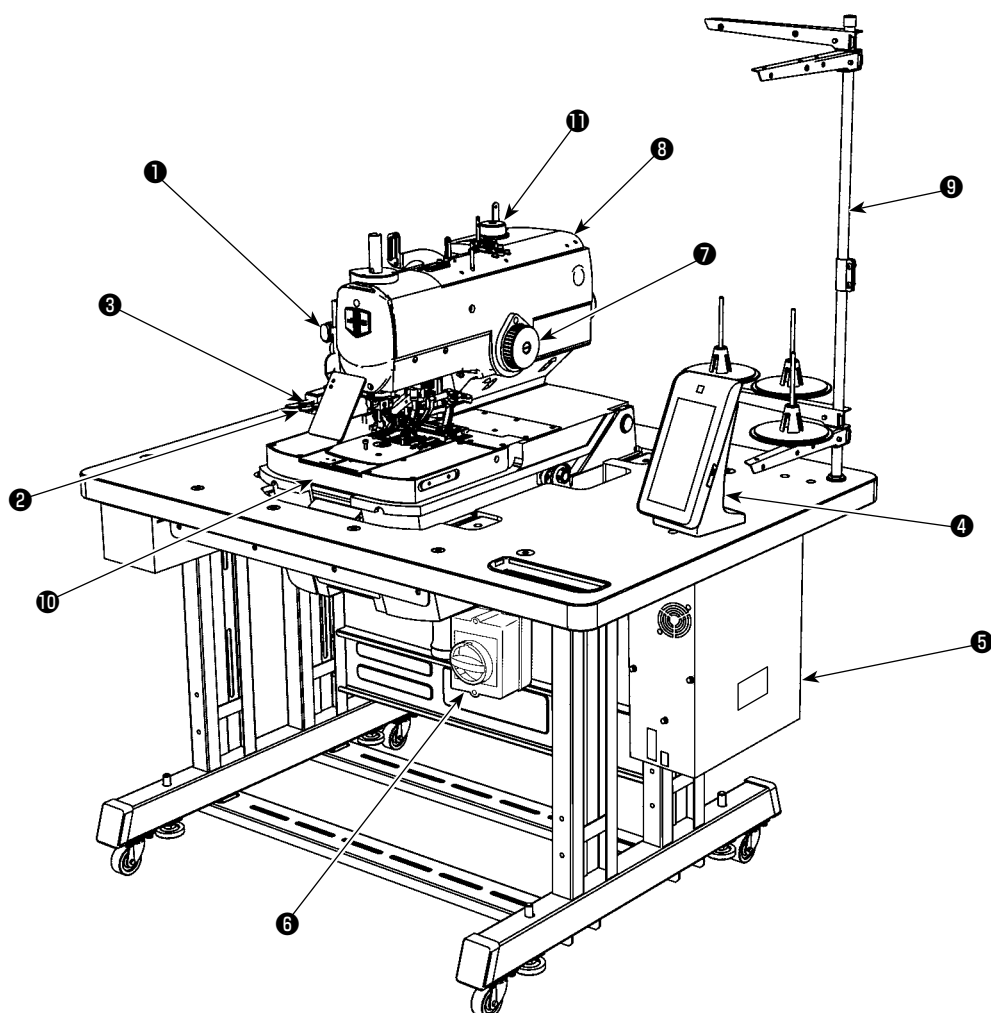
❶ Temporary stop switch

❷ Presser switch

❸ Start switch

❹ Operation panel

❺ Control box

❻ Power switch

❼ Hand pulley

❽ Machine head

❾ Thread stand

❿ Feed base

⓫ Cloth cutting dial

3. INSTALLATION

(1) Installing the air hose

Close
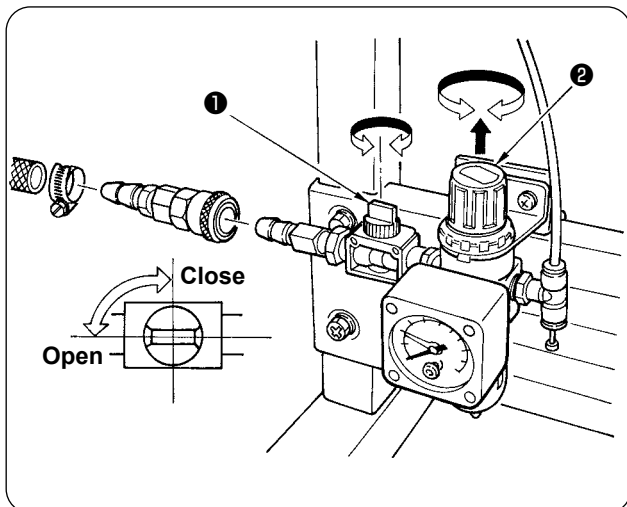
Open

■ Connecting the air hose

Connect the air hose to the regulator with a hose band and one touch socket.

■ Adjustment of air pressure

Open air cock ❶ , pull up and turn air adjustment knob ❷ and adjust so that air pressure indicates 0.45 to 0.55 MPa. Then lower the knob and fix it.

* Close air cock ❶ to expel air.

(2) Raising and returning the sewing machine

DANGER :
1. If you find the sewing machine is too heavy to lift, the gas spring may have malfunctioned due to outgassing.
   Never lift the sewing machine in such a state since the machine can drop to pinch hands, fingers and arms resulting in serious injury.
   * Be sure to fully understand **"10.(14) Standard of replacing time of the gas spring" P.65** and **"10.(15) Replacing the gas spring" P.65** before putting the sewing machine into operation.
2. In order to prevent pinching of hands, fingers and arms that can result in a serious injury, be sure to strictly observe the following when carrying out work.
   2-1. Be sure to hold the rib on the bed periphery when holding the sewing machine.
   2-2. Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.

Fixing screw, left
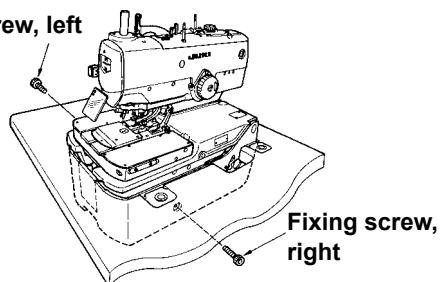
Fixing screw, right

1) Remove the fixing screws, right and left for transportation.
   (8 mm wrench is supplied with the machine.)

> Reference: **Retain the screws since they are necessary when moving the sewing machine. Be sure to attach them when moving the sewing machine.**

When raising sewing machine

When returning sewing machine to its home position
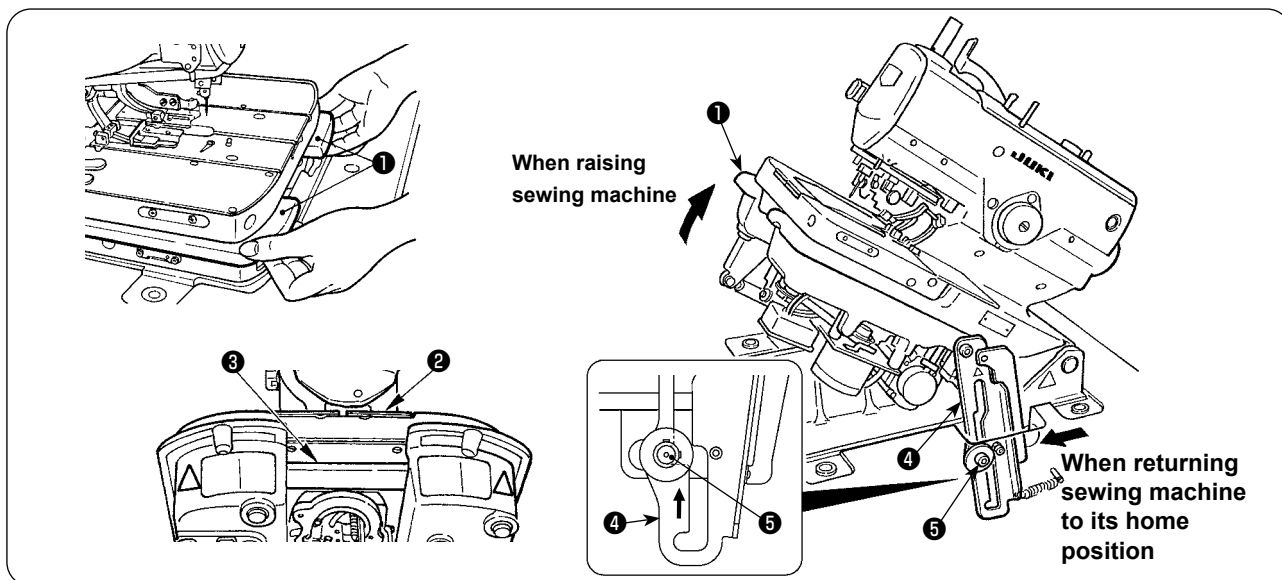
2) When raising the sewing machine, push feed base ❷ away from you (in the direction of the arrow), then hold periphery ribs ❶ located on the front side of the sewing machine bed to slowly lift it. At this time, do not hold feed base ❷ and feed guide shaft fixing base ❸ .

DANGER :
1. **Do not hold any part other than periphery ribs ❶ of machine head.**
2. **Confirm that hinge stopper ❹ is locked with support shaft ❺ .**

CAUTION :
If you raise the sewing machine from its home position with the feed base remained near side, the feed base can move to pinch hands and fingers leading to an unexpected injury.
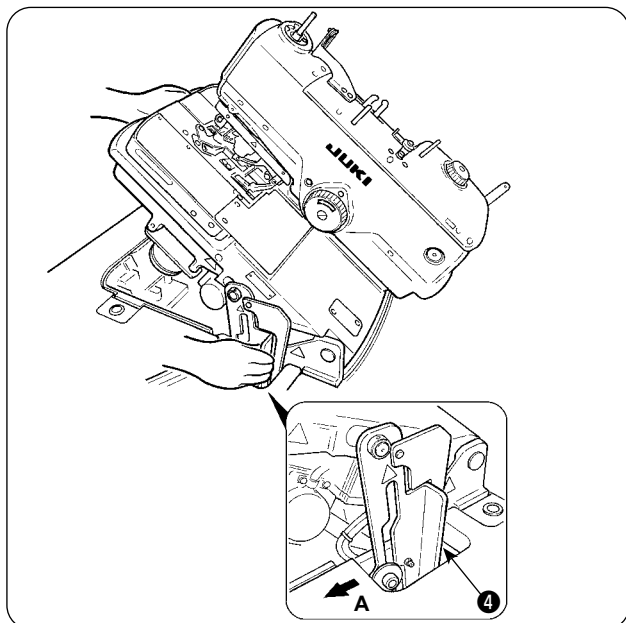
3) When returning the sewing machine, support periphery ribs ❶ of the machine bed with your left hand, hold grip ❹ of the hinge stopper section with your right hand, pull it to this side (direction A) to release the lock and slowly lower the sewing machine after confirming that there is no tool such as screwdriver and the like in the bottom cover.
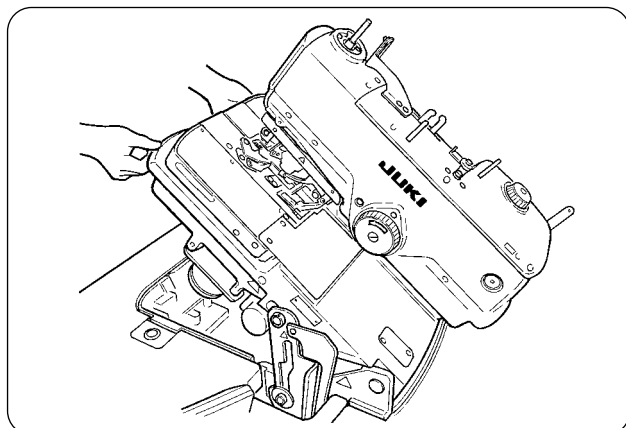
4) Take your right hand off from the hinge stopper section, support periphery ribs ❶ of machine bed with your both hands, and further lower the sewing machine.

DANGER :
1. **Do not lower the sewing machine while keeping pulling the hinge stopper in direction A, in order to prevent pining of fingers, hands and arms under the sewing machine leading to a serious injury.**
2. **Do not hold feed base ❷ and feed guide shaft fixing base ❸ .**
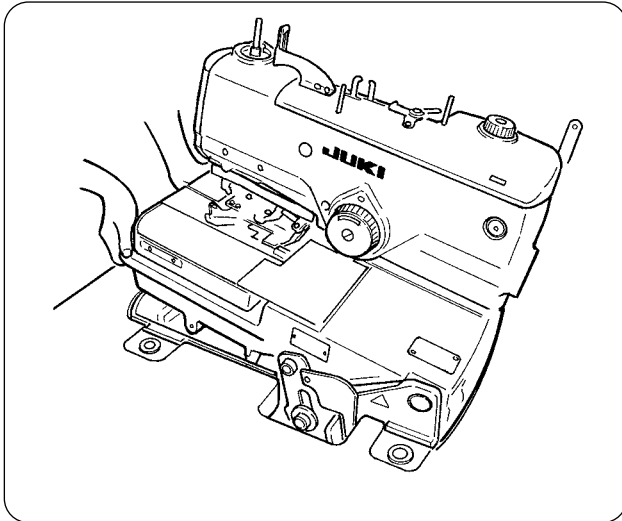
5) The sewing machine stops once more at the final stage of lowering for the safety. Support the periphery ribs of machine bed with your left hand, hold the grip of hinge stopper section with your right hand to release the lock and slowly lower the sewing machine following the description of step 3).

DANGER :
Take care to prevent pinching of hands and fingers between the sewing machine and the bottom cover. In particular, never lower the sewing machine holding parts other than the bed rib with two or more workers, since doing so can cause pinching o f hands, fingers and arms leading to a serious injury.

(3) Installing the thread stand
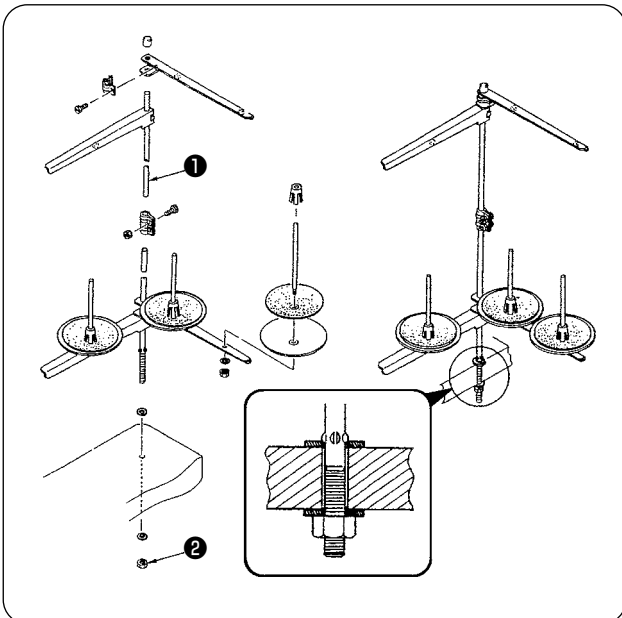
1) Assemble thread stand unit ❶ .

2) Insert it in the hole located in the rear of the machine table, and tighten locknut ❷ to fix the thread stand.

When the ceiling wiring i s possible, pass the power cord through the spool rest rod.

(4) Installing the operation panel base
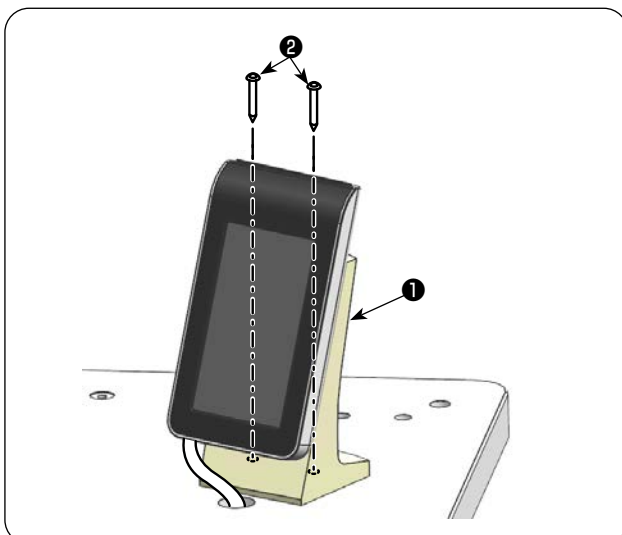
Fix operation panel base ❶ at the dotting punch section on the machine table with wood screw ❷ .

Protection vinyl is coated on the surface of the operation panel. Remove it.

(5) Installing/removing the presser unit
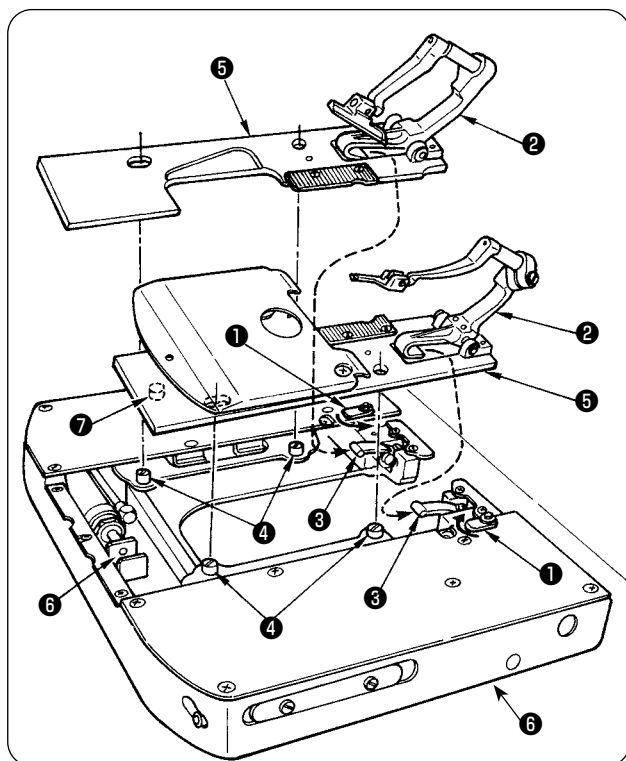
> **Caution**
>
> When moving the feed base by hand, or removing/at taching the presser unit, be careful so that the cloth cutting knife does not come in contact with the holding plates, orthe thread trimming unit does not come in contact with the throat plate.

■ How to install

1) Install the presser unit so that presser lever ❸ fits in the letter "U" of presser base ❷.
2) Adjust the hole of presser plate ❺ to cloth open pin ❹.
3) Turn clamp holding plate ❶ to hold presser plate ❺.

> **Caution**
>
> When installing the presser unit ❺, insert correctly thread t rimming driving arm roller ❼ into the concave in looper thread trimming cylinder click ❻. If the roller is off, the looper thread trimming unit interferes with the throat plate during sewing. As a result, component breakage will be caused.
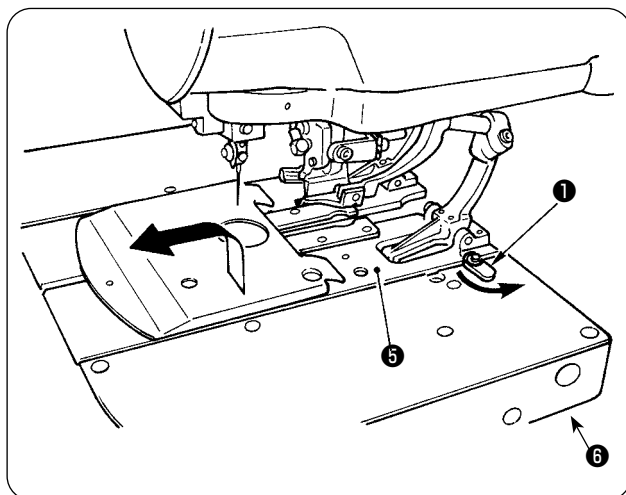
■ How to remove

1) Turn clamp holding plate ❶ to remove from presser plate ❺.
2) Lifting presser plate ❺, remove it so as to draw it.

> **Reference**
>
> It is comparatively easy to install or remove the presser unit by moving feed base ❻ to the cloth cutting position.
>
> ([⧄] button is convenient. Refer to
>
> **"6.(6) Performing threading" P.21**.)
> When moving feed base ❻ by hand, follow the aforementioned caution.

(6) Attaching the dust bag
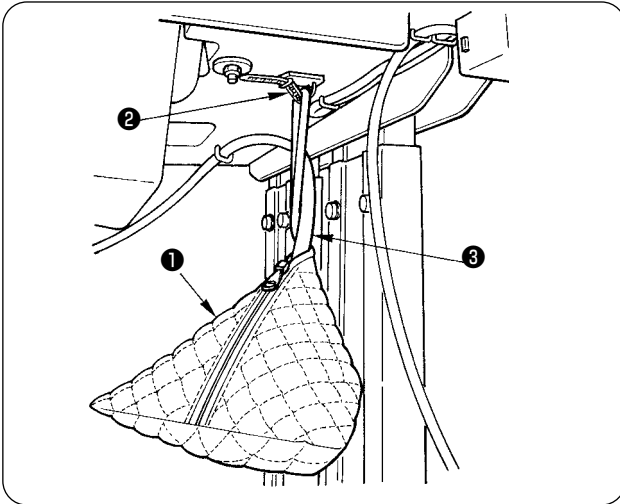
Attach dust bag ❶ to clamp ❷ located in the rear face of the table and insert dust hose ❸ into the bag.

(7) Installing the air gun
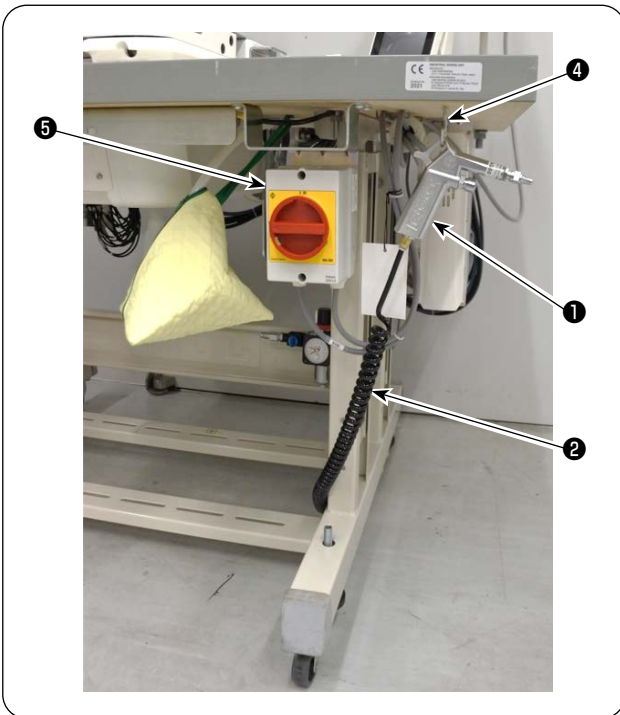
1) Insert spiral tube ❷ of air gun ❶ into the vacant side of double-ended joint ❸ .

2) Attach hook ❹ next to power switch ❺ .
   Then, hang air gun ❶ on the hook as shown in the left figure on the left.
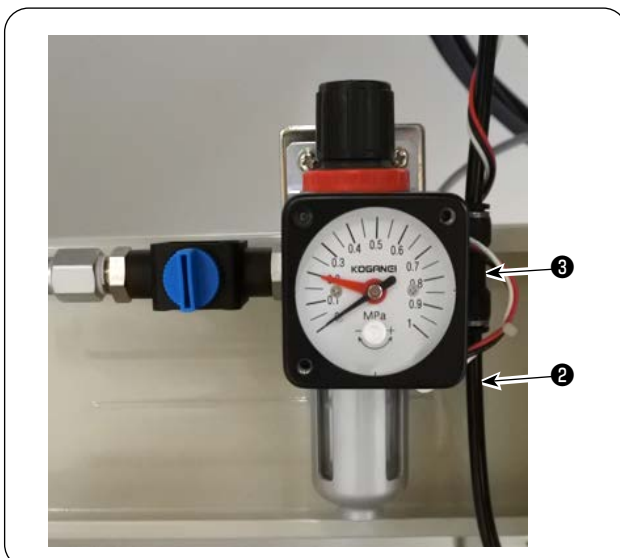
4. PREPARATION BEFORE OPERATION

(1) Lubricating the machine and how to lubricate

⚠ **WARNUNG :**
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

* Use JUKI New Defrix Oil No. 2.
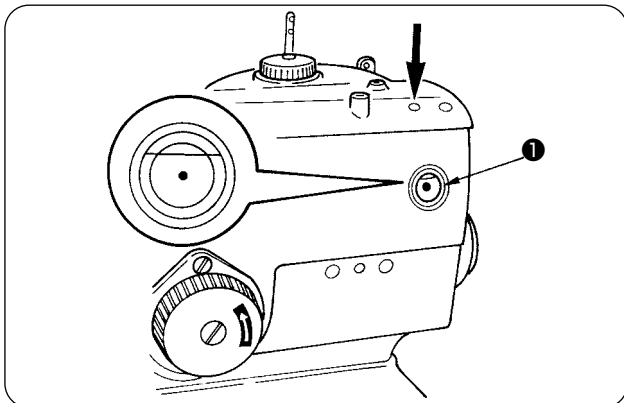
■ Lubricating the arm oil tank

Lubricate arm tank ❶ to such an extent of approximately 80 %.

■ Lubricating the bed oil tank

⚠ **DANGER :**
Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
• Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
  * Read and check how to rise/return the sewing machine described on "3.(2) Raising and returning the sewing machine" P.3 to P.5.
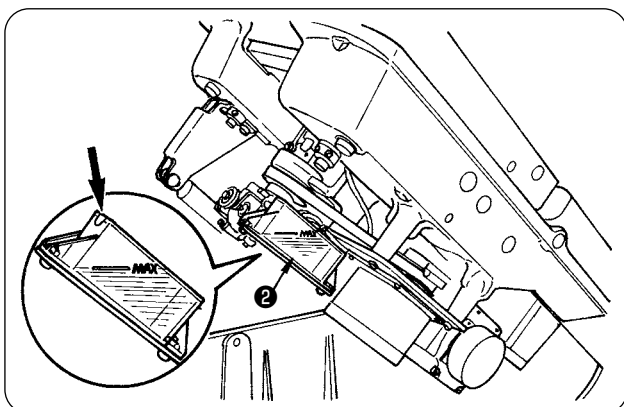
1) Raise the machine head.
2) Lubricate bed oil tank ❷ up to the MAX. line.
3) Return the machine head to its home position.

■ Lubricating the looper and spreader components

Front

Rear
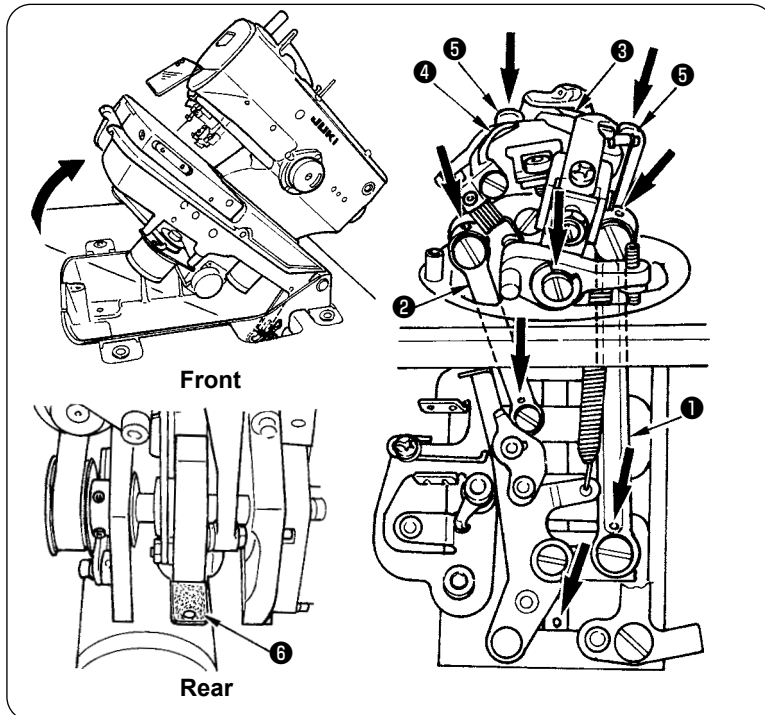
1) Remove the presser plates, left and right, and raise the machine head.

2) Apply two to three drops of oil to looper link ❶ , spreader link ❷ , spreader, right ❸ , spreader, left ❹ and spreader actuating cam ❺ .

> **Caution**
> 1. Be sure to lubricate the components once a day. If the frequency of lubrication is small, especially, worn out of ❸ , ❹ and ❺ is caused and stitch skipping or needle breakage will occur.
> 2. Apply oil to the oil wicks and the felts (looper cam oiling felt ❻ or the like) in the machine bed at the time of delivery or after an extended period of disuse.

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■ Lubricating the needle bar and cam components

> **Reference** Lubricate the components at the time of delivery or after an extended period of disuse.
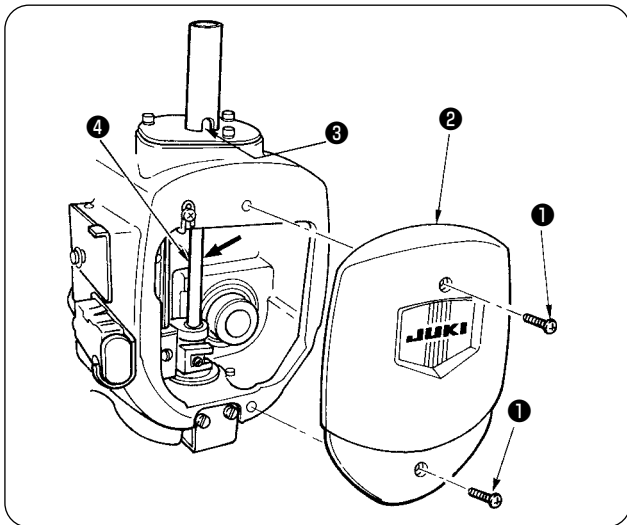
1) Loosen setscrews ❶ and remove face plate ❷ .
2) Apply one to two drops of oil to needle bar bushing ❸ and needle bar ❹ .
3) Apply oil to the felts and the oil wicks in the face plate section of the sewing machine.
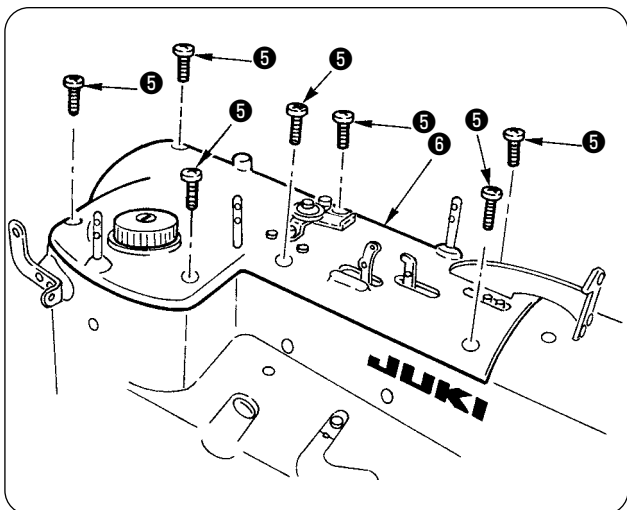
4) Loosen setscrew ❺ and remove the upper face cover ❻ .

> **Caution** Remove the cover with care since the air tube is connected with the cord.

5) Apply oil to the felts and the oil wicks in the sewing machine arm.
6) After lubrication, install face plate ❷ and upper face cover ❻ .

> **Caution** Be careful not to allow the cords to be caught in the machine.

(2) Attaching the needle

> **WARNUNG :**
> Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Standard

With thread tension disk (OP)

Put needle as far as it goes.
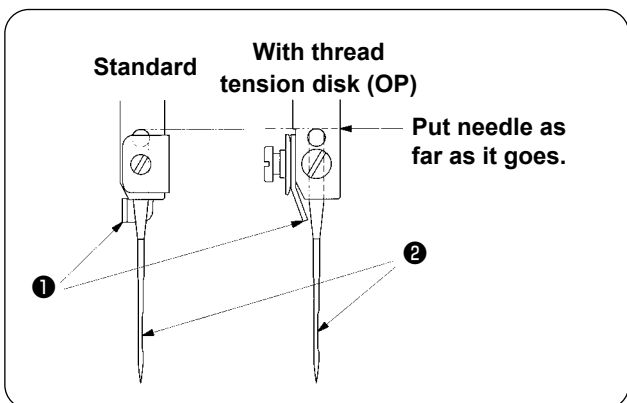
The correct direction of the needle is that needle thread guide ❶ faces the opposite side of groove ❷ of the needle.

> **Caution**
> 1. Use the most suitable size of needle in accordance with the kind and thickness of thread and kind of material to be used.
> 2. When changing the size of needle, be sure to adjust the clearance between the needle and the looper. (Refer to **"10. (3) Clearance between the needle and the looper" P.56**.)

(3) Threading the machine head

Threading the upper thread (needle thread)

Ⓑ

Ⓐ

Ⓒ

Ⓐ
Standard   **Optional**

Ⓑ

JUKI

Threading the lower thread (looper thread)

Insert thread in the groove.

Threading the machine with gimp

S and R types

J,C type

Pass gimp through the groove on the thread tension disk shaft.

In case of thin thread, insert gimp in the gimp presser plate.

(4) How to set the cloth

Caution

*S type : 13.5 to 30 mm
*J, C types : 10.0 to 26 mm
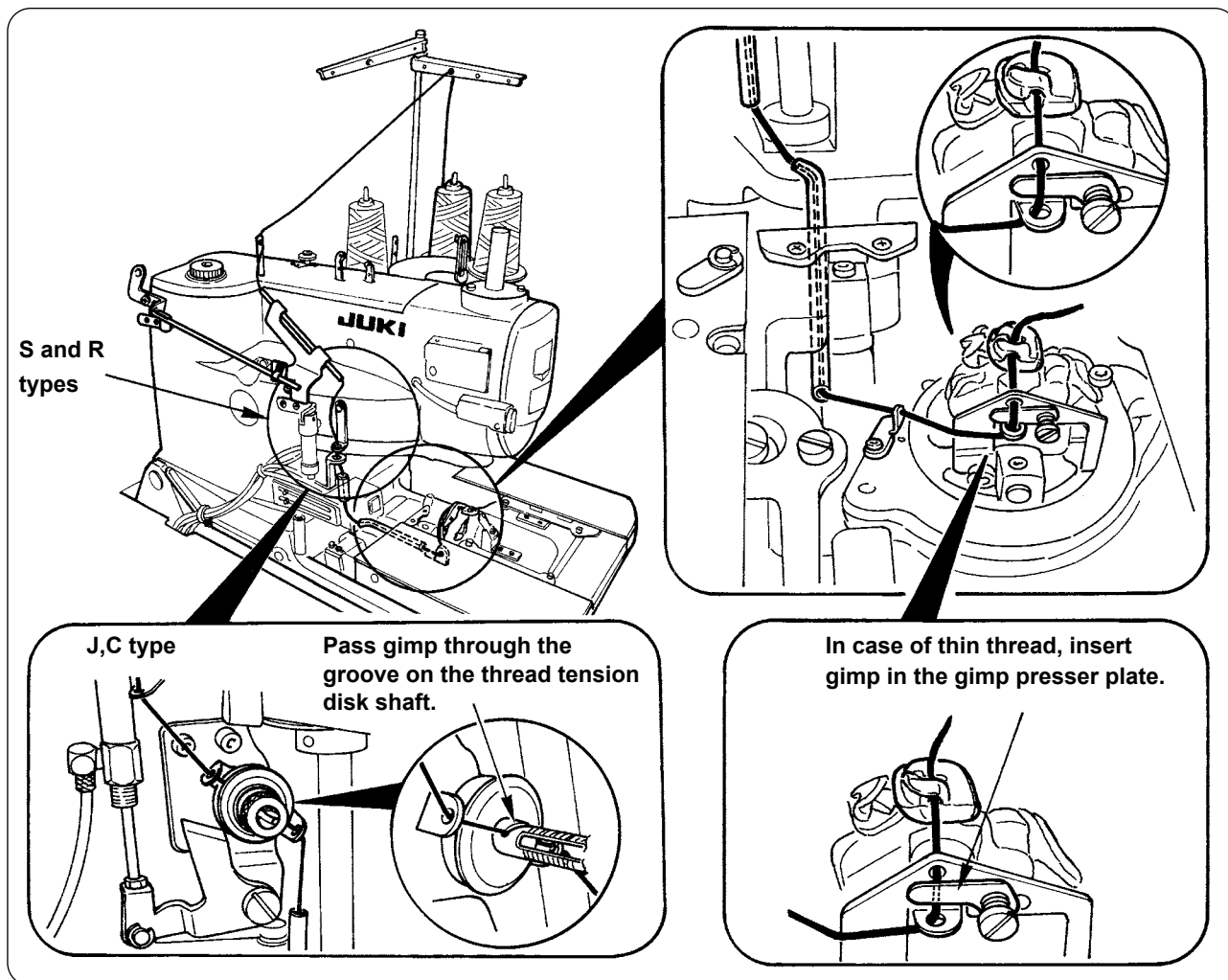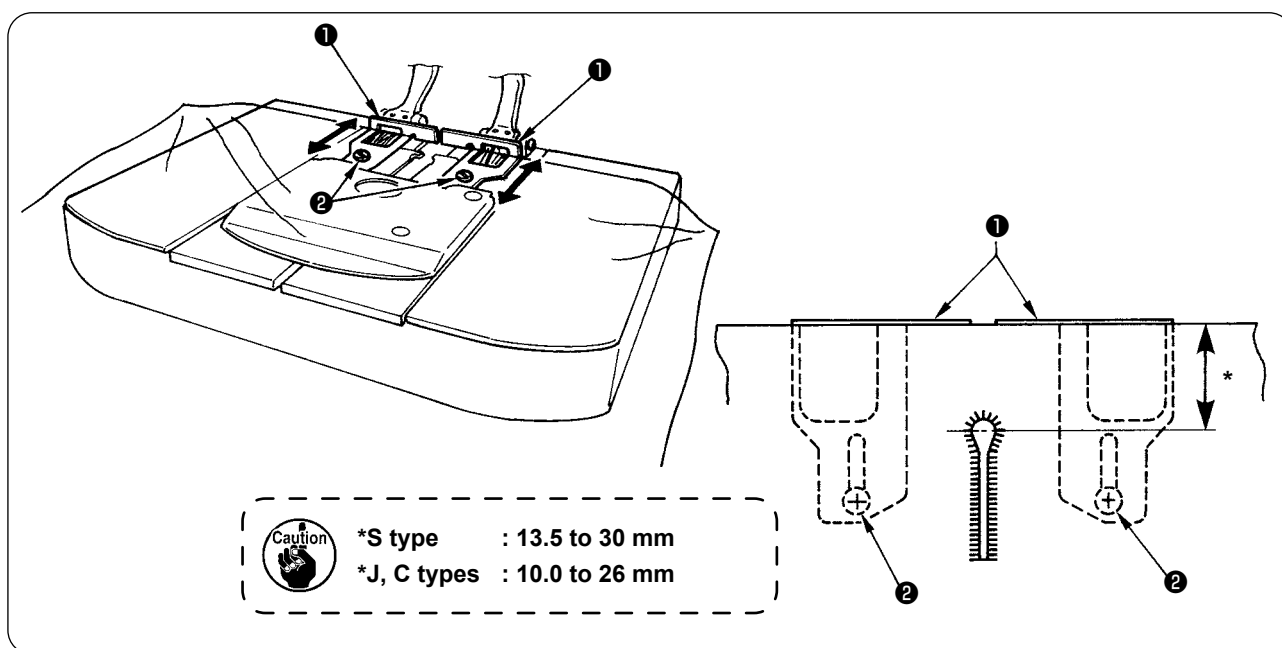
1) Enter the sewing material until it comes in contact with cloth patches ❶ , right and left.

2) Loosen setscrews ❷ , right and left and adjust the sewing position by moving the cloth patches to and fro.

(5) USB connectors

1) Open cover ❶ to find USB connectors ❷ and ❸ .
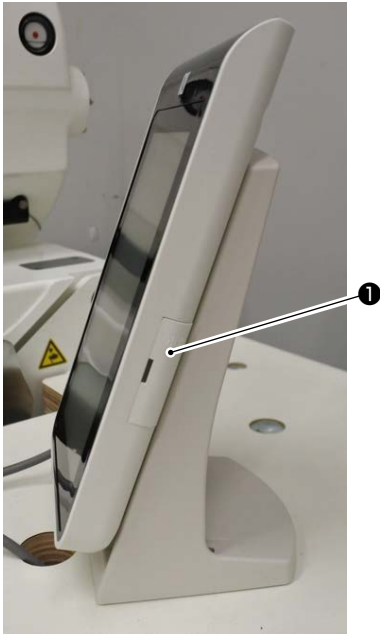
Connector ❷

    This USB connector is used for communication. It can be used to write/import pattern information, etc. to/from the USB thumb drive.

Connector ❸

    This USB connector is exclusively used for power supply.
It is able to take the 5 V/1 A power supply.
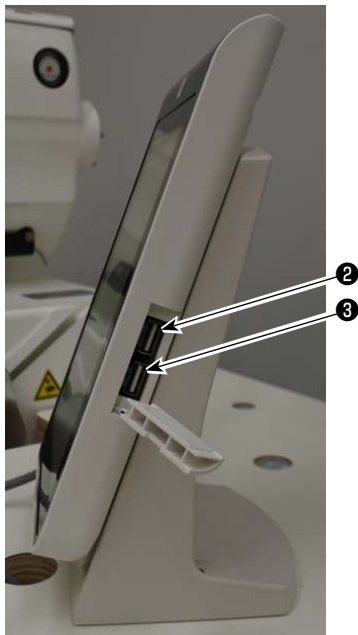
5. STRUCTURE OF THE OPERATION SWITCH

(1) Operation panel configuration
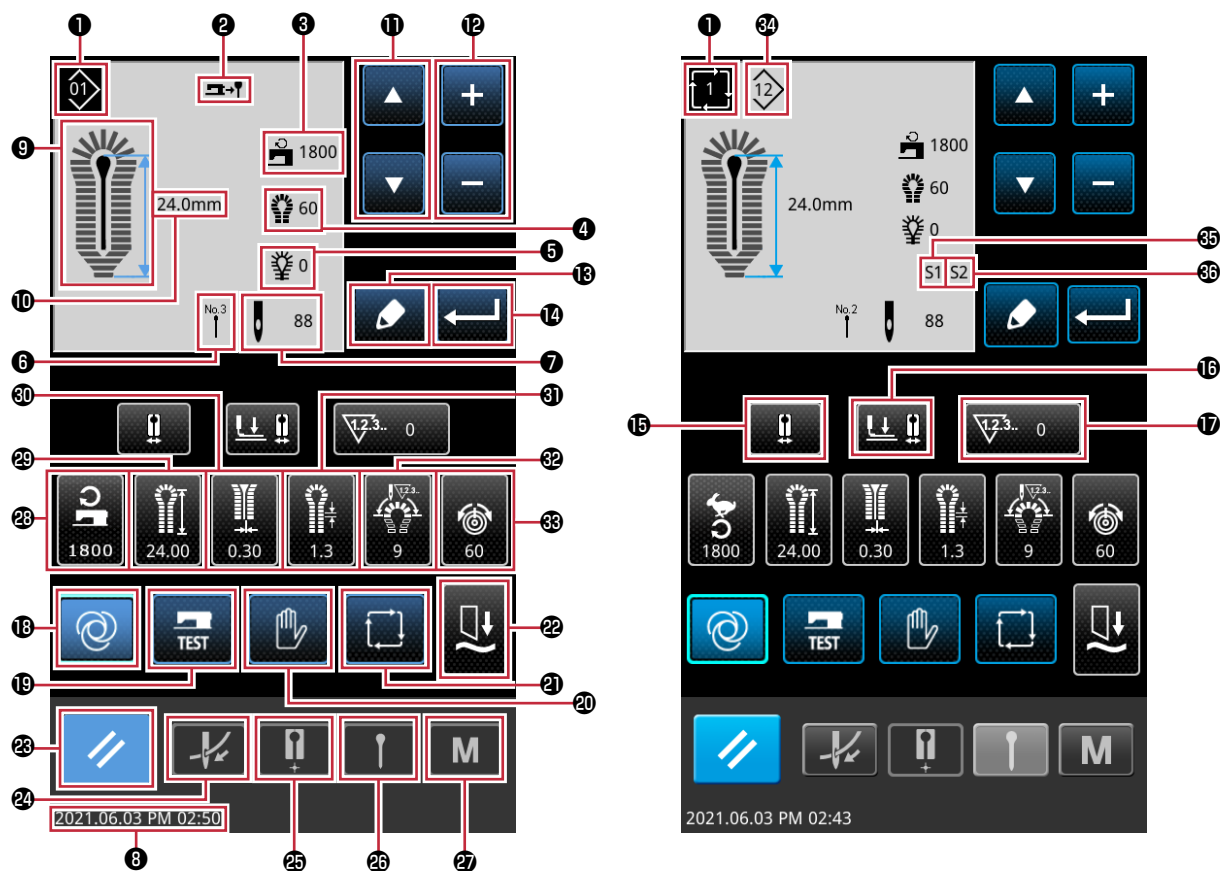
[List of display items]

No.	Display	Description
❶	Single pattern (Normal display) (Inverted display) Cycle pattern (Normal display) (Inverted display)	Pattern No.
❷	(Cut-before knife) (Cut-after knife)	Knife operation (No display when the knife does not operate)

No.	Display	Description
❸		Sewing speed
❹		Needle thread tension
❺		Looper thread tension
❻	No.1	Knife No.
❼		Number of stitches
❽		Pattern No. of the current step
㉞	12	Current step
㉟		Total number of steps
㊱		Current time

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[List of pattern shapes]

No.	Display		Description	No.	Display		Description
❾	(With knife)	(Without knife)	Lockstitch buttonhole without bartack (Knife No. 0)		(With knife)	(Without knife)	Eyelet buttonhole without bartack (Knife Nos. 1 to 6)
	(With knife)	(Without knife)	Lockstitch buttonhole with taper bar (Knife No. 0)		(With knife)	(Without knife)	Eyelet buttonhole with taper bar (Knife Nos. 1 to 6)
	(With knife)	(Without knife)	Lockstitch buttonhole with straight bar (Knife No. 0)	❾	(With knife)	(Without knife)	Eyelet buttonhole with straight bar (Knife Nos. 1 to 6)
	(With knife)	(Without knife)	Lockstitch buttonhole with round bar (Knife No. 0)		(With knife)	(Without knife)	Eyelet buttonhole with round bar (Knife Nos. 1 to 6)
	(With knife)	(Without knife)	Lockstitch buttonhole with round bar 2 (Knife No. 0)		(With knife)	(Without knife)	Eyelet buttonhole with round bar 2 (Knife Nos. 1 to 6)
	(With knife)	(Without knife)	Radial stitch eyelet (Knife No. 7)	❿			Sewing length (Knife size for radial stitch eyelet in the case of a radial stitch eyelet)

[List of buttons]

No.	Display	Description	No.	Display	Description
⓫	▲ ▼button	Changes the pattern number or the data number	⓳	TEST MODE changeover button	Changes over the mode to the test mode
⓬	+ - button	Changes data	⓴	MANUAL MODE changeover button	Changes over the mode to the manual mode
⓭	EDIT button	Edits data or selects the menu	㉑	SEWING MODE changeover button	Changes over the mode to the sewing mode
⓮	ENTER button	Saves the changed data	㉒	KNIFE PRESSURE button	Sets the knife pressure
⓯	WITH/WITHOUT CLOTH OPEN-ING OPERATION changeover button	Changes over between with/without of the cloth opening operation. Refer to **"6.(5) Performing re-sewing" P.21** for details.	㉓	RESET button	Resets the error
⓰	CLOTH OPENING OPERATION TIM-ING changeover button	Changes over the timing of the cloth opening operation	㉔	THREADING but-ton	Performs threading of the machine head. Refer to **"6.(6) Performing threading" P.21** for details.
⓱	COUNTER button	Displays the counter	㉕	SET POSITION changeover button	Changes over the cloth setting position. Refer to **"6.(4) Changing the setting position of cloth" P.50** for details.
⓲	AUTO MODE changeover button	Changes over the mode to the automatic mode	㉖	WITH/WITHOUT KNIFE OPERA-TION changeover button	Changes over between with/without of the knife opera-tion. Refer to **"6.(8) How to change the knife operation" P.22** for details.
			㉗	M button	Displays the menu

[Shortcut buttons for changing patterns]

Press the button to display the corresponding data to allow you to change the set value.

No.		No.		No.	
㉘	S001 Sewing speed	㉛	S004 Stitch pitch	㉝	S060 Needle thread tension / S075 Looper thread tension
㉙	S002 Sewing length	㉜	S005 Number of stitches of eyelet		
㉚	S003 Cloth cutting interval				

*   **Depending on the pattern shape, the buttons that are set to "disuse" will be disabled.**

(2) Temporary stop switch
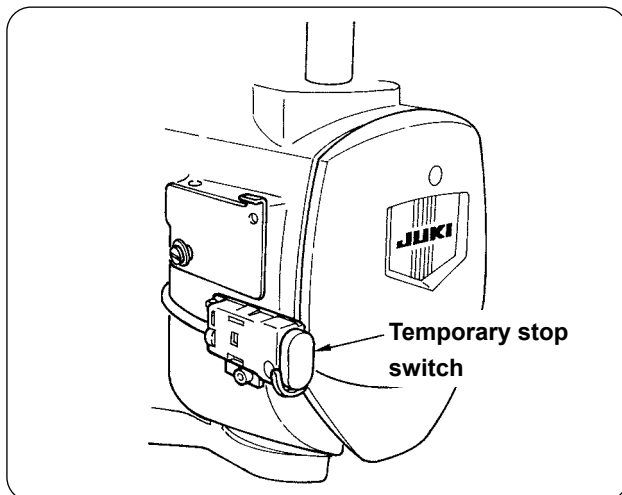
This switch stops the operation of the sewing machine.

* If you have pressed the temporary stop switch during cloth cutting, E-058 will occur when you press the reset button.
  In this case, turn the power OFF and re-turn it ON.

Temporary stop switch

(3) Hand switch

Start switch lamp

❶

❷
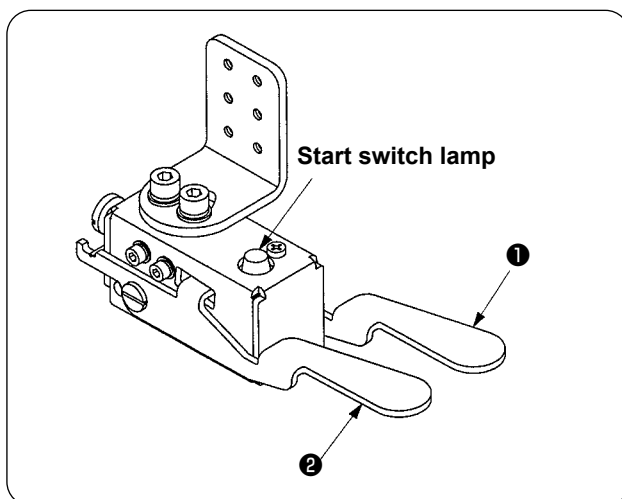
Presser switch (right) ❶

This switch performs up/down of the presser.

Start switch (left) ❷

This switch performs the start of sewing.

> **Reference** | **When the start switch is effective, the start switch lamp flashes on and off.**

> **Reference** | **This switch is provided as standard.**

(4) Foot switch
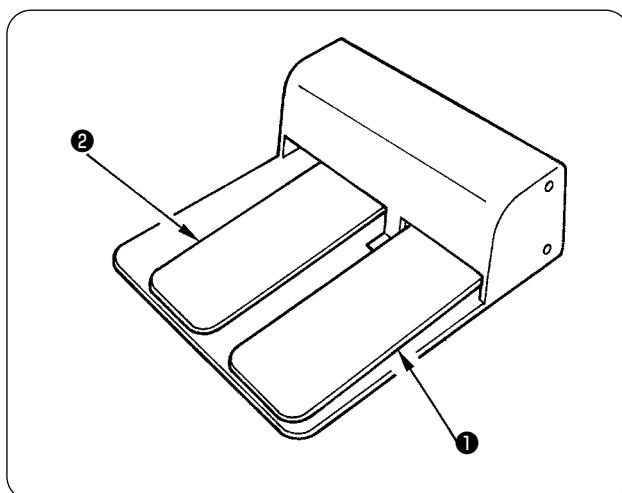
❷

❶

Presser switch ❶

This switch performs up/down of the presser.

Start switch ❷

This switch performs the start of sewing.

> **Reference** | **This switch is optional.**

6. HOW TO USE THE OPERATION PANEL

(1) Basic operation of the sewing machine
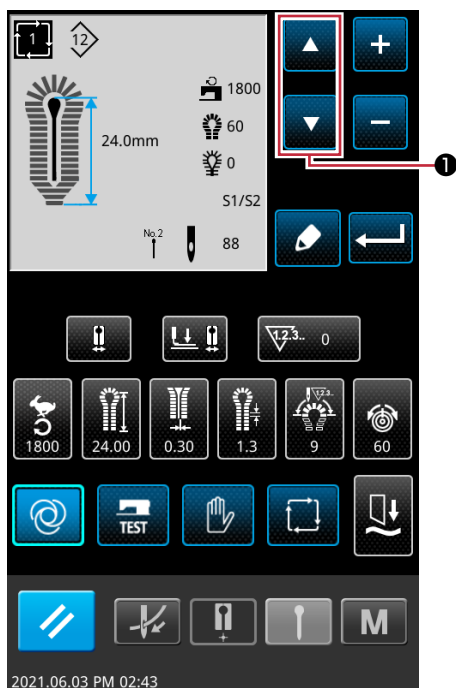
1) After turning the power ON, the message "Press the presser switch" appears. Then, press the start switch.

2) Press ▲ ▼ ❶ to select the pattern you want to sew.

3) Place the sewing material under the presser foot. Press the presser switch to lower the presser foot. When the presser foot has come down, the pattern number is changed from the normal display to the inverted display.

> **⚠ Caution**
> **Pattern cannot be changed after the presser foot has come down.**
> **If you want to change the pattern, press the presser switch to lift the presser foot.**

4) The sewing machine starts sewing with the start switch.

(2) Creating a pattern

Copy one of the standard patterns (Nos. 1 to 11) to an arbitrary pattern number for use.

 * Sewing settings of the pattern Nos. 1 to 11 cannot be changed.

Example) To copy the standard pattern No. 5 to the pattern No. 15
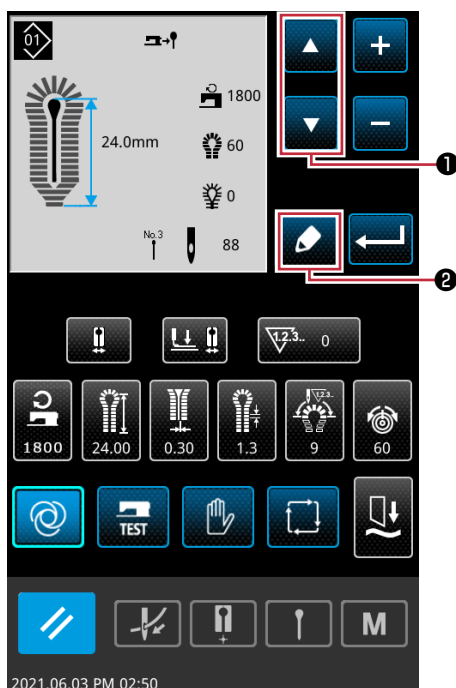
1) Press ▲ ▼ ❶ to display the pattern No. 15.

2) Press ✏ ❷ .

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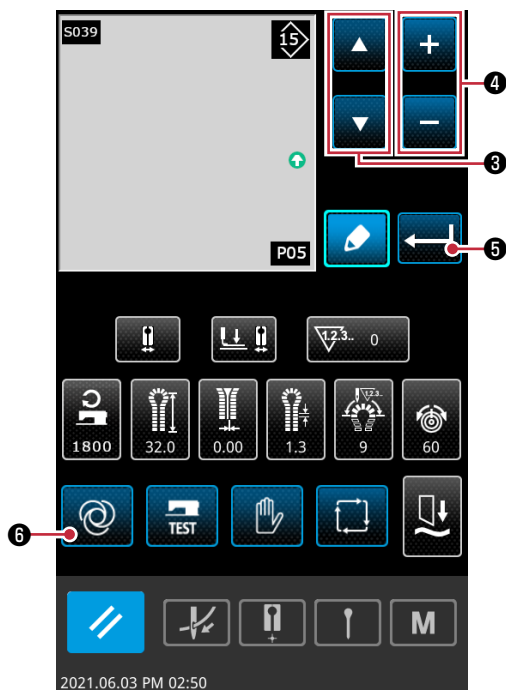
3) Press ▲ ▼ ❸ to display S039.

4) Press ＋ − ❹ to display P05.

5) Press ↵ ❺ to complete copying of the pattern.

6) Press ◎ ❻ to return to the initial screen.

(3) Setting the thread tension

The needle thread tension and the looper thread tension can be changed respectively.

The thread tension becomes stronger by increasing the set value, or weaker by decreasing it.

Refer to **"7. SETTING PROCEDURE OF THE SEWING DATA" P.25** for details.

It is also possible to compensate the thread tension so that it changes in accordance with the sewing points.

Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.

> **Caution**
> **The actual thread tension varies with the type and thickness of the thread used even when the set value is same. Set the thread tension in accordance with the thread you want to use. Higher thread tension may cause stitch skipping.**

(4) Temporarily stopping the sewing machine
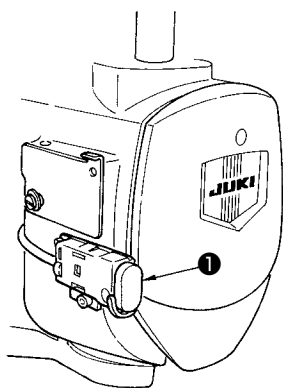
■ How to stop the sewing machine

1) Press Temporary stop switch ❶ .
2) The sewing machine stops. The message "E-007 Temporary stop switch is pressed during sewing" is displayed.

■ How to re-start

1) If you press ❷ while the error is displayed on the screen, the error will be reset and the message "Press RESET or ❸ " will be displayed.

2) Press ❷ to lift the presser foot and return the sewing machine to the start position. Or, press ❹ to move the feed forward by one stitch or ❸ to move it backward by one stitch.

3) Press the start switch to re-start sewing.

> **Caution**
> Even if you press ❹ to move the feed to the last stitch, thread trimming will not be carried out.

> **Caution**
> If you want to stop sewing in the middle of sewing and bring the sewing machine to the start position by means of ❷ , firstly draw out the needle thread and trim it with a pair of scissors or the like to prevent the needle and the sewing material from being applied with an excessive force.

(5) Performing re-sewing

Sewing can be performed without making the cloth open operation.
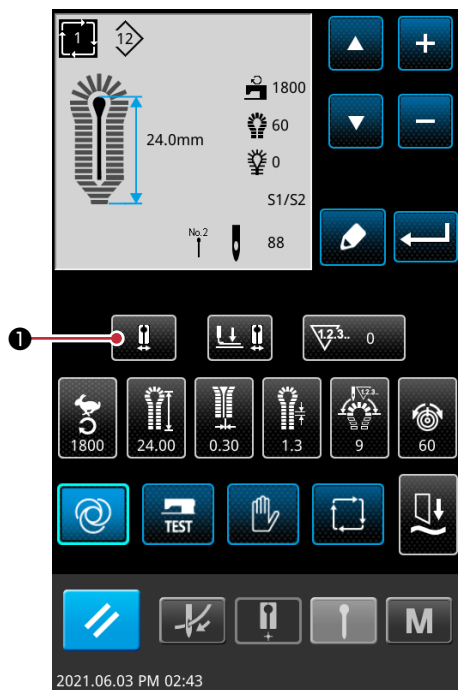
1) Check that the pattern number is in the normal display.
   If the pattern number is displayed with inverted, press the presser switch to return it to the normal display.

2) Press **[❶]** to change over to **[ ]** .

3) You can start sewing with the presser switch and start switch.
   The cloth opening ON/OFF operation is not carried out.

4) To release this setting, press **[ ]** to return to **[❶]** .

> ⚠ Caution
> **If you do not want to activate the cloth cutting knife, prohibit the knife operation in accordance with "6.(8) How to change the knife operation" P.22.**

(6) Performing threading

> ⚠ Caution
> **Turn OFF the power after carrying out the operation of step 1). Then, replace the needle, thread, cloth cutting knife or knife holder.**
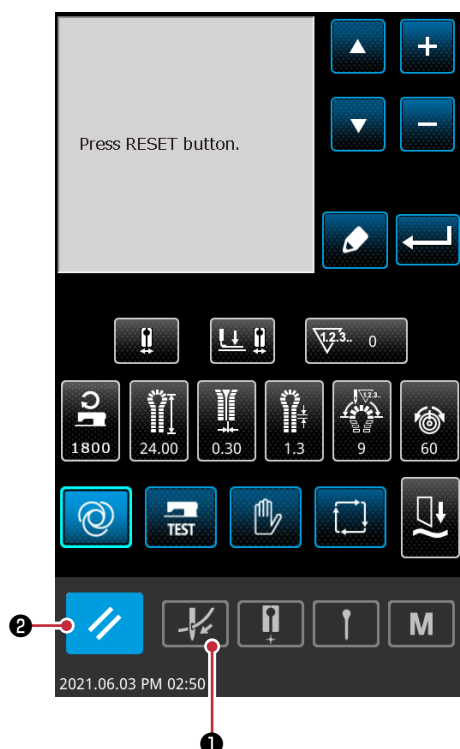
1) Press **[❶]** when the pattern number is in the normal display and the sewing machine stops at the setting position.
   ① The needle bar turns to allow you to perform threading from the front side.
   ② The presser foot comes down.
   ③ The message "Press the RESET button" is displayed.

> ✎ Reference
> **In this state, buttons other than [❷] are not accepted.**

2) Press **[❷]** to return ① to ③ to the previous states.

> ⚠ Caution
> **The presser foot and the feed base operate. Be careful not to allow your hands or fingers to be caught in them.**

> ✎ Reference
> **It is also recommended to install/remove the presser unit after carrying out the operation of the aforementioned step 1) and turning the power OFF.**

(7) How to use the counter

Current value of counter

100

(Range:0~9999)

1	2	3
4	5	6
7	8	9
0	⬆	⬇ ❶

C ❷
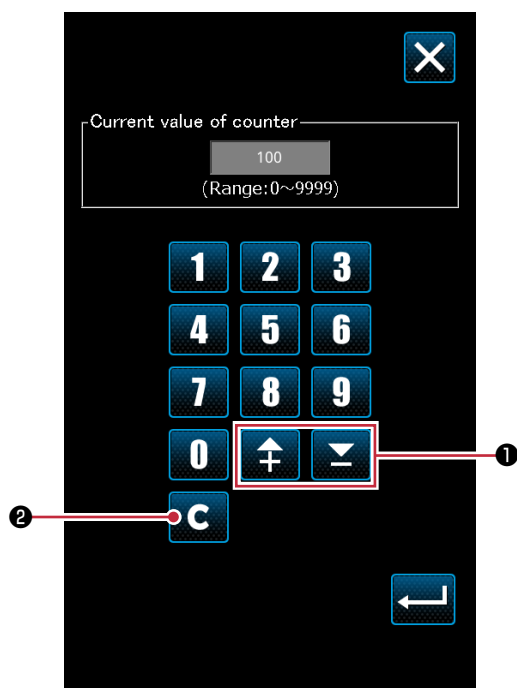
1) Select "ADD: UP count" using the memory switch U28 "Counter setting".

2) Press ▽²³ to display the current value input screen.

3) Press the numeric keypad or ⬆ ⬇ ❶ to input the current value.

4) Press C ❷ to return the current value to 0 (zero).

(8) How to change the knife operation

❸
❷

24.0mm

1800
60
0

No.3 88

▲ +
▼ −

1800 24.00 0.30 1.3 9 60

TEST

2021.06.03 PM 02:50

M

❶

1) Press ❶ in repetition to change the knife operation.

2) Knife operation ❸

Knife operation	Description
Cut-before knife	The knife operates before starting sewing.
Cut-after knife	The knife operates after the end of sewing.
Without knife	The knife does not operate. For "No knife operation", the button display changes over to .

(9) Changing the operation mode

The operation mode can be changed over to the test mode.
Under the test mode, the pattern shape can be checked by moving the feed stich by stitch.
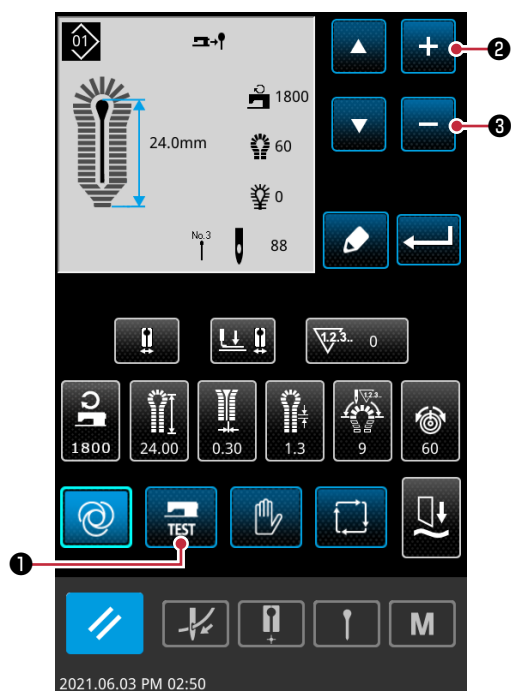
■ How to change over to the test mode

Press ![TEST] ❶ to change over to the test mode.

■ Operation of the sewing machine during the test mode

1) Press the Presser switch to lower the presser foot.
2) Press the start switch to return the sewing machine to the sewing start position.
3) Press the start switch or ![+] ❷ to move the feed forward stitch by stitch, or ![−] ❸ to move it backward stitch by stitch.
4) Press the start switch at the sewing end position to return the sewing machine to the standby position.
5) Press the start switch to lift the presser foot.

> **Caution**
> The operation does not change during the test mode even if you have changed the setting of the knife operation (cut-before knife/cut-after knife/without knife).

(10) Setting the clock

Set the date and time.

1) Press ![icon] ❶ .
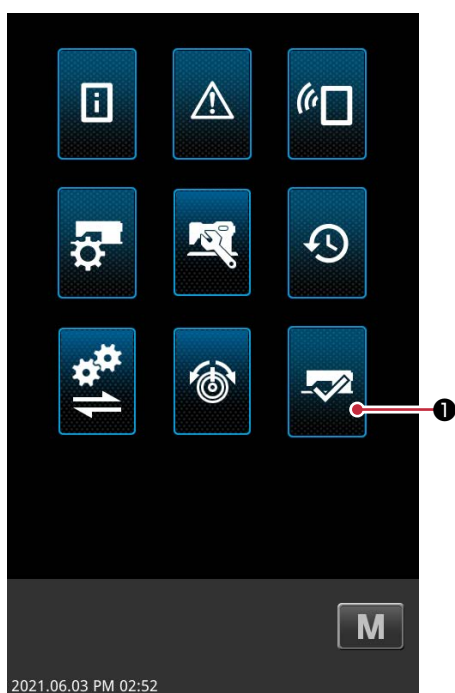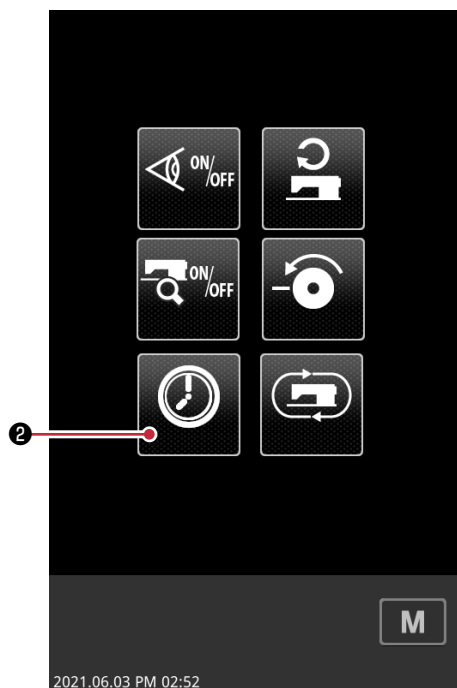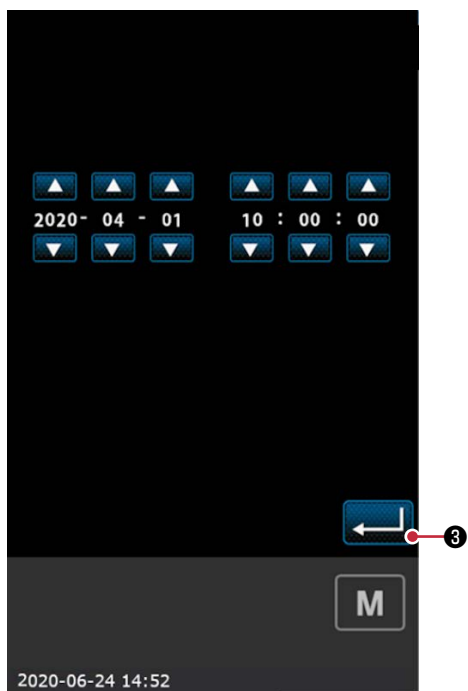
2) Press ⏱ ❷ .

3) Set the date and time. Press ↵ ❸ .

7. SETTING PROCEDURE OF THE SEWING DATA
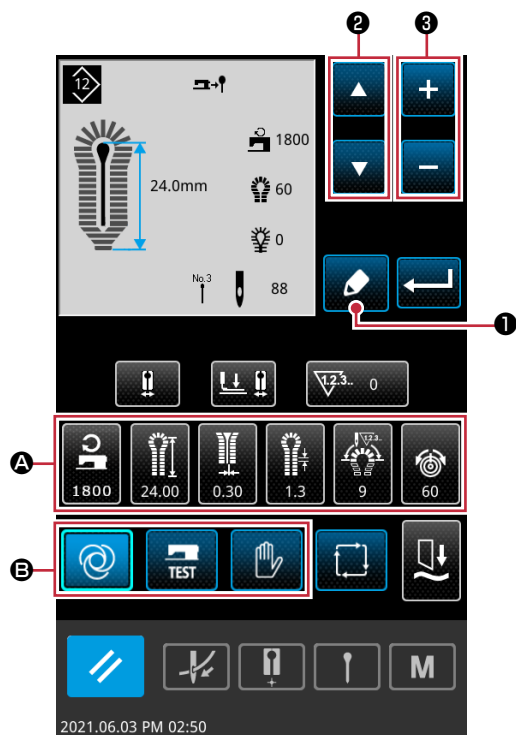
1) Press ✎ ❶ or Ⓐ to display the sewing data. (The sewing data displayed differs with the button.)

2) Press ▲ ▼ ❷ or Ⓐ to select the sewing data. Then, press ＋ − ❸ to change the set value.

3) Press ⏎ to save the changed value.

> ⚠ Caution
> **If you turn the power OFF without pressing any of ❸ in the above step 3), the set value will not be saved.**

> ⚠ Caution
> **The selectable sewing data differ with the set values of the knife number (S011) and of the shape of bar tack (S040).**

(1) Setting the lock stitch buttonhole sewing data

For lock stitch buttonholes, the following sewing data items can be set.
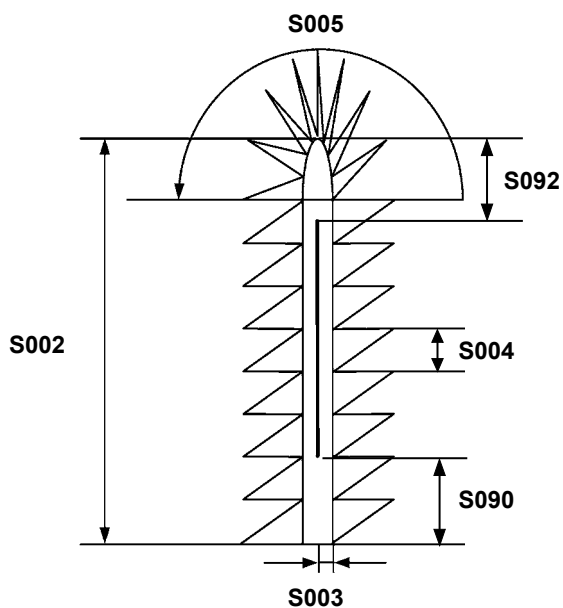
S002	Sewing length
S003	Cut space
S004	Stitch pitch
S005	Number of stitches of eyelet
S090	Cut length compensation (Multi cutting)
S092	Lock stitch buttonhole offset (Multi cutting)

> ✎ Reference
> **Eyelet buttonhole shape can be compensated. Refer to "9.(3) Operating procedure of shape compensation of each section" P.49 for details.**

(2) Setting sewing data for the eyelet buttonhole

For eyelet buttonholes, the following sewing data items can be set.
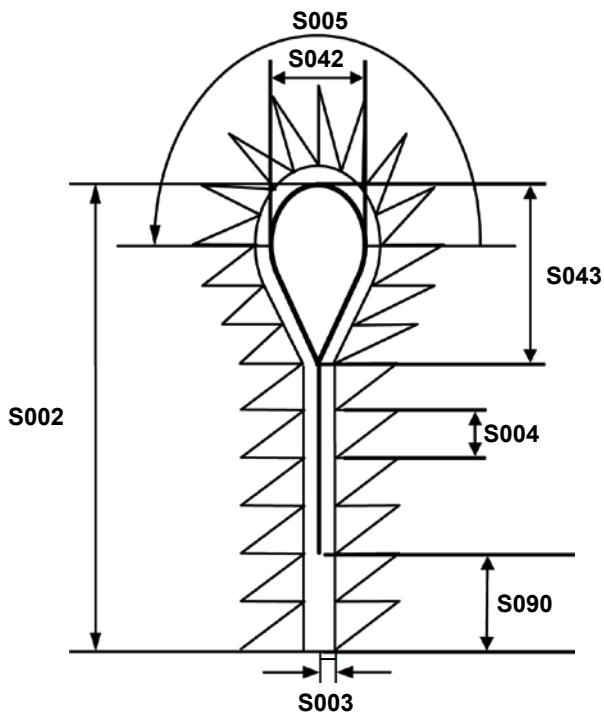
S002	Sewing length
S003	Cut space
S042	Compensation of eyelet width
S043	Compensation of eyelet length
S004	Stitch pitch
S005	Number of stitches of eyelet
S090	Cut length compensation (Multi cutting)

Caution
Eyelet buttonhole sewing speed is the sum of the sewing speed (S001) and the reduced speed of eyelet (S013).

Reference
Eyelet buttonhole shape can be compensated.
Refer to **"9.(3) Operating procedure of shape compensation of each section" P.49** for details.

(3) Setting sewing data for the radial stitch eyelet

For radial stitch eyelets, the following sewing data items can be set.
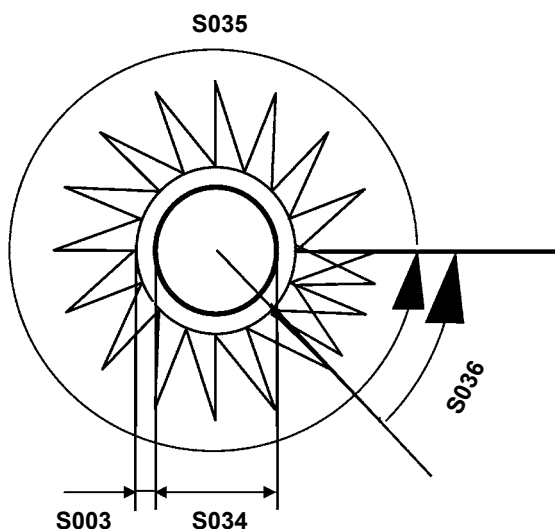
S003	Cut space
S034	Knife size for radial stitch eyelet
S035	Number of stitches of radial stitch eyelet
S036	Number of overlapped stitches of radial stitch eyelet

(4) Setting sewing data for the straight bar shape

For straight bar shapes, the following sewing data items can be set.
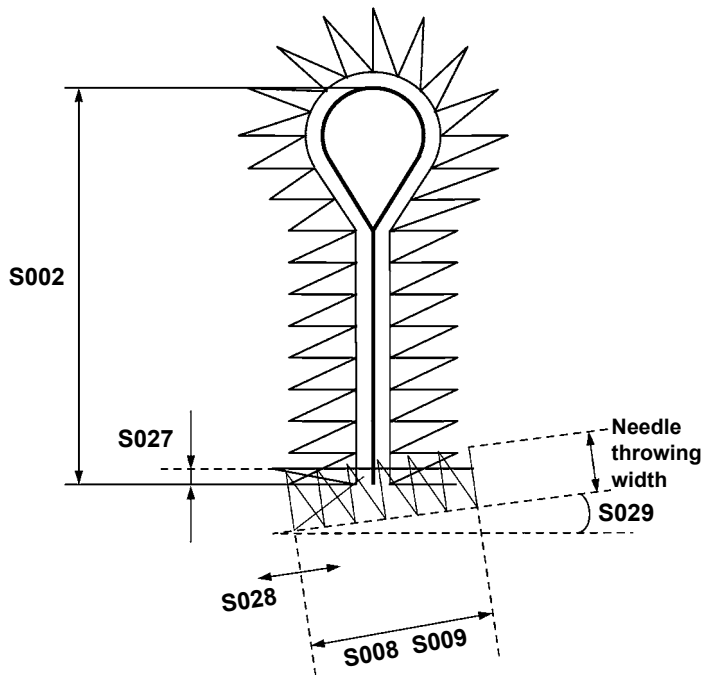
S002	Sewing length
S008	Straight bar length
S009	Number of stitches of straight bar
S027	Overlapping amount of straight bar
S028	Compensation of X position of straight bar
S029	Compensation of inclination of straight bar

> **Caution** Sewing speed of the straight bar section is the speed of straight bar section (S014).

> **Caution** Refer to **"9.(3) Operating procedure of shape compensation of each section" P.49** for the procedure for setting the needle throwing width of the straight bar section.

(5) Setting sewing data for the taper bar shape

For taper bar shapes, the following sewing data items can be set.
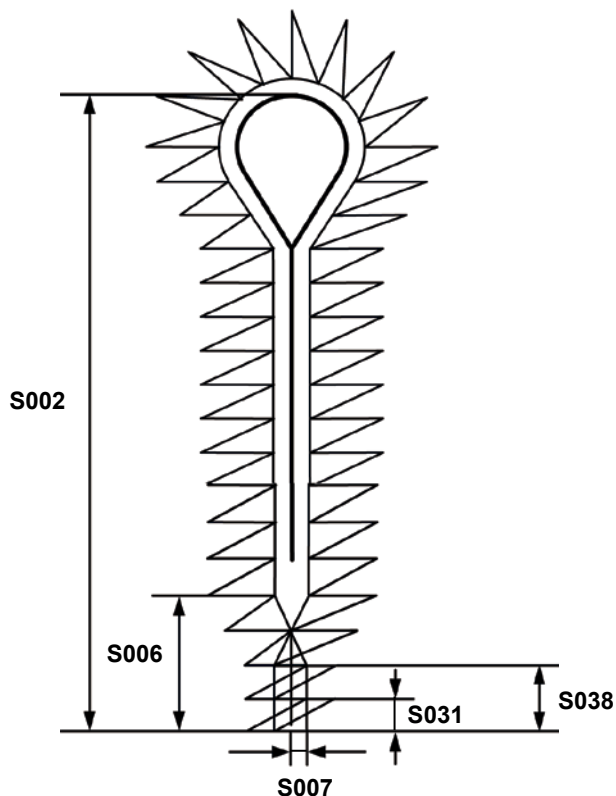
S002	Sewing length
S006	Taper bar length
S007	Offset
S031	Stitch pitch of fastening stitches of taper bar section at sewing end
S038	Number of stitches of straight section of taper bar

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(6) Setting sewing data for the round bar shape

For round bar shapes, the following sewing data items can be set.
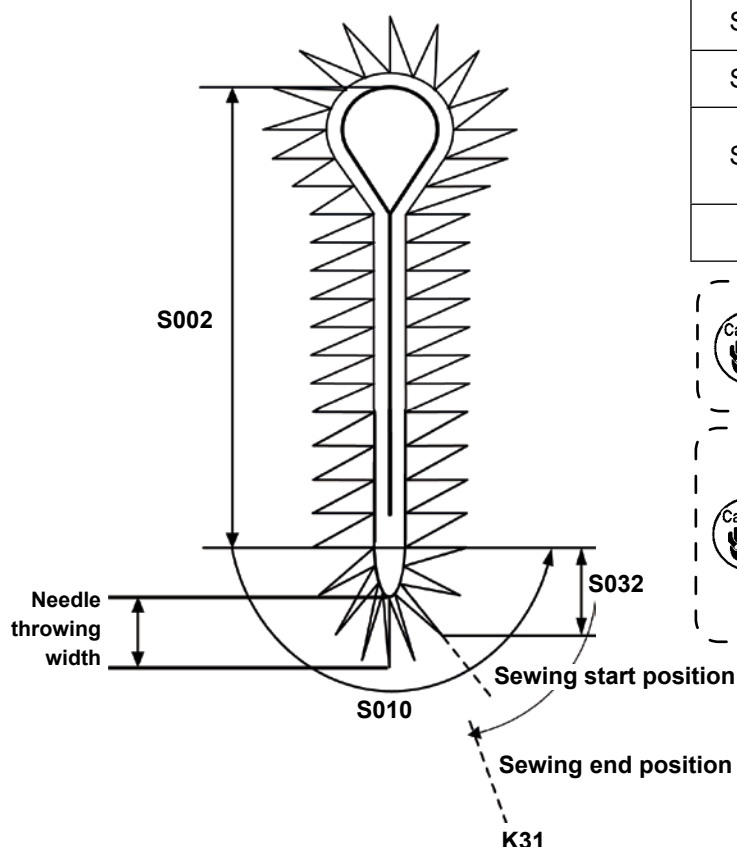
S002	Sewing length
S010	Number of stitches of round bar
S032	Number of overlapped stitches of round bar
K31	Angle of round bar at sewing end

⚠ Caution Round bar section sewing speed is the sum of the sewing speed (S001) and the reduced speed of round bar (S118).

⚠ Caution Refer to **"9.(3) Operating procedure of shape compensation of each section" P.49** for the procedure for setting the needle throwing width of the round bar section.

S002

Needle throwing width

S032

Sewing start position

S010

Sewing end position

K31

(7) Setting sewing data for the round bar 2 shape

For round bar shapes, the following sewing data items can be set.
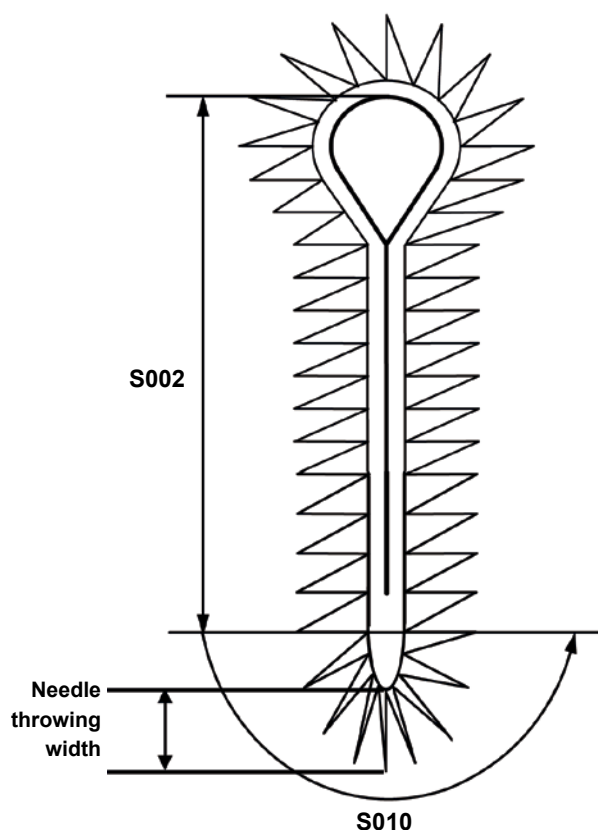
S002	Sewing length
S010	Number of stitches of round bar

⚠ Caution Round bar section sewing speed is the sum of the sewing speed (S001) and the reduced speed of round bar (S118).

⚠ Caution Refer to **"9.(3) Operating procedure of shape compensation of each section" P.49** for the procedure for setting the needle throwing width of the round bar section.

S002

Needle throwing width

S010

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(8) Sewing data list

Data No.	Setting item	Min.	Max.	Unit		Description	Reset *1
S001	Sewing speed	400	2200	100	sti/min		1800
S002	Sewing length	10	38	0.1	mm	There are conditions for setting the range of sewing length depending on the stitch shape. *2	25.0
S003	Cloth cutting interval	-2.5	1.2	0.1	mm		0.2
S004	Stitch pitch	0.5	4	0.1	mm		1.0
S005	Number of stitches of eyelet	4	20	1	Stitch		9
S006	Taper bar length	1	20	1	mm		6
S007	Offset	0.5	2.0	0.1	mm		1.2
S008	Straight bar length	2.0	9.0	0.1	mm		5.0
S009	Number of stitches of straight bar	5	18	1	Stitch		7
S010	Number of stitches of round bar	5	17	1	Stitch		7
S011	Knife No.	0	7	1		0: Lockstitch buttonhole, 1-6: Eyelet buttonhole, 7: Radial stitch eyelet * If you want to change the setting of S011, temporarily set S002 to 18.0 mm or more.	2
S012	Compensation of needle throwing width	-1.0	1.0	0.1	mm	Compensation value to be added to the K10. Refer to **"13.(2) Memory switch list" P.81** for details.	0.0
S013	Reduced speed of eyelet	-600	0	100	sti/min		0
S014	Speed of straight bar section	1000	2200	100	sti/min		1800
S015	Soft start	0	6	1	Stitch		2
S017	X compensation of sewing position	-0.5	0.5	0.1	mm		0.0
S018	Y compensation of sewing position	-0.7	0.7	0.1	mm		0.0
S019	Number of fastening stitches of sewing start	0	4	1	Stitch		0
S020	Number of fastening stitches of sewing end	0	8	1	Stitch		0
S021	Crosswise compensation of eyelet	-1	6	1			0
S022	Left lengthwise compensation	-10	6	1			0
S023	Compensation of turning	-40	40	1			0
S024	θ2 compensation	-3	3	1			0
S026	Compensation of straight bar width	-1.0	0.0	0.1	mm		0.0
S027	Overlapping amount of straight bar	0.0	2.0	0.1	mm		1.0
S028	Compensation of X position of straight bar	-1.0	1.0	0.1	mm		0.0

*1 For the sewing patterns with pattern Nos. 12 and beyond, the values shown in this column of the table will take effect when you press reset button .

Caution: **This value will be saved in the corresponding sewing pattern when you press reset button .**

Data No.	Setting item	Min.	Max.		Unit	Description	✏️ Reset *1
S029	Compensation of inclination of straight bar	-3	1	1			0.0
S031	Stitch pitch of fastening stitches of taper bar section at sewing end	20	100	5	%		50%
S032	Number of overlapped stitches of round bar	1	4	1	Stitch	The maximum value varies depending on the value of S010.	1
S033	Needle entries without cloth cutting knife	1	2	1			1
S034	Knife size for radial stitch eyelet	2	5	0.1	mm		3.0
S035	Number of stitches of radial stitch eyelet	8	100	1	Stitch		21
S036	Number of overlapped stitches of radial stitch eyelet	1	5	1	Stitch		2
S037	Sewing length of fastening stitches at sewing end	0	30	0.1	mm	Set the sewing length for two fastening stitches set in S020.	0
S038	Number of stitches of straight section of taper bar	0.05	20	0.05	Stitch		3.10
S039	Program copying	-	-	-		Copy the pattern. Refer to **"6.(2) Creating a pattern" P.18** for details.	OFF
S040	Shape of bartack	1	5	1		1. Without bar tack, 2: Taper bar, 3: Straight bar, 4: Round bar, 5: Round bar 2 * If you want to change the set value of S040, temporarily set S002 to 18.0 mm or more.	2
S042	Compensation of eyelet width	1.0	4.0	0.1	mm		2.5
S043	Compensation of eyelet length	1.0	8.0	0.1	mm		3.8
S060	Needle thread tension	0	180	1			60
S061	Compensation of needle thread tension of right parallel section	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S062	Compensation of needle thread tension of left parallel section	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S063	Compensation of needle thread tension of eyelet	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0

*1 For the sewing patterns with pattern Nos. 12 and beyond, the values shown in this column of the table will take effect when you press reset button ✏️ .

⚠️ Caution **This value will be saved in the corresponding sewing pattern when you press reset button** ✏️ .

Data No.	Setting item	Min.	Max.	Unit	Description	⟋ Reset *1
S064	Compensation of needle thread tension of right bottom of eyelet	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S065	Compensation of needle thread tension of left bottom of eyelet	-180	180	1	l	Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S066	Compensation of needle thread tension of right bartack	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S067	Compensation of needle thread tension of left bartack	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S068	Compensation of needle thread tension of right bartack 2	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S069	Compensation of needle thread tension of left bartack 2	-180	180	1		Compensation value to be added to S060. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S071	Compensation of needle thread tension of sewing start	-180	180	1		Compensation value to be added to S060.	0
S072	Compensation of needle thread tension of sewing end	-180	180	1		Compensation value to be added to S060.	0
S073	Compensation of needle thread tension at the time of thread trimming	-180	180	1		The needle thread tension at the time of thread trimming is U09 + S073. Refer to **"13.(2) Memory switch list" P.81** for details.	0
S074	Compensation of needle thread tension at the time of stop	-180	180	1		The needle thread tension at the time of stopping is U11 + S074. Refer to **"13.(2) Memory switch list" P.81** for details.	0
S075	Looper thread tension	0	180	1			0
S076	Compensation of looper thread tension of right parallel section	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S077	Compensation of looper thread tension of left parallel section	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0

*1 For the sewing patterns with pattern Nos. 12 and beyond, the values shown in this column of the table will take effect when you press reset button ⟋ .

Caution: **This value will be saved in the corresponding sewing pattern when you press reset button ⟋ .**

Data No.	Setting item	Min.	Max.	Unit		Description	Reset *1
S078	Compensation of looper thread tension of eyelet	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S079	Compensation of looper thread tension of right bottom of eyelet	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S080	Compensation of looper thread tension of left bottom of eyelet	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S081	Compensation of looper thread tension of right bartack	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S082	Compensation of looper thread tension of left bartack	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S083	Compensation 2 of looper thread tension of right bartack	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S084	Compensation 2 of looper thread tension of left bartack	-180	180	1		Compensation value to be added to the S075. Refer to **"9.(2) Operating procedure of thread tension compensation of each section" P.47** for details.	0
S086	Compensation of looper thread tension of sewing start	-180	180	1		Compensation value to be added to the S075.	0
S087	Compensation of looper thread tension of sewing end	-180	180	1		Compensation value to be added to the S075.	0
S088	Compensation of looper thread tension at the time of thread trimming	-180	180	1		The looper thread tension at the time of thread trimming is U10 + S088. Refer to **"13.(2) Memory switch list" P.81** for details.	0
S089	Compensation of looper thread tension at the time of stop	-180	180	1		The looper thread tension at the time of stopping is U12 + S089. Refer to **"13.(2) Memory switch list" P.81** for details.	0
S090	Cut length compensation	0	5	0.1	mm	The function is enabled for the multi cutting type.	0.0
S091	Multiple times selection	0	3	1			0
S092	Lockstitch buttonhole offset	0	5	0.1	mm	The function is enabled for the multi cutting type (lock stitch buttonhole).	0.0
S101	Knife pressure(No.1)	0	255	1			0
S102	Knife pressure(No.2)	0	255	1			0
S103	Knife pressure(No.3)	0	255	1			0

*1 For the sewing patterns with pattern Nos. 12 and beyond, the values shown in this column of the table will take effect when you press reset button.

This value will be saved in the corresponding sewing pattern when you press reset button.

Data No.	Setting item	Min.	Max.		Unit	Description	Reset *1
S105	Lengthwise compensation of left eyelet	-0.2	0.6	0.1	mm		0.0
S106	Lengthwise compensation of left parallel section	-0.2	0.6	0.1	mm		0.0
S107	Setting of needle throwing width of right bottom of eyelet	-1.0	1.0	0.1	mm		0.0
S108	Setting of needle throwing width of left bottom of eyelet	-1.0	1.0	0.1	mm		0.0
S112	Number of stitches for which the tension for sewing start is enabled	0	5	1	Stitch	Sewing is carried out for this number of stitches at the start of sewing while applying the needle thread tension of S060 + S071 and the looper thread tension of S075 + S086.	0
S113	Number of stitches for which the tension for sewing end is enabled	0	5	1	Stitch	Sewing is carried out for this number of stitches at the end of sewing while applying the needle thread tension of S060 + S072 and the looper thread tension of S075 + S087.	0
S115	Needle throwing width of round bar	-1.0	1.0	0.1	mm		0.0
S116	Needle gauge of upper eyelet	-1.0	1.0	0.1	mm		0.9
S118	Reduced speed of round bar	-600	0	100	sti/min		0

*1 For the sewing patterns with pattern Nos. 12 and beyond, the values shown in this column of the table will take effect when you press reset button ⫽ **.**

> ⚠ Caution **This value will be saved in the corresponding sewing pattern when you press reset button** ⫽ **.**

*2 Remember to set the minimum value of the sewing length (S002) to a value greater than the following. If you set a wrong value, M-058 warning may be generated.

For the sewing machine that is a single cutting type

　· In the case the knife No. (S011) is "0"
　　Buttonhole with taper bar (S040 = 2) : 10.0 + S006
　　　　　　　　　Others : 10.0

For the sewing machine that is a multicutting type

　· In the case the knife No. (S011) is "0"
　　Buttonhole with taper bar (S040 = 2) : K052 (or K055, K058, K061, K064, K067) + S090 + S092 + S006
　　　　　　　　　Others : K052 (or K055, K058, K061, K064, K067) + S090 + S092

　· In the case the knife No. (S011) is "1" and the multiple times selection (S091) is "0"
　　Buttonhole with taper bar (S040 = 2) : K051 (or K054, K057, K060, K063, K066) + S090 + S006
　　　　　　　　　Others : K051 (or K054, K057, K060, K063, K066) + S090

　· In the case the knife No. (S011) is "1" and the multiple times selection (S091) is "2"
　　Buttonhole with taper bar (S040 = 2) : K051 (or K055, K058, K061, K064, K067) + S090 + S006
　　　　　　　　　Others : K051 (or K055, K058, K061, K064, K067) + S090

8. ADJUSTMENT OF EACH PART

⚠ **WARNING :**
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

(1) Replacing the cloth cutting knife and the knife holder
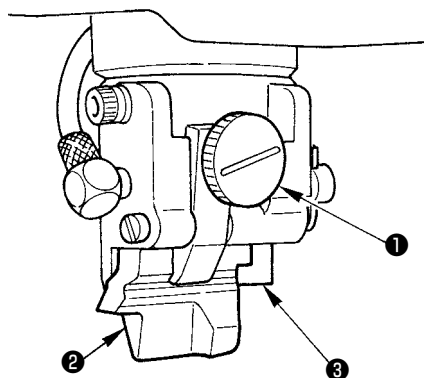
■ Replacing the upper cloth cutting knife and the knife holder

1) Loosen thumbscrew ❶ and remove knife holder and cloth cutting knife ❷ .

2) Make the knife holder or the cloth cutting knife desired to be replaced come in contact with stopper ❸ and tighten thumbscrew ❶ .

> ⚠ **Stopper ❸ is for positioning. Do not move it.**
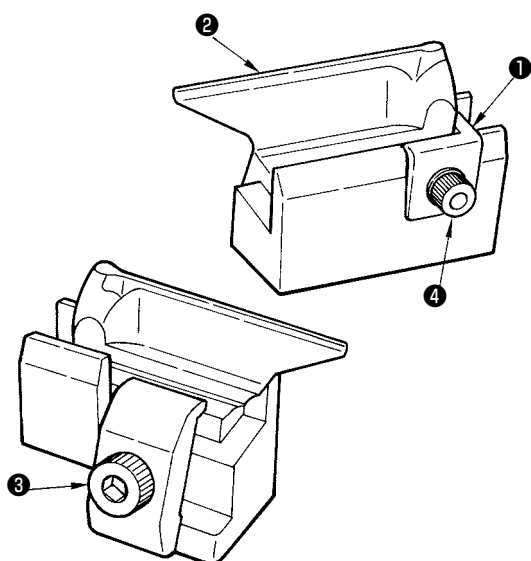
■ Lower cloth cutting knife and the knife holder

1) Loosen setscrew ❸ and remove knife holder and cloth cutting knife ❷ .

2) Make the knife holder or the cloth cutting knife desired to be changed come in contact with stopper ❶ and tighten setscrew ❸ .

> ⚠ **Stopper ❶ is for positioning. Do not loosen screw ❹ .**

> ⚠ **When replacing the cloth cutting knife, match the knife No. to the knife No. of the program. Use the cloth cutting knife and the knife holder as a set. (Two different knife marks are formed and cloth cannot be precisely cut. As a result, breakage of the cloth cutting knife will be caused.)**

(2) Setting the knife pressure of the standard type

・The knife pressure of the cloth cutting knife can be changed.

・If you have replaced the cloth cutting knife or the knife holder or if you have changed the sewing material, it will be necessary to check the knife pressure.

・Be sure to check the knife holder surface and the knife carefully before changing the set value.
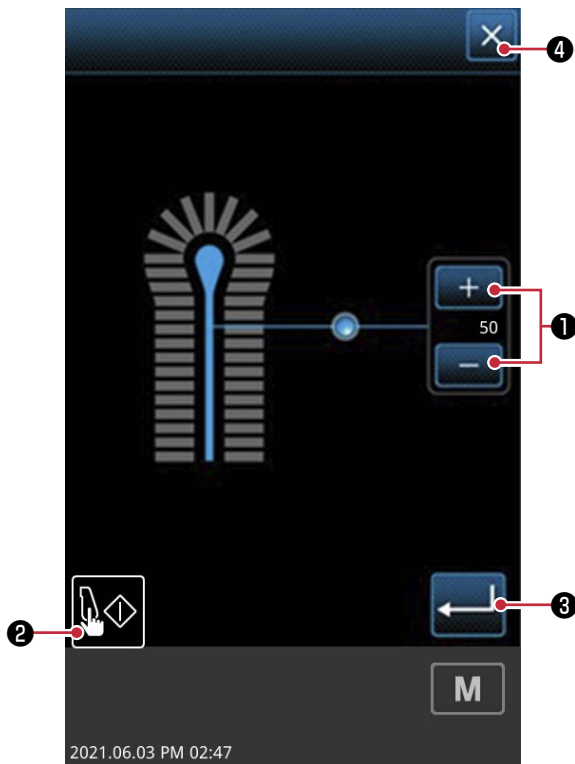
1) Press [+] [−] ❶ to change the knife pressure.

   The setting range is from 0 (zero) to 225. The larger the number, the higher the knife pressure.

2) Press ↵ ❸ to save the setting.

3) Press 🖐◇ ❷ the operate the knife with the knife pressure you have set.

   Press ✕ ❹ to cancel the setting and terminate editing.

 * You can also check the operation by pressing the start switch after pressing the presser switch to lower the presser foot.

> **To use the sewing machine stably with respect to the influence of the cloth cutting knife on the cloth grain, etc., it is recommended to increase the set value of the knife pressure by approximately 20 to 30 from the value at which the knife can cut the cloth.**
>
> **If the knife pressure is excessively increased, a malfunction of the drive motor, breakage of the knife, etc. may be caused.**

(3) Setting the knife pressure for the multicutting type

・The knife pressure of the knife can be changed.
・When you have replaced the cloth cutting knife or the knife holder or have changed the sewing material, the knife pressure has to be checked.
・Change the set value after thoroughly checking the knife holder surface and the knife.
・It is recommended to gradually increase the set value from a small value.

The knife pressure at the time of multicutting can be set for each cutting position.
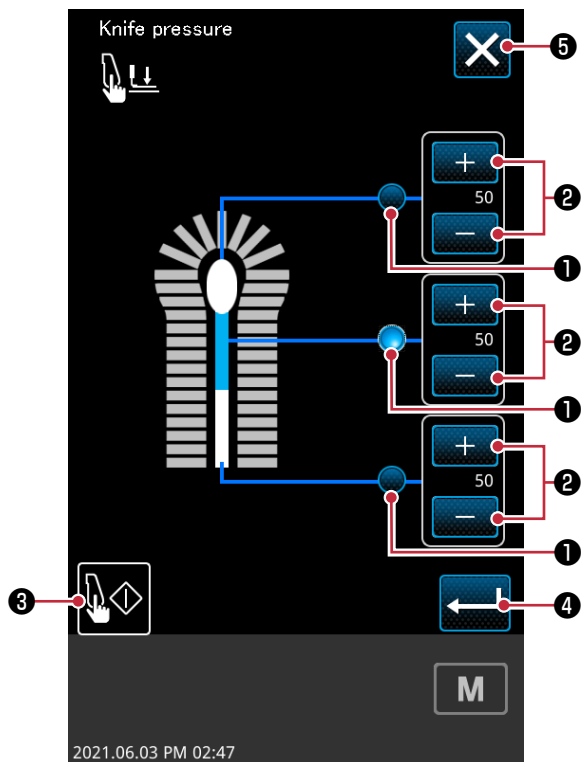
1) Set a value of the multiple times selection (S091).

2) Press ⏎ to confirm the set value. Then, press ⬇ .

3) Press ⬤ ❶ to select the position you want to set the knife pressure.

4) Press ➕ ➖ ❷ to change the knife pressure.
   The setting range is from 0 (zero) to 225. The larger the number, the higher the knife pressure.

5) Press ⏎ ❹ to save the setting.

6) Press ⬤ ❸ the operate the knife with the knife pressure you have set.
   Press ✖ ❺ to cancel the setting and terminate editing.

 * Press the presser switch to lower the presser foot. Then, press the start switch to operate the knife only for the first time.

> **To use the sewing machine stably with respect to the influence of the cloth cutting knife on the cloth grain, etc., it is recommended to increase the set value of the knife pressure by approximately 20 to 30 from the value at which the knife can cut the cloth.**
> **If the knife pressure is excessively increased, a malfunction of the drive motor, breakage of the knife, etc. may be caused.**

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(4) Worn-out of the knife holder face

Contact face of the knife holder with the cloth cutting knife.

A   B   C

21.8 mm

Can be corrected up to 2 mm.
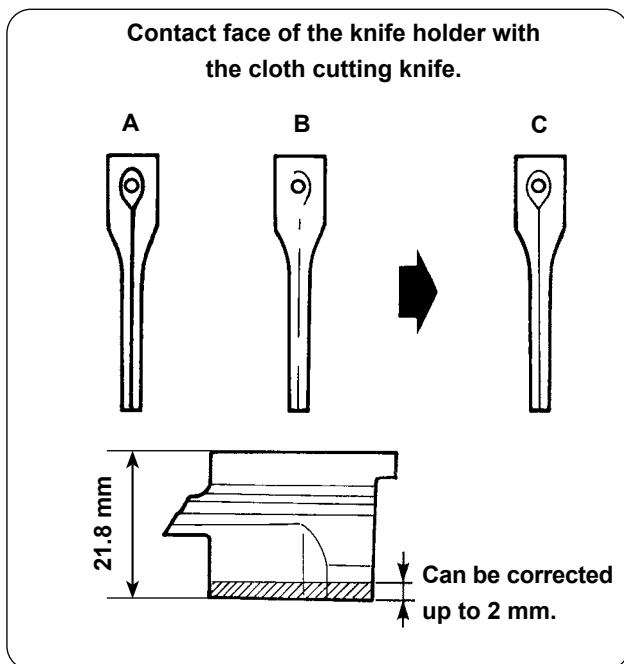
1) Remove the knife holder.
   (Refer to **"8.(1) Replacing the cloth cutting knife and the knife holder" P.34**.)

2) When the knife mark is too deep, the knife mark is duplicate (A of Fig. on the left side) by using another knife or the knife mark is partially formed and not formed on the whole surface (B of Fig. on the left side), grind the face with an oil stone or the like so that the knife mark becomes uniform.

> 📝 **Reference** **The knife holder can be corrected up to 2 mm.**

3) When the cloth cannot be precisely cut although the knife holder is properly corrected, check the state of worn-out of the blade tip of the cloth cutting knife.

> **Caution**
> 1. If you have replaced the knife, be sure to use a new knife holder or the corrected knife holder. If not, the cutting edge of the cloth cutting knife may be broken.
> 2. If you have corrected the knife holder, re-adjust the knife pressure.

(5) Reference value of the cloth cutting knife pressure

	Standard values on the operation panel
Light-weight materials (two plies of wool gabardine)	70
Heavy-weight materials (two plies of 14 oz denim)	100

> **Caution** If even one ply of materials remains uncut after cloth cutting, cloth chips will accumulate to cause a malfunction. When adjusting the knife pressure for extra heavy-weight materials, in particular, it is necessary to remove cloth chips before checking the knife pressure.

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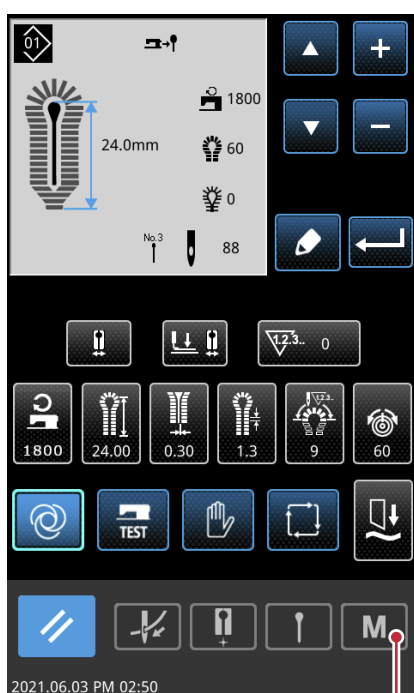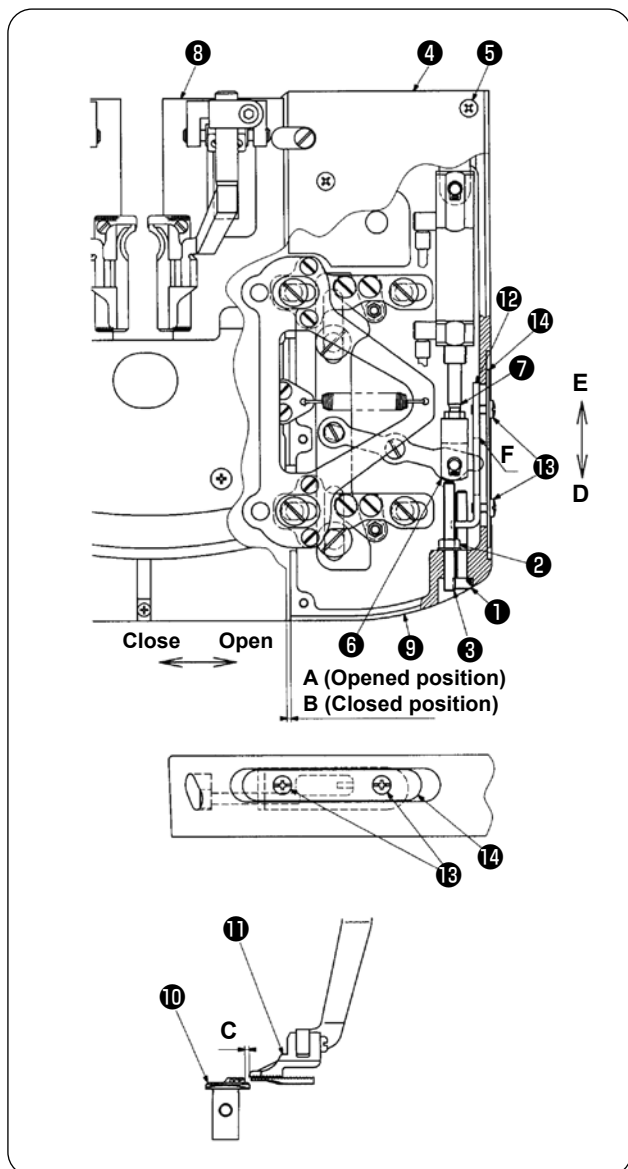
1. Position at which the presser plate is opened (the position during sewing)

1） Loosen setscrew ❺ . Remove auxiliary presser plate cover ❹ .

2） Turn the power ON. Press **M** ⓯ , ⓰ and ⓱ in the written order.

3） Press (02) cloth opener to open presser plate ❽ . Then, press the former again to close the latter.

4） Loosen nut ❷ . Turn adjustment screw ❸ to adjust the position **A** at which presser plate ❽ is opened to 1 mm. Turn adjustment screw ❸ clockwise to decrease the clearance **A** or counterclockwise to increase it.

5） After the adjustment of the clearance **A**, fix nut ❷ .

*1 The position **A** at which presser plate ❽ is opened that you have adjusted in 5) is the position of presser foot ⓫ with respect to throat plate ❿ .
Therefore, increase the clearance **A** to retain the stitch shape with presser foot ⓫ at the position near outer needle ❿ to decrease the clearance **C** between throat plate ❿ and presser foot ⓫ . In this case, the clearance **C** from the throat plate has to be larger than the closing amount (= cloth opening amount) adjusted by "2. Closing position of the presser plate" described below.

*2 Mechanical adjustment range of the clearance **A** is approximately 0 to 3 mm in the standard shipment state.
It should be noted, however, that the aforementioned *1 has to be considered.

> **Caution**
> 1. If the clearance A is too large, the needle and throat plate will interfere with the presser foot and eyelet buttonhole presser holding plate to cause a stitching failure or damage to the throat plate.
> 2. If the clearance A is too small, material flapping will occur particularly when using a highly elastic cloth to cause stitch skipping or unstable thread tension.

2. Position at which the presser plate is closed (initial position)

1） After adjusting the aforementioned "1. Position at which the presser plate is opened" (or after checking the clearance **A**), press (02) cloth opener ⓲ to open/close presser plate ❽ .

2） Loosen two setscrews. Turn adjustment screw ❶ to adjust the position **B** at which presser plate ❽ is closed to 1.5 mm. Turn the adjustment screw clockwise to move stopper cover ⓮ in the direction **D** to increase the clearance **B**, or counterclockwise to move stopper cover ⓮ in the direction **E** to decrease the clearance **B**.

3） The closing amount obtained by subtracting the clearance **A** as aforementioned in 1. -5) from the clearance **B** is the cloth opening amount.
B - **A** = Cloth opening amount

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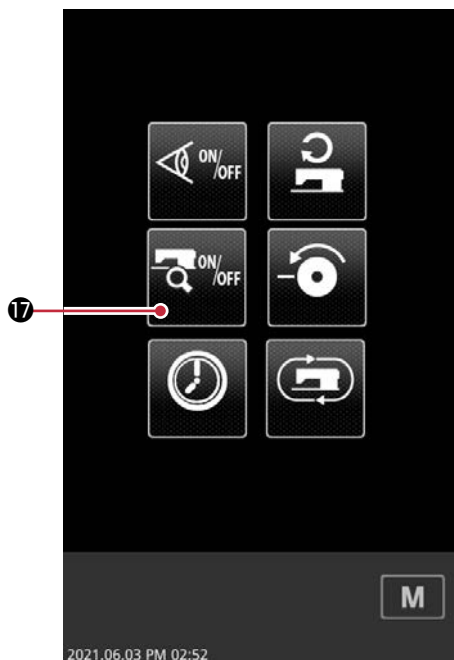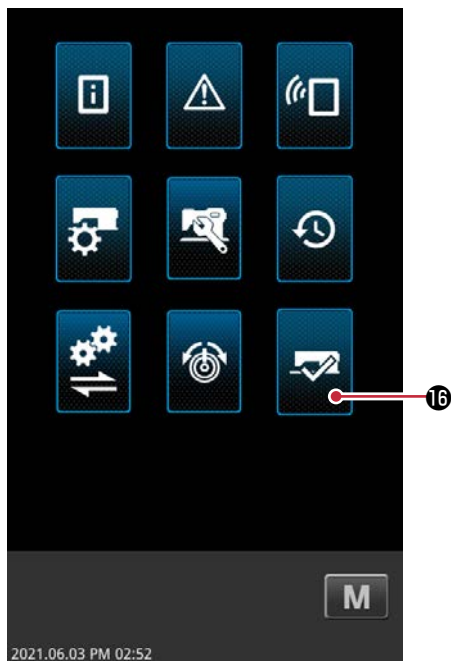
4) Fix two setscrews ⓭ . Additionally tighten adjustment screw ❶ .

*1 Mechanical adjustment range of the clearance **B** is approximately 0 to 3 mm in the standard shipment state. It should be noted, however, that the aforementioned *1 has to be considered.

> **Caution**
> 1. **If the clearance B is too small, the clearance C between the throat plate and the eyelet presser holding plate cannot be obtained to cause damage to the related parts.**
> 2. **If you decrease the cloth opening amount (B - A), the right and left overlock stitches will overlap to cause a stitching failure.**
> 3. **If you increase the cloth opening amount (B - A), the cloth will be pulled more than necessary and cannot be shifted equally to the right and left to cause deformation of stitch shape.**
> 4. **If the cloth opening amount (B - A) is not equal on the right and left, the cloth will be pulled to one side to cause deformation of stitch shape.**

⓰

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⓱

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出力信号の確認

(01)押さえ　(02)布開き　⓲
(03)上糸たぐり　(04)上糸切り
(05)下糸切り　(06)布屑ブロー
(07)芯糸たぐり　(08)上糸掴み
(09)上糸クランプ　(10)上糸たぐりB
(11)鳩目メス倒し　(12)予備

(6) Adjusting the stitch bite width

⚠ WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Caution
For all types the stitch bite width which is possible to sew is up to 3.2 mm. If the width exceeds 3.2 mm, stitch skipping may occur. When the width exceeding 3.2 mm is desired to be used, use the optional looper (left) and spreader (left).

To align ❷

Lowest position

Center of rod

Standard of stitch bite amount (mm)

Rocking amount small ⇦ ⇨ Rocking amount large

B | 2 | 2.5 | 3 | 3.5 | 4 | A

Needle rocking width 2.0 to 4.0 mm
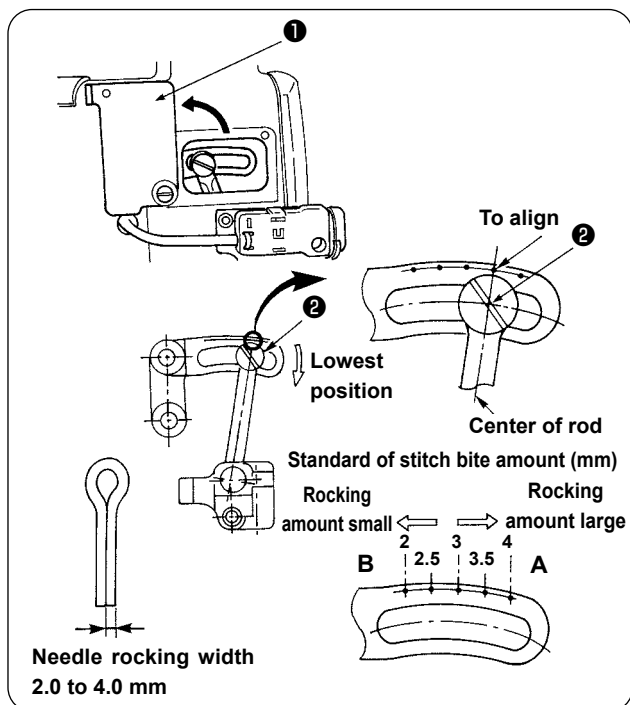
1) Open needle rocking adjustment cover ❶ .
2) Turn the handwheel to bring the needle bar to its lowest position.
3) Loosen fulcrum shaft ❷ of rocking link B.

Reference
· **Moving the rocking link B in the direction A increases the stitch bite width.**
· **Moving the rocking link B in the direction B decreases the stitch bite width.**

4) When the stitch bite width is determined, fix fulcrum shaft ❷ of rocking link B and close the needle rocking adjustment cover.
5) After adjusting the stitch bite width in the aforementioned steps, check the respective items of **"10.(2) Timing between the needle and the looper" P.54**, **"10.(3) Clearance between the needle and the looper" P.56** and **"10.(5) Installation positions of the spreaders and the timing to open/ close the spreaders" P.57**.

Caution
The engraved marker dot i s a standard. Make sure of the amount by putting the needle tip marks on a sheet of paper or the like for the precise measurement.

(7) Adjusting the presser
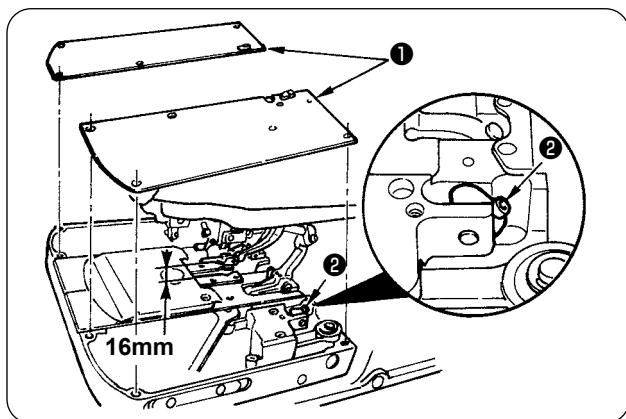
16mm

■ Adjusting the height of the presser

1) Remove auxiliary presser plate cover ❶ .
2) Loosen screw ❷ and adjust the height of the presser.

> **Caution**
>
> **The height of the presser is up to 16 mm. If the height is set to more than 16 mm, when the cloth setting position is in the front, and the presser goes up, the presser interferes with the finger guard.**
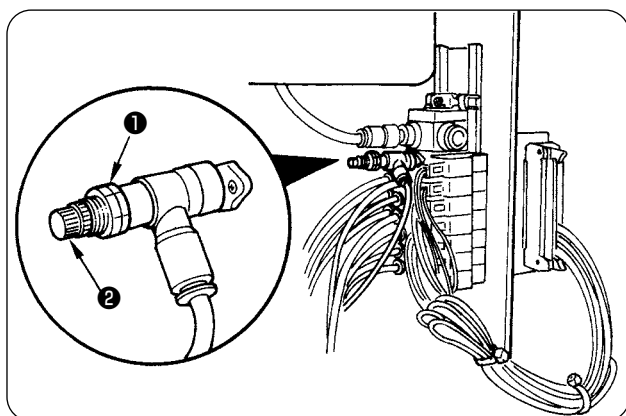
■ Adjusting the presser pressure

Loosen nut ❶ of the reducing valve and adjust the pressure with adjustment screw ❷ .

> **Reference**
>
> **Turning the screw clock wise in creases the presser pressure and turning it counterclockwise decreases the pressure.**

(8) Adjusting the presser opening amount
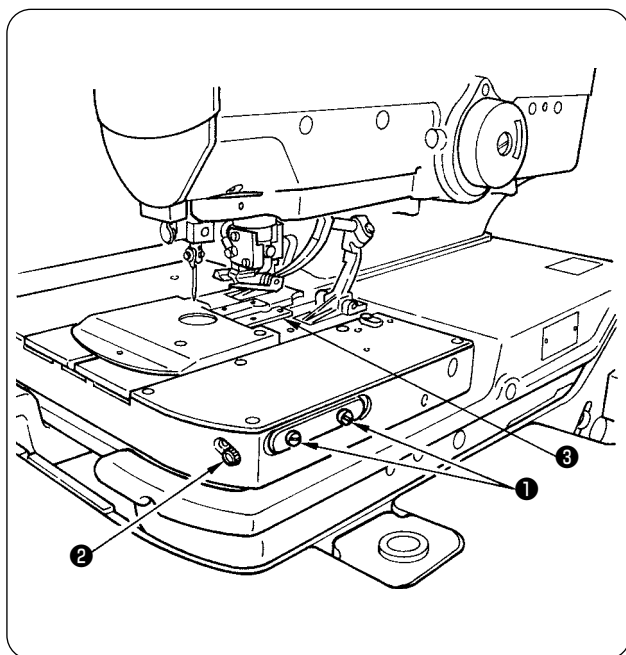
■ Adjusting the presser pressure

Loosen setscrew ❶ and turn adjustment screw ❷ to adjust the amount.
The position where the presser plate closes will change according to the adjustment.

> **Reference**
>
> **Turning the adjustment screw ❷ clockwise decreases the opening amount and turning it counterclockwise increases the opening amount.**

> **Reference**
>
> **The position of the presser (A in the figure below) at the time of sewing (in the state that the cloth open is opened) can be adjusted and the presser can be approached to the throat plate. (Refer to the Engineer's Manual.)**
>
> *** At this time, there is a case where an additional processing of support plate ❸ is necessary to prevent the interference of the cloth cutting knife with support plate ❸ .**
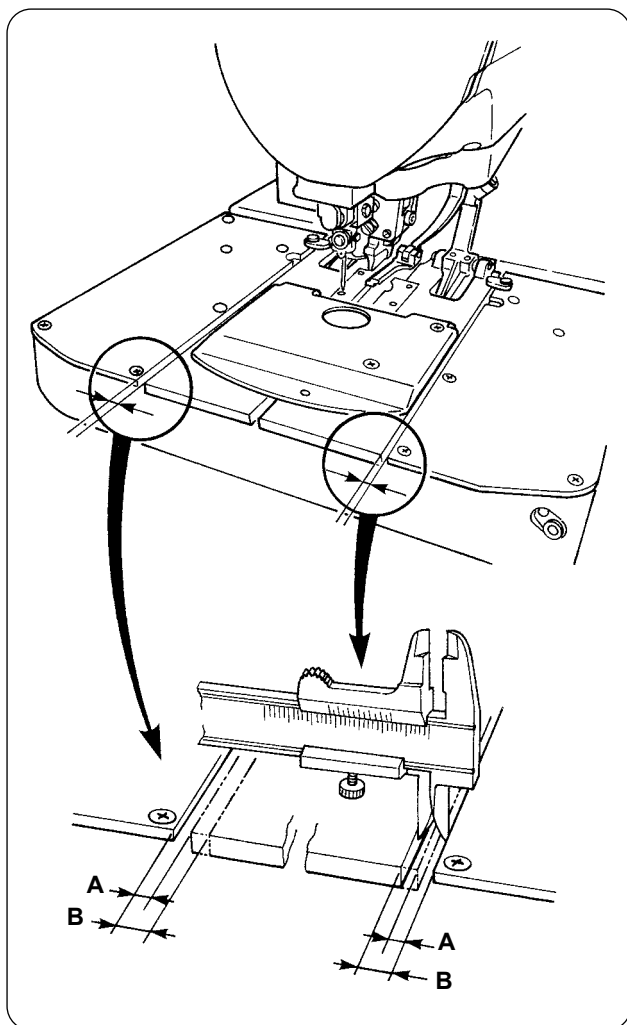
■ Checking the cloth open amount at the time of adjustment

1) After turning the power ON, the message "Press the start switch" appears. Then, press the start switch.

2) Press [TEST] to change over to the test mode.

3) Press the presser switch to lift the presser foot.

4) Press the start switch. Then, the cloth open mechanism opens, and the feed base moves to the sewing start position and stops.

> ⚠ Caution **At this time, measure position "A" of the presser plate with vernier calipers or the like.**

5) Press [//] button, and the presser goes up, then the cloth open mechanism closes and returns to its origin.

> ⚠ Caution **At this time, measure position "B" of the presser plate with vernier calipers or the like. B - (minus) A, (difference between A and B) = cloth open amount**

> 📝 Reference **The cloth open amount can be adjusted within the range of 0 to 2 mm. Normally, however, the amount of 0.5 to 0.8 mm is enough.**

(9) Adjusting the feeding amount of the needle thread
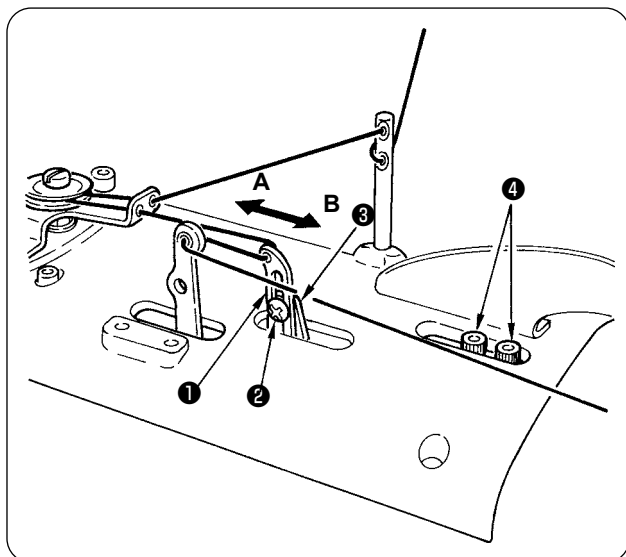
■ Adjusting the feeding amount of the needle thread during sewing

Loosen screw ❷ and move the position of needle thread drawing thread guide ❶ up or down to adjust the feeding amount.

> **Reference**
> · When the thread guide slides downward, the feeding amount o f needle t h read decreases and the needle thread is apt to be tightened.
> · When the thread guide slides upward, the feeding amount o f needle t h read in creases and the needle thread is difficult to be tightened.

■ Adjusting the drawing amount of the needle thread at the sewing start

Loosen screws ❹ and move thread drawing arm ❸ in the direction of A or B to adjust the drawing amount. When the machine is provided with the needle thread clamp unit, if the thread drawing arm is moved in the direction of A, the thread remaining on the needle will be shorter and the thread is easy to be rolled in.

> **Caution**
> When the machine is not provided with the needle thread clamp unit, and the memory switch U59 is "0", "Adjusting the drawing amount of the needle thread at the sewing start" cannot be performed.

> **Reference**
> · When moving it in the direction of B, the drawing amount of needle thread increases and slip-off of needle thread or the like can be prevented.
> · Refer to the Instruction Manual for the needle thread clamp unit.

(10) Adjusting the thread take-up thread guide
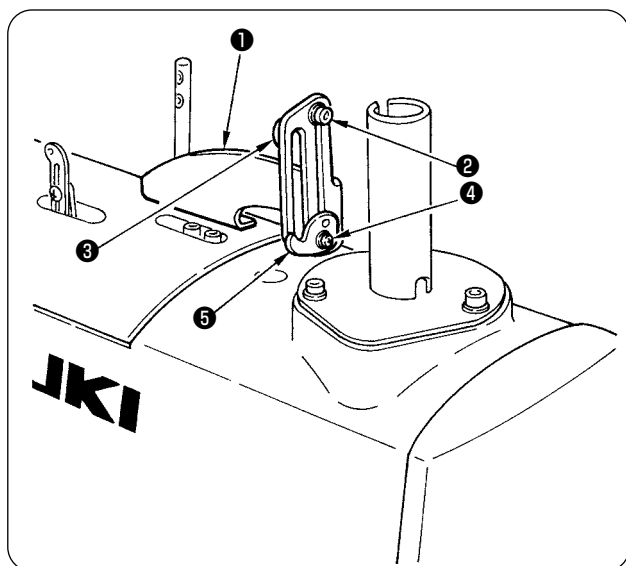
Slide up or down thread take-up thread guides ❸ and ❺ installed on thread take-up thread guide installing base ❶ and the trend described below is obtained.

■ Loosen screw ❷ and move downward thread take-up thread guide ❸.

Effect: · Double chain stitch stitches can easily stand and the sewing possible area is widened. On the contrary, the whole stitches become stiff. (This is suitable for heavy-weight materials.)
· The loop when the looper catches thread becomes larger and stitch skipping is prevented. (Hard-to-slide thread)

■ Loosen screw ❹ and move upward thread take-up thread guide ❺.

Effect: · Double chain stitch stitches become flat and the stitches become soft. On the contrary, the sewing possible area is narrowed and stitch skipping is apt to occur. (This is suitable for light-weight materials.)

(11) Adjusting the remaining amount of the gimp (J and C types)

Approx. 4 mm

Increase

Decrease
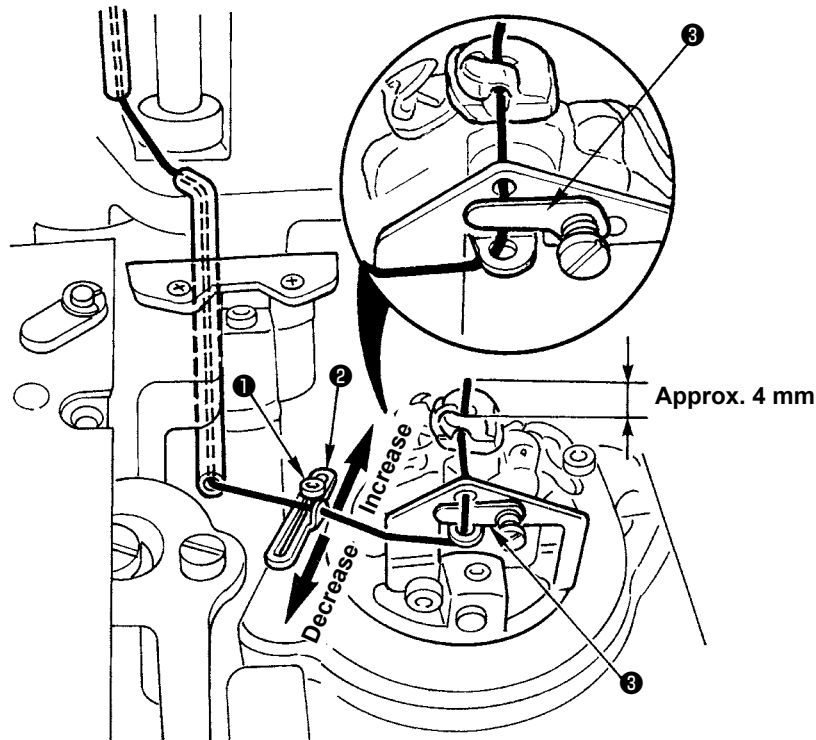
1) Loosen setscrew ❶ and move to and fro gimp guide ❷ to adjust the remaining amount of the gimp at the sewing end.

2) For the adjustment, actually sew the remainder of the material or the like and determine the position of gimp guide ❷ so that the remaining length of the gimp is approximately 4 mm at the sewing end.

> **Reference**
> There is a case where the remaining amount of gimp is not stable when sewing thread or the like is used for the gimp. In this case, insert the gimp in the gimp presser plate ❸ .

(12) Adjusting the gimp thread tension (J and C types)

2 mm
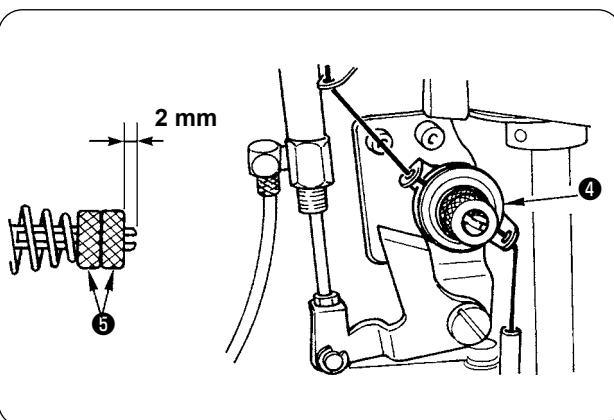
Loosen double nut ❺ to adjust the tension. The standard adjustment value is 2 mm.

When double nut ❺ is tightened, the gimp tension becomes higher and the length of remaining thread at the time of looper thread trimming becomes shorter. On the contrary, the length of remaining gimp becomes unstable, or the looper thread trimming knife may cut the stitches or materials in case of lightweight materials or elastic sewing products.

> **Caution**
> 1. In case of the light-weight materials or stretchy sewing products, loosen nut ❺ and fix it.
> 2. When gimp thread tension ❹ is excessively low or high, there is a case where the length of remaining gimp becomes unstable. The standard adjustment value is 2 mm. Nut ❺ consists of a double nut for locking.

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(13) Hand LED light

1) Brightness of hand LED light ❶ can be changed by pressing ❷ .
2) When you keep ❷ held pressed for a long time, the light adjustment function is changed over to the color temperature changing function. In this state, the color temperature can be changed by pressing ❷ .
3) If you wait for three seconds without pressing any button, the color temperature changing function will be automatically returned to the light adjustment function.

Brightness / color temperature changing method is as shown in the tables given below.

(Values [%] in the table only provide reference data that helps clarify the explanation.)

* **If you want to change the color temperature, change it when you select the light adjustment (dimming) step from five different steps (1 - 5).**

Color temperature		
Steps	White [%]	Yellow [%]
0	100	0
1	90	10
2	80	20
3	70	30
4	60	40
5	50	50
6	40	60
7	30	70
8	20	80
9	10	90
10	0	100

↑
❷
Short time

←
❷
Long time

→

Automatic restoration after waitig for three seconds

Light adjustment (Dimming)	
Steps	Intensity [%]
0	0
1	20
2	40
3	60
4	80
5	100

↑
❷
Short time

9. HOW TO USE THE VARIOUS FUNCTIONS

(1) Performing procedure of the cycle sewing
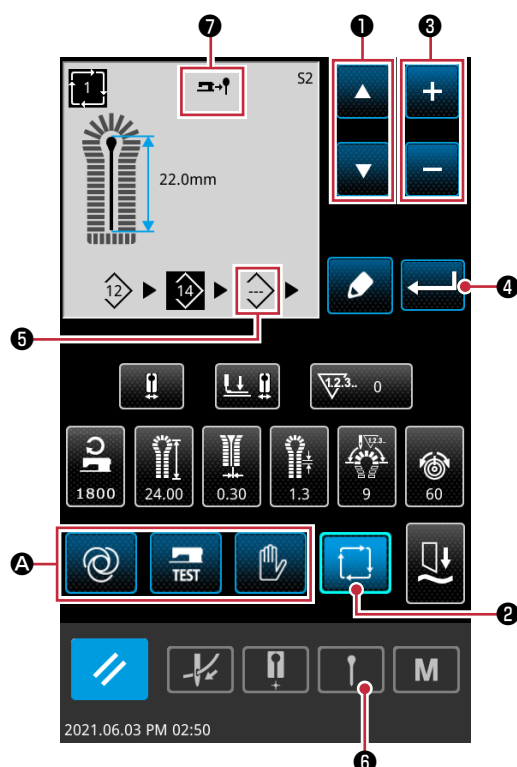
1) Press ▲ ▼ ❶ to select the cycle pattern.

2) Press ⬚ ❷ to display the steps registered in the cycle pattern.

3) Press ▲ ▼ ❶ to select the step.

4) Press ＋ － ❸ to select the pattern number you want to register to the selected step.

   Press ❻ to change over the setting of "without knife/cut-after knife".

   * **The cut-before knife cannot be selected.**

> If you press ＋ － ❶ to select ⇢ ❺ the selected step will be returned to the pattern-unregistered state.

5) Press ↵ ❹ to save the edit content and terminate editing.

> **If you press ↵ ❹ without registering the pattern, steps from the selected one and beyond will be saved as pattern-unregistered steps.**

6) Press one of Ⓐ to finish changing. At this time, the set value is saved.

> **If you turn the power OFF without pressing any of Ⓐ in the aforementioned 6), the set value will not be saved.**

7) If you press ❻ after registering a cycle pattern, the knife operation can be temporarily disabled.

   With knife operation   Without knife operation

> **If you have disabled the knife operation, the knife will not operate until you press ❻ again.**

8) Press the presser switch to lower the presser foot. Then, press the start switch to start sewing.

> **If you press ＋ with the presser foot lowered, you will be able to start sewing from the previous step by pressing － from the next step and beyond.**

   * **If you want to change the sewing setting of a pattern registered in the step, press ▲ ▼ ❶ to finish cycle sewing, display the pattern you want to change, and then follow the procedure described in "7. SETTING PROCEDURE OF THE SEWING DATA" P.25.**

(2) Operating procedure of thread tension compensation of each section

Thread tension of each section of the sewing shape can be individually changed.

Thread tension of each section of the sewing shape is the sum of the needle thread tension (S060) or looper thread tension (S075) and the compensation value.

Refer to **"7.(8) Sewing data list" P.29** for details.

[Compensation position of the eyelet buttonhole]

S063 Compensation of needle thread tension of eyelet
S078 Compensation of looper thread tension of eyelet

S065 Compensation of looper thread tension of left bottom of eyelet
S080 Compensation of looper thread tension of left bottom of eyelet

S064 Compensation of needle thread tension of right bottom of eyelet
S079 Compensation of looper thread tension of right bottom of eyelet

S062 Compensation of needle thread tension of left parallel section
S077 Compensation of looper thread tension of left parallel section

S061 Compensation of needle thread tension of right parallel section
S076 Compensation of looper thread tension of right parallel section

---

[Compensation position of the tape bar]

S069 Compensation of needle thread tension of left bartack 2
S084 Compensation of looper thread tension of left bartack 2

S068 Compensation of needle thread tension of right bartack 2
S083 Compensation of looper thread tension of right bartack2

S067 Compensation of needle thread tension of left bartack
S082 Compensation of looper thread tension of left bartack

S066 Compensation of needle thread tension of right bartack
S081 Compensation of looper thread tension of right bartack

[Compensation position of the straight bar]

S068 Compensation of needle thread
tension of right bartack 2
S083 Compensation of looper thread
tension of right bartack2
(One stitch from the parallel section to the
straight bar section)

S066 Compensation of needle thread
tension of right bartack
S081 Compensation of looper thread
tension of right bartack
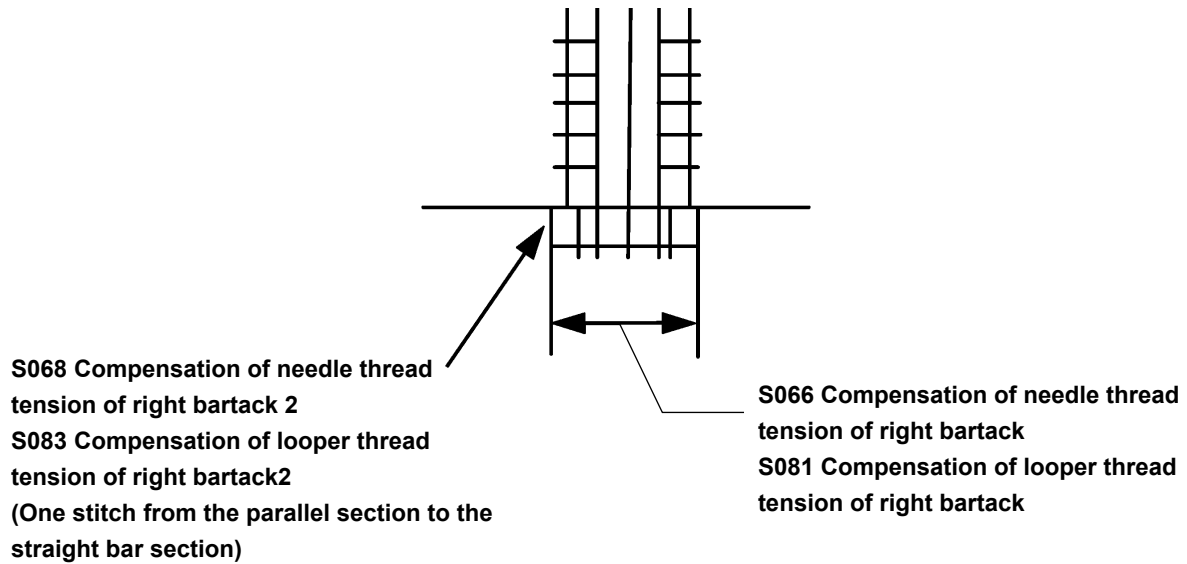
[Compensation position of the round bar]

S067 Compensation of needle thread
tension of left bartack
S082 Compensation of looper thread
tension of left bartack

S066 Compensation of needle
thread tension of right bartack
S081 Compensation of looper
thread tension of right bartack
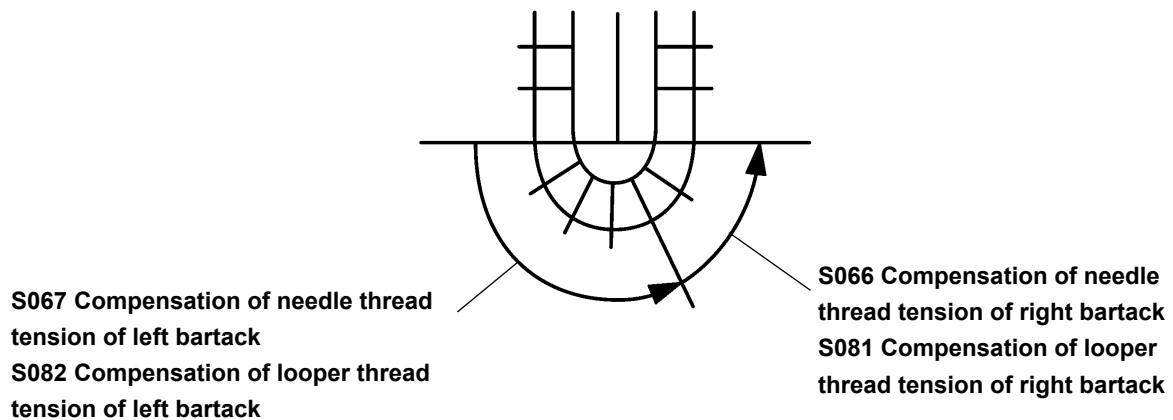
(3) Operating procedure of shape compensation of each section

Shape of each section of buttonhole can be compensated.

> **⚠ Caution**
>
> The reference value of needle throwing width is the sum of the needle throwing width (memory switch K10) and the needle throwing width setting (S012).
> In the following description, all compensation values for the needle throwing width are those to be added to the reference value as described above.
> For example, the needle throwing width of the straight bar section will be the sum of the set values of the K10, S012 and S026.

S017 X compensation of sewing position	S018 Y compensation of sewing position	S021 Crosswise compensation of eyelet	S022 Left lengthwise compensation
S023 Compensation of turning	**S024 θ2 compensation**	**S026 Compensation of straight bar width**	**S042 Compensation of eyelet width**
S043 Compensation of eyelet length	**S105 Lengthwise compensation of left eyelet**	**S106 Lengthwise compensation of left parallel section**	**S107 Setting of needle throwing width of right bottom of eyelet**
S108 Setting of needle throwing width of left bottom of eyelet	**S115 Needle throwing width of round bar**	**S116 Needle gauge of upper eyelet**	

(4) Changing the setting position of cloth

The material setting position can be changed to the front side.

1) Press 🗍 ❶ to change over to 🗍 . Then, the material setting position will be the front side.

2) Press 🗍 to return to 🗍 ❶ . Then, the material setting position will be returned to the rear side.

> **Caution**
>
> 1. Set the cloth moving amount to the front side with "U16 Front lengthwise position".
>   If this amount is excessively increased, the looper thread may not be clamped.
>   Refer to "13.(2) Memory switch list" P.81 for details.
> 2. If you have excessively decreased the lateral clearance of the presser foot as described in "8.(8) Adjusting the presser opening amount" P.41, the thread clamp device may come in contact with the presser foot when the cloth plate moves to the front side after you have changed the cloth setting position to the front side or after the completion of sewing.
>   If you concern about contact between the thread clamp device and the presser foot, it is recommended to change the setting of the memory switch No. U18 from 0 to 1.
> * If you change the setting of U18 to 1, the presser foot will go up after the cloth plate has moved after the completion of sewing.

(5) Changing over the mode of the start switch

When you have changed the setting of the memory switch U01 (Changeover of pedal type), you will be able to lower the presser foot and start sewing only by pressing the start switch.
Refer to "13.(2) Memory switch list" P.81 for details.

(6) Changing of the presser movement

It is possible to set the position of the presser foot when it returns to the setting position after the completion of sewing with the memory switch U020 (Continuous lowering of presser foot after sewing).
Refer to "13.(2) Memory switch list" P.81 for details.

(7) Changing over the counter (DOWN counting)

The counter performs DOWN counting from the set value.
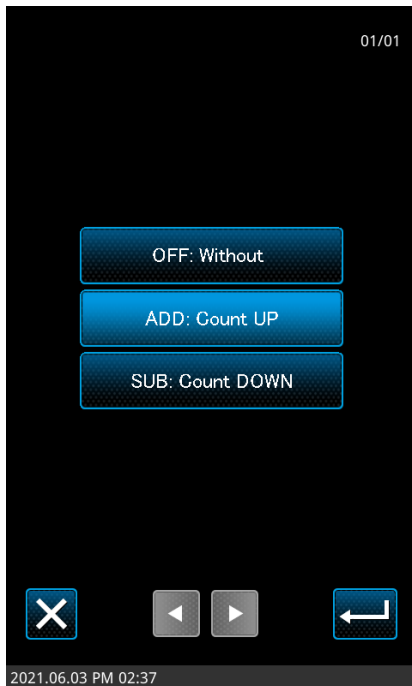
■ Changing over to the DOWN counter

1) Select "SUB: DOWN count" with the memory switch U28 (Counter setting).

■ Setting the initial value of the DOWN counter

Input the set value following the same procedure as you have taken to input the current value of the UP counter.

It should be noted, however, the set value will return to the previous set value by pressing **C** .

Refer to **"6.(7) How to use the counter" P.22** for details.
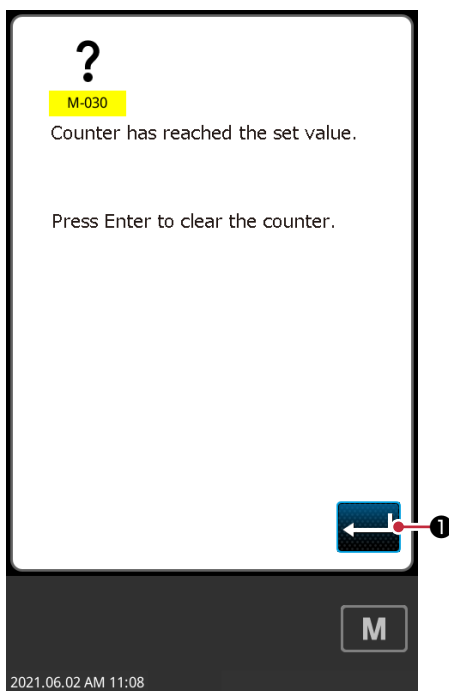
■ Completion of counting

1) When the current value of the counter reaches 0 (zero), the message "M030 The counter has reached the set value" is displayed.

2) Press ⏎ ❶ to display the previous screen.

> **Even if the previous screen is displayed in the aforementioned 2), the set value of the counter will remain at 0 (zero).**
> **To re-start sewing, re-set the set value of the counter.**

> **In the delivered state, the start switch is disabled when the current value of the counter reaches 0 (zero).**
> **To enable the start switch, change the setting of the memory switch U88 (Prohibition of starting after the completion of counting) to 0 (zero).**

(8) Stop before cloth cut mode

When you change the setting of memory switch U13 (Automatic cloth cutting after sewing), the machine can automatically pause before the cut-after knife performs the cloth cutting operation.

(9) Communication function

It is possible to input/output data with a USB thumb drive.
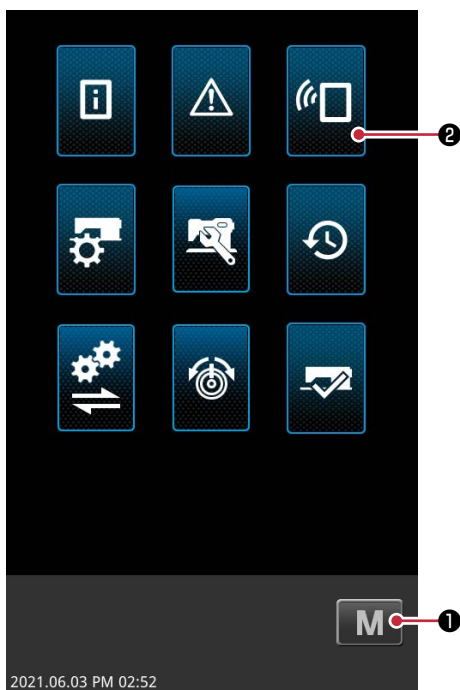
1) Press **M** ❶ to display the menu screen.

2) Press 📶 ❷ .
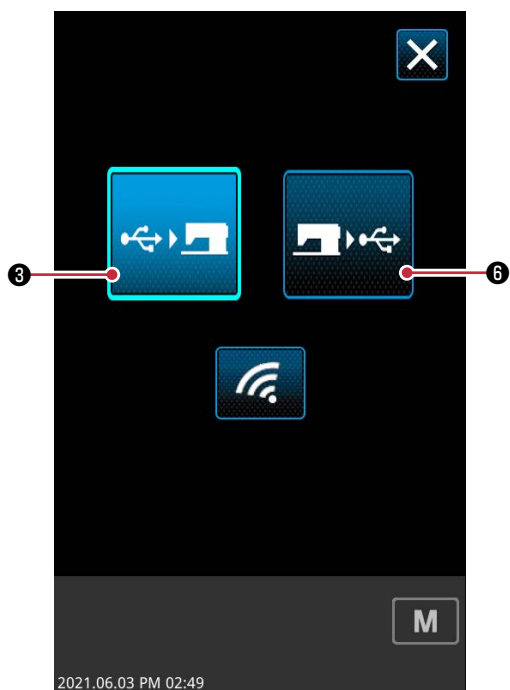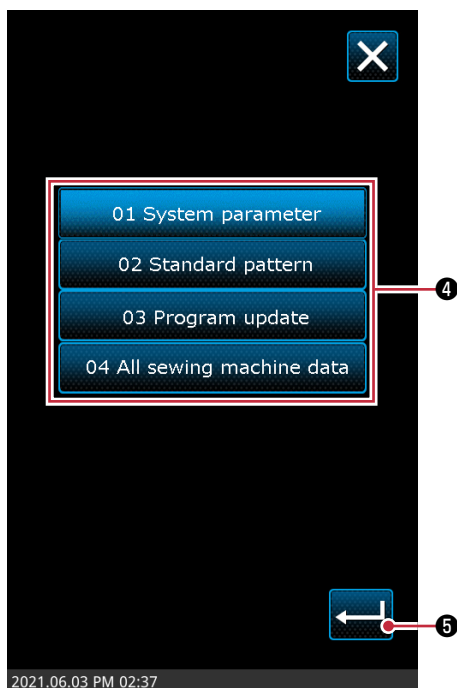
1. Communication from the USB thumb drive to the main body of sewing machine

1) Press ⬛ ❸ to display the communication items.

2) Select the communication target item from ❹, and press ⬛ ❺ .

01 System parameter

02 Standard pattern ──── ❹

03 Program update

04 All sewing machine data

⬛ ──── ❺

2021.06.03 PM 02:37
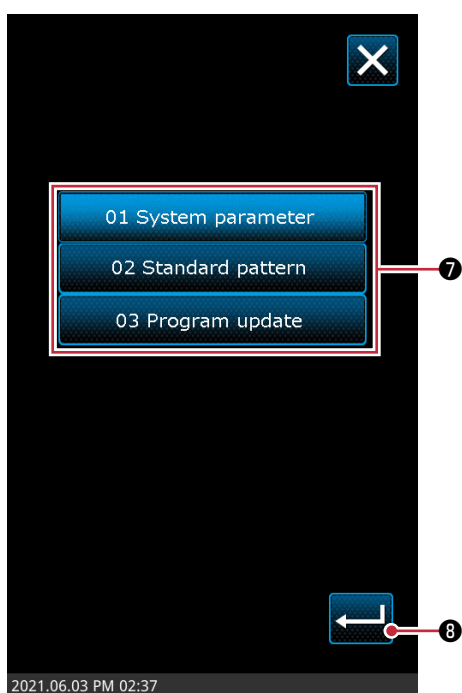
2. Communication from the main body of sewing machine to the USB thumb drive

1) Press ⬛ ❻ to display the communication items.

2) Select the communication target item from ❼, and press ⬛ ❽ .

01 System parameter

02 Standard pattern ──── ❼

03 Program update

⬛ ──── ❽

2021.06.03 PM 02:37

10. MAINTENANCE

(1) Height of the needle bar

⚠️ **WARNING :**
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
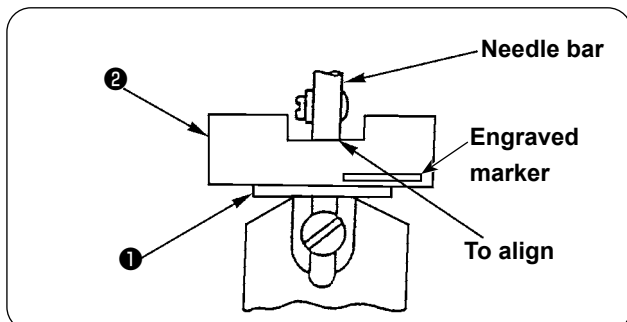
Adjust the standard position of the needle bar, using the timing gauge supplied with the machine, when the needle bar is brought to the inside lowest position following the procedure described below.

1) Remove the throat plate. Instead of the throat plate, attach timing gauge support base ❶ supplied with the machine on the machine.

2) Place timing gauge ❷ supplied with the machine on timing gauge support base ❶ , and confirm that the needle bar aligns with the indented part of the timing gauge when the needle bar is in its inside lowest position.

(2) Timing between the needle and the looper

⚠️ **DANGER :**
Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
・ Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
  * Read and check how to rise/return the sewing machine described on "3.(2) Raising and returning the sewing machine" P.3 to P.5.

⚠️ **WARNING :**
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

1) Bring the needle bar to its inside lowest position, loosen lower shaft sprocket setscrews ❻ and move looper driving cam ❸ so that the plane of looper driving cam ❸ faces to the front. Then temporarily tighten the screws.

⚠️ **Caution**
The maximum stitch bite width of all types is 3.2 mm. When the width exceeds 3.2 mm, use the optional looper (left) and spreader (left).

⚠️ **Caution**
Perform the work after checking the stitch bite width and the height of the needle bar.

✏️ **Reference**
The stitch bite width of each type at the time of delivery is as shown in the table below.

SS/RS	JS	CS
2.3	3.6	2.5

2) Loosen looper driving shaft guide setscrew ❺ and move up and down looper driving shaft guide ❹ to adjust so that the space between the needle and the left/right loopers becomes the same when the needle is brought to its outside lowest position or inside lowest position. Tighten setscrew ❺ .

3) Place timing gauge ❷ on timing gauge support base ❶ supplied with the machine and adjust using looper driving cam ❸ so that the left looper blade point aligns with the center of the needle when the needle bar ascends 3.3 mm from the inside lowest position, and fix lower shaft sprocket setscrews ❻ .

4) Similarly, check the position of the needle and the looper blade point when the needle bar ascends 3.3 mm from the outside lowest position. The blade point is positioned approximately in the range of the left side of the needle. When it is outside the range, check again steps 2) and 3).

> **After performing the looper timing adjustment, when the stitch bite width is changed in case of ① to ③ described below, perform steps 1) to 4) whenever the case occurs.**
> ① **When the stitch bite width in terms of that at the time of looper timing adjustment is changed more than ± 0.3 mm.**
> **Even when the change of the stitch bite width is within ±0.3 mm :**
> ② **When the stitch bite width is more than 3.4 mm.**
> ③ **When sewing heavy-weight materials or overlapped section where needle is apt to be bent.**

(3) Clearance between the needle and the looper

DANGER :

Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
・Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
 * Read and check how to rise/return the sewing machine described on **"3.(2) Raising and returning the sewing machine" P.3** to **P.5**.

WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Reference

The standard adjustment value of the clearance between the needle and the looper is 0.03 to 0.1 mm.

Loosen looper setscrew ❶ and adjust the clearance between needle ❷ and left looper ❸ , and between the needle and right looper ❹ . Then fix the loopers in place.

Reference

Dimension for reference purpose
Clearance between the needle and needle guard ❺ : 0 to 0.1mm
Clearance between the needle and holder ❻ : 0.2mm

Caution

Be sure to adjust the clearance whenever the needle size is changed.

(4) Adjusting the needle guard

DANGER :

Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
・Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
 * Read and check how to rise/return the sewing machine described on **"3.(2) Raising and returning the sewing machine" P.3** to **P.5**.

WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
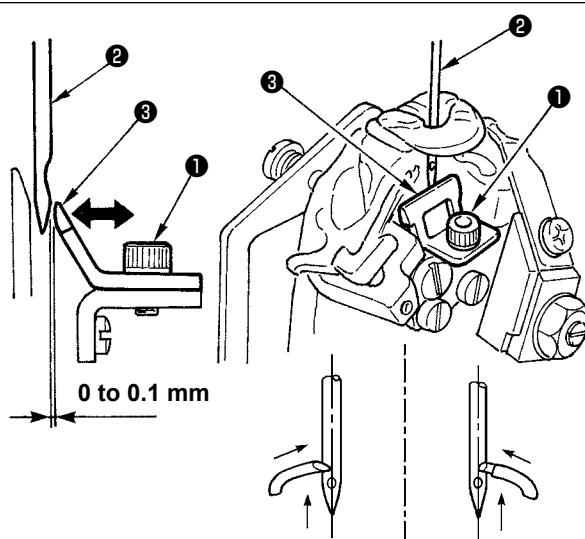
1) Loosen setscrew ❶ .
2) Set the clearance between needle ❷ and needle guard ❸ to 0 to 0.1 mm.
3) Tighten setscrew ❶ .
4) Check the position both at the time of needle inside and of needle outside.

Caution

Be sure to adjust the needle guard when the needle size is changed or when the adjustment of needle and looper is performed.
Adjust the clearance when needle aligns with the looper blade point at the inside and outside respectively.

(5) Installation positions of the spreaders and the timing to open/ close the spreaders

DANGER :
Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
・Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
  * Read and check how to rise/return the sewing machine described on **"3.(2) Raising and returning the sewing machine" P.3** to **P.5**.

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
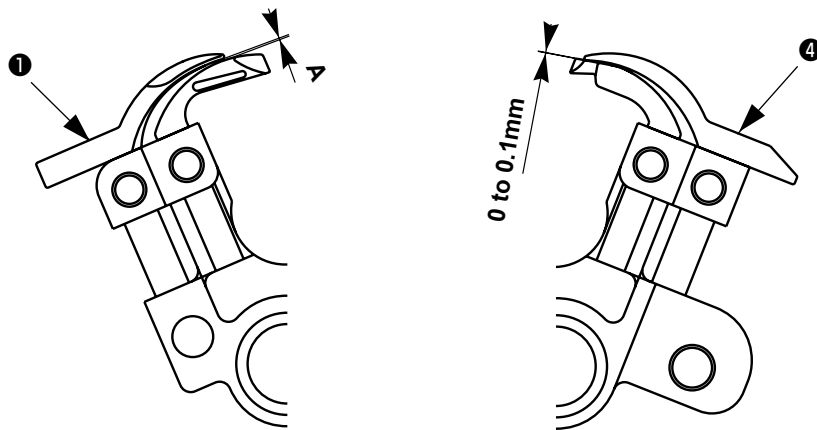
● **Position of left spreader ❶ height**

The clearance **A** provided between left spreader ❶ and the top surface of the left looper is as small as a piece of looper thread to be used.

● **Position of right spreader ❹ height**

The clearance provided between right spreader ❹ and the top surface of the right looper is 0 to 0.1 mm.

Caution

1. Adjust the clearance by reforming the spreader. Place the top end of the spreader on the wooden board or the like and gradually bend it by hand since using pliers or the like will cause the spreader to break.
2. If the clearance provided between the spreader and the looper is excessively small or large, stitch skipping or needle breakage will result.
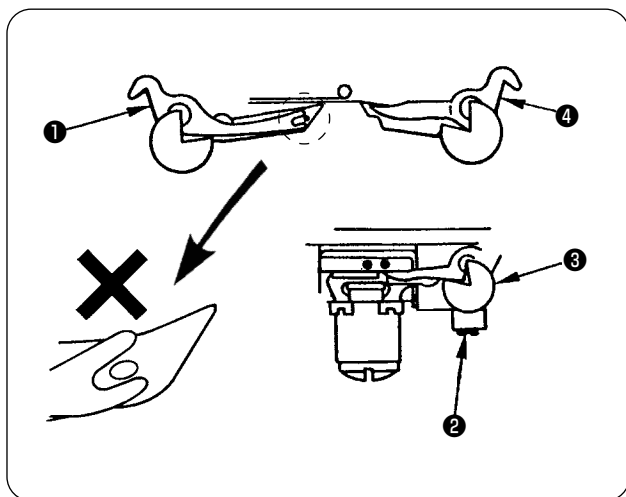
- **Installation position of the left spreader**
  The center of the forked section at the top of left spreader ❶ is aligned with the center of the looper thread hole in the left looper. Loosen setscrew ❷ in the spreader s topper and adjust the position of spreader stopper ❸ . Then fix the spreader in place. (Make the same adjustment for both left/right spreaders.)

  > ⚠ Caution
  > **When the top end of the left spreader in terms of the left looper protrudes, stitch skipping will result.**

- **Installation position of the right spreader**
  The ridge line (on the needle side) on right spreader ❹ is aligned with the ridge line (on the needle side) on the right looper.
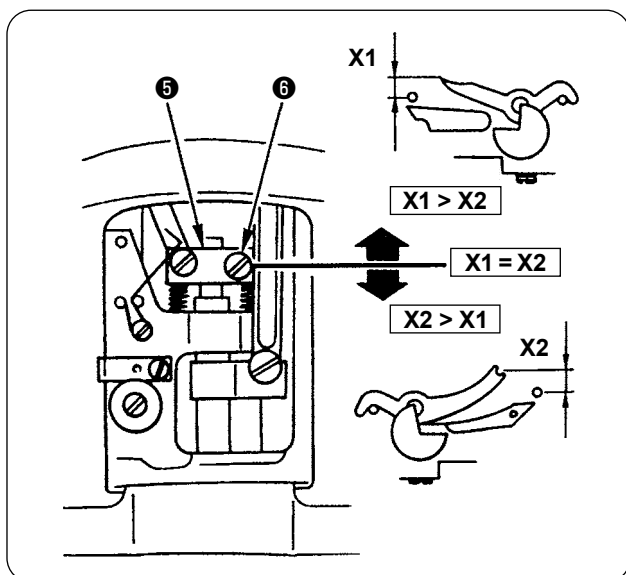
- **Timing to open/close the spreaders**

  > Reference
  > **Adjust so that the spreaders open/close equally on the left and right without interfering with the needle. When the stitch bite width is excessively small and eyelet stitches are irregular, adjust the timing to $X2 < X1$.**

  > ⚠ Caution
  > **Make sure of the width or the timing when the stitch bite width is changed or after performing the looper timing adjustment.**

  Loosen setscrews ❻ in spreader driving shaft guide ❺ and move the guide up and down to make the adjustment. Then fix the guide.

  > Reference
  > **As the spreader driving shaft guide moves upward, the opening amount of the right spreader will be greater than that of the left spreader. ($X1 > X2$)**

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(6) Position of the presser foot and the needle entry point

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
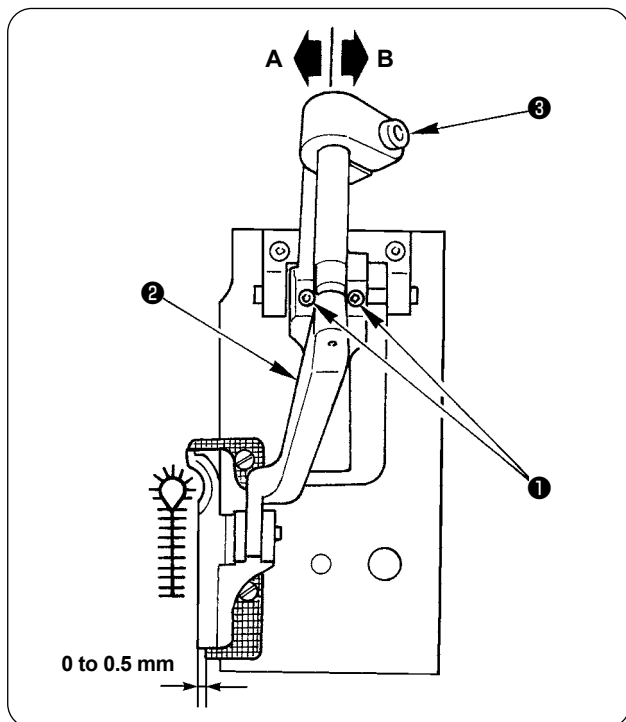
Reference Adjust the clearance between the presser foot and the holding plate to 0 to 0.5 mm.

Loosen two setscrews ❶ in the presser arm base and the adjust the clearance. Then fix the presser arm in place.

Reference Moving presser arm ❷ in the direction A will reduce the clearance between the presser foot and the outside needle entry point.

* The front or rear inclination can be adjusted with presser arm setscrew ❸ .

A ◀ ▶ B

0 to 0.5 mm

(7) Adjusting the knife dropping position

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
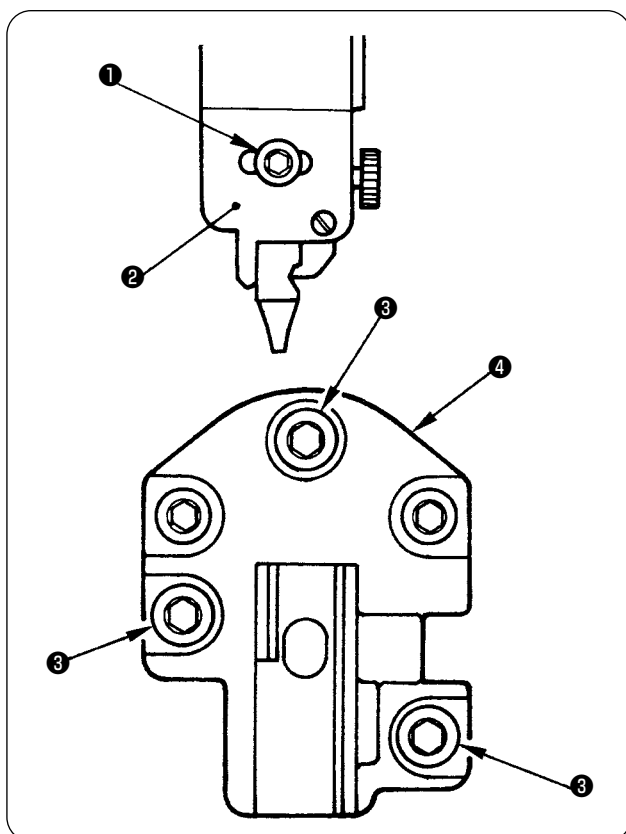
● **Upper knife type**
Loosen setscrew ❶ in the cloth cutting knife installing base, adjust cloth cutting knife installing base ❷ to the left or right. Then fix the base.

● **Lower knife type**
Loosen setscrews ❸ in the knife base and adjust knife base ❹ to the left or right. Then fix the knife base.

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(8) Installing position of the needle thread trimming knife

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

■ S and R type (long thread trimming)

1) The clearance between needle thread trimming knife J ❷ and the needle is approximately 1 mm.
Loosen setscrew ❶ and move needle thread trimming knife J ❷ to adjust the clearance.

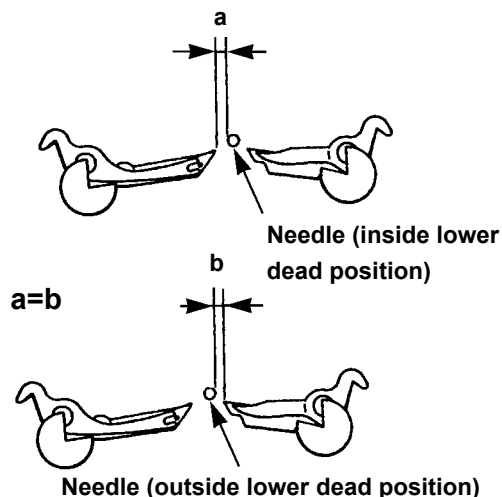2) Loosen nut ❽ , move needle thread trimming adjusting base ❾ up and down, and adjust clearance "B" between the needle thread trimming knife J and spreader, right ❼ to 0.1 to 0.2 mm to obtain the height of needle thread trimming knife J ❷ .

> **Caution**
> When needle thread trimming knife J ❷ comes in contact with spreader, right ❼ , breakage of components will be caused.

3) The initial position of needle thread trimming knife J ❷ is the position where it protrudes 3.2 mm from throat plate ❹ . Loosen adjustment nut ⓫ and adjust the initial position with adjustment screw ⓬ .

4) The operating position of needle thread trimming knife J ❷ is the position where needle thread trimming knife J ❷ comes out by 1.2 to 1.5 mm from throat plate ❹ when needle thread trimming actuating arm ❿ is moved counterclockwise and stopper B ⓭ of the needle thread trimming actuating arm comes in confact with the top surface of the looper bracket.
When the adjustment is necessary, loosen the stopper B ⓭ and set the protruding amount to 1 to 1.2 mm.

> **Caution**
> Stopper B ⓭ of the needle thread trimming actuating arm has double screws.

> **Reference**
> In case of using Part No. 14050009, refer to the Engineer's Manual.

Approx. 1 mm

1.2 to 1.5 mm   **Approx. 3.2mm**

1 to 1.2 mm

(Reference)

14050009
(Right blade type)
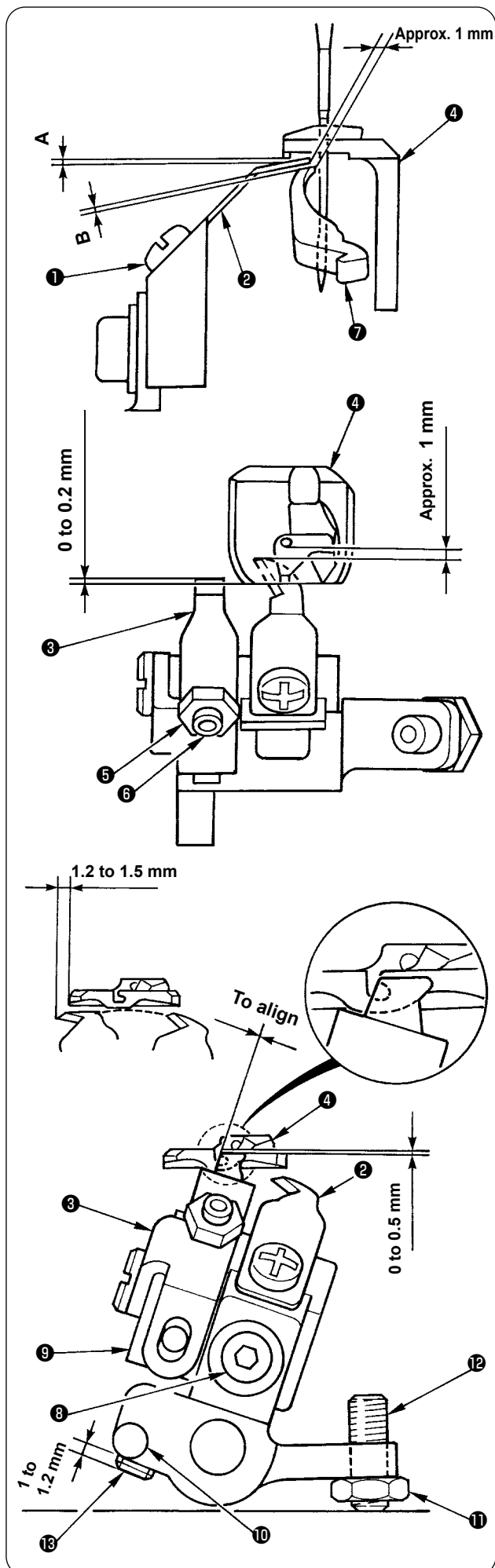
■ J and C type (short thread trimming)

1) The clearance between needle thread trimming knife J ❷ and the needle is approximately 1 mm. Loosen setscrew ❶ and move needle thread trimming knife J ❷ to adjust the clearance.

2) The overlapping amount between looper thread presser ❸ and the top end section of throat plate ❹ is 0 to 0.2 mm, and adjust so that no clearance is provided between them. Loosen adjustment nut ❺ and adjust the position of the top end of looper thread presser ❸ with adjustment screw ❻ .

3) The height of needle thread trimming knife J ❷ is determined by the adjustment value of looper thread presser ❸ . After the adjustment of step 4) below, confirm that clearance **A** between the looper thread presser and throat plate ❹ and that **B** between the looper thread presser and right spreader ❼ are securely obtained.

4) The height of looper thread presser ❸ is the position where the top end is lowered by 0 to 0.5 mm from the flat face of throat plate ❹ . Loosen setscrew ❽ and move needle thread trimming knife adjustment base ❾ up or down to adjust the height of the top end of looper thread presser ❸ .

> **Caution**
> **When needle thread trimming knife J ❷ comes in contact with throat plate ❹ and spreader, right ❼ , breakage of components will be caused. Make sure of the clearances "A" and "B".**

5) The initial position of needle thread trimming knife J ❷ and looper thread presser ❸ is the position where the left corner of the top end of looper thread presser ❸ is aligned with the right corner of the slot of throat plate ❹ . Loosen adjustment nut ⓫ and adjust the initial position with adjustment screw ⓬ .

6) The operating position of needle thread trimming knife J ❷ is the position where needle thread trimming knife J ❷ comes out by 1.2 to 1.5 mm from throat plate ❹ when needle thread trimming actuating arm ❿ is moved counterclockwise and stopper B ⓭ of the needle thread trimming actuating arm comes in confact with the top surface of the looper bracket. When the adjustment is necessary, remove needle thread trimming adjusting base ❾ once with setscrew ❽ and adjust the protruding amount of stopper B ⓭ to 1 to 1.2 mm.

> **Caution**
> **Stopper B ⓭ of the needle thread trimming actuating arm has double screws.**

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(9) Adjusting the looper thread trimming

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
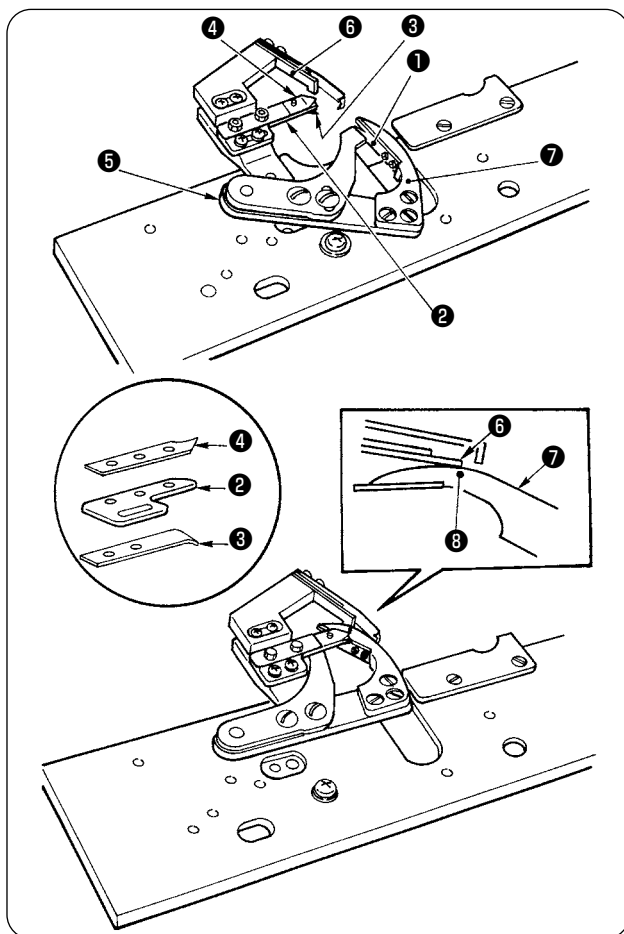
■ S and R type (long thread trimming)

> **Reference**
> Looper thread and gimp trimming is operated at the position of the feed base origin and the presser goes up after the trimming.

1) Looper thread and gimp have been adjusted so that they are separated upward and downward by thread handling plate ❶.
2) Looper thread is precisely held between looper thread clamp fixing plate ❷ and looper thread clamp ❸ of the plate spring and gimp is precisely held between looper thread clamp fixing plate ❷ and gimp clamp ❹ of the plate spring.
3) Adjustment has been performed so that the top end of counter knife ❻ is aligned with engraved dot ❽ of moving knife ❼ when the stroke of looper thread trimming actuating arm ❺ is maximum.

> **Caution**
> When the cut end (thread waste) of looper thread or gimp is clamped with looper thread clamp ❸ or gimp clamp ❹, clamp failure occurs. As a result, stitch skipping at the sewing start or defective stitches will occur. So, remove the thread waste.

■ J and C type (short thread trimming)

> **Caution**
> When the feed base is manually moved to the rear until it will go no further, upper knife lower cover ❺ rides on the cloth cutting knife and remove presser unit ❻.

> **Reference**
> Looper thread and gimp trimming is operated at the position of the feed base origin after the presser has been lifted.
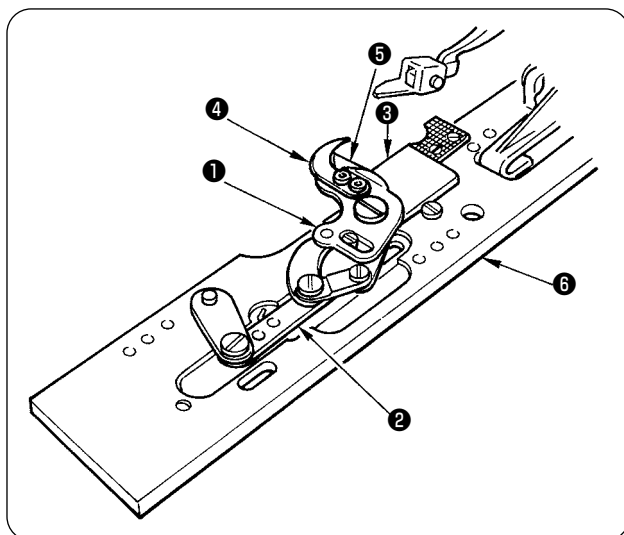
1) Looper thread and gimp have been adjusted so that they are separated from the cloth by thread handling plate ❹.
2) Driving link ❷ is actuated and lower knife ❸ and upper knife ❶ engage with each other to perform thread trimming.
3) Upper knife lower cover ❺ controls the variation of the remaining looper thread when looper thread comes in contact with the blade of the moving knife.

> **Caution**
> At the time of delivery or when the following presser sets are used, use the cloth cutting knife with the same size as that supplied with the machine. If a cloth cutting knife with different size is used, the knife unit breakage or the like will be caused.

> **Reference**
> In the state of the standard delivery of J type, the presser of M set is installed and that of S set is installed on C type. The sewing length can be changed as shown below by installing the optional presser set and moving the installing position of the knife unit only.

S set	16 to 26 mm
M set	24 to 34 mm
L set	32 to 42 mm

(10) Cleaning

<table>
<tr>
<td>⚠</td>
<td>DANGER :
Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise the sewing machine from its home position.
・ Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.
  * Read and check how to rise/return the sewing machine described on "3.(2) Raising and returning the sewing machine" P.3 to P.5.</td>
</tr>
<tr>
<td>⚠</td>
<td>WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.</td>
</tr>
</table>
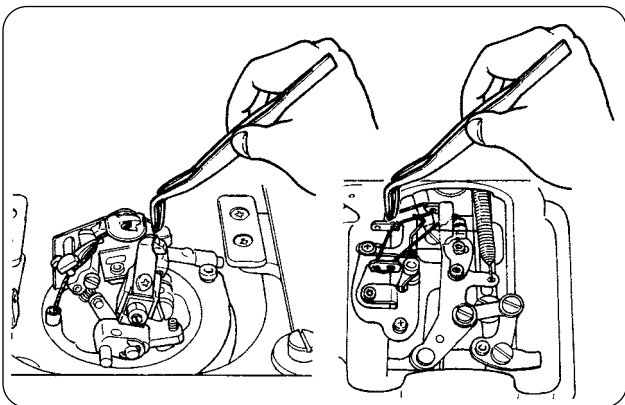
Be sure to remove thread waste or dust collected since the thread waste may be sewn together with the sewing product.

> **Caution**
>
> For J/C types, thread waste occurs every time of sewing since the short thread remaining function works. Per form cleaning of the machine once in half a day to a day.

(11) Draining

<table>
<tr>
<td>⚠</td>
<td>WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.</td>
</tr>
</table>
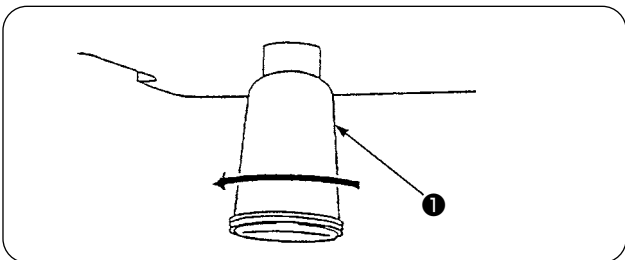
When polyethylene oiler ❶ under the bottom cover becomes filled with oil, remove it and drain the oil.

(12) Replacing the electrical control box

If you notice any problem with the electrical components, replace the entire electrical control box.

(13) How to change over the power supply

40249311 : For the electrical control box of 3-phase, 200-240 V/Single-phase, 100-120 V, the supply voltage can be changed over between the 3-phase, 200-240 V and the single-phase, 100-120 V.

Change over the supply voltage by means of the power cord connection and the voltage switching connector located in the electrical control box.

Remove the covers from the front side of the electrical control box to find the power changeover connectors. Insert the jumper connector into one of the power changeover connectors in accordance with the supply voltage.

Supply voltage	Jumper connector location
Single-phase, 100-120V	1P 110V AC
3-phase, 200-240V	3P 220V AC

* **If you do not insert the jumper connector to any of the power changeover connectors, the power supply specification will be 3-phase, 200-240 V.**

Power supply connection, 3-phase, 200-240 V

From the power plug		To the electrical control box	
SW mark	Line color	SW mark	Line color
L1	Red	T1	Gray
L2	White	T2	Brown
L3	Black	T3	Black
Ground wire	Green/yellow	Ground wire	Green/yellow

Do not connect the L1 red line when changing the power supply from the single-phase 100 V to single-phase 120 V.

Disconnect the L1 red line from the switch section or do not supply power to it on the power plug side.

Supply power to the white and black lines.

(14) Standard of replacing time of the gas spring

DANGER :

There is a risk of pinching of hand, fingers and arms to cause a serious injury if you raise it when the gas spring does not function, since the sewing machine is very heavy in weight.
In order to prevent an accident, be sure to replace the gas spring with a new one before it is too late according to the standard of replacing time (as described below).
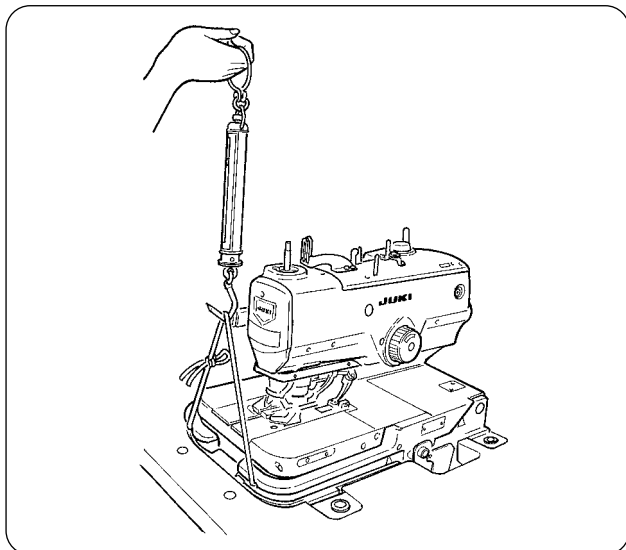
1) Gas spring is one of the consumables. Gas inside the gas spring will be gone naturally even when the frequency of use is low and the spring cannot display the thrust to secure the safety.
In case a force of 156N or more is necessary when passing strings through the front end of machine bed and lifting the sewing machine as shown in the left-hand figure, quickly replace the spring with JUKI genuine gas spring (Part No. :40100390).

> **Gas spring is a component that can be used with ease. However, there is a flaw on the rod section or a section that is weak in the side load when the gas spring is fully stretched. Be very careful when performing maintenance or cleaning of the sewing machine.**

(15) Replacing the gas spring

DANGER :

Be sure carry out the work while observing the following in order to protect against pinching of hands, fingers and arms between the sewing machine and the bottom cover, which can result in serious injury, when you raise or return the sewing machine from or back to its home position.
  1. Be sure to hold the rib on the bed periphery when holding the sewing machine.
  2. Be sure to lock the hinge stopper to firmly secure the sewing machine in its raised position.

WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.
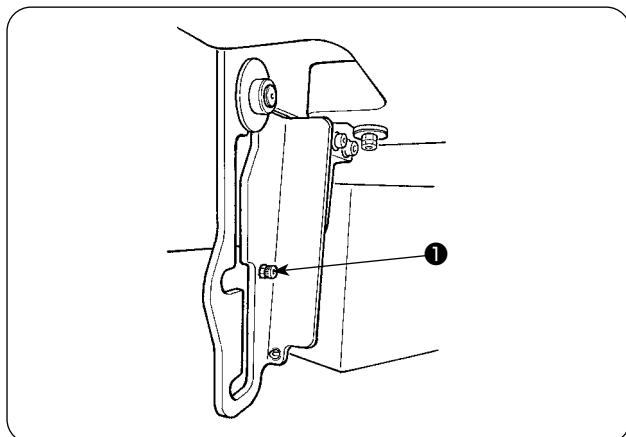
1) Loosen and remove stopper screw ❶ .
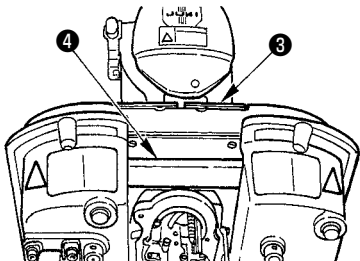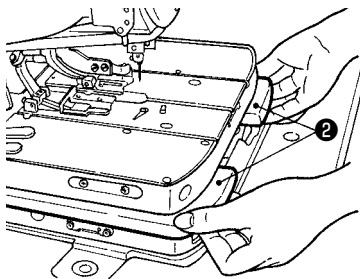
2) Hold with your both hands periphery ribs ❷ located on the front side of machine bed, slowly lift the sewing machine, and stop it at the lock position of the intermediate section.

> ⚠ Caution
> **Do not hold feed base ❸ and feed guide shaft fixing base ❹ .**
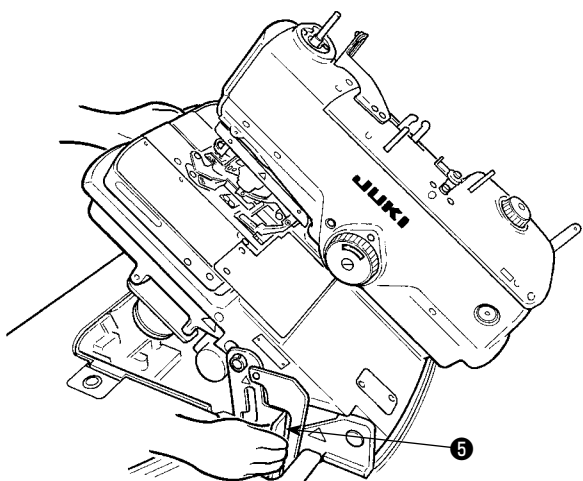
3) Further, support periphery ribs ❷ of the machine bed with your left hand, hold grip ❺ of the hinge stopper section with your right hand, release the lock, and slowly lift the sewing machine. When the sewing machine starts lifting, set free the hinge stopper section held with your right hand and support the periphery ribs with your both hands.
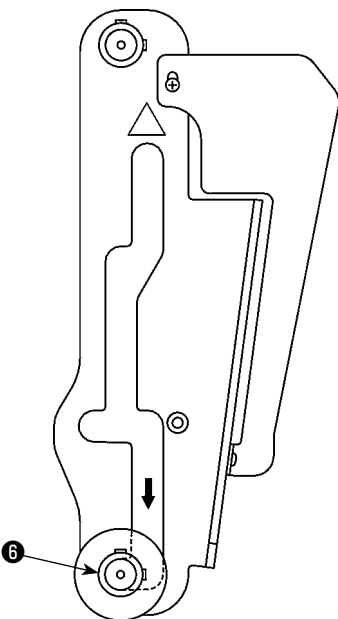
4) Further, lift the sewing machine and adjust so that support shaft ❻ moves to the last lock position of the hinge stopper.

> ⚠ **DANGER :**
> **If the hinge stopper is not locked, the sewing machine can drop to pinch hands, fingers and arms leading to a serious injury. Make sure that the hinge stopper is locked with support shaft ❻ .**
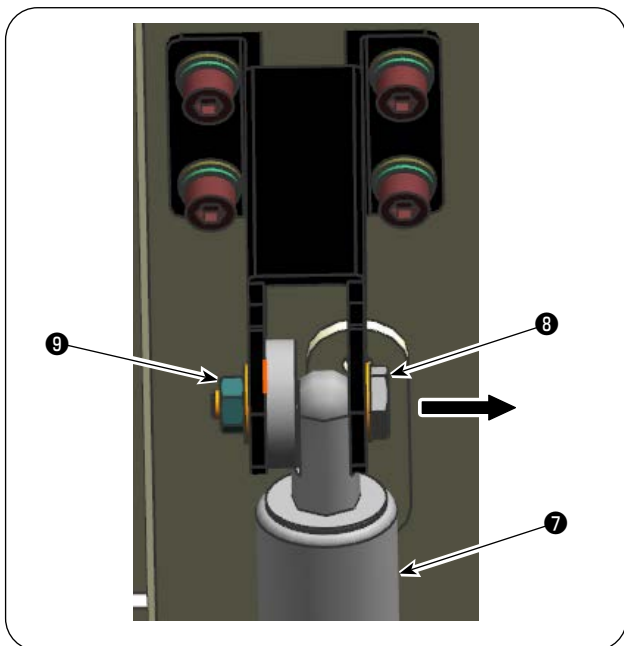
5) Check to make sure that the force of gas spring ❼ is not acting on the sewing machine. Then, remove nut ❾ from spring shaft ❽ and draw out gas spring shaft ❽ .
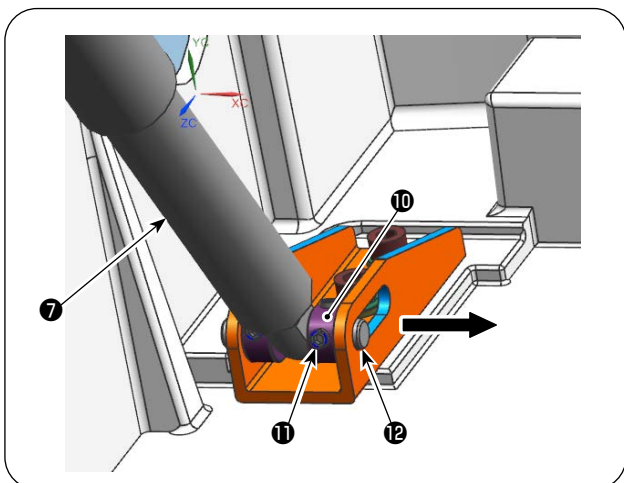
6) Check to make sure that the force of gas spring ❼ is not acting on the sewing machine. Then, loosen four screws ⓫ of thrust collar ❿ and draw out gas spring shaft ⓬ .
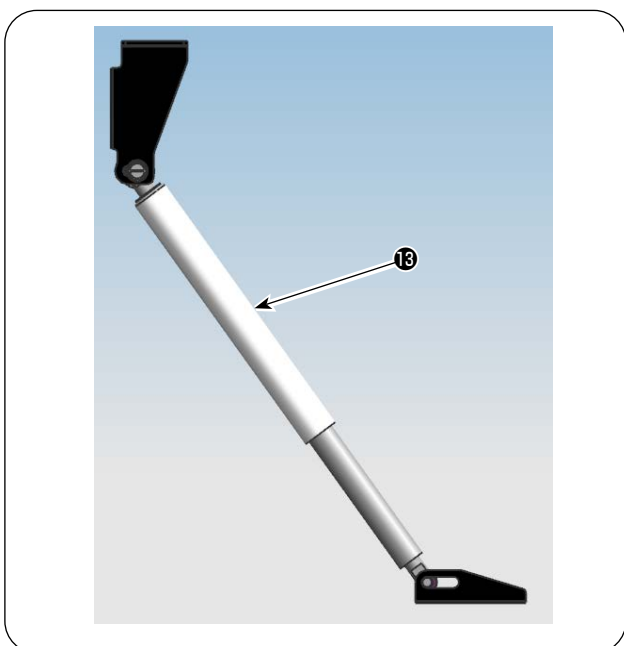
7) Install new gas spring ⓭ .
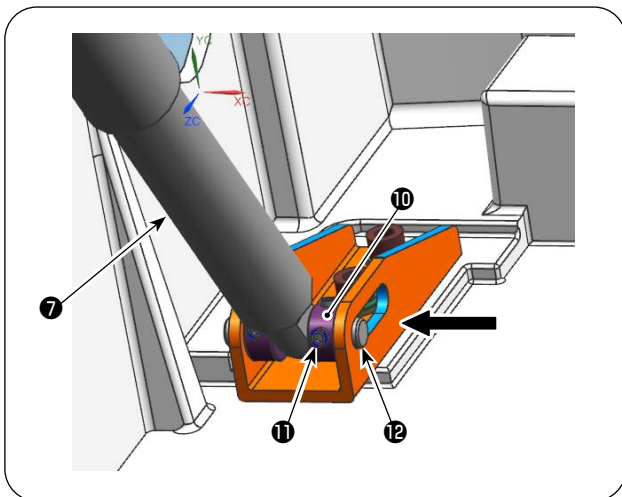
8) Check to make sure that the force of gas spring ❼ is not acting on the sewing machine. Then, attach thrust collar ❿ to gas spring shaft ⓬ you have removed.
Tighten four screws ⓫ of thrust collar ❿ with a tightening force of 2.5 to 3.5 N•m.
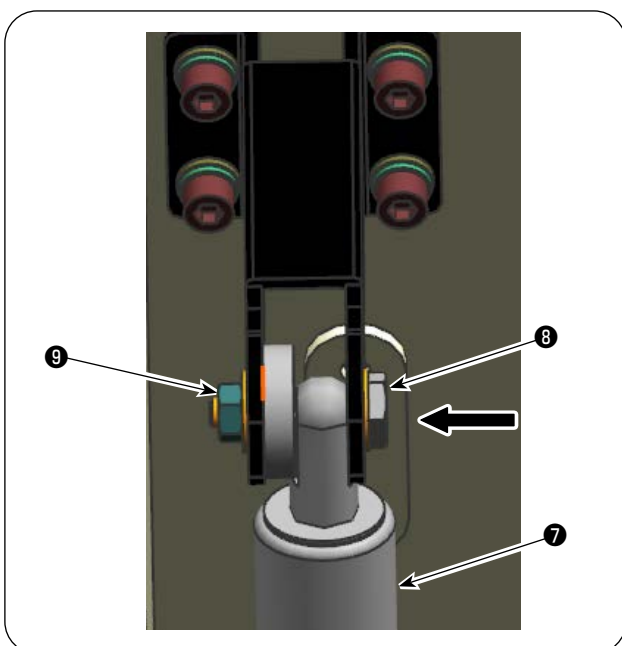
9) Check to make sure that the force of gas spring ❼ is not acting on the sewing machine. Then, tighten assembly nut ❾ of gas spring shaft ❽ you have removed with a tightening force of 5 to 6 N•m.
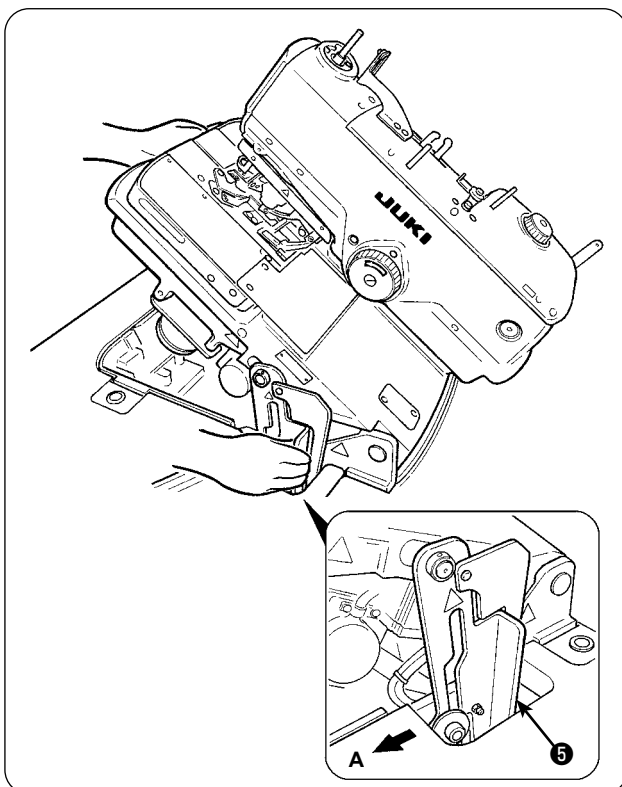
10) When assembling is completed, return the sewing machine to its home position.
When returning the sewing machine, support periphery ribs ❷ of the machine bed with your left hand, hold grip ❺ of the hinge stopper section with your right hand, pull it to this side (direction **A**) to release the lock and slowly lower the sewing machine after confirming that there is no tool such as screwdriver and the like in the bottom cover.
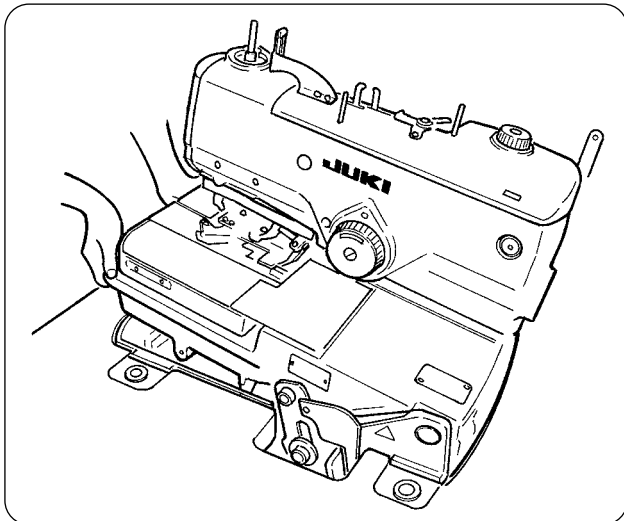
11) Take your right hand off from the hinge stopper section, support periphery ribs ❷ of machine bed with your both hands and further lower the sewing machine.

> **DANGER :**
> 1. **Do not lower the sewing machine while keeping pulling the hinge s topper in direction A, in order to prevent pining of fingers, hands and arms under the sewing machine leading to a serious injury.**
> 2. **Do not hold feed base ❸ and feed guide shaft fixing base ❹ .**
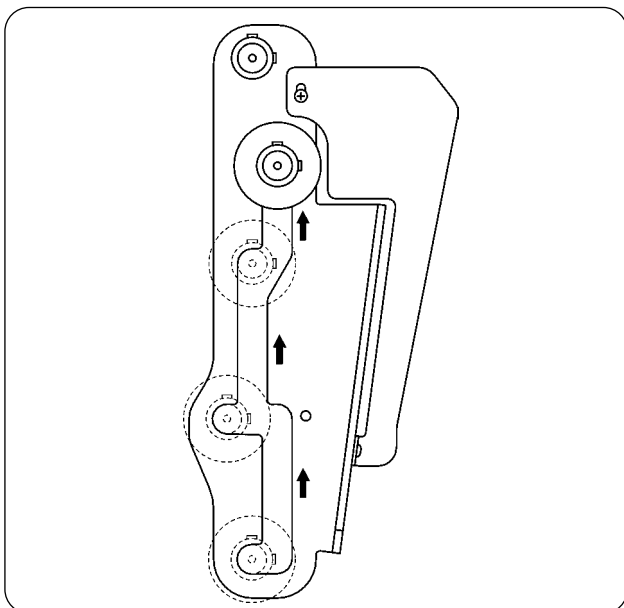
12) The lock works two times for the safety while the sewing machine is lowered. Every time, support the periphery ribs of machine bed with your left hand, hold the grip of hinge stopper section with your right hand, release the lock, and slowly lower the sewing machine.

> **DANGER :**
> **Take care to prevent pinching of hands and fingers between the sewing machine and the bottom cover. In particular, never lower the sewing machine holding parts other than the bed rib with two or more workers, since doing so can cause pinching of hands, fingers and arms leading to a serious injury.**
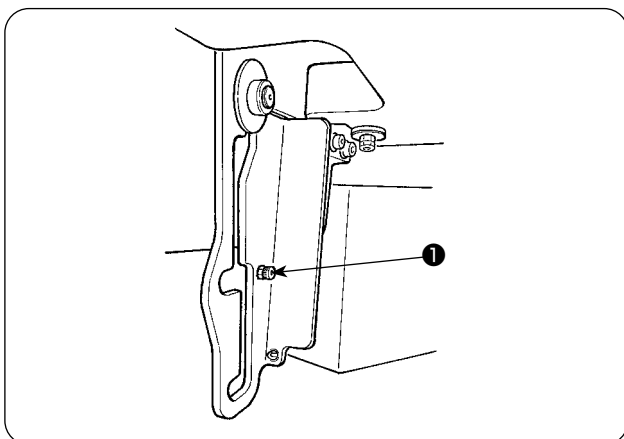
13) When the sewing machine is completely lowered, attach stopper screw ❶ that has been removed before.

(16) Disposing of batteries

■ How to remove batteries

1) Remove operation panel ❶ from the sewing machine.
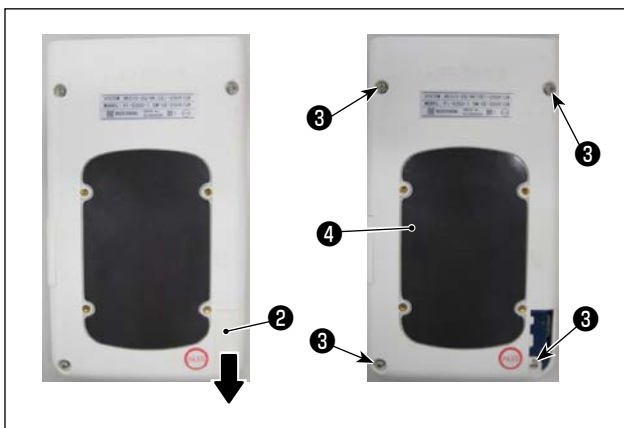
2) Slide down operation panel power supply cover ❷ to remove it.

3) Remove four setscrews ❸ of the operation panel lower cover to remove operation panel lower cover ❹ .
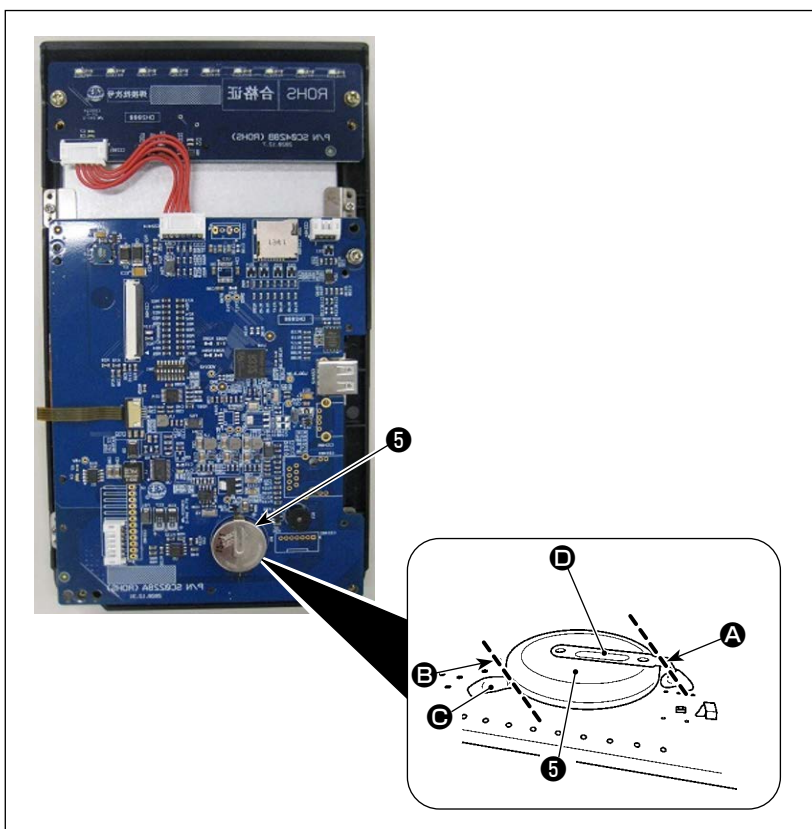
4) Cut metal plate ⒟ that secures battery ❺ at position Ⓐ with a pair of nippers or the like.

5) Cut metal plate ⒞ that secures battery ❺ at position Ⓑ with a pair of nippers or the like to remove battery ❺ .

11. EXCHANGING GAGUE PARTS AND OPTIONAL

(1) Changing the type of thread trimmer

When you have changed the presser foot of the J/C type of sewing machine, change the setting of the memory switch "U87" (type of presser foot) in accordance with the type of sewing machine.

* **If you want to set the type of presser foot to "L", change the setting of the K40 (presser foot/cloth cutting knife offset" to "0: Normal operation".**

Type of presser foot	U87
S	2
M	3
L	4

(2) Exchanging gauge parts

(The mark in [ ] parentheses shows the standard equipment for each type.)

Throat plate

Name of part	Throat plate A (Standard) [S, R]	Throat plate B (For semi-wide width)	Throat plate C (For wide width)	Throat plate D (For narrow width)
Needle size	#90 to #110			
Gimp position W	1.3 mm	1.8 mm	2.4 mm	1.1 mm
Shape				
Part No.	32042715 (32042707)	32042913 (32042905)	32043010 (32043002)	32043218 (32043200)
Type	For S and R types			

Name of part	Throat plate JA (Standard) [J]	Throat plate JB (For semi-wide width)	Throat plate JC (For wide width)	Throat plate JD (For narrow width)	Throat plate JE (Standard) [C]	Throat plate JF (For narrow width)
Needle size	#120 to #130	#90 to #110		#90 to #100	#110 to #120	#90 to #100
Gimp position W	1.3 mm	1.8 mm	2.4 mm	1.1 mm	1.3 mm	1.3 mm
Shape						
Part No.	32043424 (32043416) (32043408)	32042830 (32042822) (32042814)	32043135 (32043127) (32043119)	32043622 (32043614) (32043606)	32043523 (32043515) (32043507)	32043325 (32043317) (32043309)
Type	For J and C types					

* Part Nos. with ( ) parentheses can be used.

Presser set

Name of part	Eyelet buttonhole compensating presser S set	Eyelet buttonhole compensating presser M set	Eyelet buttonhole compensating presser L set *
Shape	[C]	[J]	
Part No.	32028458	32028854	32029050
Type	For J and C types		

* **When L set is used, cloth cutting plate A, part
No. 32068702 is separately necessary.**
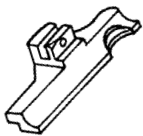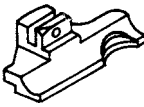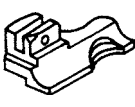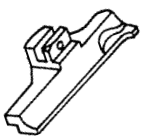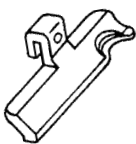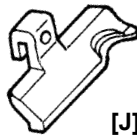
(The mark in [ ] parentheses shows the standard equipment for each type.)
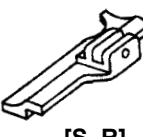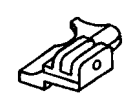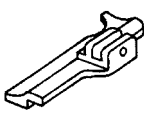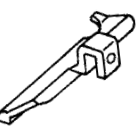
Presser set
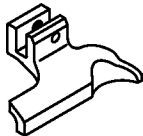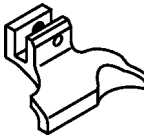
Name of part	Longitudinal hole presser set
Shape	[R]
Part No.	32031064
Type	For S and R types

Presser foot

	Name of part	For eyelet buttonhole 40 mm	For eyelet buttonhole 32 mm	For eyelet buttonhole 22 mm	For decorative buttonhole 40 mm	Eyelet buttonhole compensating foot H 40 mm	Eyelet buttonhole compensating foot M 40 mm	Eyelet buttonhole compensating foot S 40 mm
Presser foot (left)	Shape	[S, R]				(For L type)	(For M type) [J]	(For S type) [C]
	Part No.	14010102	14059604	14059802	14013908	14058903	32028706	32028300

	Name of part	For eyelet buttonhole 40 mm	For eyelet buttonhole 32 mm	For eyelet buttonhole 22 mm	For decorative buttonhole 40 mm	Eyelet buttonhole compensating foot H 40 mm	Eyelet buttonhole compensating foot M 40 mm	Eyelet buttonhole compensating foot S 40 mm
Presser foot (right)	Shape	[S, R]				(For L type)	(For M type) [J]	(For S type) [C]
	Part No.	14010102	14059604	14059802	14013908	14058903	32028706	32028300

	Name of part	Compensating foot for eyelet buttonhole 32 mm	Compensating foot for eyelet buttonhole 22 mm
Presser foot (left)	Shape		
	Part No.	40035239	40039844

	Name of part	Compensating foot for eyelet buttonhole 32 mm	Compensating foot for eyelet buttonhole 22 mm
Presser foot (right)	Shape		
	Part No.	40035238	40039843
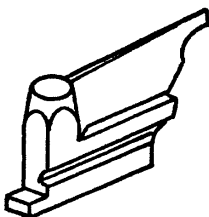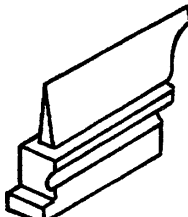
Presser holding plate

Name of part	Eyelet buttonhole presser holding plate, left	Eyelet buttonhole presser holding plate, right	Eyelet buttonhole presser holding plate, left	Eyelet buttonhole presser holding plate, right
Shape of hole	Eyelet buttonhole		Decorative buttonhole	
Stitch length	10 to 38			
Shape				
Part No.	32027104	32027005	32029506	32029407
Type	For S and R types			

Name of part	Eyelet buttonhole presser holding plate, left	Eyelet buttonhole presser holding plate, right	Eyelet buttonhole presser holding plate, left	Eyelet buttonhole presser holding plate, right	Eyelet buttonhole presser holding plate, left	Eyelet buttonhole presser holding plate, right
Shape of hole	Eyelet buttonhole					
Stitch length	S : 16 to 24 [C]		M : 24 to 32 [J]		L : 32 to 40	
Shape						
Part No.	32028516 (32028505)	32028409	32028912 (32028904)	32028805	32029100	32029001
Type	For J and C types					
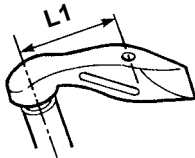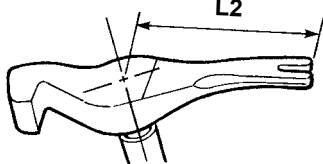
* Part Nos. with ( ) parentheses can be used.

Cloth cutting knife

	Standard equipment	Part No.	X	Y	Remarks
For eyelet buttonhole	S, R	14041206	2.9	4.4	Long thread trimming, short thread trimming, sewing length L
	C, T	32063604	2.9	4.4	Short thread trimming, sewing length S
	J	32063703	2.9	4.4	Short thread trimming, sewing length M
		32063802	2.1	3.2	Long thread trimming, short thread trimming, sewing length L
		32063901	2.1	3.2	Short thread trimming, sewing length S
		32064008	2.1	3.2	Short thread trimming, sewing length M
		32064107	3.2	5.4	Long thread trimming, short thread trimming, sewing length L
		32064206	3.2	5.4	Short thread trimming, sewing length S
		32064305	3.2	5.4	Short thread trimming, sewing length M
		32066904	2.7	5.1	Long thread trimming, short thread trimming, sewing length L
For decorative buttonhole	S, R	14041404	0	0	Long thread trimming, short thread trimming, sewing length L
		32065302	0	0	Short thread trimming, sewing length S
		32065401	0	0	Short thread trimming, sewing length M
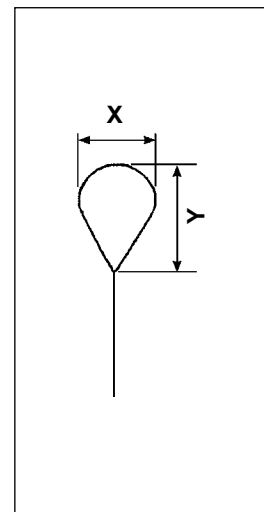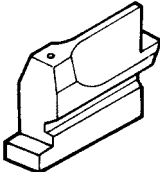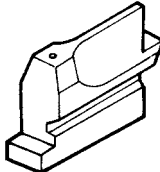
Looper (left) • Spreader (left)

			Looper (left)		Spreader (left)	
Applicable stitch bite width	Standard equipment	L1	Part No.	L2	Part No.	
2.0 to 3.2 mm	S, R, C	6	32040800	11	32040917	
2.6 to 4.0 mm	J	7	14030902	11.6	14031116	
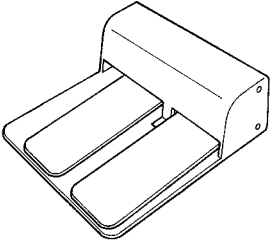
(The mark in [ ] parentheses shows the standard equipment for each type.)

Knife holder

Name of part	For eyelet buttonhole				Name of part	For decorative buttonhole		
Shape					Shape			
Size (mm)	Part No.	Size (mm)	Part No.		Size (mm)	Part No.	Size (mm)	Part No.
38	[S,R] 32062101	22	[S,R,J,C] 32062903		38	14042501	22	[S,R] 14042907
36	32062200	20	[S,R] 32063000		36	32064404	20	32064909
34	32062309	18	[C,T] 32063109		34	32064503	18	32065005
32	32062408	16	[S,R] 32063208		32	14042600	16	14043109
30	32062507	14	32063307		30	32064602	14	32065104
28	32062606	12	32063406		28	32064701	12	32065203
26	32062705	10	32063505		26	14042808	10	10443301
24	32062804				24	32064800		

Others

Name of part	Foot pedal switch (asm.)	Pedal switch cable (asm.)
Shape and application	Operation of the sewing machine is performed by foot pedal.	The cable is used to connect pedal switch (asm.).
Part No.	40033831	40249309

■ Installing the optional foot pedal
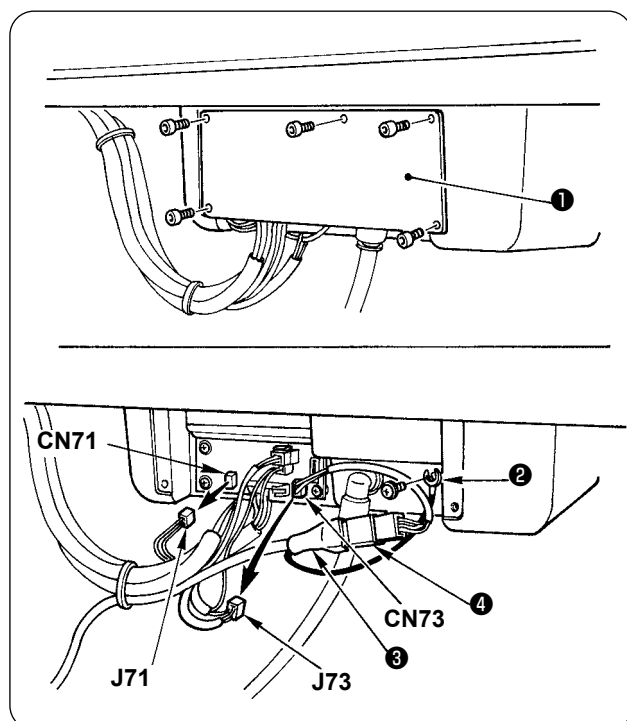
> **Reference**
> The hand switch is provided as standard. If you want to use the optional foot switch, the pedal switch cable (asm.) will also be necessary.

1) Loosen five setscrews and remove cover ❶ located at the rear of the machine head.

2) Remove CN73 from the CONNECTOR circuit board.
   The CN71 is for the hand switch LED.

3) Connect the pedal switch asm. and the pedal switch junction cord. Then, insert the cord to CN73 on the CONNECTOR circuit board.

4) Connect the ground wire of the pedal switch asm. to the machine head.

5) Fix the cord with a cable clip band together with other cords.

> **Caution**
> The pedal switch junction cord can also be connected to the hand switch connector. In this case, both the pedal switch and the foot switch will be enabled, so please be careful when using them.
> Drive and start of the presser can be performed with the foot switch.

12. TROUBLES AND CORRECTIVE MEASURES IN SEWING

Phenomenon	Cause	Corrective measure	Page
1. Stitch skipping	• The needle is bent. There is a scratch-on the needle. The needle is incorrectly attached.	• Check and replace the needle.	10
	• Kind of needle is wrong.	• Use DO x 558 needle.	10
	• The clearance between the needle and the looper is too large.	• Adjust the clearance at the time of inside needle or outside needle.	56
	• The clearance between the needle and the needle guard is too large or the needle and the needle guard come in excessive contact with each other.	• Check and adjust the clearance.	56
	• The clearance between the needle and the looper varies according to the turning angle (0˚, 90˚ and 180˚).	• Adjust the center of the needle.	---
	• Improper adjustment of the timing between the needle and the looper.	• Adjust the timing with the stitch bite width used.	54
	• Improper adjustment of the timing to open/close the spreader The spreader comes in contact with the needle.	• Adjust the timing to open/close the spreader by the stitch bite width used.	54
	• Motion to open/close the spreader is not smooth.	• Remove the cloth waste from the spreader. Replace the spreader with a new one.	54
	• The clearance between the presser foot and the needle entry point is too large.	• Check the clearance and properly adjust it.	41, 59
	• Thread tension is not proper.	• Set the thread tension to the proper value.	19, 47
	• The blade point of looper has worn out.	• Correct the looper with oil-stone or the like, or replace it with a new one.	54
	• Improper adjustment of the height of the needle bar.	• Check and adjust the height of the needle bar.	54
	• The looper or the spreader not suitable for the stitch bite width is used.	• Replace the looper or the spreader with a new one suitable for the stitch bite width.	55, 71
• When changing needle size	• Improper adjustment of the clearance between the needle and the looper.	• Adjust the clearance at the time of inside needle or outside needle with the needle size used.	56
	• Improper adjustment of the timing to open/close the spreader The spreader comes in contact with the needle.	• Adjust the timing to open/close the spreader with the needle size used.	58
	• The needle does not fit the kind of throat plate (needle size used).	• Use the throat plate suitable for the needle.	71
• When kind of thread is affected	• Thread which is difficult to make loops is used. (Hard-to-slide thread or the like)	• Decrease the needle thread tension. Lower the installing position of thread take-up thread guide ❸ .	19, 43
		• Decrease the number of revolution of the sewing machine.	16
• When sewing heavy-weight materials	• The needle is bent at the thick section of the material and stitch skipping occurs.	• Change the needle to a thicker one. Adjust the stitch base line offset.	10
	• In case of the cut-before knife, the inside needle is bent at the cutting section and stitch skipping occurs.	• Re-set the cut space.	25, 26
2. Stitch skipping at the sewing start	• The length of remaining needle thread at the start of sewing is too short.	• Decrease the needle thread tension at the time of thread trimming.	43, 47
	• The left-hand spreader is installed incorrectly.	• Check the installing position and adjust it.	48
	• The timing of the right-hand looper is too early.	• Check the timing between the needle and the looper, and adjust it.	54
	• The clearance between the presser foot and the needle entry point is too large.	• Check the clearance and adjust it.	41, 59
	• The looper is bent. There are scratches on the looper.	• Check the looper and replace it with a new one.	54
	• Feeding amount of the needle thread is insufficient.	• Adjust the feeding amount of needle thread.	43
	• Looper thread clamp/looper thread presser is weak and the looper thread comes off at the start of sewing.	• Check and adjust the pressure.	60

Phenomenon	Cause	Corrective measure	Page
3. Stitch skipping at eyelet section	• The clearance between the presser foot and the needle entry point is too large.	• Check the clearance and adjust it properly.	41, 59
	• The cloth is flopping.	• Decrease the sewing speed of eyelet section.	26, 29
		• Correct the presser foot or replace it with a new one.	59
	• Needle thread loop is too large and falls. As a result, it is not caught by the looper.	• Lift the installing position of thread take-up thread guide ❺.	43
	• Needle thread loop cannot be made. As a result, the looper cannot catch the thread.	• Decrease the needle thread tension. Lower the installing position of thread take-up thread guide ❻.	19, 43, 47
4. Seam splitting at the sewing end	• The feeding amount of needle thread is insufficient.	• Adjust the feeding amount of needle thread.	43
	• The timing of the right-hand looper is too late.	• Check and adjust the timing between the needle and the looper.	54
	• The opening amount of the right-hand spreader is insufficient.	• Check and adjust the opening amount of the spreader.	58
	• The gimp is too hard.	• Replace the gimp. Check the thread path of gimp.	13, 44
5. Needle thread breakage	• The needle thread tension is too high.	• Adjust the sewing conditions to obtain an appropriate thread tension.	19, 43
	• The needle comes in contact with the blade point of the looper.	• Check and adjust the clearance.	56
	• The thread paths in the needle, loopers, spreaders, throat plate, etc. have become worn out or contain scratches.	• Check and replace the respective parts.	10, 56, 57
	• The thread is too thick or too thin for the needle.	• Replace the needle with a proper one.	10
	• There are scratches in the needle hole or needle slot.	• Check and replace the needle.	10
6. Looper thread breakage	• The looper thread tension is too high.	• Adjust the sewing conditions to obtain an appropriate thread tension.	19, 47
	• The installing position of the left-hand spreader is incorrect.	• Check and adjust the installing position.	57
	• Refer to "5. Needle thread breakage" for details on other causes and corrective measures.		
7. Needle breakage	• The needle interferes with looper, spreader, etc.	• Adjust the clearance between the looper and the needle properly. Adjust the timing to open/close the spreaders properly.	56 to 58
	• The needle comes in contact with the presser foot.	• Check and adjust the clearance.	41, 59
	• The clearance between the needle and the looper varies according to the turning angle (0˚, 90˚ and 180˚).	• Adjust the center of the needle.	---
	• The clearance between the needle and the needle guard is too large or the needle and the needle guard come in excessive contact with each other.	• Check and adjust the clearance.	56
	• The height of the needle bar has been improperly adjusted.	• Check and adjust the height of the needle bar.	54
	• The needle does not fit the kind of throat plate (needle size used).	• Use the throat plate suitable for the needle.	71
• Without needle thread clamp	• Needle thread is depressed by the presser foot at the start of sewing.	• Increase the feeding amount of needle thread.	43
8. Stitches at the straight section of the buttonhole are not uniform.	• The left- and right-hand sewing pitches at the straight section are different from each other.	• Compensate the length by lengthwise compensation of left parallel section of the data compensation.	33, 49
	• The left- and right-hand positions at the straight section are different from each other.	• Compensate the position by lengthwise compensation of left eyelet of the data compensation.	33, 49
	• Stitches which should be parallel are slant.	• Compensate the inclination by turning compensation of parallel section of the data compensation.	29, 49

Phenomenon	Cause	Corrective measure	Page
9. The left- and right-hand sides of the seam at the straight section of the buttonhole are not uniform.	• The left- and right-hand side cloth opening amounts are not equal. • Improper adjustment of the knife dropping position. • There is shrinkage of cloth by sewing or step difference between left- and right-hand sides of cloth.	• Adjust so that the left- and right-hand side cloth opening amounts are equal. • Check and adjust the knife dropping position. • Individually set the left- and right-hand sides of cut space.	41 34, 59 25, 26, 29, 49
10. The shape of the eyelet is deformed.	• The seam is tilted. • The cloth is deformed by the seam. • Improper adjustment of the knife dropping position. • The cloth at eyelet section is flopping. • The gimp is moved to the inside needle side.	• Set the turning compensation/parallel section turning compensation. • Set the eyelet crosswise compensation/lengthwise compensation. • Check and adjust the knife dropping position. • Correct the presser foot or replace it with a new one. • Replace the throat plate with the optional one.	29 29, 49 34, 59 59 71
11. The seam is cut by the cut after knife.	• The clearance between the cloth cutting knife and the needle is too small. • Improper adjustment of the knife dropping position. • There is shrinkage of cloth by sewing or step difference between left- and right-hand sides of cloth.	• Check the cut (eyelet) space and re-set it. • Check the knife dropping position, and correct or adjust it. • Individually set the left- and right-hand sides of cut space.	25, 26 34, 59 25, 26, 29, 49
12. Needle thread cannot be trimmed.	• The needle thread trimming knife is dull. • The stroke of the needle thread trimming knife is incorrect. • The needle thread trimming knife does not catch needle thread. • The last stitch has skipped. • Installing position of the moving blade is incorrect.	• Grind the knife or replace it with a new one. • Check and adjust the stroke. • Adjust the installing position (clearance between needle and knife) of the knife. • Refer to "1. Stitch skipping". • Check and adjust the moving blade and the thread separating position.	47, 60, 61 60, 61 60, 61 --- 60, 61
13. Looper thread cannot be trimmed. • S/R types only • J/C types only	• The knife is dull. • The stroke of the moving blade is incorrect. • Contact of the moving knife and the counter knife is improper. • Installing position of the thread separating plate is incorrect. • The knife pressure is insufficient.	• Grind the knife or replace it with a new one. • Check and adjust the stroke. • Check and adjust the tilt of the counter knife. • Check and adjust the moving blade and the thread separating position. • Adjust the knife pressure.	62 62 62 62 62
14. The cloth cannot be cut sharply.	• Doubling the planes of the knife and the knife holder is incorrect. • The knife is dull. • Knife pressing amount (knife pressure) is insufficient. • Chip has collected. • Knife pressure is too high and the knife blade has broken.	• Correct the surface of the knife holder with oil stone or the like. • Grind the knife or replace it with a new one. • Re-set the pressing amount (knife pressure). • Remove the chip. • Set proper knife pressure to each sewing product after replacing the knife.	37 34 35, 36 34 34, 35, 36, 37
15. Breakage of looper/spreader	• The clearance between the needle and the looper varies according to the angle (0°, 90° and 180°). • The clearance between the needle and the needle guard is too large or the needle and the needle guard come in excessive contact with each other. • The needle does not fit the kind of throat plate (needle size used).	• Adjust the center of the needle. • Check and adjust the clearance. • Use the throat plate suitable for the needle.	--- 56 71

13. MEMORY SWITCH

(1) Operating procedure
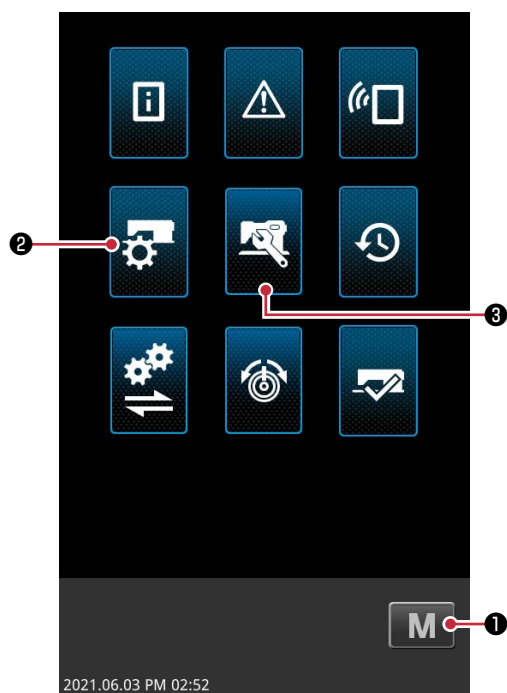
1) Press ⬛M ❶ to display the menu screen.

2) Press ⬛ ❷ (for the memory switch that begins with U) or ⬛ ❸ (for the memory switch that begins with K) to display the memory switch list screen.

3) Press ⬛▲ ⬛▼ ❹ in repetition to display the memory switch you want to set.

4) Press the button on which the memory switch name is displayed to display the numeric keypad input screen or the selection screen.

5) Press ⬛✕ ❺ to save the setting and return the screen to the memory switch list screen.

Press ⬛↵ to cancel the setting and return the screen to the memory switch list screen.
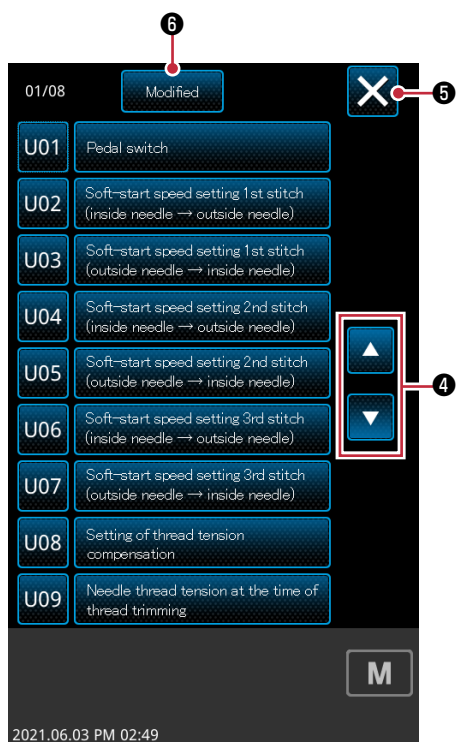
> **Reference**
> Press ⬛変更済み ❻ to display the list of memory switches you have changed the setting from the initial value.

> **Caution**
> For the items with different initial values for each model of sewing machine, the initial value that take effect when the "K71: Model setting" is set to "0 (zero) (S type, domestic use)" is displayed as the reset value.

Memory switch list screen (01/08):

U01	Pedal switch
U02	Soft-start speed setting 1st stitch (inside needle → outside needle)
U03	Soft-start speed setting 1st stitch (outside needle → inside needle)
U04	Soft-start speed setting 2nd stitch (inside needle → outside needle)
U05	Soft-start speed setting 2nd stitch (outside needle → inside needle)
U06	Soft-start speed setting 3rd stitch (inside needle → outside needle)
U07	Soft-start speed setting 3rd stitch (outside needle → inside needle)
U08	Setting of thread tension compensation
U09	Needle thread tension at the time of thread trimming

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(2) Memory switch list

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
U01	Pedal changeover 0 : Not used 1 : Single switch. The presser foot comes down and the sewing machine starts sewing with the start switch. Lifting/lowering of the presser foot can be controlled with the presser switch. 2 : Double switch. Lifting/lowering of the presser foot is controlled with the presser switch and the sewing machine starts sewing with the start switch. 3 : Not used	0	3	1	-	2	2	2	2	2	2	2	2	2	2
U02	Sewing speed of the 1st stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U03	Sewing speed of the 2nd stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U04	Sewing speed of the 3rd stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U05	Sewing speed of the 4th stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U06	Sewing speed of the 5th stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U07	Sewing speed of the 6th stitch of soft start	400	1200	1	sti/min	600	600	600	600	600	600	600	600	600	600
U08	Setting of tension compensation	0	1	1	-	1	1	1	1	1	1	1	1	1	1
U09	Needle thread tension during thread trimming	0	255	1	-	0	0	0	0	0	0	0	0	0	0
U10	Looper thread tension during thread trimming	0	255	1	-	0	0	0	0	0	0	0	0	0	0
U11	Needle thread tension at the time of stop (preparation state)	0	255	1	-	60	80	60	60	80	60	80	60	60	60
U12	Looper thread tension at the time of stop (preparation state)	0	255	1	-	50	70	50	50	70	50	70	50	50	50
U13	Automatic cloth cutting after sewing 0 : Normal operation 1 : In the case of the cut-after knife, stop temporarily and press the start switch to perform cloth cutting.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U14	Needle thread 2-stage operation	0	1	1	-	1	1	1	1	1	1	1	1	1	1

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
U15	Needle thread trimmer operating time	0	1000	1	ms	50	50	50	50	50	50	50	50	50	50
U16	Front lengthwise position	0	64	1	mm	22	22	22	22	22	22	22	22	22	22
U17	**Delay time to start cloth cutting operation** When the digital single pedal is selected under the lower cutter mode, the time interval between the return of the sewing table to the origin and the operation of the cutter.	0	800	1	ms	0	0	0	0	0	0	0	0	0	0
U18	**Presser lowering operation (Front setting position)** 0 : Presser foot is lifted before the sewing table moves. 1 : Presser foot is lifted after the sewing table has moved.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U19	**Presser foot travel under manual mode** 0 : The presser foot operation cannot be carried out during the test mode. 1 : The presser foot operation can be carried out by operating the switch during the test mode.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U22	**Main shaft stopping speed** The last sewing speed at the time of stopping sewing	700	900	10	sti/min	800	800	800	800	800	800	800	800	800	800
U23	**Main shaft speed immediately before stopping** Sewing speed of the second stitch from last before stopping sewing	250	600	10	sti/min	350	350	350	350	350	350	350	350	350	350
U24	**Main shaft stopping distance** Adjustment of the stop position of the main shaft.	2.5	17.5	0.5	°	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
U25	**Frequency of origin retrieval** 0 : No origin retrieval 1 - 9 : Origin retrieval after the completion of the set number of times of sewing.	0	9	1	-	1	1	1	1	1	1	1	1	1	1

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
U26	**Prohibition of pattern data editing** Whether or not the pattern is locked. Once this parameter is set, the pattern cannot be changed.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U27	**Prohibition of cycle program** Whether or not the cycle program is enabled, i.e., whether or not the pattern setting can be carried is set.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U28	**Counter setting** The counter function is set.	0	2	1	-	0	0	0	0	0	0	0	0	0	0
U29	**Prohibition of change in sewing speed** Whether or not the adjustment of the maximum sewing speed is permitted is set.	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U30	**Prohibition of change to cut-before knife** 0 ： Permitted 1 ： Prohibited	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U31	**Prohibition of change to cut-after knife** 0 ： Permitted 1 ： Prohibited	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U32	**Safety switch** 0 ： Permitted 1 ： Prohibited	0	1	1	-	1	1	1	1	1	1	1	1	1	1
U33	**Air pressure detection** 0 ： Permitted 1 ： Prohibited	0	1	1	-	1	1	1	1	1	1	1	1	1	1
U34	**Date display style** 0 ： yyyy.mm.dd 1 ： mm.dd.yyyy 2 ： dd.mm.yyyy	0	2	1	-	0	0	0	0	0	0	0	0	0	0
U35	**Time display style** 0 ： a.m. hh:mm (or p.m. hh:mm) 1 ： hh:mm (hh:00-23)	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U36	Maximum sewing speed	1000	2200	100	sti/min	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
U37	Maximum number of cycle programs	0	9	1	-	9	9	9	9	9	9	9	9	9	9

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
U38	**Cycle program counter** 0 : Count each time the pattern is sewn 1 : Count each time the cycle pattern is sewn	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U39	**Maximum cutting size** The maximum value of S03 is set.	0.5	1.2	0.1	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
U40	Z-axis turning speed at the time of lateral reinforcement	600	900	100	sti/min	900	900	900	900	900	900	900	900	900	900
U41	Adjustment of needle throwing position at sewing start	-1	1	0.1	mm	0	0	0	0	0	0	0	0	0	0
U42	Knife adjustment pattern setting is enabled	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U53	Knife motor lower stopping time	50	500	1	ms	50	50	50	50	50	50	50	50	50	50
U54	Number of low speed pulses to lower cloth cutting motor at the time of cloth cutting	0	1200	1	pulse	60	60	60	60	60	60	60	60	60	60
U56	**Looper thread trimmer** 0 : The needle thread trimmer and looper thread trimmer are enabled. 1 : The looper thread trimmer is disabled. 2 : The needle thread trimmer and looper thread trimmer are disabled.	0	2	1	-	0	0	0	0	0	0	0	0	0	0
U58	Looper thread trimming timing	0	1000	1	ms	150	150	150	150	150	150	150	150	150	150
U59	Needle thread clamp setting	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U60	Number of stitches to open needle thread clamp	0	99	1	Stitch	5	5	5	5	5	5	5	5	5	5
U61	Cloth chip suction time	0	1000	1	ms	500	500	500	500	500	500	500	500	500	500
U62	Horizontal axis jump speed	50	5000	1	pps	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
U63	Vertical axis jump speed	50	5000	1	pps	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
U64	Turning axis jump speed	50	2000	1	pps	500	500	500	500	500	500	500	500	500	500
U65	Number of low speed pulses for multiple cloth cutting	0	1000	1	pulse	60	60	60	60	60	60	60	60	60	60
U77	Compensation of X position of knife	-0.50	0.50	0.05	mm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U79	Language	0	9	1	-	0	0	0	0	0	0	0	0	0	0

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
U80	**Backlight auto OFF** 0 : Enabled 1 : Disabled	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U81	Backlight OFF time	1	9	1	min	3	3	3	3	3	3	3	3	3	3
U82	**Language selection when turning the power ON** 0 : OFF 1 : ON	0	1	1	-	0	0	0	0	0	0	0	0	0	0
U84	**Sewing table position adjustment** Use this memory switch to adjust the starting position of the sewing table in the Y direction. The program is interchangeable with various presser feet of ZJ in accordance with additional parameters of some presser feet that have been described above.	-10	10	1	step	0	0	0	0	0	0	0	0	0	0
U85	DIP1	-100	100	1	-	0	0	0	0	0	0	0	0	0	0
U86	DIP2	-100	100	1	-	0	0	0	0	0	0	0	0	0	0
U87	Presser foot type	1	6	1	-	1	3	1	1	3	1	2	1	1	1
U88	Prohibition of starting after the completion of counting	0	1	1	-	1	1	1	1	1	1	1	1	1	1
U89	Adjustment of origin of cloth plate	0	64	1	-	0	0	0	0	0	0	0	0	0	0
U90	Multicutting function	0	1	1	-	0	0	0	0	0	0	0	0	1	1
K09	Waiting time for looper thread trimming after presser foot comes down	0	1000	1	ms	100	100	100	100	100	100	100	100	100	100
K10	Needle throwing width	2.0	4.0	0.1	mm	2.3	3.6	2.3	2.3	2.5	2.3	2.5	2.3	2.3	2.2
K11	Work clamp, lifting delay (J and C types)	0	1000	1	ms	100	40	100	100	40	100	40	100	100	100
K12	Work clamp operating time (J and C types)	0	1000	1	ms	0	0	0	0	0	0	0	0	0	0
K13	Presser foot opening delay time Time to be elapsed from the cloth opener operation to the start of sewing when K38 is set to 0.	0	1000	1	ms	50	50	50	50	50	50	50	50	50	50
K14	Waiting time after needle thread tension is released	0	1000	1	ms	100	100	100	100	100	100	100	100	100	100

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
K15	Pulse position that enables knife motor to perform jump	0	1500	1	pulse	400	400	0	400	400	0	400	400	400	400
K16	Pulse position that enables knife motor to perform thread trimming	0	1500	1	pulse	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020
K18	Pulse position of knife motor to jump multicutting knife	0	1500	1	pulse	800	800	800	800	800	800	800	800	800	800
K20	Cloth cutting motor travel speed	50	9990	1	sti/min	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
K21	Needle thread clamp lowering timing	-100	100	1	ms	0	0	0	0	0	0	0	0	0	0
K22	Needle thread clamp lowering delay time	0	1000	1	ms	100	100	100	100	100	100	100	100	100	100
K23	Needle thread clamp travel amount when closing	0	50	1	mm	23	23	23	23	23	23	23	23	23	23
K24	X-axis thread trimmer jump speed	50	5000	1	pps	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
K25	Y-axis thread trimmer jump speed	50	5000	1	pps	2000	3000	2000	2000	3000	2000	3000	2000	2000	2000
K26	Turning-axis thread trimmer jump speed	50	2000	1	pps	900	2000	900	900	2000	900	2000	900	900	900
K27	Y-axis travel amount at the time of thread trimming	0	50	1	mm	4	4	4	4	4	4	4	4	4	4
K28	Long thread trimming, longitudinal position of turning axis to start turning	0	16	1	mm	10	10	10	10	10	10	10	10	10	10
K29	Long thread trimming, compensation of angle of turning axis	-30	30	1	pulse	0	0	0	0	0	0	0	0	0	0
K30	Waiting time for drawing gimp	0	1000	1	ms	0	0	0	0	0	0	0	0	0	0
K31	Angle of round bar at sewing end	-120	-5	1	step	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
K32	Long thread trimming, looper thread drawing delay time	0	500	1	ms	0	0	0	0	0	0	0	0	0	0
K33	Long thread trimming, looper thread drawing two-time operation	0	1	1	-	0	0	0	0	0	0	0	0	0	0
K35	Needle thread clamp closing delay time	0	1000	1	ms	50	50	50	50	50	50	50	50	50	50
K36	Needle thread clamp temporary stop time	0	1000	1	ms	50	50	50	50	50	50	50	50	50	50
K37	Cloth cutting overlap time Operation starting time of the cloth cutting knife before the cloth cutting position is reached.	0	200	1	ms	0	100	0	0	100	0	100	0	0	0

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
K38	**Cloth-open operation delay** 0 ： Sewing starts after cloth-open delay 1 ： Sewing starts while stretching the material	0	1	1	-	0	1	0	0	1	0	1	0	0	0
K39	Waiting time for thread clamp after thread trimming	0	1000	1	ms	50	50	50	50	50	50	50	50	50	50
K40	Presser foot/cloth cutting offset	0	4	1	-	1	1	1	1	1	1	1	1	0	0
K42	Vertical-axis needle thread clamp jump speed	50	5000	1	pps	1000	1500	1000	1000	1500	1000	1500	1000	1000	1000
K43	Feed control	0	2	1	-	1	1	1	1	1	1	1	1	1	1
K44	TG position at the end of feeding	1	45	1	-	41	41	41	41	41	41	41	41	41	41
K45	TG position during feeding	1	45	1	-	18	27	18	18	27	18	27	18	18	18
K46	Single switch setting	0	1	1	-	1	1	1	1	1	1	1	1	1	1
K47	Start switch setting	0	1	1	-	0	0	0	0	0	0	0	0	0	0
K48	Temperature sensor control switch	0	1	1	-	0	0	0	0	0	0	0	0	0	0
K49	TG position at the end of feeding for sewing a straight bar	1	45	1	-	41	41	41	41	41	41	41	41	41	41
K50	TG position at the middle of feeding for sewing a straight bar	1	45	1	-	30	30	30	30	30	30	30	30	30	30
K51	Multicutting knife 11, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18
K52	Multicutting knife 11, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K53	Multicutting knife 11, remainder cut amount	0	20	1	mm	6	6	6	6	6	6	6	6	6	6
K54	Multicutting knife 12, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18
K55	Multicutting knife 12, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K56	Multicutting knife 12, remainder cut amount	0	20	1	mm	5	5	5	5	5	5	5	5	5	5
K57	Multicutting knife 13, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18
K58	Multicutting knife 13, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K59	Multicutting knife 13, remainder cut amount	0	20	1	mm	5	5	5	5	5	5	5	5	5	5
K60	Multicutting knife 14, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18
K61	Multicutting knife 14, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K62	Multicutting knife 14, remainder cut amount	0	20	1	mm	5	5	5	5	5	5	5	5	5	5
K63	Multicutting knife 15, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18

No.	Item				Unit	Initial value									
						S : Domestic market	J : Domestic market	R : Domestic market	S : Export	J : Export	R : Export	C	S : China	S : Domestic market (multiple)	S : Export (multiple)
K64	Multicutting knife 15, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K65	Multicutting knife 15, remainder cut amount	0	20	1	mm	4	4	4	4	4	4	4	4	4	4
K66	Multicutting knife 16, knife length 1st time	10	38	1	mm	18	18	18	18	18	18	18	18	18	18
K67	Multicutting knife 16, knife length 2nd time	5	38	1	mm	8	8	8	8	8	8	8	8	8	8
K68	Multicutting knife 16, remainder cut amount	0	20	1	mm	4	4	4	4	4	4	4	4	4	4
K69	Multicutting knife, gimp/looper thread drawing delay time	0	1000	1	ms	150	150	150	150	150	150	150	150	150	150
K70	Multiple cloth cutting, waiting time for lowering of cloth cutting knife	0	1000	1	ms	100	100	100	100	100	100	100	100	100	100
K71	Model selection	0	10	1	-	0	1	2	3	4	5	6	8	9	10
K72	Multiple cloth cutting, cloth chip suction time	0	1000	1	ms	200	200	200	200	200	200	200	200	200	200
K73	Multiple cloth cutting, knife lifting position	0	1500	1	pulse	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
K78	Marking light	0	1	1	-	1	1	1	1	1	1	1	1	1	1
K79	Knife base, air blowing function	0	1	1	-	1	1	1	1	1	1	1	1	1	1
K80	Knife base, air blowing time	0	200	1	ms	100	100	100	100	100	100	100	100	100	100
K81	LED setting	0	1	1	-	1	1	1	1	1	1	1	1	1	1
K84	Knife reaching time	200	600	2	ms	300	300	300	300	300	300	300	300	300	300
K85	JaNets setting														

14. ERROR LIST

No.	Description	How to reset
E-001	IMP fault When the motor control IPM is abnormal	Turn OFF the power
E-003	24 V power supply fault When the voltage of the 24 V power supply is abnormal	Turn OFF the power
E-004	Machine head circuit board reading failure When the PCB data cannot be read correctly	Turn OFF the power
E-005	Main shaft motor overload When the load on the main shaft motor exceeds the expected value	Turn OFF the power
E-006	Stop switch (during standby) When the temporary stop switch is pressed during the standby state	Turn OFF the temporary stop switch
E-007	Stop switch (during operation) When the temporary stop switch is pressed during sewing	Operate the operation panel
E-009	Start switch defect When the start switch cannot be turned OFF	Turn OFF the power
E-010	Presser switch defect When the presser switch cannot be turned OFF	Turn OFF the power
E-011	Machine head tilting When the machine head is lifted	Return the machine head to its home position and press the reset button
E-012	Needle bar out of upper position When the needle bar does not rest at its upper stop position	Turn the hand pulley to bring the needle bar to its upper stop position
E-013	Main shaft encoder defect When the main shaft encoder signal is abnormal	Turn OFF the power
E-014	X motor origin sensor error When there is no X-motor origin sensor signal	Turn OFF the power
E-015	Y motor origin sensor error When there is no Y-motor origin sensor signal	Turn OFF the power
E-016	Turning motor origin sensor error When there is no turning-motor origin sensor signal	Turn OFF the power
E-017	IPM overcurrent When the current flowing through the motor control IPM is excessively large	Turn OFF the power
E-018	IPM overcurrent When the current flowing through the motor control IPM is excessively large	Turn OFF the power
E-019	Stepping motor version mismatch When the combination of the stepping motor version and the software version is wrong	Turn OFF the power
E-021	Looper thread trimmer sensor defect When the looper thread trimmer sensor signal is abnormal	Turn OFF the power
E-026	Low voltage When the supply voltage drops below the specified level	Turn OFF the power
E-028	Cooling fan defect When there is a problem with the operation of the cooling fan	Turn OFF the power

No.	Description	How to reset
E-030	Stepping motor communication error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-031	Solenoid valve circuit short-circuit When there is a short circuit in the solenoid valve driving power supply	Turn OFF the power
E-032	Bleeder resistance fault	Turn OFF the power
E-033	Out of feed range When the feed operation is out of the specified range	Turn OFF the power
E-034	Turning motor current fault When there is a problem with the turning motor current	Turn OFF the power
E-035	Turning motor operation defect When the turning motor fails to operate normally	Turn OFF the power
E-036	Operating time expiration When the operation fails to complete within the specified time	Turn OFF the power
E-037	Zero-position detection fault When there is a problem with the zero-position signal	Turn OFF the power
E-038	Turning motor timeout When the turning motor operation fails to complete within the specified time	Turn OFF the power
E-041	Needle throwing positional failure When there is a problem with the needle throwing position	Turn OFF the power
E-043	Turning motor overload When the load on the turning motor is abnormal	Turn OFF the power
E-044	100 V voltage fault When the 100 V supply voltage is out of the operating range	Turn OFF the power
E-045	Number of stitches error When the number of stitches does not fall within the specified range	Turn OFF the power
E-046	Speed error When the operating speed of the main-shaft turning motor is abnormal	Turn OFF the power
E-047	Main shaft motor positional failure When the operating position of the main shaft motor is abnormal	Turn OFF the power
E-050	Air pressure drop When the air pressure drops below the specified value	Turn OFF the power
E-051	X motor overcurrent When the current flowing through the X motor exceeds the specified value	Turn OFF the power
E-052	Y motor overcurrent When the current flowing through the Y motor exceeds the specified value	Turn OFF the power
E-053	X motor out of range When the X motor operation is out of the specified range	Turn OFF the power
E-054	Y motor out of range When the Y motor operation is out of the specified range	Turn OFF the power
E-055	X motor overspeed When the operating speed of the X motor exceeds the specified value	Turn OFF the power
E-056	Y motor overspeed When the operating speed of the Y motor exceeds the specified value	Turn OFF the power
E-057	DSP1 communication fault When there is a problem with the communication inside the circuit board	Turn OFF the power

No.	Description	How to reset
E-058	Cloth cutting motor current fault When there is a problem with the current in the cloth cutting motor	Turn OFF the power
E-059	Turning motor current fault When there is a problem with the current in the turning motor	Turn OFF the power
E-060	Turning motor out of range When the turning motor operation is out of the specified range	Turn OFF the power
E-061	Cloth cutting motor out of range When the cloth cutting motor operation is out of the specified range	Turn OFF the power
E-062	Cloth cutting motor overspeed When the operating speed of the cloth cutting motor exceeds the specified value	Turn OFF the power
E-063	Turning motor overspeed When the operating speed of the turning motor exceeds the specified value	Turn OFF the power
E-064	DSP2 communication fault When there is a problem with the communication inside the circuit board	Turn OFF the power
E-065	USB data size error When the USB data size is abnormal	Turn OFF the power
E-066	USB file check error When a file on the USB has corrupted	Turn OFF the power
E-067	USB packet error When there is a problem with the USB communication	Turn OFF the power
E-068	USB communication fault When there is a problem with the USB communication	Turn OFF the power
E-069	USB FLASH erase error When a file on the USB cannot be erased	Turn OFF the power
E-070	USB FLASH write error When a file cannot be written on the USB	Turn OFF the power
E-071	USB FLASH check error When there is a problem with the USB file checking	Turn OFF the power
E-072	USB data check error When there is a problem with the USB file checking	Turn OFF the power
E-073	USB write protect When the USB is write-protected	Turn OFF the power
E-074	USB function code error When the type of USB is an unexpected one	Turn OFF the power
E-075	USB communication error When there is a problem with the USB communication	Turn OFF the power
E-080	USB timeout When the USB communication fails to complete	Turn OFF the power
E-083	FLASH erase error When data cannot be erased	Turn OFF the power
E-084	FLASH erase error When data cannot be erased	Turn OFF the power
E-085	System mismatch When a different type of operation panel is connected	Turn OFF the power
E-087	Cloth cutting motor malfunction When the cloth cutting motor operation is abnormal	Turn OFF the power

No.	Description	How to reset
E-088	Cloth cutting motor origin error When there is no cloth cutting motor origin sensor signal	Turn OFF the power
E-090	DSP1 communication check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-091	DSP2 communication check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-092	ZK communication check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-093	DSP1 command fault When there is a problem with the communication inside the circuit board	Turn OFF the power
E-094	DSP2 command fault When there is a problem with the communication inside the circuit board	Turn OFF the power
E-095	ZK command fault When there is a problem with the communication inside the circuit board	Turn OFF the power
E-096	DSP1-1 receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-097	DSP1-2 receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-098	DSP1-3 receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-099	DSP2-1 receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-100	DSP2-2 receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power
E-101	ZK receiving check error When there is a problem with the communication inside the circuit board	Turn OFF the power

Note 1. **If you have changed the presser foot type S, M or L of the J or C type of sewing machine by means of the presser foot selection memory switch U87, the pattern you used before the change cannot be used.**

The standard pat terns which can be used with the presser type S, M and L of J and C types are described in the table below.

Presser type	Standard pattern No.
S	1, 2, 3
M	4, 5, 6, 7
L	8, 9, 10

Note 2. **Set the data within the range below.**
Sewing speed – (minus) eyelet reduced speed $\geqq$ 400
Number of stitches of slant taper bar $\leqq$ number of stitches of taper bar
Compensation of number of stitches of right taper bar $\leqq$ number of stitches of taper bar
$-14 \leqq$ compensation of turning $+$ compensation of turning at parallel section $\leqq$ 14
$-1.2 \leqq$ cut space + compensation of left cut space $\leqq$ 1.2

Note 3. **Set "L = Sewing length + lengthwise compensation of left eyelet + lengthwise compensation of left parallel section + compensation of the number of stitches at sewing end" within the range described in the table below.**

S and R types		J and C types	
Without thread trimming memory switch 22 = 0	$10 \leqq L \leqq 50$ Note 5	Presser type S	$16 \leqq L \leqq 24$ (26)
With thread trimming memory switch 22 = 1	$10 \leqq L \leqq 38$	Presser type M	$24 \leqq L \leqq 32$ (34)
		Presser type L	$32 \leqq L \leqq 40$ (42)
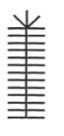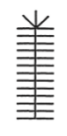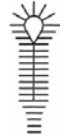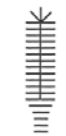
* Remove the looper thread trimming unit in case of exceeding 38 mm.
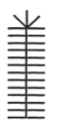
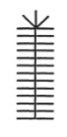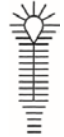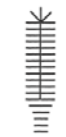**Note 4.** **Set the thread tension within the range of $0 \leqq$ thread tension ＋ compensation value of thread tension $\leqq$ 180.**
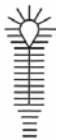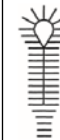
Note 5. **If you want to sew a length over 38 mm, refer to "17. How to perform sewing for more than 38 mm" p.120.**

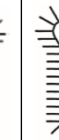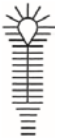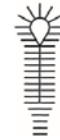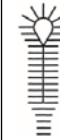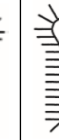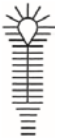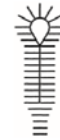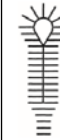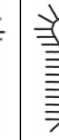|		S type, R type										
K71	Model setting	0 · 2 · 3 · 5 · 8 · 9 · 10										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=1 Sewing length limit (10 ≦ S02 ≦ 38)										-
		Cut-before knife		Cut-after knife								Cut-after knife
S01	Sewing speed	1800										1800
S02	Sewing length	22.0				28.0		26.0				-
S03	Cut space	0.0		0.3								0.4
S04	Stitch pitch	1.1										-
S05	Number of stitches of eyelet	11	5	11	5	11	5	11	5	11	5	-
S06	Taper bar length	-				6		-				6
S07	Offset	-				1.5		-				1.5
S08	Straight bar length	-						6.0		-		-
S09	Number of stitches of straight bar	-						9		-		-
S10	Number of stitches of round bar	-								5		-
S11	Knife No.	3	0	3	0	3	0	3	0	3	0	7
S12	Compensation of needle throwing width of parallel section	0.0										0.0
S13	Reduced speed of eyelet	0	-	0	-	0	-	0	-	0	-	-
S14	Speed of straight bar section	-						1800		-		-
S15	Soft start	2										2
S17	X compensation of sewing position	0.0										-
S18	Y compensation of sewing position	0.0		0.2								-
S19	Number of fastening stitches at sewing start	0										0
S20	Number of fastening stitches at sewing start	0										0
S21	Crosswise compensation of eyelet	0	-	0	-	0	-	0	-	0	-	0
S22	Lengthwise compensation of eyelet	0										-
S23	Compensation of turning	0	-	0	-	0	-	0	-	0	-	0
S24	Compensation of turning of parallel section	0										0
S26	Compensation of straight bar width	-						0.0		-		-
S27	Overlapping amount of straight bar	-						1.5		-		-
S28	Compensation of X position of straight bar	-						0.0		-		-
S29	Compensation of inclination of straight bar	-						0		-		-
S31	Stitch pitch of fastening stitches of taper bar section at sewing end	-				50%		-				50 %
S32	Number of overlapped stitches of round bar	-								1		-
S33	Needle entries without cloth cutting knife	1	-	1	-	1	-	1	-	1	-	1
S34	Knife size for radial stitch eyelet	-										3.0
S35	Number of stitches of radial stitch eyelet	-										21
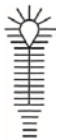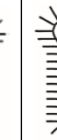
		S type, R type										
K71	Model setting	0 · 2 · 3 · 5 · 8 · 9 · 10										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=1 — Sewing length limit (10 ≦ S02 ≦ 38)										-
		Cut-before knife	Cut-after knife									Cut-after knife
S36	Number of overlapped stitches of radial stitch eyelet	-										2
S37	Sewing length of fastening stitches at sewing end	0						-				0
S38	Number of stitches of straight section of taper bar	-				3.10		-				3.10
S39	Program copying	OFF										OFF
S40	Shape of bartack	1				2		3		4		2
S42	Compensation of eyelet width	2.9	-	2.9	-	2.9	-	2.9	-	2.9	-	2.5
S43	Compensation of eyelet length	4.4	-	4.4	-	4.4	-	4.4	-	4.4	-	3.8
S60	Needle thread tension	60										60
S61	Compensation of needle thread tension of right parallel section	0										0
S62	Compensation of needle thread tension of left parallel section	0										0
S63	Compensation of needle thread tension of eyelet	0	-	0	-	0	-	0	-	0	-	0
S64	Compensation of needle thread tension of right bottom of eyelet	0	-	0	-	0	-	0	-	0	-	0
S65	Compensation of needle thread tension of left bottom of eyelet	0	-	0	-	0	-	0	-	0	-	0
S66	Compensation of needle thread tension of right bar tack	-				0		-				0
S67	Compensation of needle thread tension of left bar tack	-				0		-				0
S68	Compensation of needle thread tension of right bar tack 2	-				0		-				0
S69	Compensation of needle thread tension of left bar tack 2	-				0		-				0
S71	Compensation of needle thread tension at sewing start	0										0
S72	Compensation of needle thread tension at sewing end	0										0
S73	Compensation of needle thread tension at the time of thread trimming	0										0
S74	Compensation of needle thread tension at the time of stop	0										0
S75	Looper thread tension	50										50
S76	Compensation of looper thread tension of right parallel section	0										0
S77	Compensation of looper thread tension of left parallel section	0										0
S78	Compensation of looper thread tension of eyelet	0	-	0	-	0	-	0	-	0	-	0
S79	Compensation of looper thread tension of right bottom of eyelet	0	-	0	-	0	-	0	-	0	-	0
S80	Compensation of looper thread tension of left bottom of eyelet	0	-	0	-	0	-	0	-	0	-	0
S81	Compensation of looper thread tension of right bar tack	-				0		-				0
S82	Compensation of looper thread tension of left bar tack	-				0		-				0
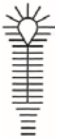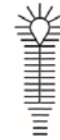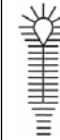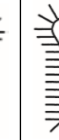
		S type, R type										
K71	Model setting	0 · 2 · 3 · 5 · 8 · 9 · 10										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=1 — Sewing length limit (10 ≤ S02 ≤ 38)										-
		Cut-before knife	Cut-after knife									Cut-after knife
S83	Compensation of looper thread tension of right bar tack 2	-				0		-				0
S84	Compensation of looper thread tension of left bar tack 2	-				0		-				0
S86	Compensation of looper thread tension at sewing start	0										0
S87	Compensation of looper thread tension at sewing end	0										0
S88	Compensation of looper thread tension at the time of thread trimming	0										0
S89	Compensation of looper thread tension at the time of stop	0										0
S90	Cut length compensation	0										0
S91	Multiple times selection	0	1	0	1	0	1	0	1	0	1	0
S92	Lock stitch buttonhole offset	-	0	-	0.0	-	0.0	-	0.0	-	0.0	-
S101	Knife pressure setting 1	70										70
S102	Knife pressure setting 2	50										50
S103	Knife pressure setting 3	50										50
S105	Lengthwise compensation of left eyelet	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
S106	Lengthwise compensation of left parallel section	0.0										0.0
S107	Setting of needle throwing width at the right bottom of eyelet	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
S108	Setting of needle throwing width at the left bottom of eyelet	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
S112	Number of stitches with thread tension at sewing start	1										1
S113	Number of stitches with thread tension at sewing end	1										1
S115	Needle throwing width of round bar	-								0.0		-
S116	Needle gauge of upper eyelet	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
S118	Reduced speed of round bar	0										0

K71	Model setting	J type										
		1 · 4										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (option) Sewing length limit (16 ≦ S02 ≦ 26)			U87=3 (standard) Sewing length limit (24 ≦ S02= ≦ 32)				U87=4 (option) Sewing length limit (32 ≦ S02 ≦ 42)			-
		Cut-after knife			Cut-be-fore knife	Cut-after knife			Cut-after knife			Cut-after knife
S01	Sewing speed	1800			1800				1800			1800
S02	Sewing length	24.0	22.0		28.0		26.0		38.0	36.0		-
S03	Cut space	0.3			0.0	0.3			0.3			0.4
S04	Stitch pitch	1.3			1.3				1.3			-
S05	Number of stitches of eyelet	9			9				9			-
S06	Taper bar length	6	-		6	-			6	-		6
S07	Offset	1.5	-		1.5	-			1.5	-		1.5
S08	Straight bar length	-	7.0	-	-	-	7.0	-	-	7.0	-	-
S09	Number of stitches of straight bar	-	8	-	-	-	8	-	-	8	-	-
S10	Number of stitches of round bar	-		5	-			5	-		5	-
S11	Knife No.	3			3				3			7
S12	Compensation of needle throwing width of parallel section	0.0			0.0				0.0			0.0
S13	Reduced speed of eyelet	0			0				0			-
S14	Speed of straight bar section	-	1800	-	-	-	1800	-	-	1800	-	-
S15	Soft start	2			2				2			2
S17	X compensation of sewing position	0.0			0.0				0.0			-
S18	Y compensation of sewing position	0.0			0.0				0.0			-
S19	Number of fastening stitches at sewing start	0			0				0			0
S20	Number of fastening stitches at sewing start	0			0				0			0
S21	Crosswise compensation of eyelet	0			0				0			0
S22	Lengthwise compensation of eyelet	0			0				0			-
S23	Compensation of turning	0			0				0			0
S24	Compensation of turning of parallel section	0			0				0			0
S26	Compensation of straight bar width	-	-0.5	-	-	-	-0.5	-	-	-0.5	-	-
S27	Overlapping amount of straight bar	-	1.5	-	-	-	1.5	-	-	1.5	-	-
S28	Compensation of X position of straight bar	-	0.0	-	-	-	0.0	-	-	0.0	-	-
S29	Compensation of inclination of straight bar	-	0	-	-	-	0	-	-	0	-	-
S31	Stitch pitch of fastening stitches of taper bar section at sewing end	50%	-		50%	-			50%	-		50%
S32	Number of overlapped stitches of round bar	-		1	-			1	-		1	-
S33	Needle entries without cloth cutting knife	1			1				1			1
S34	Knife size for radial stitch eyelet	-			-				-			3.0
S35	Number of stitches of radial stitch eyelet	-			-				-			21
S36	Number of overlapped stitches of radial stitch eyelet	-			-				-			2

		J type										
K71	Model setting	1 · 4										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (option) Sewing length limit (16 ≤ S02 ≤ 26)			U87=3 (standard) Sewing length limit (24 ≤ S02= ≤ 32)				U87=4 (option) Sewing length limit (32 ≤ S02 ≤ 42)			-
		Cut-after knife			Cut-before knife	Cut-after knife			Cut-after knife			Cut-after knife
S37	Sewing length of fastening stitches at sewing end	0	-	-	0	0	-	-	0	-	-	0
S38	Number of stitches of straight section of taper bar	3.10	-	-	3.10	3.10	-	-	3.10	-	-	3.10
S39	Program copying	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
S40	Shape of bartack	2	3	4	2	2	3	4	2	3	4	2
S42	Compensation of eyelet width	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.5
S43	Compensation of eyelet length	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.8
S60	Needle thread tension	60	60	60	60	60	60	60	60	60	60	60
S61	Compensation of needle thread tension of right parallel section	0	0	0	0	0	0	0	0	0	0	0
S62	Compensation of needle thread tension of left parallel section	0	0	0	0	0	0	0	0	0	0	0
S63	Compensation of needle thread tension of eyelet	0	0	0	0	0	0	0	0	0	0	0
S64	Compensation of needle thread tension of right bottom of eyelet	0	0	0	0	0	0	0	0	0	0	0
S65	Compensation of needle thread tension of left bottom of eyelet	0	0	0	0	0	0	0	0	0	0	0
S66	Compensation of needle thread tension of right bar tack	0	-	-	0	0	-	-	0	-	-	0
S67	Compensation of needle thread tension of left bar tack	0	-	-	0	0	-	-	0	-	-	0
S68	Compensation of needle thread tension of right bar tack 2	0	-	-	0	0	-	-	0	-	-	0
S69	Compensation of needle thread tension of left bar tack 2	0	-	-	0	0	-	-	0	-	-	0
S71	Compensation of needle thread tension at sewing start	0	0	0	0	0	0	0	0	0	0	0
S72	Compensation of needle thread tension at sewing end	0	0	0	0	0	0	0	0	0	0	0
S73	Compensation of needle thread tension at the time of thread trimming	0	0	0	0	0	0	0	0	0	0	0
S74	Compensation of needle thread tension at the time of stop	0	0	0	0	0	0	0	0	0	0	0
S75	Looper thread tension	50	50	50	50	50	50	50	50	50	50	50
S76	Compensation of looper thread tension of right parallel section	0	0	0	0	0	0	0	0	0	0	0
S77	Compensation of looper thread tension of left parallel section	0	0	0	0	0	0	0	0	0	0	0
S78	Compensation of looper thread tension of eyelet	0	0	0	0	0	0	0	0	0	0	0
S79	Compensation of looper thread tension of right bottom of eyelet	0	0	0	0	0	0	0	0	0	0	0
S80	Compensation of looper thread tension of left bottom of eyelet	0	0	0	0	0	0	0	0	0	0	0
S81	Compensation of looper thread tension of right bar tack	0	-	-	0	0	-	-	0	-	-	0
S82	Compensation of looper thread tension of left bar tack	0	-	-	0	0	-	-	0	-	-	0
S83	Compensation of looper thread tension of right bar tack 2	0	-	-	0	0	-	-	0	-	-	0

K71	Model setting	J type										
		1 · 4										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (option) Sewing length limit (16 ≦ S02 ≦ 26)			U87=3 (standard) Sewing length limit (24 ≦ S02= ≦ 32)				U87=4 (option) Sewing length limit (32 ≦ S02 ≦ 42)			-
		Cut-after knife			Cut-before knife	Cut-after knife			Cut-after knife			Cut-after knife
S84	Compensation of looper thread tension of left bar tack 2	0	-		0		-		0	-		0
S86	Compensation of looper thread tension at sewing start	0			0				0			0
S87	Compensation of looper thread tension at sewing end	0			0				0			0
S88	Compensation of looper thread tension at the time of thread trimming	0			0				0			0
S89	Compensation of looper thread tension at the time of stop	0			0				0			0
S90	Cut length compensation	0.0			0.0				0.0			0.0
S91	Multiple times selection	0			0				0			0
S92	Lock stitch buttonhole offset	-			-				-			-
S101	Knife pressure setting 1	100			100				100			100
S102	Knife pressure setting 2	100			100				100			100
S103	Knife pressure setting 3	100			100				100			100
S105	Lengthwise compensation of left eyelet	0.0			0.0				0.0			0.0
S106	Lengthwise compensation of left parallel section	0.0			0.0				0.0			0.0
S107	Setting of needle throwing width at the right bottom of eyelet	0.0			0.0				0.0			0.0
S108	Setting of needle throwing width at the left bottom of eyelet	0.0			0.0				0.0			0.0
S112	Number of stitches with thread tension at sewing start	1			1				1			1
S113	Number of stitches with thread tension at sewing end	1			1				1			1
S115	Needle throwing width of round bar	-		0.0	-			0.0	-		0.0	-
S116	Needle gauge of upper eyelet	0.0			0.0				0.0			0.0
S118	Reduced speed of round bar	0			0				0			0

		C type										
K71	Model setting	6										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (standard) Sewing length limit (16 ≦ S02 ≦ 26)			U87=3 (option) Sewing length limit (24 ≦ S02= ≦ 32)				U87=4 (option) Sewing length limit (32 ≦ S02 ≦ 42)			-
		Cut-after knife			Cut-be-fore knife	Cut-after knife			Cut-after knife			Cut-after knife
S01	Sewing speed	1800			1800				1800			1800
S02	Sewing length	24.0	22.0		28.0		26.0		38.0	36.0		-
S03	Cut space	0.3			0.0	0.3			0.3			0.4
S04	Stitch pitch	1.3			1.3				1.3			-
S05	Number of stitches of eyelet	9			9				9			-
S06	Taper bar length	6	-		6	-			6	-		6
S07	Offset	1.5	-		1.5	-			1.5	-		1.5
S08	Straight bar length	-	5.0	-	-	5.0		-	-	5.0	-	-
S09	Number of stitches of straight bar	-	6	-	-	6		-	-	6	-	-
S10	Number of stitches of round bar	-		5	-			5	-		5	-
S11	Knife No.	3			3				3			7
S12	Compensation of needle throwing width of parallel section	0.0			0.0				0.0			0.0
S13	Reduced speed of eyelet	0			0				0			-
S14	Speed of straight bar section	-	1800	-	-	1800		-	-	1800	-	-
S15	Soft start	2			2				2			2
S17	X compensation of sewing position	0.0			0.0				0.0			-
S18	Y compensation of sewing position	0.0			0.0				0.0			-
S19	Number of fastening stitches at sewing start	0			0				0			0
S20	Number of fastening stitches at sewing start	0			0				0			0
S21	Crosswise compensation of eyelet	0			0				0			0
S22	Lengthwise compensation of eyelet	0			0				0			-
S23	Compensation of turning	0			0				0			0
S24	Compensation of turning of parallel section	0			0				0			0
S26	Compensation of straight bar width	-	0	-	-	0		-	-		-	-
S27	Overlapping amount of straight bar	-	1.5	-	-	1.5		-	-	1.5	-	-
S28	Compensation of X position of straight bar	-	0.0	-	-	0.0		-	-	0.0	-	-
S29	Compensation of inclination of straight bar	-	0	-	-	0		-	-	0	-	-
S31	Stitch pitch of fastening stitches of taper bar section at sewing end	50%	-		50%	-			50%	-		50%
S32	Number of overlapped stitches of round bar	-		1	-			1	-		1	-
S33	Needle entries without cloth cutting knife	1			1				1			1
S34	Knife size for radial stitch eyelet	-			-				-			3.0
S35	Number of stitches of radial stitch eyelet	-			-				-			21
S36	Number of overlapped stitches of radial stitch eyelet	-			-				-			2

		C type										
K71	Model setting	6										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (standard) Sewing length limit (16 ≤ S02 ≤ 26)			U87=3 (option) Sewing length limit (24 ≤ S02= ≤ 32)				U87=4 (option) Sewing length limit (32 ≤ S02 ≤ 42)			-
		Cut-after knife			Cut-before knife	Cut-after knife			Cut-after knife			Cut-after knife
S37	Sewing length of fastening stitches at sewing end	0	-		0		-		0	-		0
S38	Number of stitches of straight section of taper bar	3.10	-		3.10		-		3.10	-		3.10
S39	Program copying	OFF			OFF				OFF			OFF
S40	Shape of bartack	2	3	4	2		3	4	2	3	4	2
S42	Compensation of eyelet width	2.9			2.9				2.9			2.5
S43	Compensation of eyelet length	4.4			4.4				4.4			3.8
S60	Needle thread tension	60			60				60			60
S61	Compensation of needle thread tension of right parallel section	0			0				0			0
S62	Compensation of needle thread tension of left parallel section	0			0				0			0
S63	Compensation of needle thread tension of eyelet	0			0				0			0
S64	Compensation of needle thread tension of right bottom of eyelet	0			0				0			0
S65	Compensation of needle thread tension of left bottom of eyelet	0			0				0			0
S66	Compensation of needle thread tension of right bar tack	0	-		0		-		0	-		0
S67	Compensation of needle thread tension of left bar tack	0	-		0		-		0	-		0
S68	Compensation of needle thread tension of right bar tack 2	0	-		0		-		0	-		0
S69	Compensation of needle thread tension of left bar tack 2	0	-		0		-		0	-		0
S71	Compensation of needle thread tension at sewing start	0			0				0			0
S72	Compensation of needle thread tension at sewing end	0			0				0			0
S73	Compensation of needle thread tension at the time of thread trimming	0			0				0			0
S74	Compensation of needle thread tension at the time of stop	0			0				0			0
S75	Looper thread tension	50			50				50			50
S76	Compensation of looper thread tension of right parallel section	0			0				0			0
S77	Compensation of looper thread tension of left parallel section	0			0				0			0
S78	Compensation of looper thread tension of eyelet	0			0				0			0
S79	Compensation of looper thread tension of right bottom of eyelet	0			0				0			0
S80	Compensation of looper thread tension of left bottom of eyelet	0			0				0			0
S81	Compensation of looper thread tension of right bar tack	0	-		0		-		0	-		0
S82	Compensation of looper thread tension of left bar tack	0	-		0		-		0	-		0
S83	Compensation of looper thread tension of right bar tack 2	0	-		0		-		0	-		0

		C type										
K71	Model setting	6										
	Pattern number	1	2	3	4	5	6	7	8	9	10	11
MEB 3200C	Configuration											
U87	Presser foot type	U87=2 (standard) Sewing length limit (16 ≦ S02 ≦ 26)			U87=3 (option) Sewing length limit (24 ≦ S02= ≦ 32)				U87=4 (option) Sewing length limit (32 ≦ S02 ≦ 42)			-
		Cut-after knife			Cut-before knife	Cut-after knife			Cut-after knife			Cut-after knife
S84	Compensation of looper thread tension of left bar tack 2	0	-	-	0	-	-	-	0	-	-	0
S86	Compensation of looper thread tension at sewing start	0			0				0			0
S87	Compensation of looper thread tension at sewing end	0			0				0			0
S88	Compensation of looper thread tension at the time of thread trimming	0			0				0			0
S89	Compensation of looper thread tension at the time of stop	0			0				0			0
S90	Cut length compensation	0.0			0.0				0.0			0.0
S91	Multiple times selection	0			0				0			0
S92	Lock stitch buttonhole offset	-			-				-			-
S101	Knife pressure setting 1	100			100				100			100
S102	Knife pressure setting 2	100			100				100			100
S103	Knife pressure setting 3	100			100				100			100
S105	Lengthwise compensation of left eyelet	0.0			0.0				0.0			0.0
S106	Lengthwise compensation of left parallel section	0.0			0.0				0.0			0.0
S107	Setting of needle throwing width at the right bottom of eyelet	0.0			0.0				0.0			0.0
S108	Setting of needle throwing width at the left bottom of eyelet	0.0			0.0				0.0			0.0
S112	Number of stitches with thread tension at sewing start	1			1				1			1
S113	Number of stitches with thread tension at sewing end	1			1				1			1
S115	Needle throwing width of round bar	-	0.0		-		0.0		-		0.0	-
S116	Needle gauge of upper eyelet	0.0			0.0				0.0			0.0
S118	Reduced speed of round bar	0			0				0			0

16. OPTIONS

(1) Installing the center marking light

| ⚠	**WARNING :** Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

⚠	**DANGER :** 1. **Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.** 2. **Never perform installing/removing of the marking lamp with the power turning ON.** **In addition, do not use the light other than marking.**

Caution	**The center marking light cannot be installed to the R type.**

To the electrical control box

To the arm A'
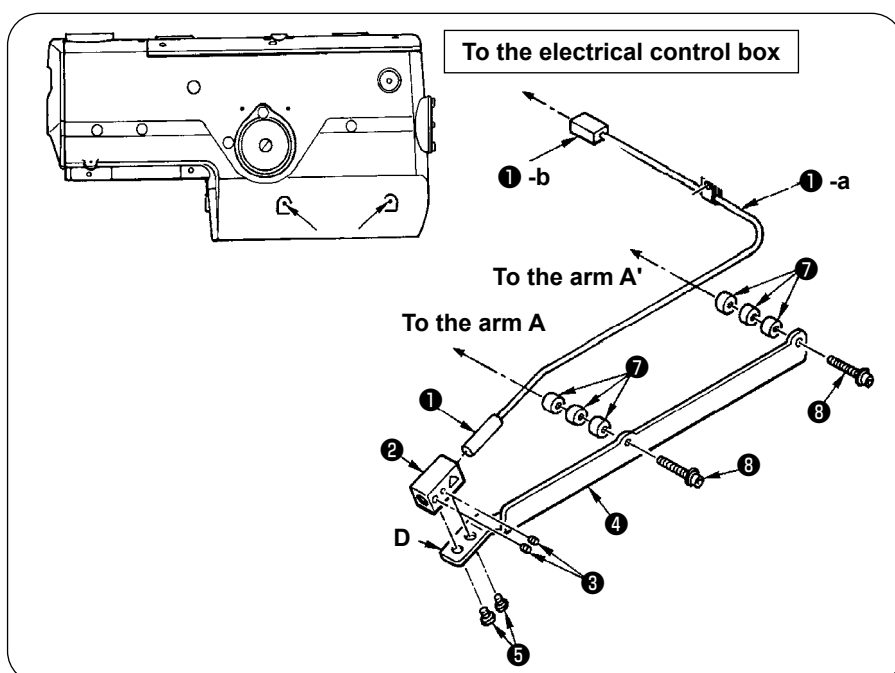
To the arm A

1) Do not look directly into the laser beam from laser marking projector ❶ .
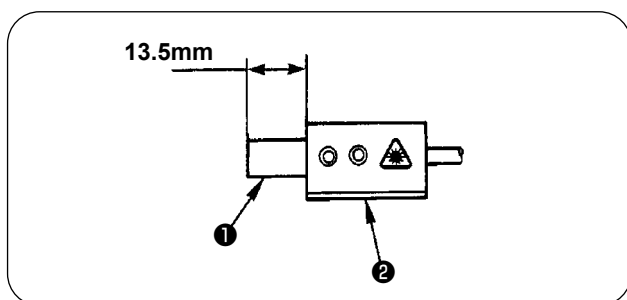
13.5mm

2) Adjust so that the tip of laser marking projector ❶ projects from marking light mounting base ❷ by approximately 13.5 mm.
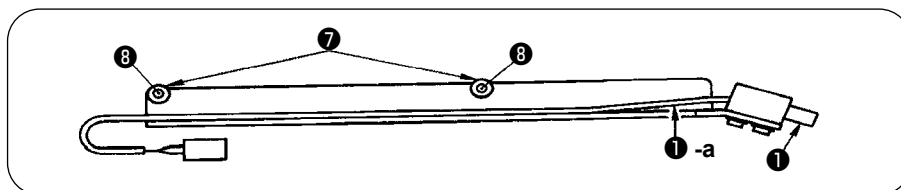
3) When installing the marking light to the arm, put cable ❶ -a of laser marking projector ❶ under marking light mounting plate boss ❼ to prevent it from being caught in the arm.

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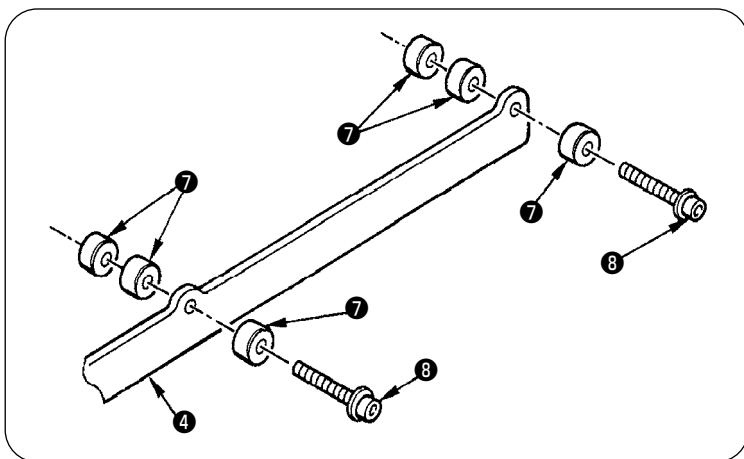
4) After you have installed the marking light to the arm, arrange marking light mounting plate boss ❼ as shown in the figure if the center of section D of marking light mounting plate ❹ is placed closer to the right side from the needle core by approximately 7 mm when viewed from the frame.

(2) Fine adjustment of the laser marking projector

### ■ Adjusting the optical axis of the laser marking projector

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

DANGER :
1. **Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**
2. **Never perform installing/removing of the marking lamp with the power turning ON. In addition, do not use the light other than marking.**
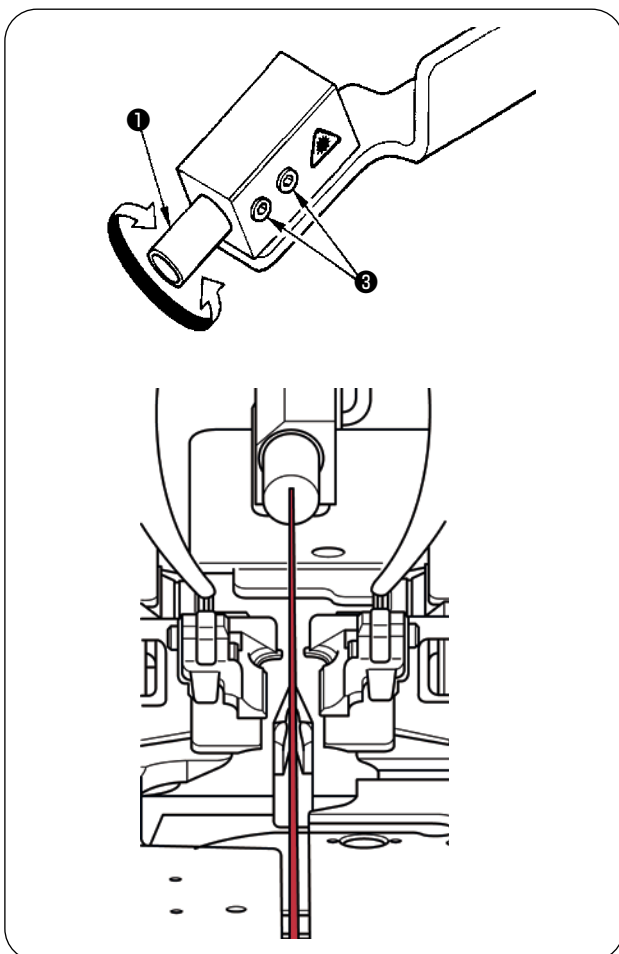
1) Loosen setscrews ❸ (at two locations) of the laser marking projector.
2) Turn laser marking projector ❶ in the direction of the arrow to adjust so that the laser beam is perpendicular to the top surface of the bed.
3) Tighten setscrews ❸ (at two locations) of the laser marking projector to secure it.

○ **In the case the optical axis of the laser beam is out of position**
1. **The laser beam is irradiated to the sewing material at an angle.**
2. **The irradiation position of the laser beam cannot be adjusted to the top of the needle core.**

Caution **Do not look directly into the laser beam from laser marking projector ❶ .**

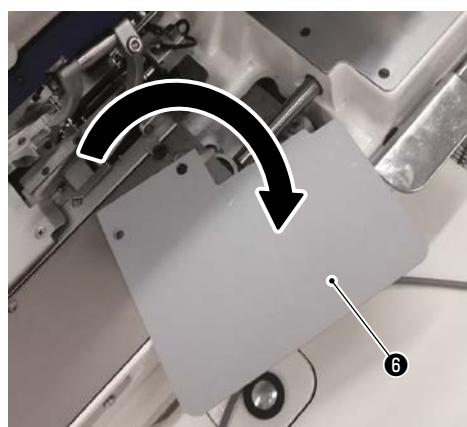# ■ Adjusting the position of the laser marking projector in the lateral direction (1)

WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

DANGER :
1. Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
2. Never perform installing/removing of the marking lamp with the power turning ON.
   In addition, do not use the light other than marking.
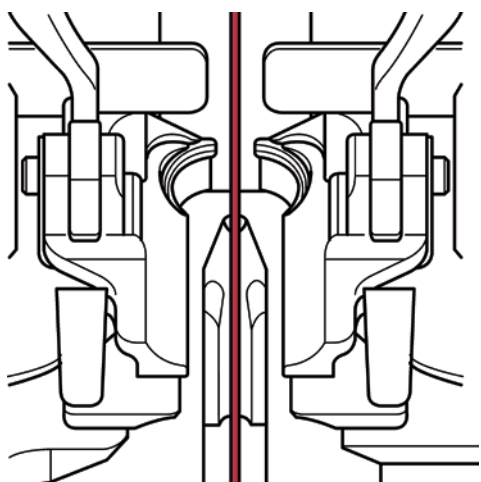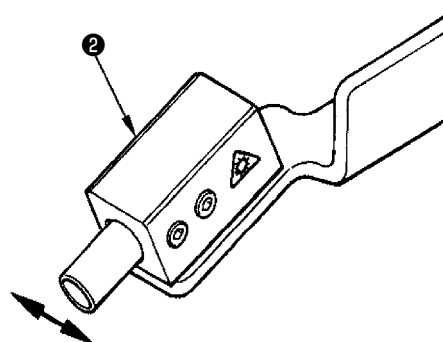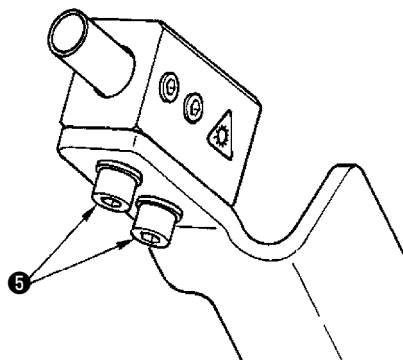
Loosen setscrew ❺ of the marking light mounting base and adjust marking light mounting base ❷ so that the laser beam emitted from the laser marking projector irradiates the center of the hole of the cloth cutting knife (eyelet) and the cloth cutting knife (straight).

Secure the laser marking projector by tightening setscrew ❺ of the marking light mounting base.

If you find it difficult to fit a hexagonal wrench key to marking light mounting base setscrew ❺ to loosen/tighten it, remove setscrew ❾ of moving cover ❻ and turn moving cover ❻ to shift it as shown in the figure below.

■ Adjusting the position of the laser marking projector in the lateral direction (2)

> **WARNING :**
> Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

> **DANGER :**
> 1. Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
> 2. Never perform installing/removing of the marking lamp with the power turning ON.
>   In addition, do not use the light other than marking.

Adjust the position of marking light mounting plate ❹ and the protruding amount of laser marking projector ❶ so that the laser beam can reach the origin position of the cloth cutting knife in use.

13.5mm or less
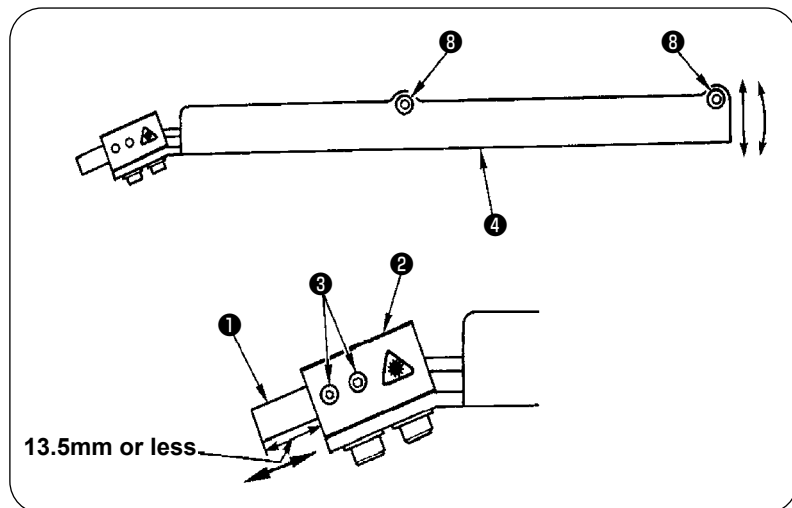
1) Loosen the marking light mounting base setscrews (at two locations).
2) Move the marking light mounting base in the direction of the arrow to adjust so that the laser beam irradiates the needle core.

○ **In the case the laser light shifts to the right or left**
1. **The laser beam does is not aligned with the sewing position.**

3) Loosen the marking light mounting plate setscrews (at two locations).
4) Move the marking light mounting plate up and down or in the rotational direction as shown with the arrow to adjust so that the laser beam reaches the origin position of the sewing machine in use.
5) If the laser beam irradiation position cannot be correctly adjusted only by adjusting the position of the marking light mounting plate, loosen laser marking projector setscrews (at two locations) and move the laser marking projector in the direction of the arrow to adjust so that the laser beam reaches the origin position of the sewing machine in use.

> **Caution** Adjust the projecting amount of the laser marking projector from the marking light mounting base to 15 mm or less.
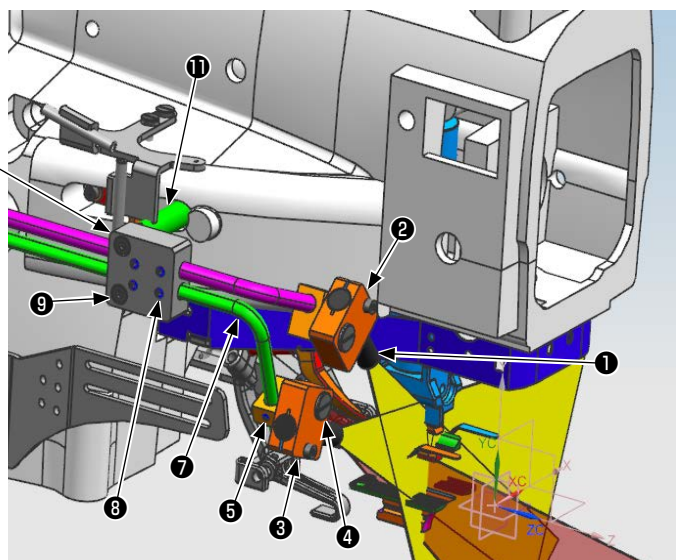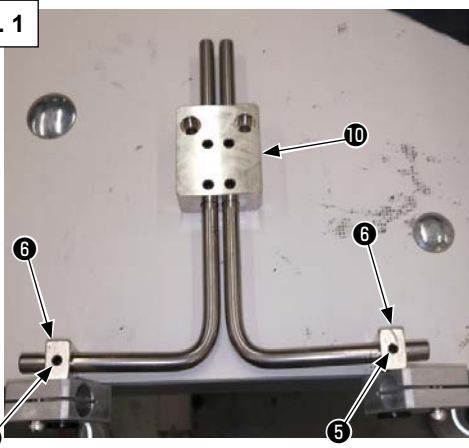
(3) Installing the side marking light

1) Do not look directly into the laser beam from laser marking projector ❶ .

2) Put the laser marking side asm. (40261862) on a flat surface such as the table.
   - **Put the laser marking side asm. on a flat surface so that four tapped holes and two counterbores of laser marking mounting base ❿ face upward as shown in Fig. 1.**
   - **Put the laser marking side asm. on a flat surface so that screws ❺ on both sides of fixing holder B ❻ face upward as shown in Fig. 1.**
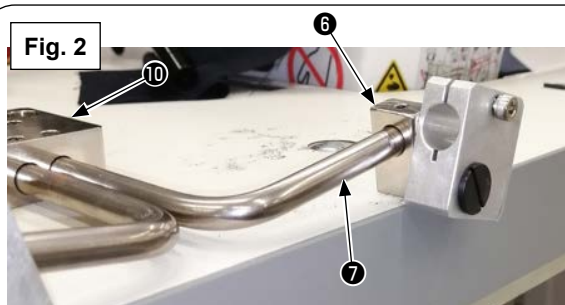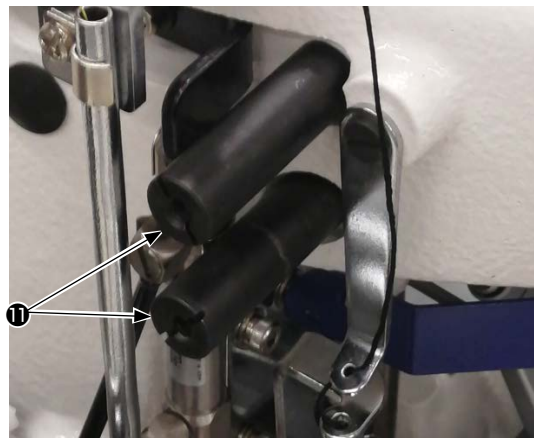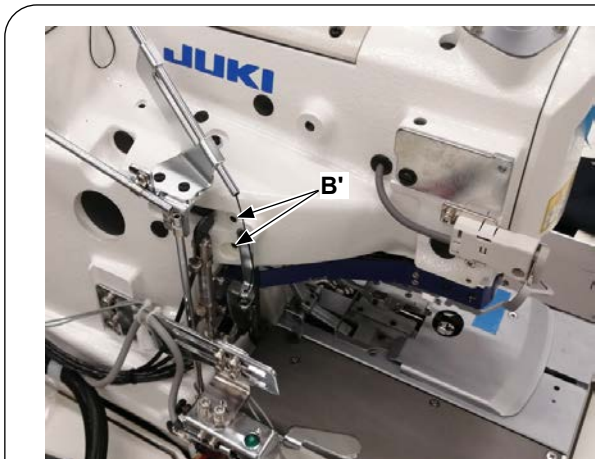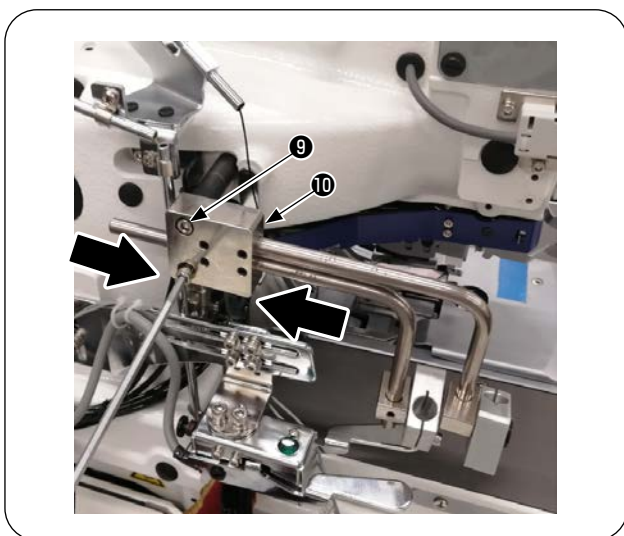
3) If the laser marking side asm. is put as shown in Fig. 1, fixing holder B ❻ will be perpendicular to fixing shaft ❼ as shown in Fig. 2.

- 107 -
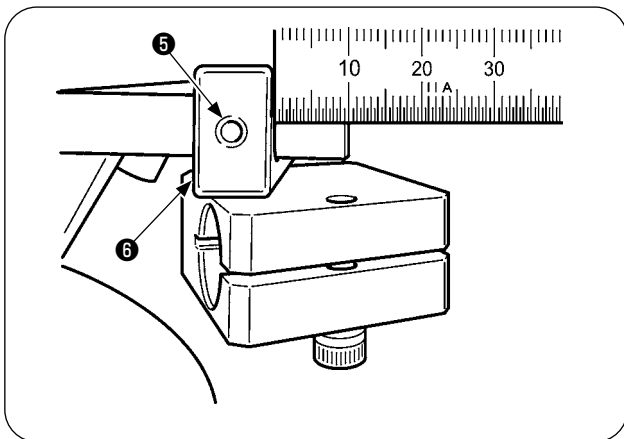
4) Keeping the laser marking side asm. in the arrangement shown in Fig. 1, adjust the projecting amount of right and left fixing shafts ❼ from fixing holder B ❻ to 10 mm and tighten screws ❺ .
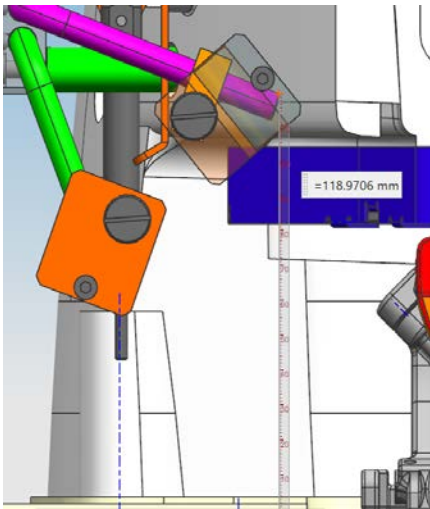
5) Tighten two stud bolts ⓫ in arm tap holes B'.

6) Secure laser marking side asm. (40261862) to two arm stud bolts ⓫ with two screws ❾ .

> It is recommended to secure the laser marking side asm. while shifting the laser marking mounting base to the right or left so as to make it easier to correct parallelism between the fixing shaft and the bed.
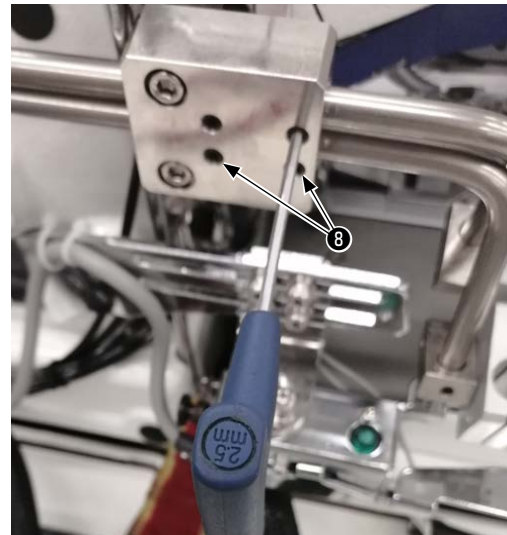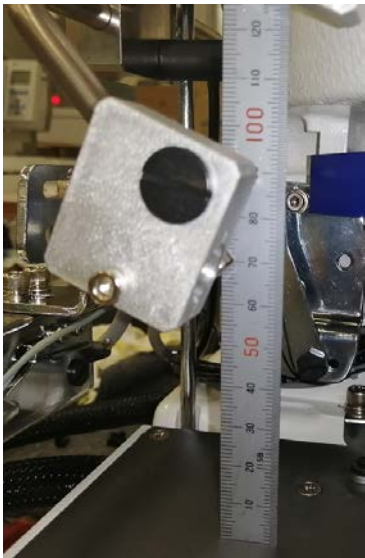
Reference value

    43 mm (origin position of the cloth plate)
    65 mm (When setting the marking light in front of the cloth plate)

7) Adjust the distance from the cloth plate to the top end of the upper side of the fixing shaft to 115 to 120 mm. Then, temporarily tighten screw ❽ .
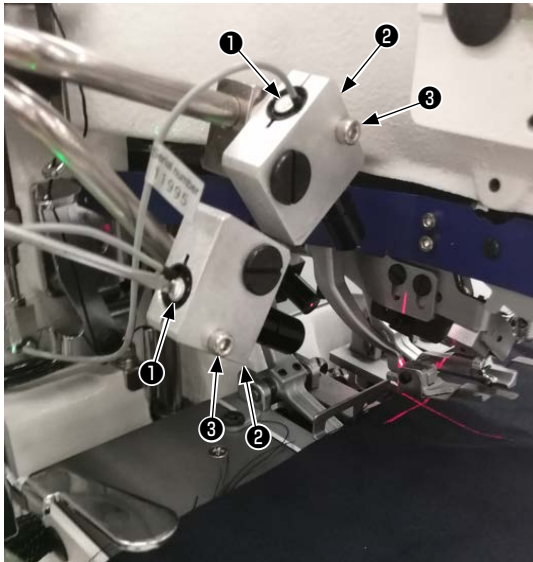
> ✎ **Adjust the distance from laser marking mounting base ❿ to fixing shaft ❼ to 43 to 65 mm.**

8) Adjust the distance from the cloth plate to the top end of the lower side of the fixing shaft to 65 to 70 mm. Then, temporarily tighten screw ❽ .

> ✎ **Adjust the distance from laser marking mounting base ❿ to fixing shaft ❼ to 43 to 65 mm.**

9) Install marking light ❶ to fixing holder A ❷ .

・ **At both the top and bottom of the marking light, align fixing holder A ❷ with the end face of the cable side of marking light ❶ . In this state, temporarily tighten screw ❸ .**

> **It is recommended to direct the cable toward the operator or to the opposite side of the operator as to make the laser beam almost perpendicular to the cloth plate.**

10) Carry out wiring of marking light ❶ .

> **Routing of wiring and securing of wiring with a cable clip band shown in the figure are only for reference. No problem will be caused if you route the wiring and secure it with a cable clip as you like.**
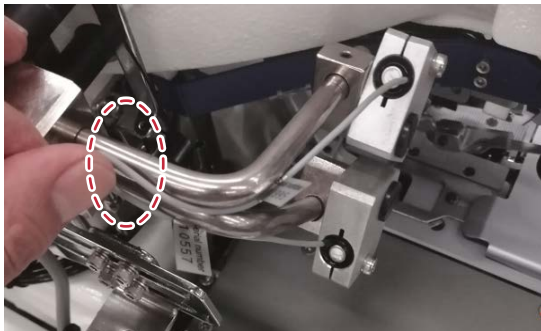
Bind the wiring with a cable clip band at both top and bottom of the marking light around the red-circle section in the left figure.

> **If you bind the wiring too strongly, the cables may be tensed or slackened when adjusting the position of the marking light later. To prevent this, bind the cables to such an extent that the cable can be moved.**

Bind the wiring around the red-circle section in the left figure.

> **If you bind the wiring too strongly, the cables may be tensed or slackened when adjusting the position of the marking light later. To prevent this, bind the cables to such an extent that the cable can be moved.**

Carry out wiring of the center marking light. Bind the wiring around the red-circle section in the left figure.

> **⚠ Caution**
>
> **If you bind the wiring too strongly, the cables may be tensed or slackened when adjusting the position of the marking light later. To prevent this, bind the cables to such an extent that the cable can be moved.**


Bind the wiring of the center marking light and side marking light around the red-circle section in the left figure.

> **⚠ Caution**
>
> **If you bind the wiring too strongly, the cables may be tensed or slackened when adjusting the position of the marking light later. To prevent this, bind the cables to such an extent that the cable can be moved.**
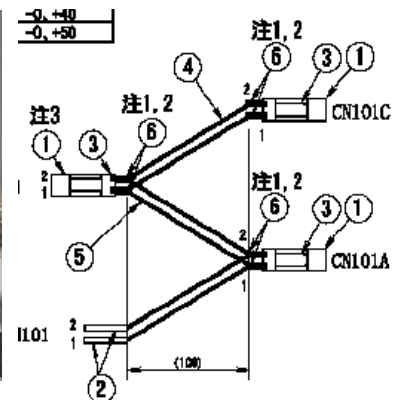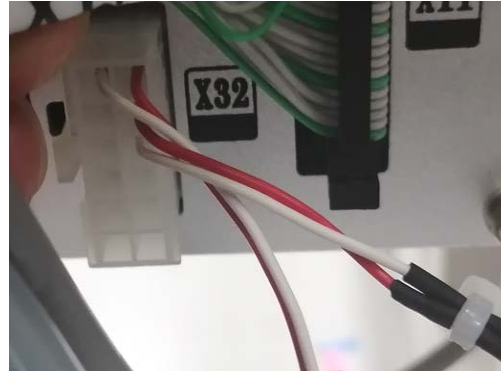
Wire the center marking light and side marking light together on the side of the arm, put them out on the bed side, and put them on the side of the bed and put them together with other cables.

7   1
No. 2 wiring red
No. 3 wiring black
12   6
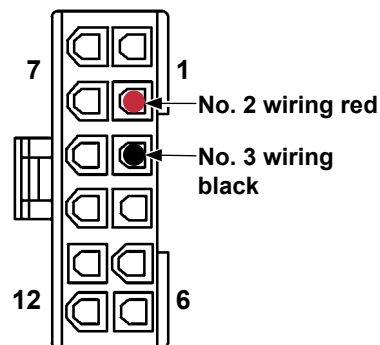
Insert the connector pin of the optional part Y': 40249308 (marking light junction cord asm.) into the connector hand light junction cable asm. Z' of the electrical control box X32.

LED light cable is the component installed as standard.

Three cables of marking light ❶
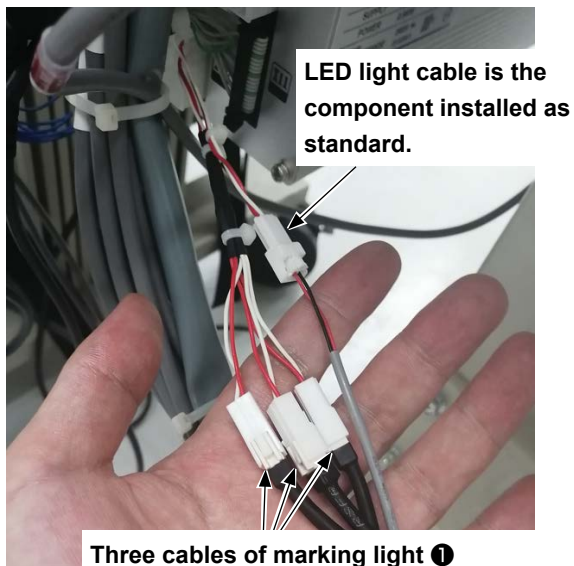
Insert the cable of marking light ❶ into the optional part Y': 40249308 (marking light junction cord asm.).

You may insert the cable into any of the three insertion holes of the optional part.

■ Adjusting the longitudinal position of the side marking light (1)

- **Adjusting the position of the upper marking light.**
- **Press the threading button (to lower the presser arm) before carrying out the adjustment in order to prevent the sewing machine from operating accidentally.**
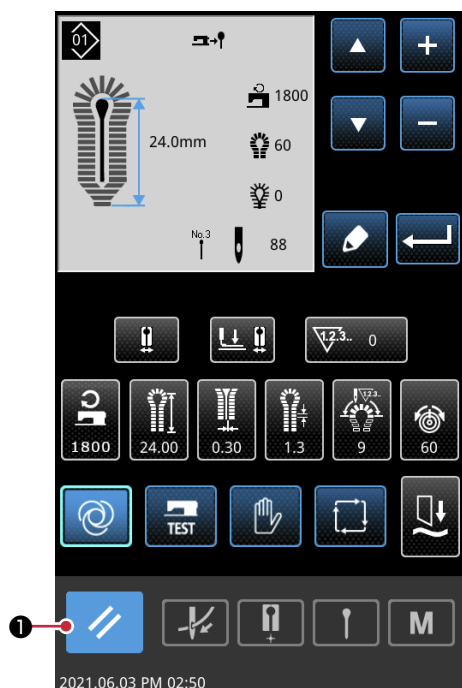
1) Press ⊣⊬ on the standard screen to enter the threading mode as shown in the left figure.

2) Press ⫽ ❶ under the threading mode to return to the standard screen.
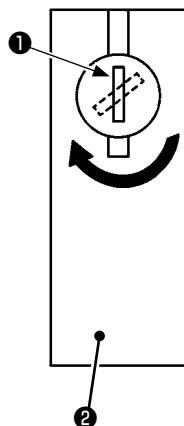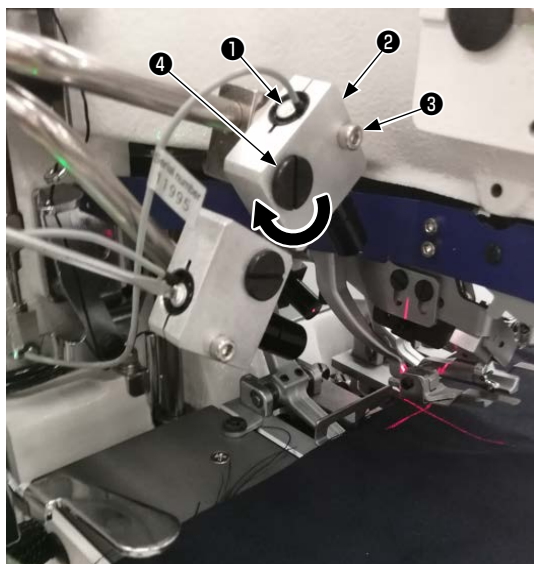
Fig. 1
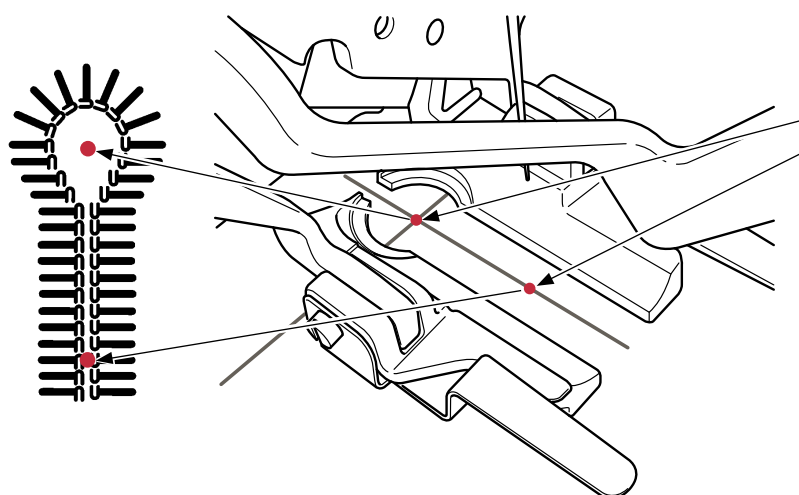
Align the sewing markers (points at two locations in the left figure), one with the center of the eyelet section and the other with the center of the parallel section, and adjust the upper and lower marking lights while checking the position of the finished seam.
When setting the position of the upper marking light, it is recommended to perform sewing under the "without cloth cutting knife" mode to easily confirm the positional relationship between the seam and the sewing markers.

Fig. 2

・ **Loosen screw ❹ to allow fixing holder A ❷ to turn around the center of screw ❹ . In this state, adjust the lateral position of the marking light with respect to the presser foot.**

・ **Loosen screw ❸ to allow marking light ❶ to turn as shown in Fig. 1. Bring the side marking light to the position at which it is perpendicular to the center marking light and tighten screw ❸ .**

・ **Loosen screw ❽ . Adjust the longitudinal position of the marking light. After the adjustment, tighten screw ❽ .**

◎ **The reference for sewing position may differ with the factory. Align the reference sewing position with the reference position of the marking light referring to Fig. 2.**
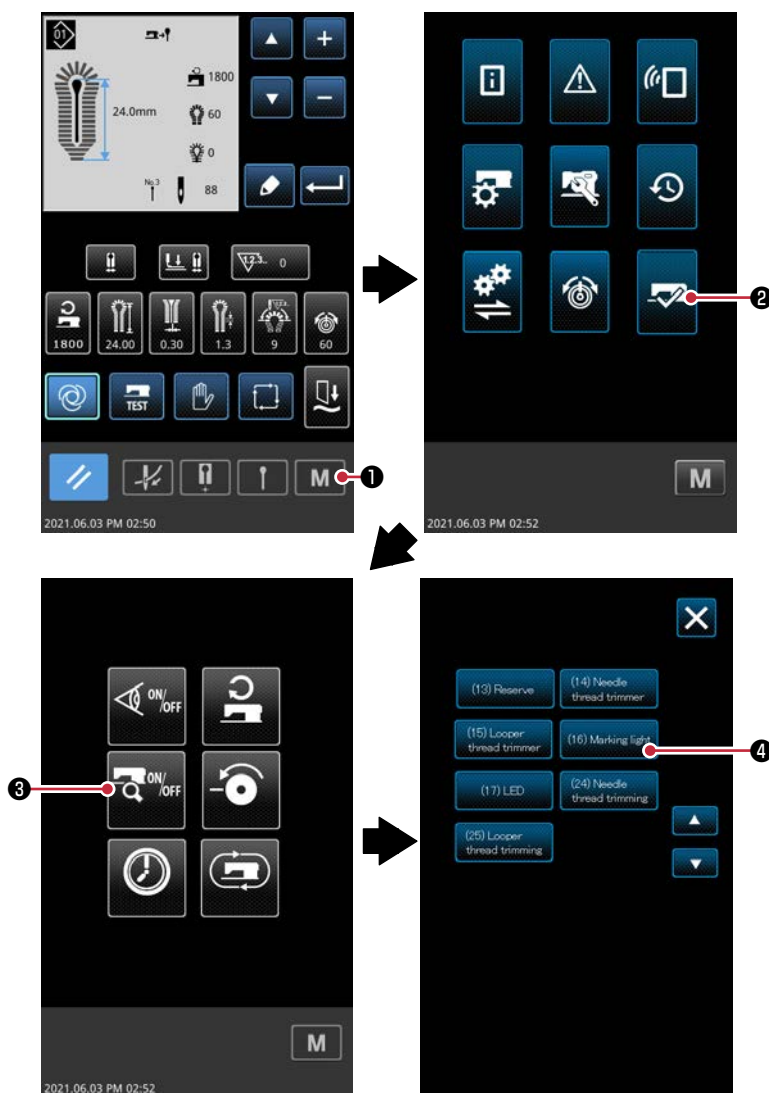
■ Adjusting the longitudinal position of the side marking light (2)

- ・Adjusting the position of the lower marking light.
- ・Be sure to carry out the following setting in order to prevent the sewing machine from operating accidentally.

1) Press **M** ❶ .

2) Press ❷ .

3) Press ❸ .

4) Press (16) Marking light ❹ to adjust the position of the marking light.

Fig. 1

Line of laser beam from the upper marking light

Line of laser beam from the lower marking light

Fig. 2
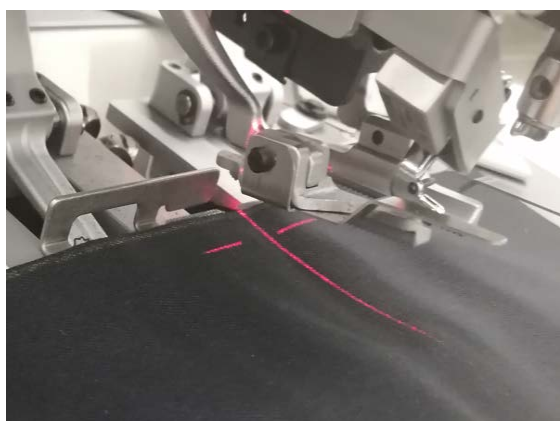
The marking light that has been adjusted with the presser foot lowered will block the laser beams that intersect with each other as shown in the red circle section in the figure when it the presser foot is lifted. Adjust the position of the marking light referring to Fig. 2.

When the laser beam lines of the upper and lower marking lights are aligned with each other as shown in Fig. 3, the laser beams emitted from the marking lights cross at the material setting position when lifting and lowering the presser foot.

Fig. 3

Loosen screw ❽ . Adjust the longitudinal position of the marking lights so that the laser beam line of the lower marking light is aligned with that of the upper marking light.

・ **Adjust the position of the lower marking light.**
・ **Lift the presser foot. In this state, align the laser beam line of the upper marking light and that of the lower marking light.**
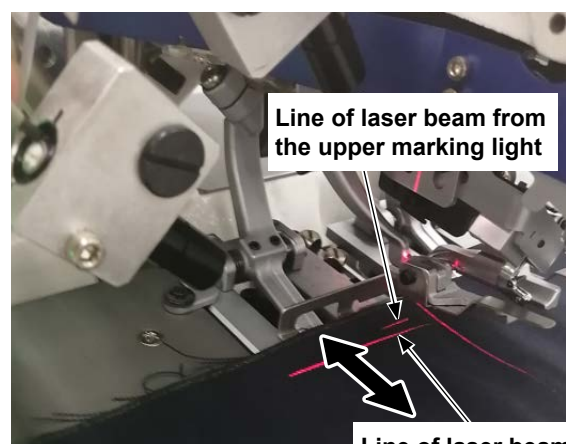・ **Loosen screw ❹ to allow fixing holder A ❷ to turn around the center of screw ❹ . In this state, adjust the lateral position of the marking light with respect to the presser foot.**
・ **Loosen screw ❸ to allow marking light ❶ to turn as shown in Fig. 1. Bring the side marking light to the position at which it is perpendicular to the center marking light and tighten screw ❸ .**
・ **Loosen screw ❽ . Adjust the longitudinal position of the marking light. After the adjustment, tighten screw ❽ .**

(4) Sewing radial stitch eyelets

[Radial stitch eyelet pattern (when replacing the knife and the knife holder only)]

		Standard	Multi-cut
Knife	D2	40017692	40247941
	D3	40017693	40247942
	D4	40054782	40247943
	D5	40056566	
Knife holder		40054781	
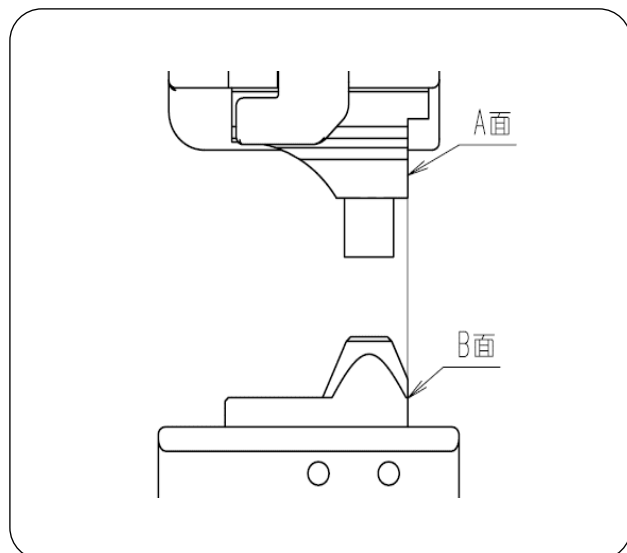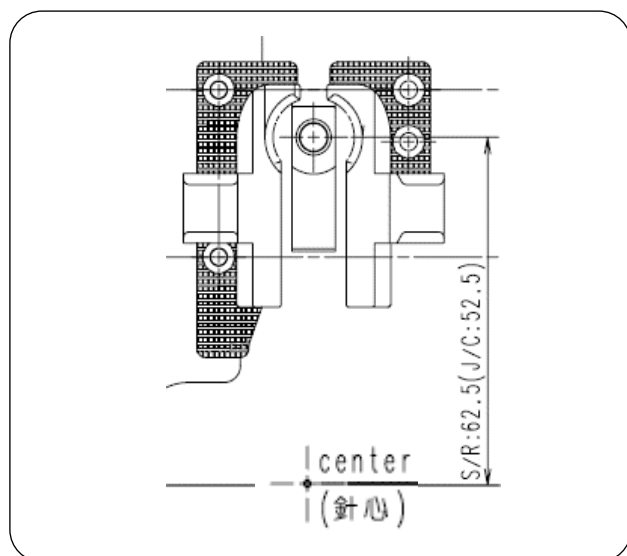
1) Replace the knife and the knife holder with those for radial stitch eyelets.
   Remove the knife stopper. Secure the knife so that the distance between the center of the needle bar and the center of the hole in the cloth cutting knife is equal to or smaller than the following.

   62.5mm (S/R)

   52.5mm (J/C)

* **For the multi-cut type knife and knife holder, it is not necessary to remove the knife stopper. Secure the cloth cutting knife while lightly pressing it against the knife stopper. (If you have removed the knife stopper, install the knife so that the distance between the core of the needle bar and the center of the knife hole is 52.5 mm.)**
   Then, remove the knife stopper. Secure the knife holder (side **A**) with aligned with the knife position (side **B**).

2) Turn the power ON. Select a radial stitch eyelet pattern.

3) Select the knife size with the "S034".

4) Check to make sure that the presser foot does not interfere with the needle and the cloth cutting knife under the TEST mode.

[Radial stitch eyelet (when using the optional presser foot/only for the S•R•multi-cut type)]

|		Standard	Multi-cut
Knife	D2	40017692	40247941
	D3	40017693	40247942
	D4	40054782	40247943
	D5	40056566	
Knife holder		40054781	
Presser foot		40054778	* Two pieces
Presser holder, left		40054779	
Presser holder, right		40054780	
Presser holder set-screw		SM1050301SC	* Four pieces

1) Replace the knife and the knife holder with those for radial stitch eyelets.

  * **When using the multi-cut type knife and the knife holder, remove the stopper only on the knife holder side, and secure the knife holder with aligned with the knife position.**
  (If you have removed the knife stopper, install the the knife holder so that the dimension described below is obtained.)
       60 mm (S/R)
       52.5 mm (Multi-cut)
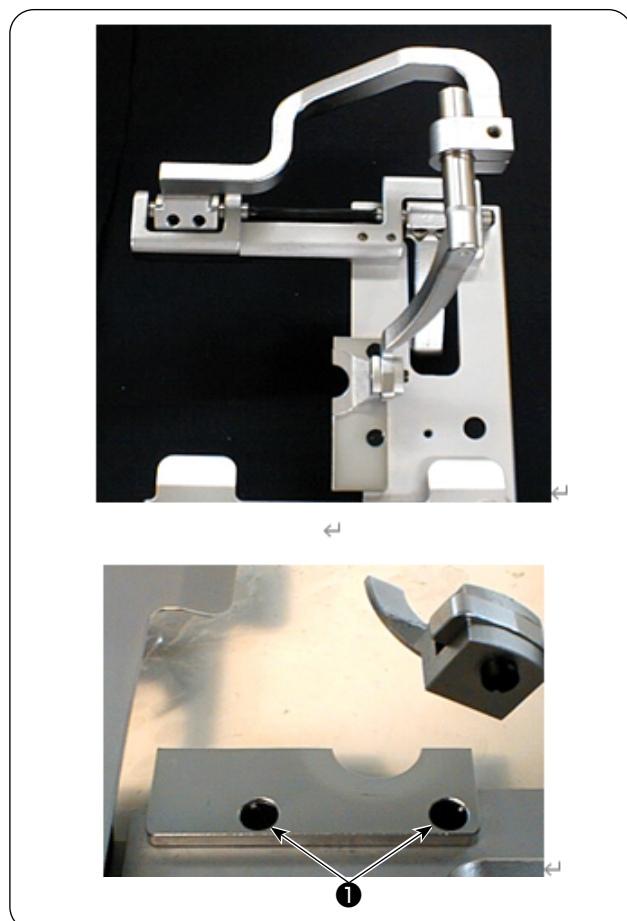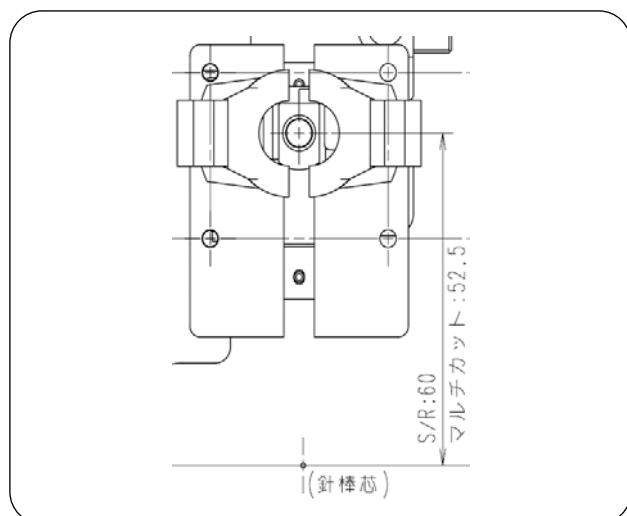
2) Replace the presser foot and the presser holders with those for radial stitch eyelets.

3) Install the presser foot and the presser holders for radial stitch eyelets so that they are positioned as shown in the figure on the left.

> ⚠ Caution
> **At this time, do not forget to attach a bent washer between the presser arm and the presser foot. (Refer to "9. Presser components (1)" and "11. Presser components (2) in the Parts List for the detailed position of the bent washer.)**

4) At this time, replace originally-installed presser holder setscrews ❶ with those with the part number SM1030501SC.
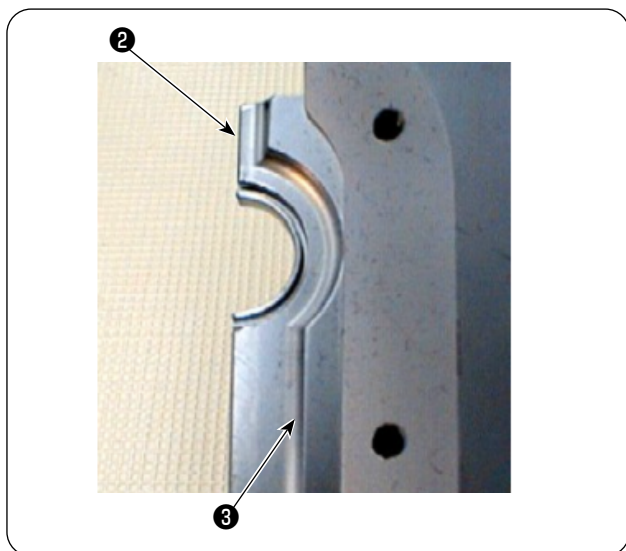
5) Adjust the distance between presser foot ❷ and presser holder ❸ so that they are evenly spaced.

6) Turn the power ON. Select a radial stitch eyelet pattern.

7) Select the knife size with the "S034".

8) Change the setting of the "U84 Adjustment of sewing table position" to "-25".

9) For the multi-cut type knife and the knife holder, select the following with the K40 (presser foot /cloth cutting knife offset).

4 : Radial stitch eyelet

10) Check to make sure that the presser foot does not interfere with the needle and the cloth cutting knife under the TEST mode.

Caution

Check the angle of the presser foot when the work clamp clamps the material.

If the work clamp clamps the material with the presser foot tilted toward you, the presser foot may fail to hold the material at a correct angle to cause needle breakage or a damage to the cloth cutting knife.

Reference
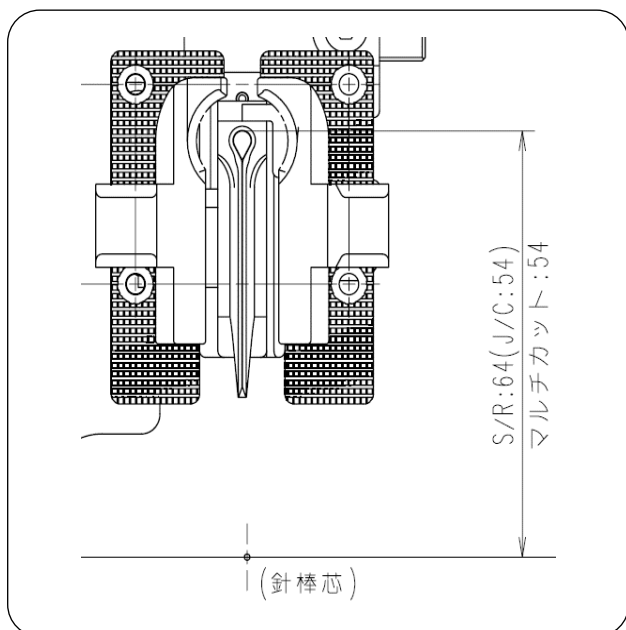
If you want to return the pattern from the radial stitch eyelet pattern to the eyelet pattern, install the cloth cutting knife so that the distance between the core of the needle bar core and the edge of the cloth cutting knife hole is as described below.

64 mm (S/R)

54 mm (J/C/Multi-cut)
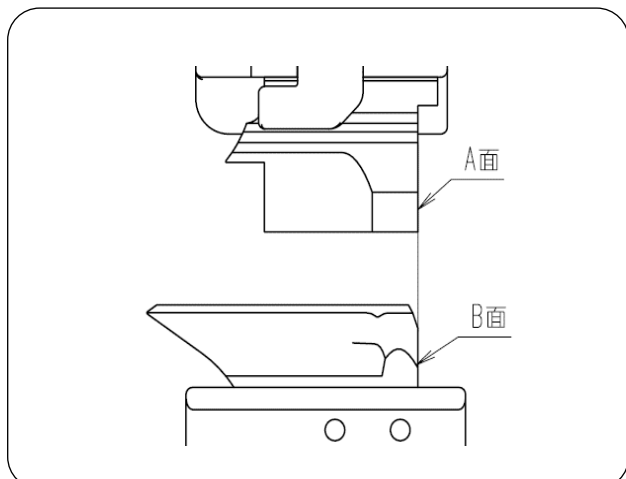
Once you have determined the knife position (side **B**), align the knife holder position (side **A**) with it.

17. How to perform sewing for more than 38 mm

(1) Removing the looper thread trimmer unit
(in the case of performing sewing for more than 38 mm)

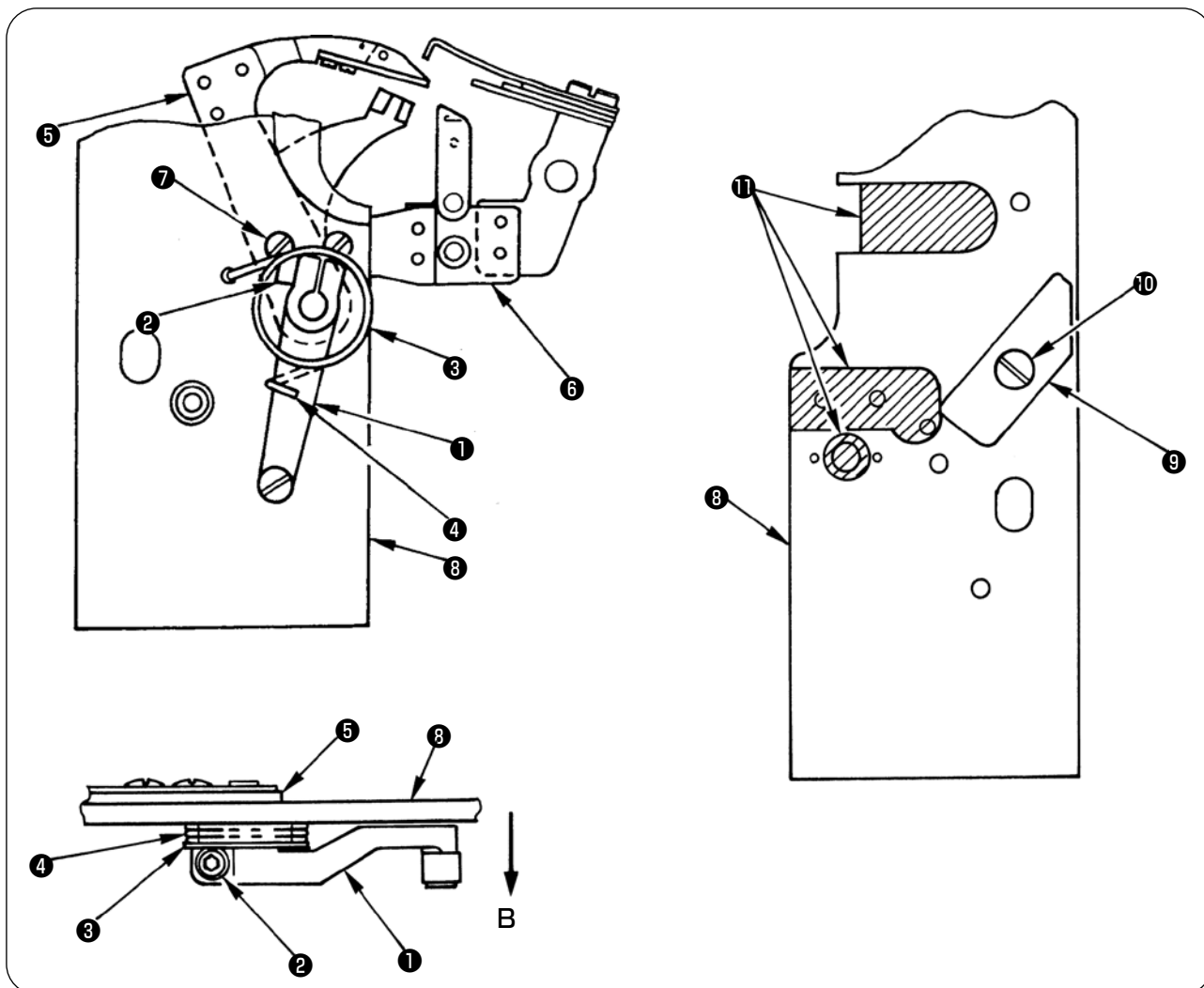| ⚠ 注意	It is dangerous to carry out the procedure with the power ON. So, if it is really necessary to do so, sufficient care should be taken not to press the start switch or return-to-origin switch or depress the pedal by mistake to prevent an accident resulting in injury or death.

If you want to sew a sewing length over 38 mm with the long-cutting (S/R) type sewing machine, remove the knife cover and looper thread trimmer unit feed base guide. (The looper thread trimmer cannot be used.)

1. Remove the knife cover.
2. Loosen clamping screw ❷ . Pull out driving arm ❶ in the direction B. Then, moving knife unit ❺ , return spring ❹ and spring presser ❸ come off.
3. Remove two flat head screws ❼ from the rear surface of presser plate ❽ . Remove counter knife unit ❻ .
4. Remove shoulder screw ❿ from the top surface of presser plate ❽ . Remove stopper rubber ❾ .
5. Remove stains such as grease from the presser plate. Cover recessed portions and holes ⓫ with tape or the like.

> **Caution** Sewing length up to 50 mm can be set. Be aware, however, flapping, slippage, etc. of the material are likely to occur to cause stitching troubles such as stitch skipping, irregular stitches and shape misalignment at the portions of material that cannot be stably clamped with the presser foot and presser holding plate.

When sewing exceeds 38 mm, flapping, slippage, etc. of the material can be improved by using the optional parts listed below.

	Part No.	Part Name	Quantity
❶	32029803	PRESSER PLATE T RIGHT	1 piece
❷	32029902	PRESSER PLATE T LEFT	1 piece
❸	32029209	VERTICAL GUIDE	1 piece
❹	32029308	VERTICAL GUIDE	1 piece
❺	40037200	PRESSER FOOT RIGHT 50MM	1 piece
❻	40037199	PRESSER FOOT LEFT 50MM	1 piece
❼	40037209	PRESSER HOLDING PLATE RIGHT 50MM	1 piece
❽	40037203	PRESSER HOLDING PLATE LEFT 50MM	1 piece
❾	SM1030400SP	SCREW M3 L=4	6 piece
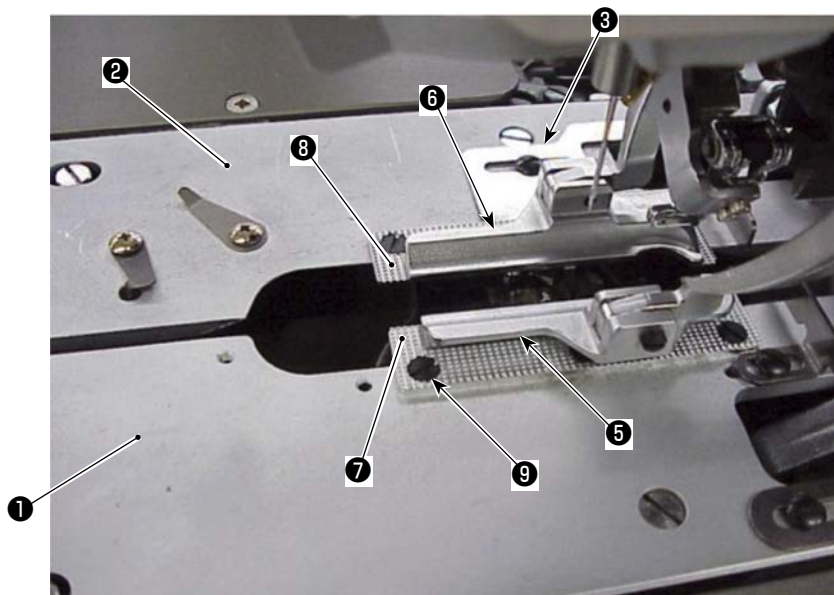
(2) Removing the feed base guide
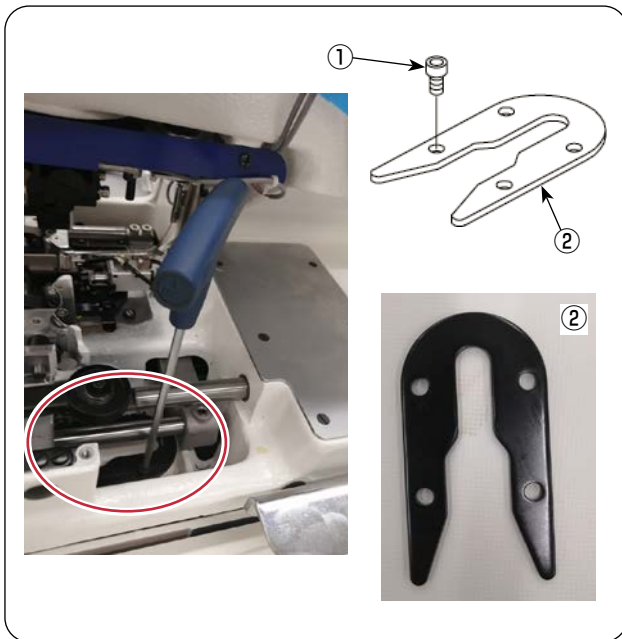
Remove the feed base guide.

① Remove four hexagon socket head cap screws with a 4-mm hexagonal wrench.

② Remove the feed base guide plate.
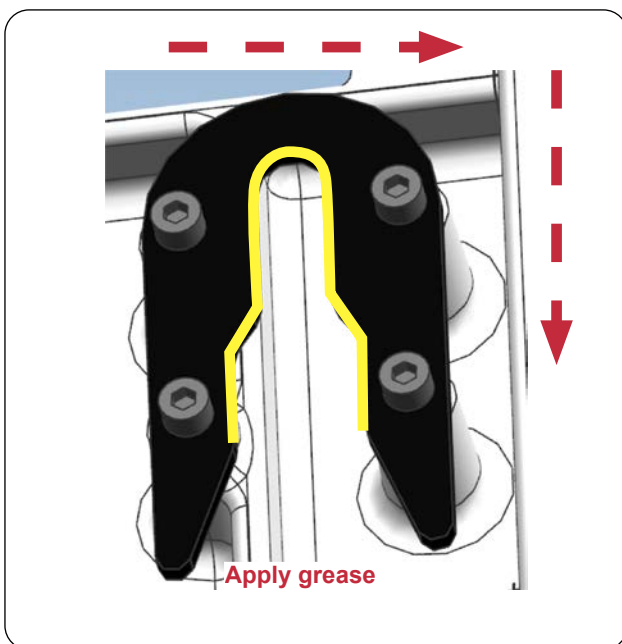
* **Reattaching the feed base guide plate**

  Attach the feed base guide plate while shifting it to the right front and secure with four M5 screws. (Reference torque: 40 kgf•cm)

  Apply grease to the portion indicated by the yellow line to the extent that the applied portion grows.

Apply grease

(3) Setting the memory switch

> ⚠ **Caution**
> If K23 (needle thread clamp travel amount when closing) is set to 25 or more for the sewing of more than 38 mm, the cloth plate may reach its travel limit by Y-direction jump at the time of thread clamping to cause an error.
> Be aware of the above when changing the setting of K23.

* In the case of "U56 = 2 (needle thread trimmer and looper thread trimmer are disabled)", the needle thread may be pulled to cause misalignment of the cloth cutting position. To prevent the above, be sure to set as "U56 = 1 (looper thread trimmer is disabled)".

* For the pattern for which "U56 = 1 (looper thread trimmer is disabled)" is set and the sewing length is set to 38 mm or more, the sewing length will become 38 mm if you change the setting to "U56 = 0". (For the pattern for which the sewing length is set to 38 mm or less, no change will take plate.)

(S and R types: Excluding the multicutting type)
If you change the setting from "U56 = 0 (needle thread trimmer and looper thread trimmer are enabled)" to "1 (looper thread trimmer is disabled)" after you have removed the knife cover, looper thread trimmer unit and feed base guide, the sewing length can be set to more than 38 mm up to 50 mm.

(S multicutting type)
Change the setting from "U56 = 0 (needle thread trimmer and looper thread trimmer are enabled) to "1 (looper thread trimmer is disabled)" after you have removed the knife cover, looper thread trimmer unit and feed base guide.
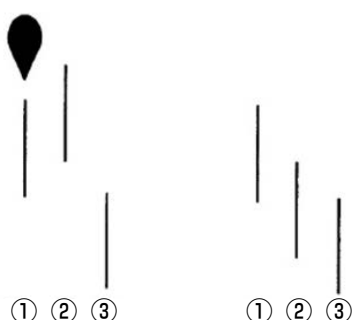The sewing length changes to 38 mm, 46 mm and 50 mm depending on the length of the knife holder.
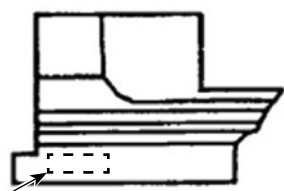
> ⚠ **Caution**
> If you change only the knife holder length with the memory switch without changing the knife holder, the cloth cutting length will fail to match the sewing length you have set. It is therefore necessary to also change the knife holder without exceptions.

0: Eyelet	1: Lockstitch buttonhole	1: Lockstitch buttonhole	2: Eyelet	3: Only eyelet buttonhole

① ② ③   ① ② ③   ① ② ③   ① ② ③ ④   ①

Knife holder shape: Without step

Knife holder shape: With step

**A Engraved marker

**B Engraved marker

a

b

Knife length First time

Remainder cut amount

Knife length Second time
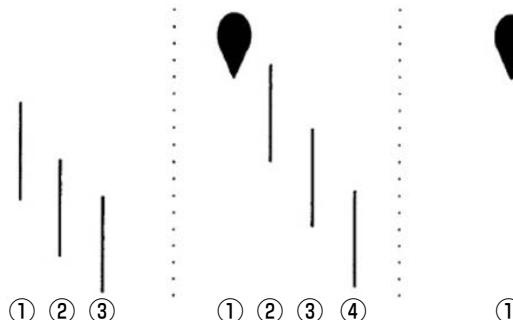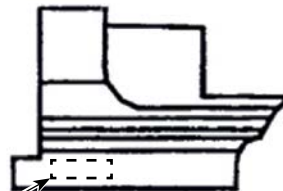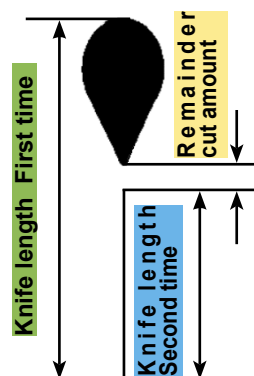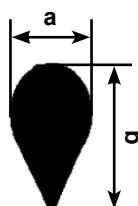
* Default setting (maximum sewing length 38 mm)

Knife holder

	Engraved marker	Part number of knife holder	S091	Maximum sewing length	Minimum sewing length
Without step	18A	32087801	0	38mm	18mm
With step	18B	32088106	2	38mm	10mm

(◎ : Standard knife)

S011 Knife No.		a×b	Knife length First time		Knife length Second time		Remainder cut amount	
0	Lock stitch buttonhole	-	K51		K52		K53	6mm
1	Eyelet size	2.1×3.2	K51		K52		K53	
2		2.5×3.8	K54		K55		K56	5mm
3		2.9×4.4	K57	18mm	K58	8mm	K59	
4		3.0×4.4	K60		K61		K62	
5		3.2×5.4	K63		K64		K65	4mm
6		2.7×5.1	K66		K67		K68	

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* Maximum sewing length 46 mm

Knife holder

	Engraved marker	Part number of knife holder	S091	Maximum sewing length	Minimum sewing length
Without step	26A	32087702	0	46mm	26mm
With step	26B	32088007	2	46mm	16mm

(◎ : Standard knife)

S011 Knife No.		a×b	Knife length First time		Knife length Second time		Remainder cut amount	
0	Lock stitch buttonhole	-	K51		K52		K53	6mm
1	Eyelet size	2.1×3.2	K51		K52		K53	
2		2.5×3.8	K54		K55		K56	5mm
3		2.9×4.4	K57	26mm	K58	16mm	K59	
4		3.0×4.4	K60		K61		K62	
5		3.2×5.4	K63		K64		K65	4mm
6		2.7×5.1	K66		K67		K68	

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* Maximum sewing length 50 mm

Knife holder

	Engraved marker	Part number of knife holder	S091	Maximum sewing length	Minimum sewing length
Without step	32A	32087603	0	50mm	32mm
With step	32B	32087900	2	50mm	22mm

(◎ : Standard knife)

S011 Knife No.		a×b	Knife length First time		Knife length Second time		Remainder cut amount	
0	Lock stitch buttonhole	-	K51		K52		K53	6mm
1	Eyelet size	2.1×3.2	K51		K52		K53	
2		2.5×3.8	K54		K55		K56	5mm
3		2.9×4.4	K57	32mm	K58	22mm	K59	
4		3.0×4.4	K60		K61		K62	
5		3.2×5.4	K63		K64		K65	4mm
6		2.7×5.1	K66		K67		K68	

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