

ENGLISH

**MB-1800 Series
INSTRUCTION MANUAL**

CONTENTS

I . SPECIFICATIONS	1
II . NAME OF EACH COMPONENT	2
1. Name of the main unit	2
III . INSTALLATION	3
IV . PREPARATION OF THE SEWING MACHINE	7
1. Attaching the needle	7
2. Threading the machine	7
V . OPERATION OF THE SEWING MACHINE	8
1. Names of the operation panel switches	8
2. Pattern table	9
3. Operating procedure of the operation panel (basic volume)	10
4. Stitching without the crossover thread	11
5. Operating procedure of the operation panel (applied volume)	11
6. How to use the memory switch	13
VI . ADJUSTMENT OF THE SEWING MACHINE	14
1. Thread tension adjustment	14
2. Adjustment of thread hauling amount	14
3. Timing of thread tension release	14
4. Adjustment of the thread tension guide on the face plate	15
5. Adjustment of needle-to-looper relation	15
6. Adjustment of the needle guide	16
7. Adjustment of the thread trimming mechanism	16
8. Adjusting the height of the button clamp unit	17
9. Adjusting the work pressing force	17
10. Adjustment of the button clamp stop lever	17
11. How to adjust the position of the feed origin	18
12. Installing the save button bar (accessory part) (MB-1800, MB-1800B)	19
13. Adjusting the wiper (Optional for MB-1800)	19
VII . ATTACHMENTS	20
1. Attachment for shank buttons (pearl buttons) (14617658, 14617757)	21
2. Attachment for the first process of wrapped-around buttons (B24473720A0)	21
3. Attachment for the second process of wrapped-around buttons (MAZ046010A0)	22
4. Attachment for snap (14617955)	22
5. Attachment for metal buttons (14618052)	23
VIII . ERROR LIST	24
IX . TROUBLES AND CORRECTIVE MEASURES	25
X . OPTIONAL	26
1. Installing the without-crossover-thread device (Part No. : M85126300A0)	26
XI . DRAWING OF THE TABLE	27

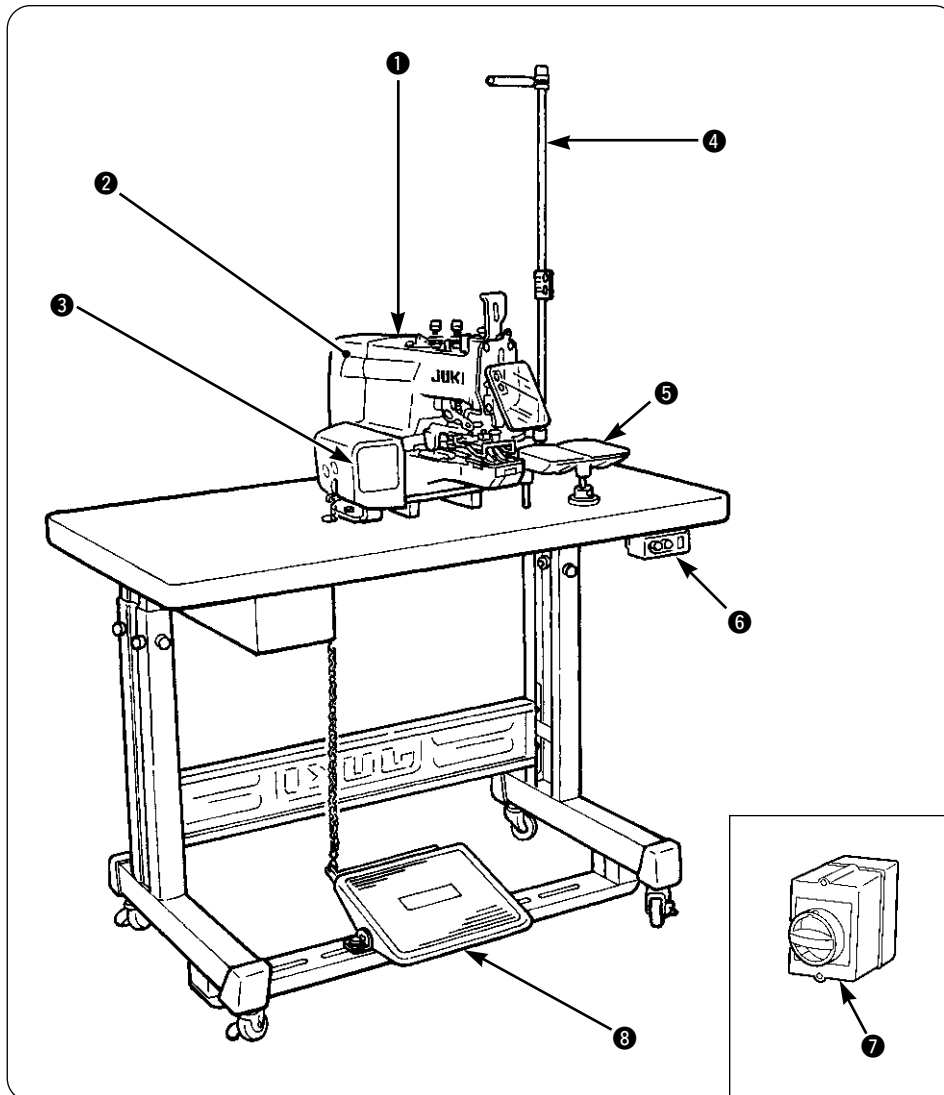
I. SPECIFICATIONS

- | | |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Sewing area : | X (lateral) direction 10 mm
Y (longitudinal) direction 6.5 mm (0.2 mm pitch) |
| 2) Max. sewing speed : | 1,800 sti/min |
| 3) Feed motion of button clamp : | Intermittent feed (2-shaft drive by stepping motor) |
| 4) Needle bar stroke : | 48.6 mm |
| 5) Needle : | TQx7, TQx1 (TQx7 #16 at the time of delivery) |
| 6) Button size : | 10 to 28 mm |
| 7) Lift of button clamp : | Standard 10 mm Max. 14 mm |
| 8) Memory of pattern data : | EEP-ROM (32K byte) |
| 9) Enlargement/reduction system : | Increase/decrease of stitch length system |
| 10) Limitation of sewing speed : | Sewing speed can be optionally limited to 400 to 1,800 sti/min with the up/down key. (Adjustable in 100 sti/min unit) |
| 11) Pattern selection function : | 1 to 99 patterns can be specified by selecting the pattern Nos. |
| 12) Memory back-up : | In case of a power interruption, the pattern being used will be automatically stored in memory. |
| 13) Sewing machine motor : | 100W servo motor (direct-drive) |
| 14) Dimensions of machine head : | W : 240 mm L : 550 mm H : 360 mm |
| 15) Mass : | 25 kg |
| 16) Power consumption : | 150 W |
| 17) Operating temperature range : | 5 to 35°C |
| 18) Operating humidity range : | 35 to 85% (no dew condensation) |
| 19) Line voltage : | Rated voltage $\pm 10\%$ 50/60 Hz |
| 20) Noise : | - Equivalent continuous emission sound pressure level (L_{pA}) at the workstation :A-weighted value of 79.5 dB; (Includes $K_{pA} = 2.5$ dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 1,800 sti/min. |

* Reduce the max. sewing speed in accordance with the sewing conditions.

II. NAME OF EACH COMPONENT

1. Name of the main unit



The MB-1800 type machine consists of the sections listed in the following table.

①	Machine head
②	Electrical components
③	Operation panel switch
④	Thread stand
⑤	Button tray
⑥	Power switch
⑦	Power switch (EU type)
⑧	Starting pedal

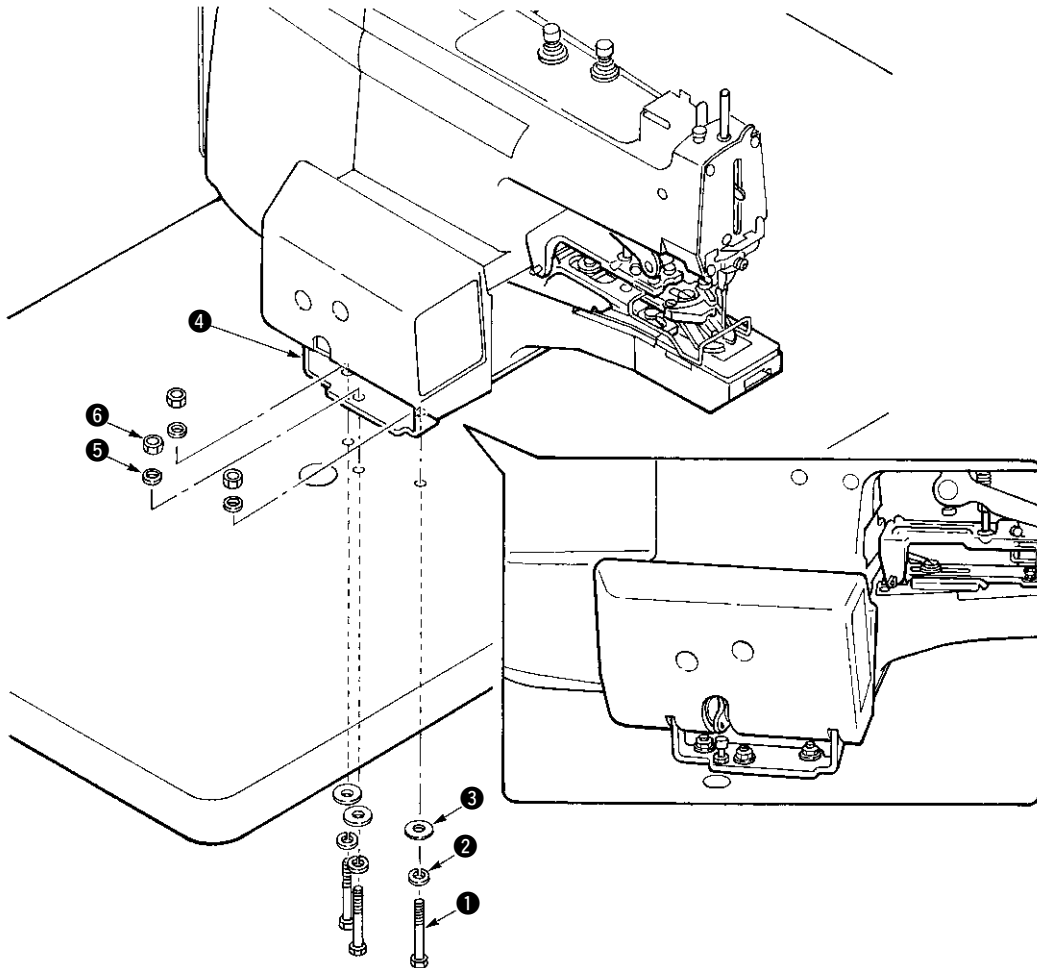
III. INSTALLATION



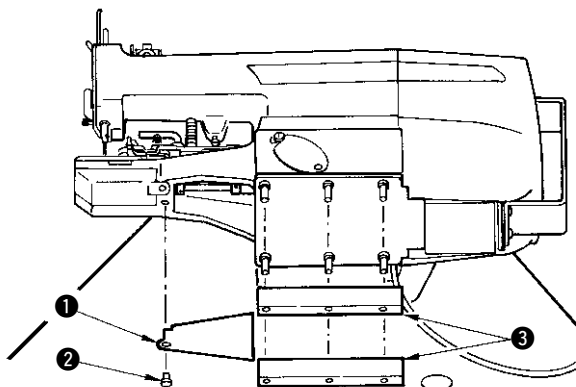
WARNING :

Be sure to perform the work with both hands when transporting the sewing machine.

(1) Installation of machine head



- 1) Place the machine head on the table and adjust the hole position of the table to the hole position of bed installing base ④. Pass spring washer ②, and large washer ③ to bolt ① supplied with the machine from the installing hole located at the bottom face of the table and set the bolt so that it comes out from the hole of bed installing base ④.
- 2) Put small washer ⑤ and nut ⑥ in order and tighten bolt ① and nut ⑥.



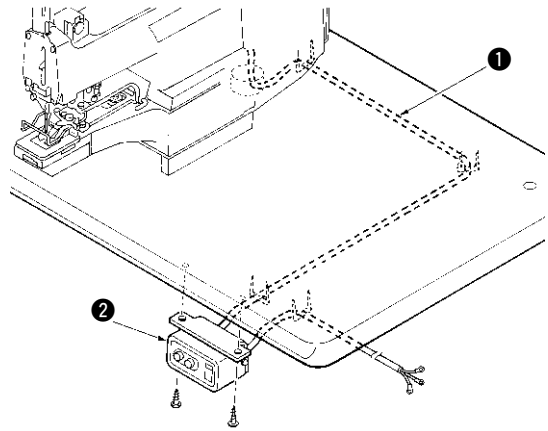
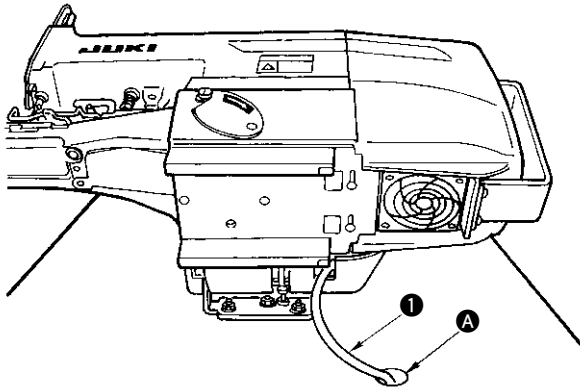
(2) Attaching the bed cover and the rubber base

Tilt the machine head and fix bed cover ① with screw ②. Next, insert rubber bases ③ into the pin protruding from the bottom face of the machine bed.



When tilting/raising the sewing machine head, hold the machine arm section by hand and slowly tilt it until it stops.

(3) Connection of power cord



- 1) Tilt the sewing machine and put out cord ① coming out from the sewing machine to the lower side from hole A in the table.

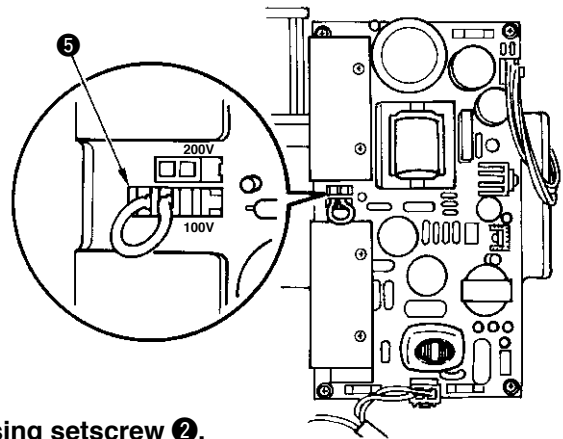
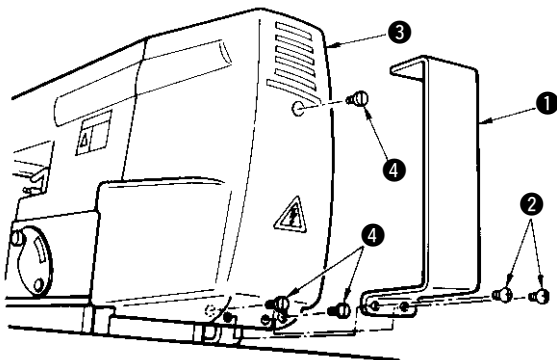


When tilting/raising the sewing machine head, hold the machine arm section by hand and slowly tilt it until it stops.

- 2) Install power switch box ② on the bottom face of the table and fix cord ① on the bottom face of the table with the staple supplied with the machine so that the cord can be connected to power switch box ②.

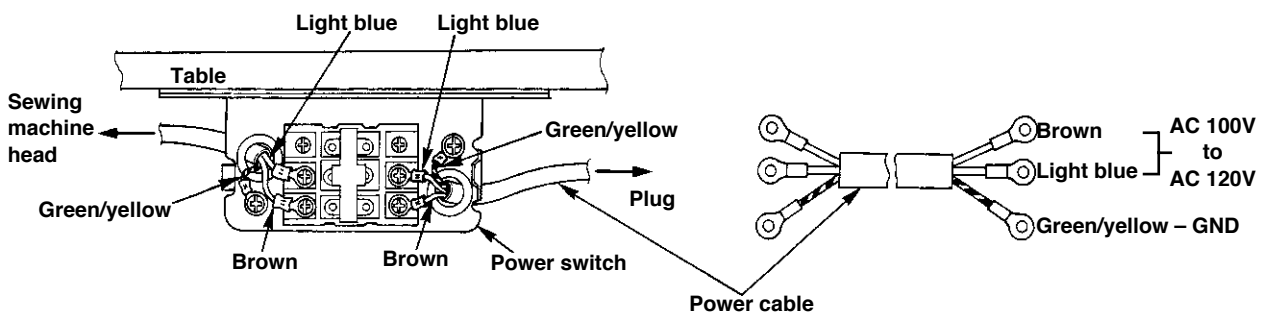
- 3) When using the sewing machine with the single phase 100 to 120V.
(200 to 240V at the time of delivery)

It is necessary to change over the connector on the circuit board mounted on the sewing machine.

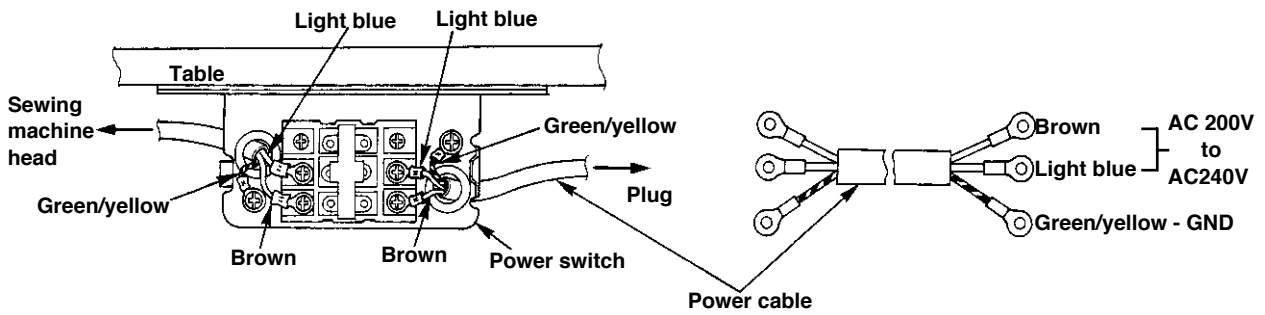


- ① Remove electrical components cover guide ① using setscrew ②.
(This cover is required only for transportation or the like. It is not necessary to install it again.)
Next, remove electrical component cover ③ using setscrew ④.
- ② Change over connector ⑤ located on PWR circuit board to the side of 100V.

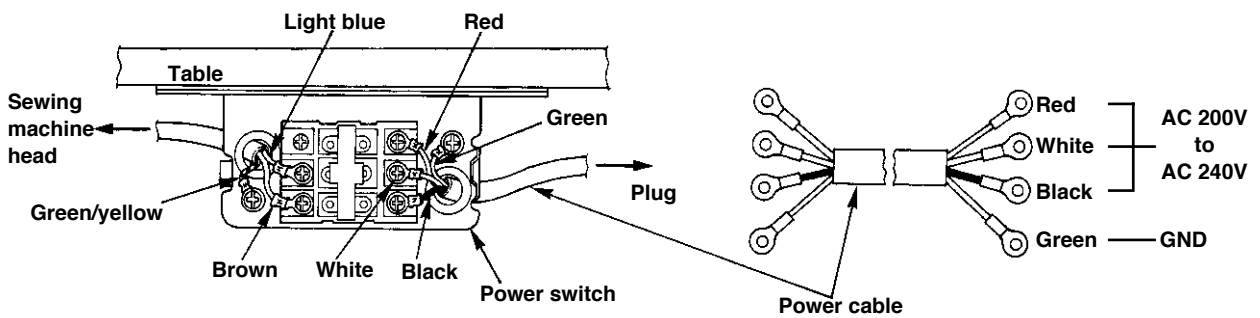
• Connection of single phase 100 to 120V



• Connection of single phase 200 to 240V



• Connection of 3-phase 200 to 240V



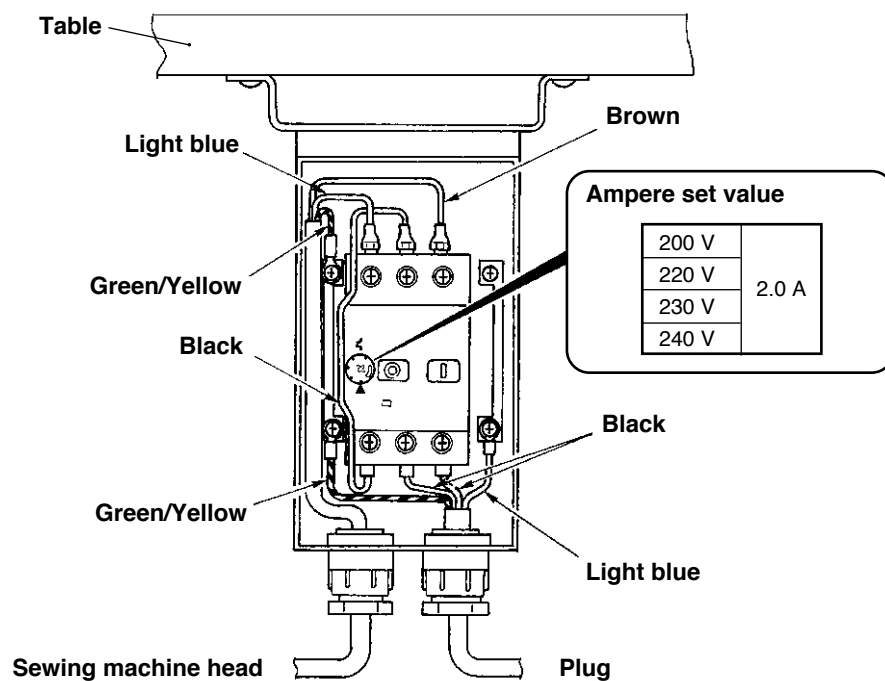
When voltage of 100 to 120V is used, connect the input change-over connector of CN32 mounted on the PWR circuit board to 100V side.

When voltage of 200 to 240V is used, connect the input change-over connector to 200V side.

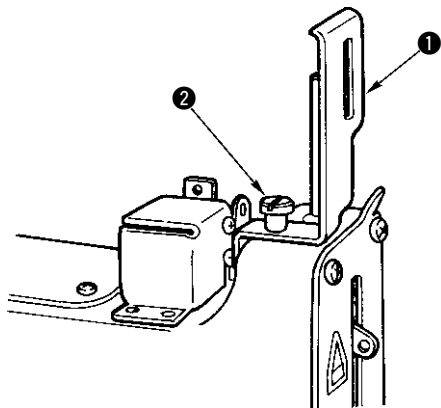
If the setting of CN32 connector is mistaken, the control box is likely to be broken.

Important Never use under the wrong voltage and phase.

(4) Power switch



(5) Attaching the needle bar cover

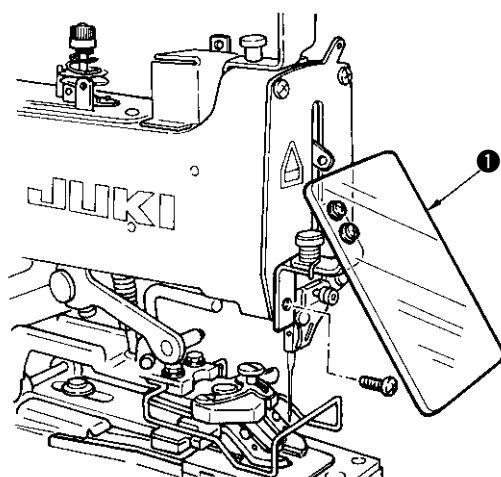


WARNING :

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

Loosen setscrew ② and fix needle bar cover ① supplied with the machine as shown in the figure.

(6) Installing the eye protection cover



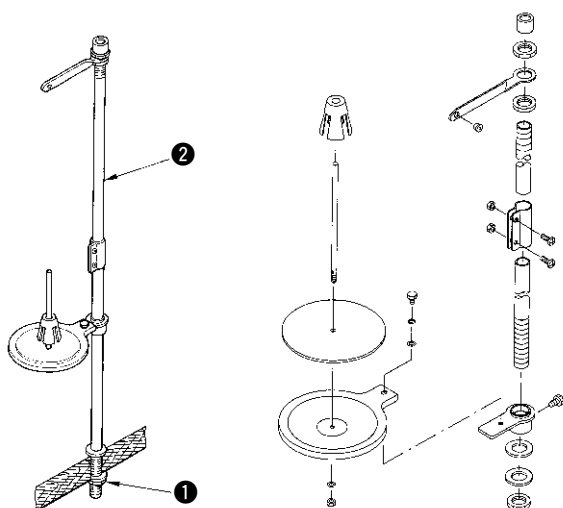
WARNING :

Be sure to attach this cover to protect the eyes from the dispersion of needle breakage.

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

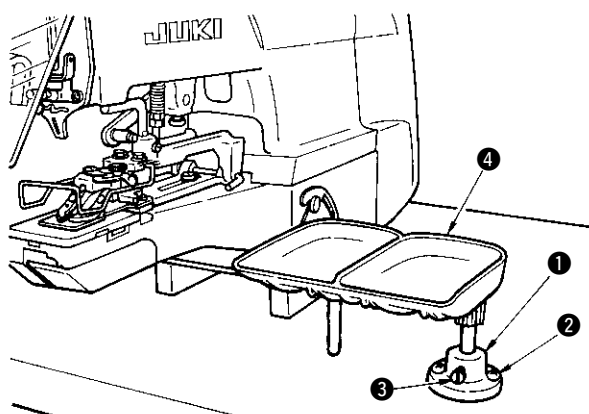
Be sure to install eye protection cover ① and use the sewing machine.

(7) Installing the thread stand



- 1) Assemble the thread stand unit, and set it in the hole located at the upper right of the table.
- 2) Tighten locknut ① to fix the thread stand.
- 3) For ceiling wiring, pass the power cord through spool rest rod ②.

(8) Attaching the button tray



- 1) Fix base ① on the table with wood screw ②.
- 2) Insert the button tray ④ in the hole of base ① and fix with setscrew ③.

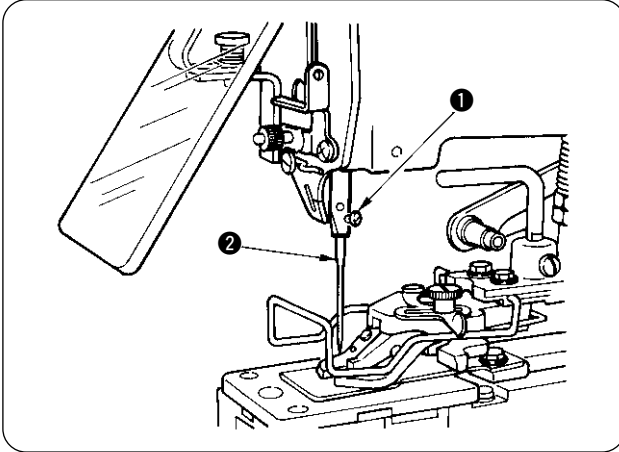
IV. PREPARATION OF THE SEWING MACHINE

1. Attaching the needle



WARNING :

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



☆ The needle of TQx7 #16 is attached to the sewing machine.

Loosen setscrew ① and hold needle ② with its long groove facing to this side. Insert needle ② up into the needle hole in the needle bar until it comes in contact with the deepest end of the needle hole and tighten setscrew ①.

2. Threading the machine

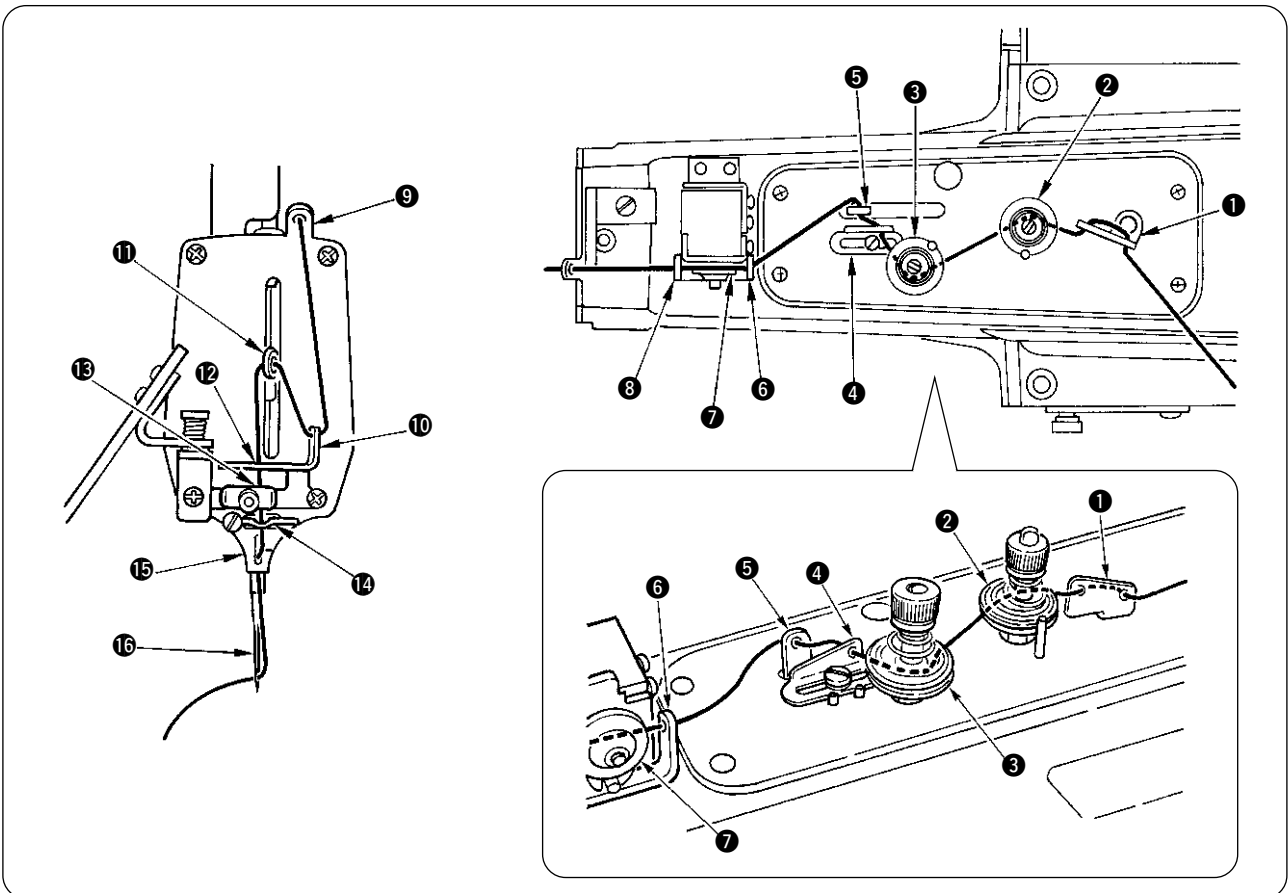


WARNING :

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

Thread the machine in the order as illustrated.

Finally, pass the thread through the needle eye by approximately 60 to 70 mm.



V. OPERATION OF THE SEWING MACHINE

1. Names of the operation panel switches

① **Set ready switch**

This switch is used when making the sewing machine from setting status to sewing possible status.

② **Button clamp lifting switch**

This switch performs up/down of the button clamp.

③ **Stitch shape selection LED**

④ **Stitch shape selection switch**

This switch is used when changing the stitch shape.

⑤ **+ / Forward switch**

This switch increases the set value or performs traveling forward when confirming the feed.

⑥ **- / Backward switch**

This switch decreases the set value or performs traveling backward when confirming the feed.

⑦ **Item selection switch**

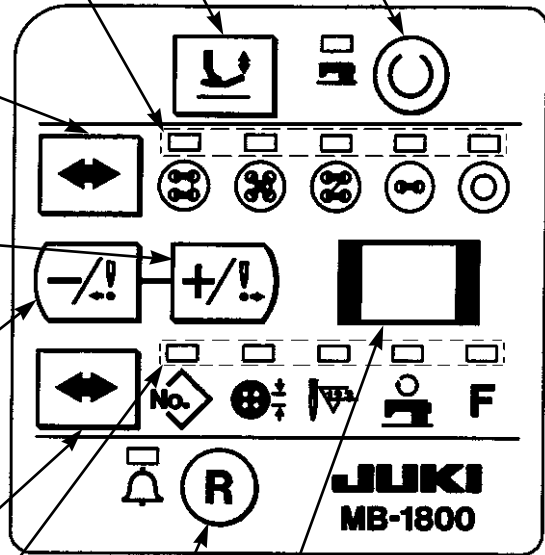
This switch is used when selecting the item desired to be changed.

⑧ **Item selection LED**

⑨ **Reset switch**















This switch returns the various set values to the original status or performs release when an error occurs.

⑩ **Display section A**

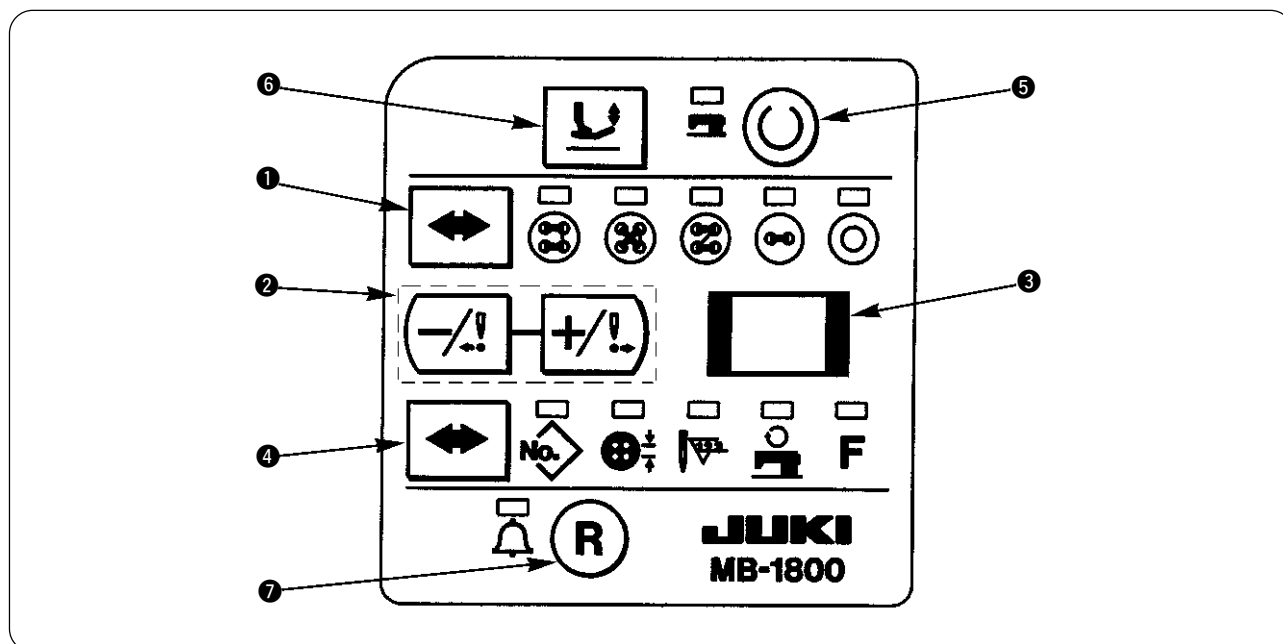


2. Pattern table

Three same sewing sizes and numbers of stitches for each stitch shape have been stored in pattern Nos. 1 to 51 at the time of delivery. By selecting sewing size and number of stitches from the table below, the stitch shape can be changed to the three different kinds of patterns of the same stitch shape and be stored in memory.

Pattern No.	Stich shape		Stich size (mm)			Number of stitches	
			Initial value	Range	Unit	Initial value	Range
1 2 3		4-holed (□, crossover stitch : with)	2.6	2.0 to 6.5	0.2	15	15, 19, 23, 27
4 5 6		4-holed (□, crossover stitch : without)	2.6	2.0 to 6.5	0.2	16	16, 20, 24, 28
7 8 9		4-holed (X, crossover stitch : with)	2.6	2.0 to 6.5	0.2	15	15, 19, 23, 27
10 11 12		4-holed (X, crossover stitch : without)	2.6	2.0 to 6.5	0.2	16	16, 20, 24, 28
13 14 15		4-holed (Z, crossover stitch : with)	2.6	2.0 to 6.5	0.2	15	15, 19, 23, 27
16 17 18		2-holed (crosswise)	2.6	2.0 to 6.5	0.2	8	8, 10, 12, 14
19 20 21		2-holed (lengthwise)	2.6	2.0 to 6.5	0.2	8	8, 10, 12, 14
22 23 24		4-holed (□, crossover stitch : with)	2.6	2.0 to 6.5	0.2	15	15, 19, 23, 27
25 26 27		4-holed (□, crossover stitch : without)	2.6	2.0 to 6.5	0.2	16	16, 20, 24, 28
28 29 30		3-holed (△)	2.6	2.6, 2.8, 3.0	0.2	17	17, 23
31 32 33		3-holed (▽)	2.6	2.6, 2.8, 3.0	0.2	17	17, 23
34 35 36		3-holed (◁)	2.6	2.6, 2.8, 3.0	0.2	17	17, 23
37 38 39		3-holed (▷)	2.6	2.6, 2.8, 3.0	0.2	17	17, 23
40 41 42		2-holed (crosswise) label attaching	10.0	6.0, 8.0, 10.0	2.0	5	5, 7
43 44 45		Wrapped-around (crosswise size : 4 mm)	2.6	0.0 to 6.5	0.2	16	6, 10, 16
46 47 48		Wrapped-around (crosswise size : 5 mm)	2.6	0.0 to 6.5	0.2	16	6, 10, 16
49 50 51		Wrapped-around (crosswise size : 6 mm)	2.6	0.0 to 6.5	0.2	16	6, 10, 16


3. Operating procedure of the operation panel (basic volume)



(1) Turn ON the power switch.

(2) Select the stitch shape.

Press stitch shape selection switch  ① and LED moves.

Stop the representative stitch shape at the position where the LED lights up, and place the other stitch shapes at the position of .

(3) Determine the pattern.

Press +/- switches ② at the position where the LED lights up, and the pattern No. will be displayed at display section A ③.

For the pattern No. and the stitch shape, refer to the table on P.9.

(4) Select the number of stitches.

Press item selection switch  ④ so that the LED comes to the position of .

The number of stitches set in advance with the pattern No. will be displayed at display section A ③.

Here, press + / - switches ② to change the number of stitches.



Number of stitches cannot select the combination other than that set in advance.

(5) Determine the sewing pitch.

Press item selection switch  ④ so that the LED comes to the position of .



The sewing pitch set in advance with the pattern No. will be displayed at display section A ③.

Here, press + / - switches ② to change the the sewing pitch.




Sewing pitch can be changed 2 to 6.5 mm in increments of 0.2 mm.


(6) Determine the number of revolution



Press item selection switch  ④ so that the LED comes to the position of  and "18" will be displayed at display section A ③. This means 18 x 100 = 1,800 sti/min. The digits less than 100 sti/min are omitted and displayed in case of this machine.

Here, press + / - switches ② to change the number of revolution.

(7) Check the needle entry point.

Press set ready switch  ⑤, the machine confirms the position of the origin and the button clamp is in the state of being lifted. At this time, insert the button.

Press button clamp lifting switch  ⑥ to lower the button clamp.

Press +/- switches  ② and the feed moves forward/backward. Then check the needle entry point. At this time, “● ●” is displayed at display section A  ③.



When lowering needle, turn the hand pulley referring to P.15.



(8) Perform sewing.

When checking of the needle entry point is completed, press reset switch  ⑦.

The button clamp goes up in this state. It is in the sewing possible state.

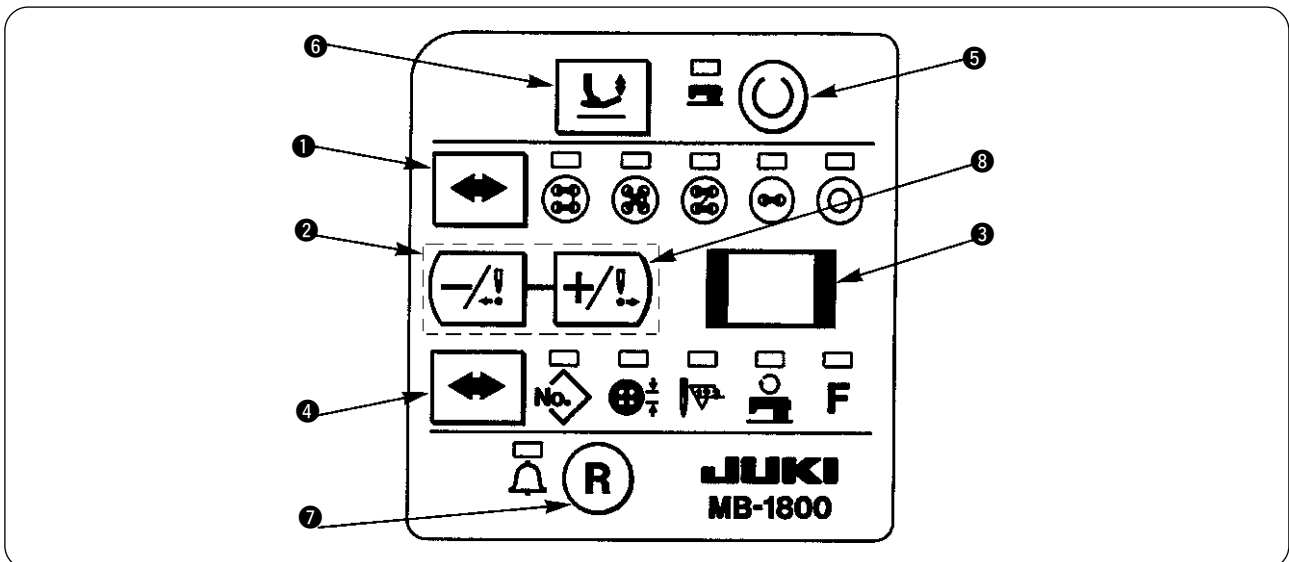
Set a button and the cloth to the machine and depress the starting pedal.

4. Stitching without the crossover thread



When the optional without-crossover-thread device is installed, it is possible to perform stitching without crossover thread in case of stitch shapes of , X and . Even when the device is not installed, thread trimming is performed during sewing if a pattern No. without crossover thread is selected.






The selection LED corresponding to the stitch shape flashes on and off, and the stitch shape without crossover thread can be discriminated.



5. Operating procedure of the operation panel (applied volume)



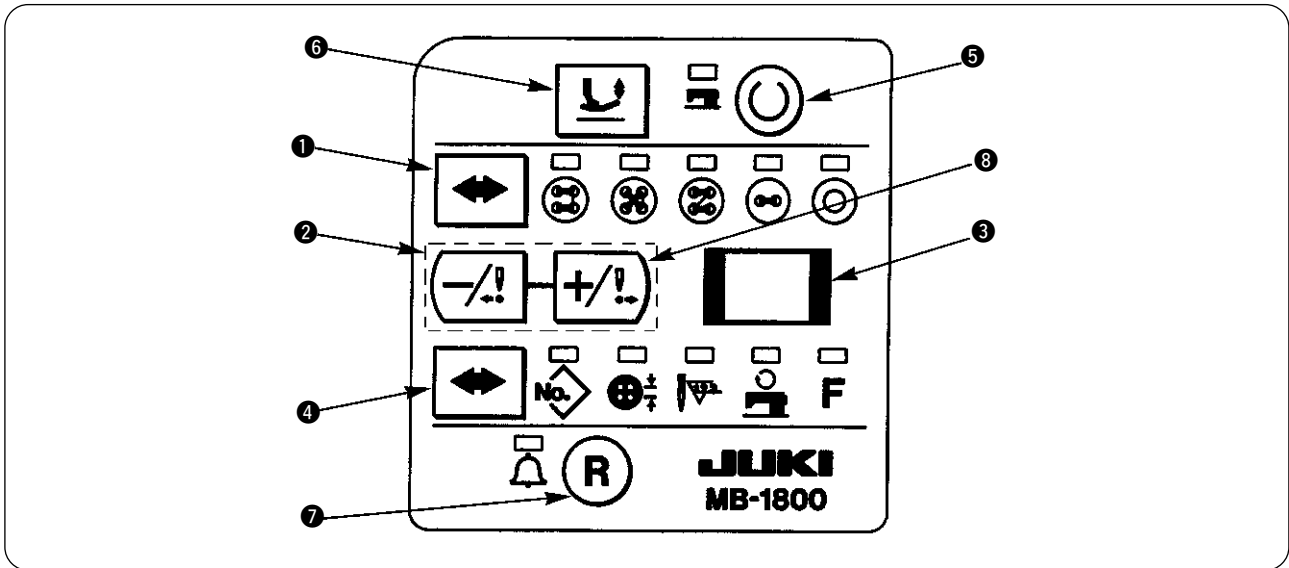
(1) Cycle stitching

The button can be sewn in the predetermined order with the max. 15 different kinds of sewing methods. For example, the button can be repeatedly sewn in the order of , X and .


















To call the cycle stitching can be performed by lighting up the LED of pattern No.  with item selection switch  ④ and pressing + switch  ⑧. The cycle stitching is arranged at the last of pattern No., is arranged the next pattern of No. 51 unless the external ROM is provided, and “” is displayed at display section A  ③.

In this state, press set ready switch  ⑤, and “P !” will be displayed at display section A  ③.



Then sewing is performed in the order of the max. 15 kinds of sewing conditions (P1 to PF) that have been programmed in advance.



(2) Registration of the pattern of the cycle stitching

- 1) To register the pattern, press item selection switch  ④ for two seconds to flash the item selection LED located at **F**. “” is displayed at display section A ③.
In this state, press again item selection switch  ④ and “ !” will be displayed at display section A ③. Press once more item selection switch  ④ to light up the item selection LED of the pattern No.  and display the pattern No. you desire to register at display section A ③ using + / – switches ②.
In this state, the pattern No. is recorded to P1. Press again item selection switch  ④ to display “ !” at display section A ③ and press + switch ⑧, then display will be changed to “ 2”.
- 2) Press again item selection switch  ④ to light up the LED of pattern No.  and display the pattern No. you desire to register in the second place at display section A ③ using + / – switches ②.
If “● ●” is displayed at display section A ③ when the item selection LED of the pattern No.  lights up, the pattern is in the state of not being inputted. When the item selection switch  ④ is pressed, P number and pattern No. are alternately displayed at display section A ③.
- 3) It is not possible to advance to the input of the next P2 unless pattern No. is inputted to P1.
Register the patterns after P3 by the same operation. It is possible to register up to PF maximumly.
When the registration of the pattern is completed, press item selection switch  ④ for two seconds to return to the normal setting state. At this time, “” is displayed at display section A ③ and the cycle stitching has been selected.
In addition, for the sewing of cycle stitching, P1 to PF can be changed in the set ready state using + / – switches ②. In this state, when item selection switch  ④ is pressed, the item selection LED of pattern No.  lights up and pattern No. is displayed at display section A ③.
- 4) To delete the registered pattern, set the display of the pattern No. to “● ●”.

(3) Sewing of button of stitch shapes other than the representative stitch shapes and that of stitch shapes by ROM data created by PGM-20

Make the LED of  light up with stitch shape selection switch  ① and select the stitch shapes after pattern No. 52. When the pattern of the external ROM is selected, all the LEDs which display the stitch shape light up.

The shape data has been stored in the pattern Nos. 1 to 51 beforehand. However, if the same number exists in the pattern Nos. of the external ROM, the shape of the external ROM is selected.

6. How to use the memory switch

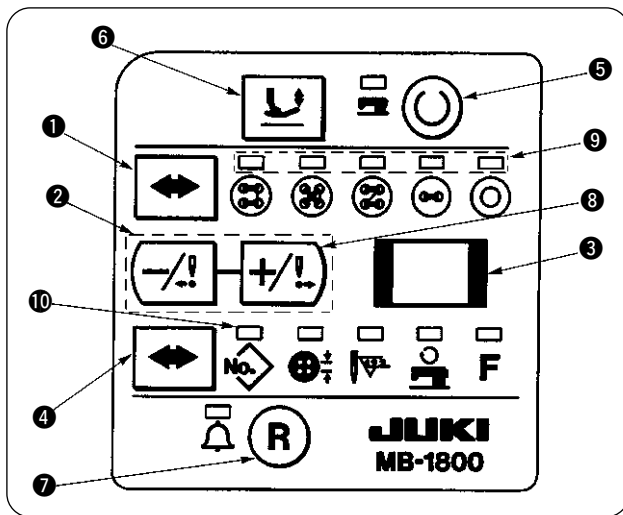
- 1) The speed up to 3rd stitch can be set so that the sewing speed at the start of sewing is controlled and the stitch is stabilized.
- 2) Effective/ineffective of the knot-tying function can be selected.
- 3) Operating/non operating of the wiper can be selected.

In case the wiper is installed and set to the non-operating setting, when the pattern without crossover thread is selected, the wiper works only when the crossover thread is trimmed, and it does not work after thread trimming at the time of completion of sewing.

In case of the pattern with crossover thread as well, the wiper does not work after thread trimming at the time of completion of sewing with this setting.

In case of the setting of operating the wiper, the wiper always works at the time of thread trimming.

(1) Starting of the memory switches



In the state that +/- switches ② are simultaneously pressed, turn ON the power, and the memory switches are in the state of setting.

At this time, "UU." is displayed in display section A ③.

Press set ready switch ⑤ and all 5 stitch shape selection LEDs ⑨ flash on and off. This state means that the memory switches are being inputted.

(2) Setting procedure of the memory switches

There are the memory switches 1 to 8.

Switch No. " !" is displayed in the display section A ③ and item selection LED ⑩ of the pattern No. No. lights up. In this state, press item selection switch ④, and the memory switch No. and the description are alternately displayed in display section A ③.

In the state that the memory switch No. is displayed, press the + switch ⑧ and the memory switch No. increases by one.

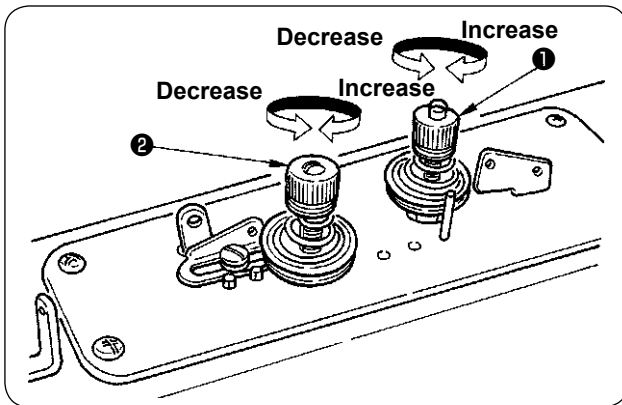
When the description of the memory switch is displayed, item selection LED ⑩ of the pattern No. No. goes off.

Switch No.	Description	Initial setting	Setting range	Remarks
1	Speed of 1st stitch of soft start	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
2	Speed of 2nd stitch of soft start	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
3	Speed of 3rd stitch of soft start	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
4	Speed of 1st stitch after trimming crossover thread	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
5	Speed of 2nd stitch after trimming crossover thread	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
6	Speed of 3rd stitch after trimming crossover thread	18 * 100 [sti/min]	4 to 18	400 to 1,800 sti/min
7	Knot-tying function 0 : Ineffective 1 : Effective	1 (Operating)	0.1	
8	Wiper operation 0 : Non operating 1 : Operating	0 (Non operating)	0.1	

When setting is completed, turn OFF the power. Return ON the power to return to the normal setting state.

VI . ADJUSTMENT OF THE SEWING MACHINE

1. Thread tension adjustment

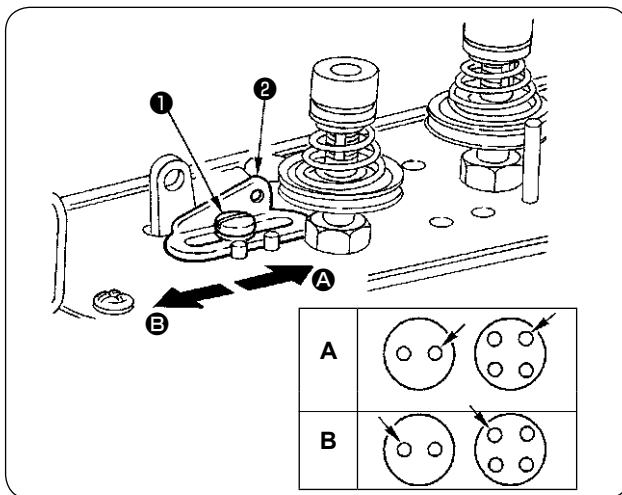


Tension post No.1 ❶ is used to adjust the thread tension to sew on the button and a relatively low tension will be enough.

Tension post No.2 ❷ is used to adjust the thread tension applied to the root of the button sewing stitches. This tension must be higher than that of the tension post No.1 and be adjusted according to the sewing conditions.

Turn the respective nuts clockwise to increase the thread tension.

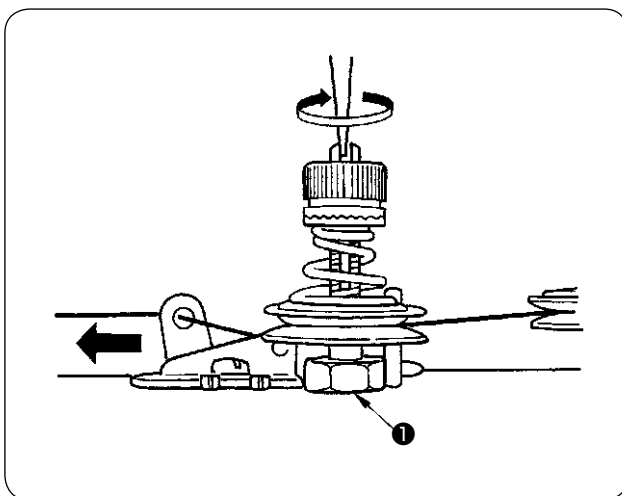
2. Adjustment of thread hauling amount



Adjustment of thread hauling amount is performed by loosening setscrew ❶ and move the position of thread guide ❷ .

When the end of thread is drawn from arrow hole A in the button after sewing, move the thread guide in the direction of A in the figure, and the end of thread is drawn from arrow hole B in the button, move it in the direction of B in the figure so that the end of thread is not drawn.

3. Timing of thread tension release

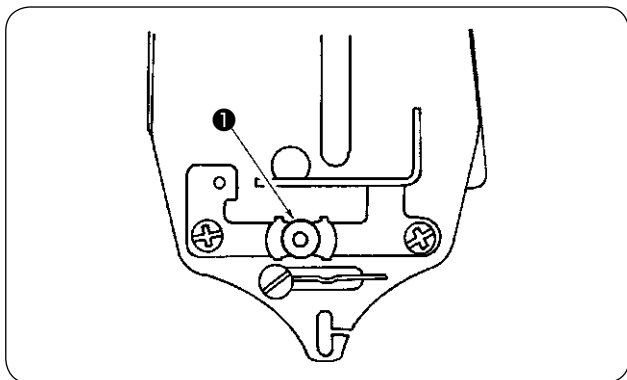


Turn the hand pulley as you draw the thread in the direction of the arrow as illustrated and you will find a point at which the tension disk on tension post No.2 releases the thread. At this moment, the standard distance from the top end of the needle bar bushing (upper) to the top end of the needle bar is 54 to 56 mm. Perform the following adjustments especially when the undermentioned troubles occur frequently.

Loosen nut ❶ , insert the blade of a screwdriver to the top slot of tension post No.2, and turn it in the direction of the arrow to decrease the height of the needle bar, or in the reverse direction of the arrow to increase it.

Phenomenon	Height of needle bar
1. When the stitch made on the wrong side of the work-piece is too loose ;	Make the needle bar slightly higher.
2. When the thread is broken during sewing ;	Make the needle bar slightly higher.
3. When the thread is broken frequently ;	Make the needle bar slightly lower.

4. Adjustment of the thread tension guide on the face plate



When the machine fails to form a seam at the start of sewing and starts to form it after it has run a while, adjust the thread tension guide on the face plate if the aforementioned trouble cannot be corrected by adjusting the thread pull-off lever.

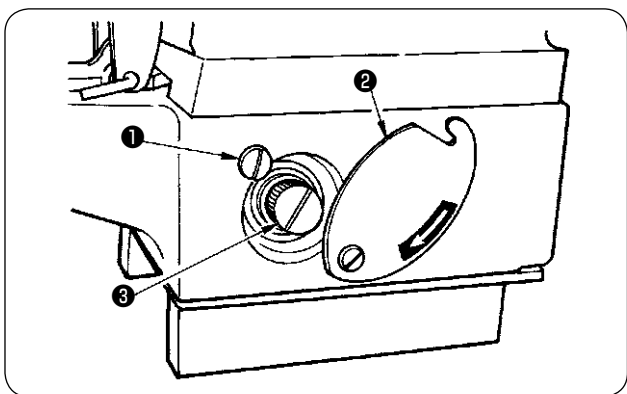
- 1) If the machine fails to form a seam at the start of sewing, reduce the thread tension by turning thumb nut ① (double nut).

5. Adjustment of needle-to-looper relation



WARNING :

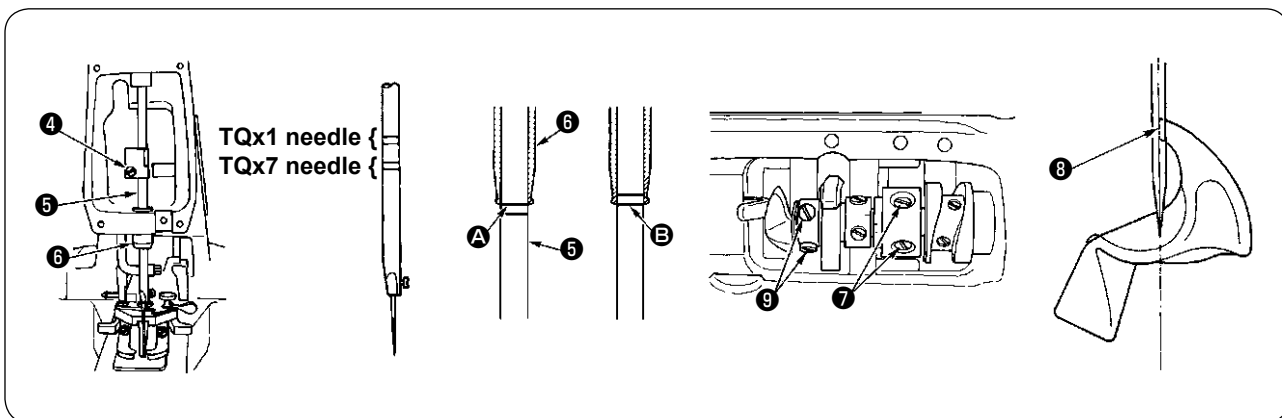
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Slightly loosen knob ① located on the right side of the sewing machine, turn cover ② in the direction of the arrow, and you will find hand pulley ③ inside it. The rotating direction of this pulley is in the direction of the arrow.

- 1) Turn hand pulley ③ to bring down needle bar ⑤ to the lowest point of its stroke and loosen setscrew ④ .

- 2) Adjust the height of the needle bar using top two lines engraved on the needle bar for the TQx1 needle and using bottom two lines for the TQx7 needle. Align the upper engraved line A with the bottom end face of needle bar bushing (lower) ⑥ and tighten setscrew ④ .
- 3) Loosen setscrew ⑦ and turn the pulley ③ in the normal sewing direction until lower engraved line B aligns with the bottom end face of needle bar bushing (lower) ⑥ .
- 4) By keeping the machine in this state, align looper blade ⑧ with the center of the needle and tighten setscrew ⑦ .
- 5) Loosen setscrew ⑨ and provide a 0.05 to 0.1 mm clearance between the needle and looper.
- 6) When the adjustment is completed, return cover ② to the home place and tighten knob ① .

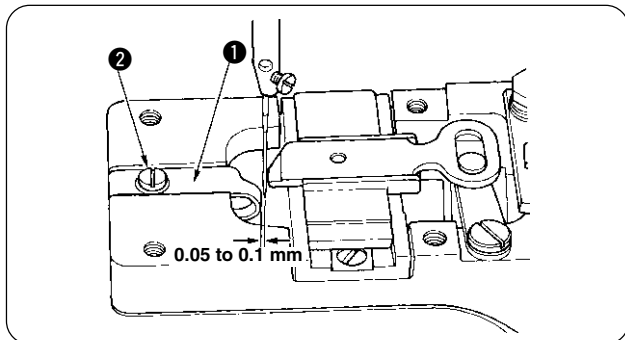


6. Adjustment of the needle guide



WARNING :

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



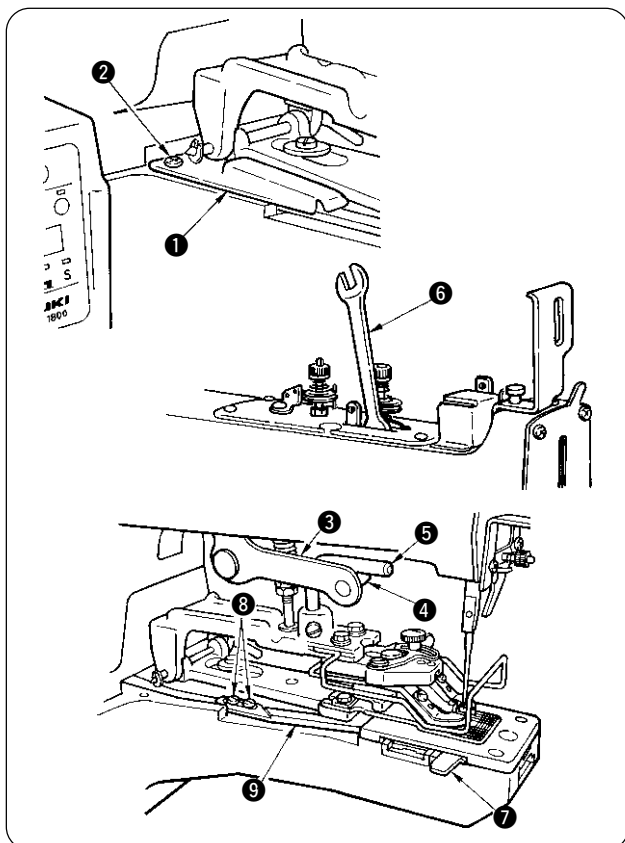
Loosen screw ② and provide a 0.05 to 0.1 mm clearance between the needle and needle guide ① by moving needle guide ① to the left or the right when the needle bar is in the lowest position of its stroke.

7. Adjustment of the thread trimming mechanism



WARNING :

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

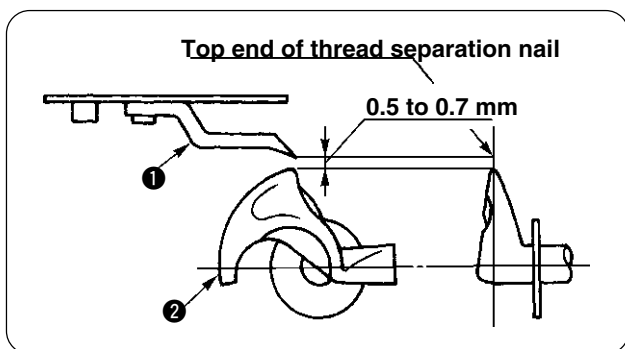


(1) Adjusting the position of the moving knife

- 1) Remove cover ① using setscrew ②.
- 2) Lift the presser lifting lever to such an extent that roller ④ and hook ⑤ of presser lifting lever ③ come in contact with each other to move thread trimming connecting plate A ⑨ to its most advanced position, and insert spanner ⑥ as illustrated.
- 3) Insert gauge ⑦ into the end face of the slit in throat plate, loosen screw ⑧, press the top end of thread trimming connecting plate A ⑨ to gauge ⑦, and tighten screw ⑧.

(2) Adjusting the moving knife thread separation nail

Bend thread separation nail ① using a screwdriver or the like and adjust so that a clearance of 0.5 to 0.7 mm should be provided between thread separation nail ① and looper ②.

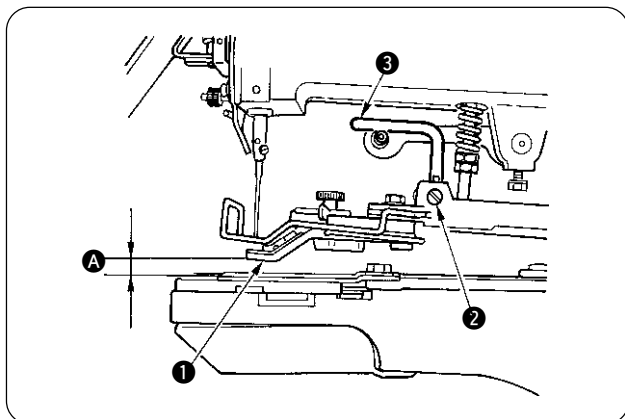


8. Adjusting the height of the button clamp unit



WARNING :

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



- 1) Insert a thing of 10 mm thick into **A** and make button clamp jaw lever **1** in the state of being lifted.
- 2) Loosen screw **2** and tighten it to fix button clamp lifting hook **3** in the state that button clamp lifting hook **3** is pressed to the lower side.



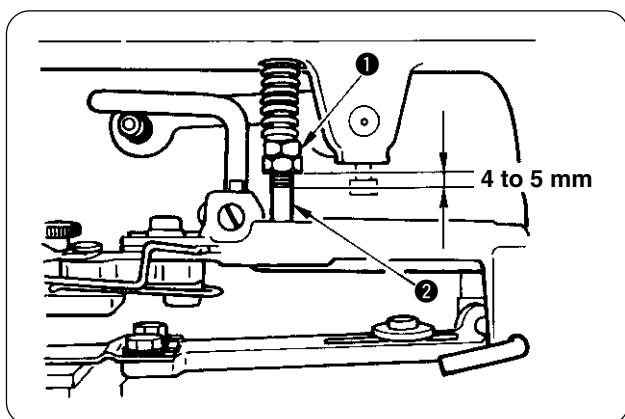
For the optional label attaching type, the button clamp jaw lever can be lifted up to 14 mm for use.

9. Adjusting the work pressing force



WARNING :

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



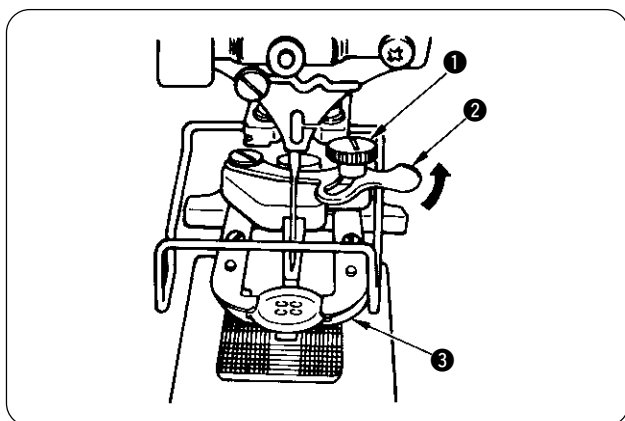
The standard work pressing force is obtained by turning nuts **1** and providing a 4 to 5 mm clearance between the bottom face of two nuts **1** and the bottom end of the screw of pressure adjusting bar **2**.

10. Adjustment of the button clamp stop lever



WARNING :

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



- 1) Loosen clamp screw **1**, place a button correctly in the sewing position and adjust button clamp stop lever **2** to permit the button properly to rest on button clamp jaw levers **3**.
- 2) Next, tighten clamp screw **1** after determining the distance between the left and right jaw levers.

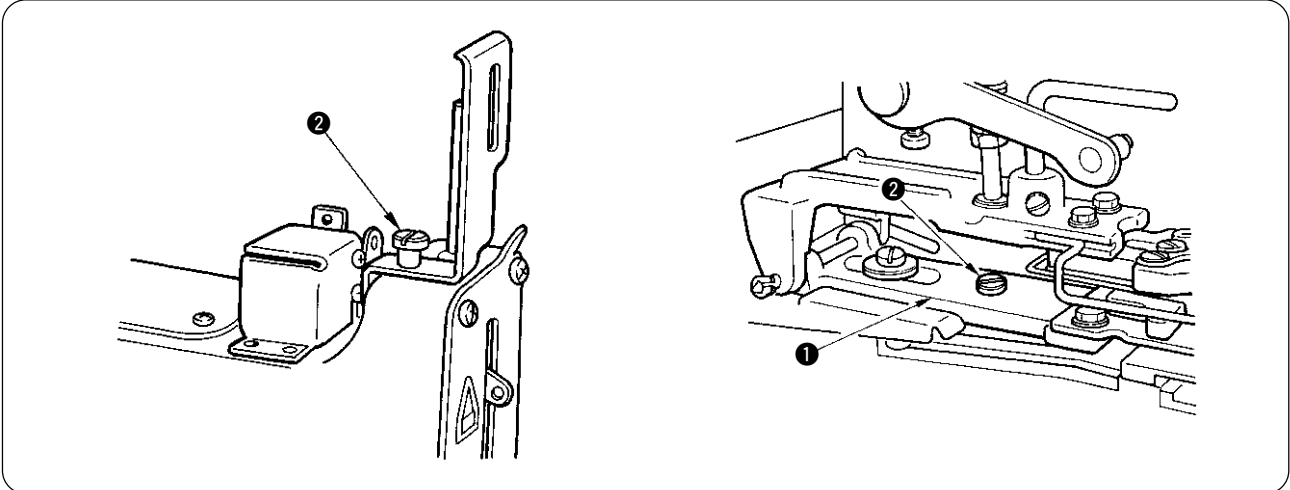
11. How to adjust the position of the feed origin



WARNING :

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

In case you desire to adjust the position of the feed when replacing the attachment, it is possible to fix feed plate ① to the position of the origin.



- 1) First, remove hinge screw ② fixing the needle bar cover.
- 2) Next, align the hole of feed plate ① with the hole of the top surface of the machine bed.
- 3) When hinge screw ② is entered and fixed here, the place becomes the position of the feed origin. By fixing the various attachments at the center position, the attachments can be used only by confirming the needle entry point under the feed mode (see P.11) when turning ON the power.
- 4) After the adjustment, remove and return hinge screw ② to the home place, and fix the needle bar cover.



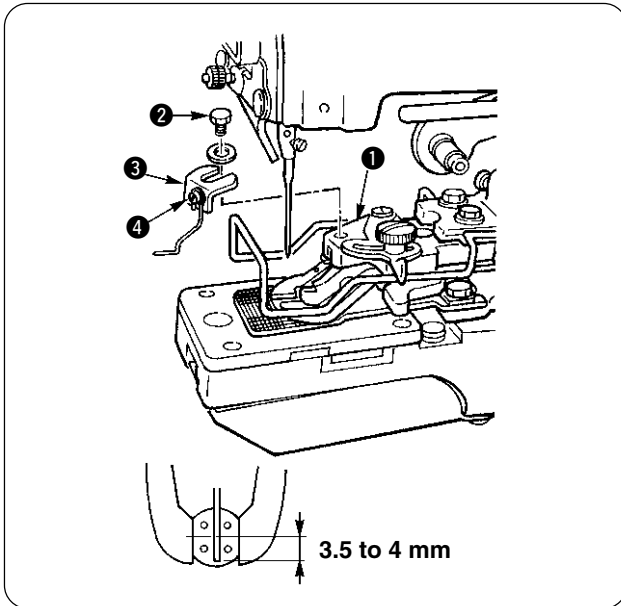
Be sure not to forget removing hinge screw ② after the adjustment. If not, an error will be displayed when pressing the set ready switch at the time of turning ON the power. In addition, be sure to fix the needle bar cover.

12. Installing the save button bar (accessory part) (MB-1800, MB-1800B)



WARNING :

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



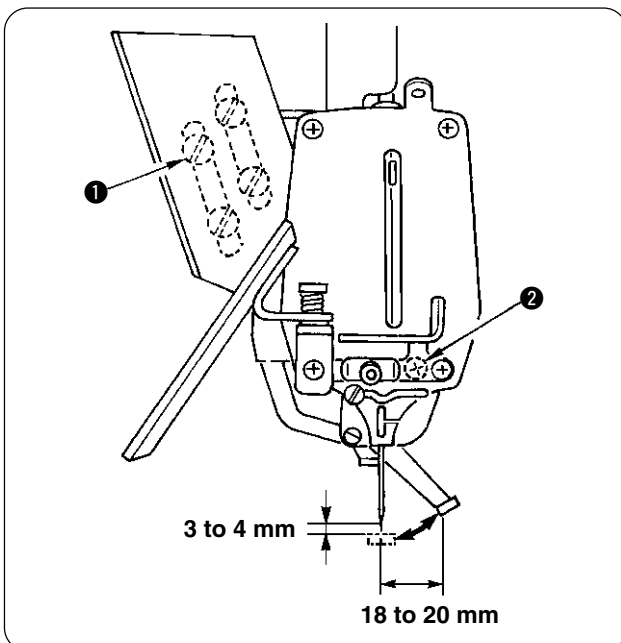
- 1) Install save button bar mounting plate **3** on button clamp base **1** with screw **2**.
- 2) Adjust so that a clearance of 3.5 to 4 mm is provided between the center of the button and the top end of the save button bar.
- 3) To adjust the raising amount of the save button bar, loosen screw **4**, and move the save button bar up or down.

13. Adjusting the wiper (Optional for MB-1800)



WARNING :

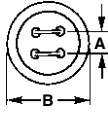
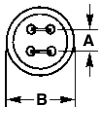
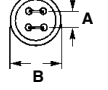
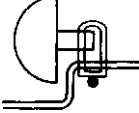
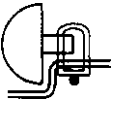

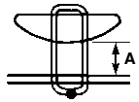
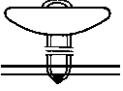
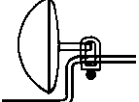
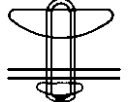

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



The standard thread catching point at the top end of the wiper should be 3 to 4 mm away from the tip of the needle and 18 to 20 mm away from the center of the needle at the stop position of the sewing end.

Make the adjustment using four screws **1** which fix the wiper magnet in place and screw **2** which fixes the wiper mounting base.

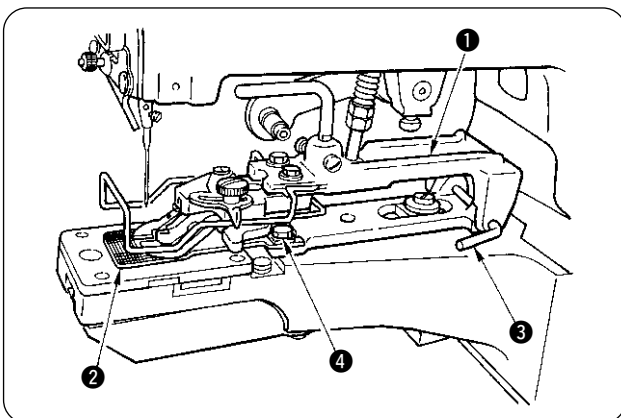
VII. ATTACHMENTS

Use	Flat buttons			Shank buttons	
	Large-size	Medium-size	Small-size	General	Luis type
MB-1800	14617559	D2529373B00A	B2529373000	14617658	14617757
Schematic drawing					
Remarks	Button size : A : 0 to 6.5 mm B : ϕ 20 to ϕ 28 mm	Button size : A : 0 to 4.5 mm B : ϕ 12 to ϕ 20 mm	Button size : A : 0 to 3.5 mm B : ϕ 10 to ϕ 12 mm	Button diameter : Less than 16 mm Shank size : Thickness : 5 to 6 mm Width : 2.5 to 3 mm	Button size : Same as 14617658, but possible to sew buttons having some variations of shank in shape.
Use	Snaps	Wrapped-around buttons		Metal buttons	Stay button
		First process	Second process	General	
MB-1800	14617955	B24473720A0	MAZ046010A0	14618052	MAZ039010A0
Schematic drawing					
Remarks	Snap size : A : 8 mm	Thread shank height : A : 5.5 mm			
Use	Labels				
MB-1800	14618151				
Schematic drawing					
Remarks	Stitch width : Max. 10 mm				



WARNING :

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



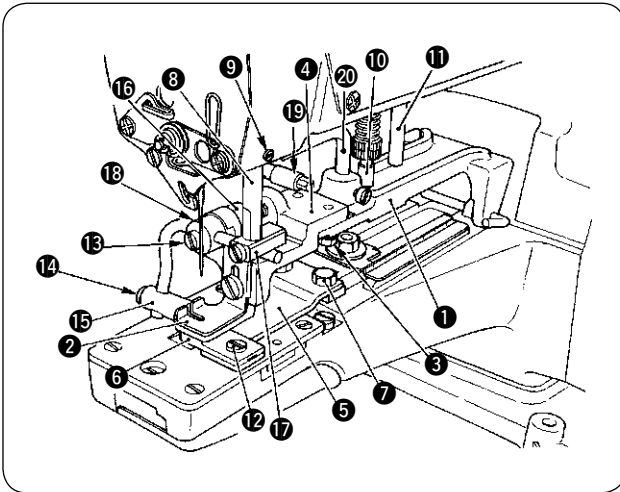
In order to install the attachment on the machine, you may have to remove the button clamp mechanism ① or feed plate ②. Dislocate a snap ring from button clamp installing stud ③, and you will be able to remove button clamp mechanism assembly ①. Remove setscrews ④, and you can remove feed plate ②.

1. Attachment for shank buttons (pearl buttons) (14617658, 14617757)



WARNING :

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



(INSTALLATION)

Remove both the button clamp mechanism assembly and the feed plate from the machine and install attachment **1** for pearl button in place. Loosen screws **3** and adjust button clamp bracket **4** to permit the needle to come down in the middle of the needle slot in shank button adaptor **2**.

Attach button clamp feed plate **5** using screws **7** in the way that it permits the needle to come down in the middle of the needle slot in feed plate **6**.

Insert the top end of button clamp stud **8** into an opening in the jaw of the machine arm and fasten it by screw **9**.

(When attaching 14617757, you must change also button clamp pressure adjusting bar **10** and button clamp stopper pin **11** at the same time.)

(ADJUSTMENT AND OPERATION)

- 1) Loosen screw **12**, let feed plate **6** recede 0.5 to 1.0 mm from the left end of button clamp jaw lever **2** and retighten screw **12**.
- 2) Set a button in place, loosen screws **13** and **14**, and align shank button holding clamp **15** with the center of the button.
- 3) Shank button holding clamp **15** must give proper pressure to the button so that the button stays steadily in position while being sewn. Loosen a setscrew in thrust collar **16** and rotate the thrust collar until shank button holding clamp **15** provides proper pressure.
- 4) You may fix button clamp block **17** in a convenient position for operation.



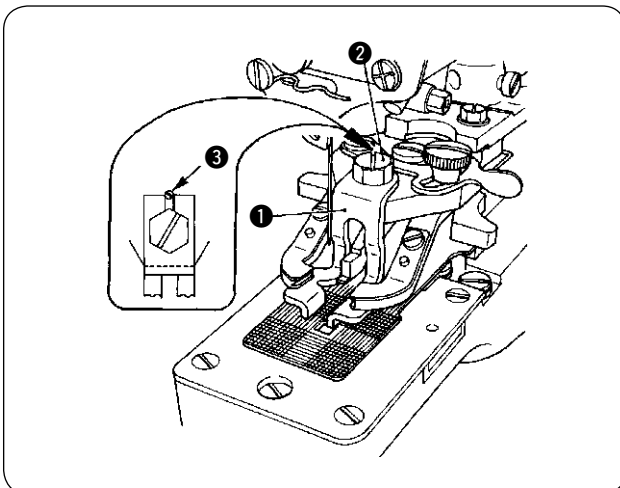
1. When you fix the thrust collar, ensure that button clamp rotating shaft **18** does not play axially in its bracket.
2. Adjust lifting hook **20** and stopper pin **11** so that L-shaped lifting rod roller **19** does not come in contact with button clamp bracket **4**.

2. Attachment for the first process of wrapped-around buttons (B24473720A0)



WARNING :

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



(INSTALLATION)

Attach wrapped-around button foot **1** to the ordinary button clamp jaw levers using screw **2** and guide pin screw **3**.

At this time, align foot **1** with the jaw levers so that they permit a button to rest in the middle.

(ADJUSTMENT AND OPERATION)

Adjustment and operation are almost same as those for the flat buttons, but you must adjust the thread guide to provide more hauling amount of thread in order to make the thread loose below the button for thread shank formation.

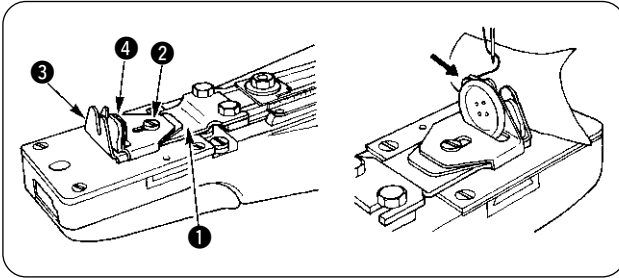
(See “**VI-2. Adjusting the hauling amount of thread**”.)

3. Attachment for the second process of wrapped-around buttons (MAZ046010A0)



WARNING :

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



(INSTALLATION)

Remove the button clamp mechanism assembly, button clamp pressure adjusting bar and feed plate from the machine, and install attachment for the second process of wrapped-around buttons ①.

(ADJUSTMENT AND OPERATION)

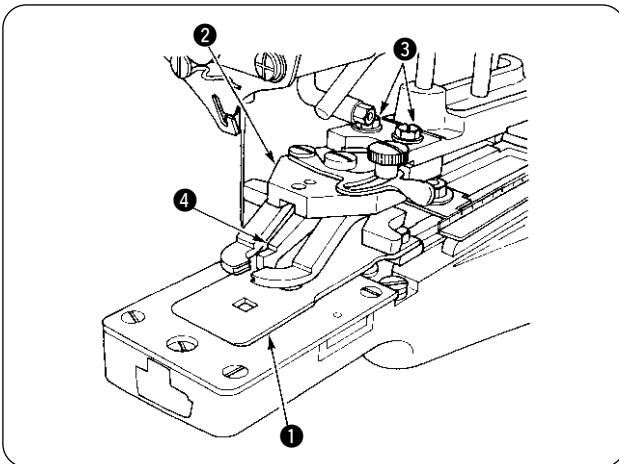
- 1) Loosen screw ② and adjust the thread shank length by moving guide (large) ③ and guide (small) ④ in line with the point of of needle entry.
- 2) Set a button (tilt it slightly for easy insertion) and the thread as the arrow shows.

4. Attachment for snap (14617955)



WARNING :

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



(INSTALLATION)

Remove the button clamp mechanism assembly and the feed plate. Set the stitch length to 4 mm by means of the panel operation. Install snap clamp feed plate ① in the way that the needle drops evenly at four corners of its square opening.

Install snap attachment assembly ② on the machine, place a snap on the snap clamp jaw levers and make sure that the needle drps accurately in each hole in the snap. If necessary, loosen hex head screws ③ and adjust the position accurately.

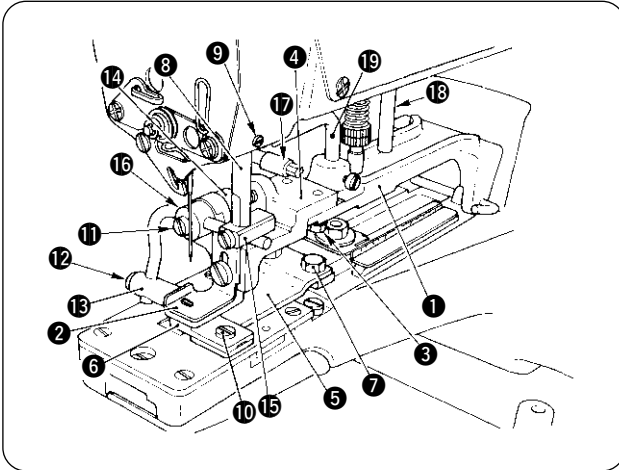
Lastly, make sure that the concave section on the bottom face of snap clamp slide guide ④ accurately matches the convex section of snap clamp feed plate ①.

5. Attachment for metal buttons (14618052)



WARNING :

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



(INSTALLATION)

Remove both the button clamp mechanism assembly and the feed plate from the machine, and install attachment ① in place. Loosen screws ③ and adjust button clamp bracket ④ to permit the needle to come down in the middle of the needle slot in metal button adaptor ②.

Attach button clamp feed plate ⑤ using screws ⑦ in the way that it permits the needle to come down in the middle of the needle slot in feed plate ⑥.

Insert the top end of button clamp stud ⑧ into an opening in the jaw of the machine arm and fasten it by screw ⑨.

(ADJUSTMENT AND OPERATION)

- 1) Loosen screw ⑩, let feed plate ⑥ recede 1.0 to 1.5 mm from the left end of button clamp jaw lever ② and retighten screw ⑩.
- 2) Set a button in place, loosen screws ⑪ and ⑫ and align metal button holding clamp ⑬ with the center of the button.
- 3) Metal button holding clamp ⑬ must give proper pressure to the button so that the button stays steadily in position while being sewn. Loosen a setscrew in thrust collar ⑭ and rotate the thrust collar until metal button holding clamp ⑬ provides proper pressure.
- 4) You may fix button clamp block ⑮ in a convenient position for operation.



1. When you fix the thrust collar, ensure that button clamp rotating shaft ⑯ does not pay axially in its bracket.
2. Adjust lifting hook ⑰ and stopper pin ⑱ so that L-shaped lifting rod roller ⑰ does not come in contact with button clamp bracket ④.

VIII. ERROR LIST

Error LED located on the left side of the reset switch flashes on and off or lights up when an error occurs. When the LED lights up, the setting state will be made by pressing the reset switch and the error will be released. Error No. will be displayed in the display section A.

Error No.	Item	Description
01	Trouble of sewing data	Pattern has not been inputted in the program of cycle stitching.
02	Trouble of 24V voltage	Trouble of power voltage, trouble of load on main shaft of machine head, trouble of PWR circuit board
03	Dislocation of needle up-position	Trouble of load on main shaft of machine head, trouble of encoder, or loosened encoder fixing screw
04	Dislocation of presser down detection	Foreign materials under presser, dislocation of presser down sensor, or defective down sensor
05	Trouble of presser solenoid	Defective solenoid, dislocation of presser up sensor, or defective up sensor
06	Trouble of servo encoder	Defective encoder or improper fixing of encoder
07	Servo motor lock	Trouble of load on main shaft of machine head, or defective servo motor
09	System trouble	Defective control circuit board or defective program ROM
10	Trouble of stepping motor origin 1	Trouble of origin sensor 1, dislocation of sensor, or trouble of load on stepping motor 1 (left side of operator)
11	Trouble of stepping motor origin 2	Trouble of origin sensor 2, dislocation of sensor, or trouble of load on stepping motor 2 (right side of operator)
12	Overload of servo motor	Trouble of load on main shaft of machine head (short time), or defective servo motor
13	Overload of servo motor	Trouble of load on main shaft of machine head (long time), or defective servo motor
16	Trouble of number of revolution	Defective control circuit board, defective encoder, or defective servo motor
17	Trouble of servo voltage	Defective PWR circuit board
18	Trouble of temperature	Cleaning of fan filter, excessive load on main shaft, or trouble of control circuit board (high temperature of pre-driver)
19	Overcurrent of servo motor	Defective servo motor, or improper timing of encoder
30	Trouble of external ROM	ROM formatting error
31	Trouble of external ROM	Number of stitches (99) is over.
32	Trouble of external ROM	Moving amount of one stitch (lengthwise : 6.5 mm, crosswise : 10 mm) is over.
33	Trouble of external ROM	Outside of sewing possible area
H	Temperature rise	Cleaning of fan filter, defective fan operation, or defective control circuit board (temperature detection)
EE	Trouble of memory	Defective control circuit board (EEPROM)
<p>(Note) Error Nos. 01, 03, 04, 31, 32, and 33 return to the state before the occurrence of the error by pressing the reset switch.</p>		

IX. TROUBLES AND CORRECTIVE MEASURES

No.	TROUBLES	CAUSES	CORRECTIVE MEASURES
1	The machine fails to sew at the start of sewing.	Length of remaining thread is too short.	Adjust the thread adjusting thread guide.
		Speed is fast.	Use the soft-start function.
2	Thread breakage	The thread tension post No. 2 fails to release the thread at correct timing.	Make the thread releasing timing slightly earlier.
		The needle does not enter the center of the holes in the button.	Adjust the position of the button clamp jaw lever holder.
		The needle is too thick for the diameter of the hole in the button.	Replace the needle with a thinner one.
3	Buttons are not sewn tightly.	The thread tension post No. 2 fails to release the thread at correct timing.	Make the thread releasing timing slightly earlier.
		The thread tension post No. 2 does not give sufficient tension.	Increase the tension of the thread tension post No. 2.
		The needle does not enter the center of the holes in the button.	Adjust the position of the button clamp jaw lever holder.
4	Thread cannot be trimmed.	The moving knife does not separate the thread on the fabric with its separation nail.	Adjust the position of the moving knife.
		The needle does not enter the center of the holes in the button.	Adjust the position of the button clamp jaw lever holder.
		The last stitch skips.	Adjust the looper.
		The moving knife separation nail is too high or too low.	Adjust the height of the thread separation nail.
5	Needle thread is cut in two places.	The moving knife does not separate the thread on the fabric with its separation nail.	Adjust the position of the moving knife.
		The moving knife separation nail is too high or too low.	Adjust the height of the thread separation nail.

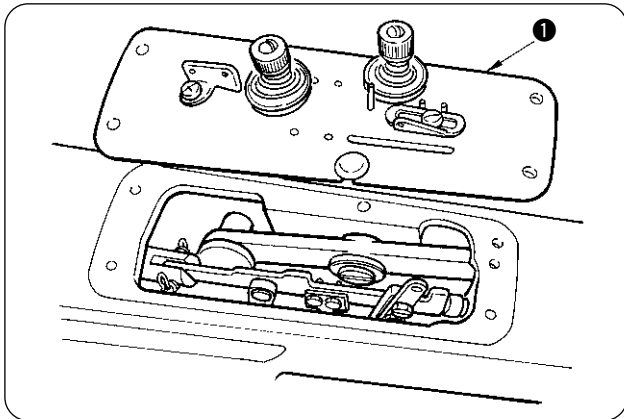
X. OPTIONAL

1. Installing the without-crossover-thread device (Part No. : M85126300A0)

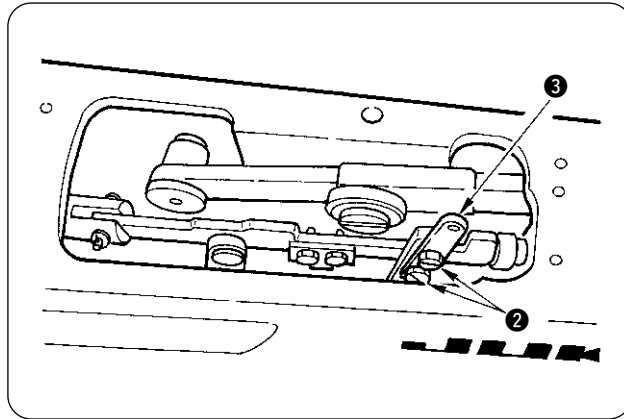


WARNING :

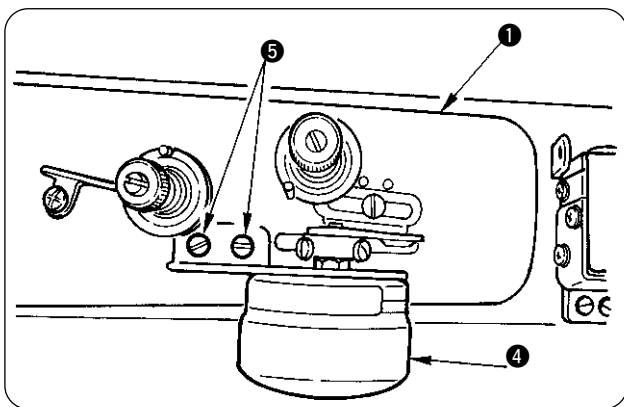
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



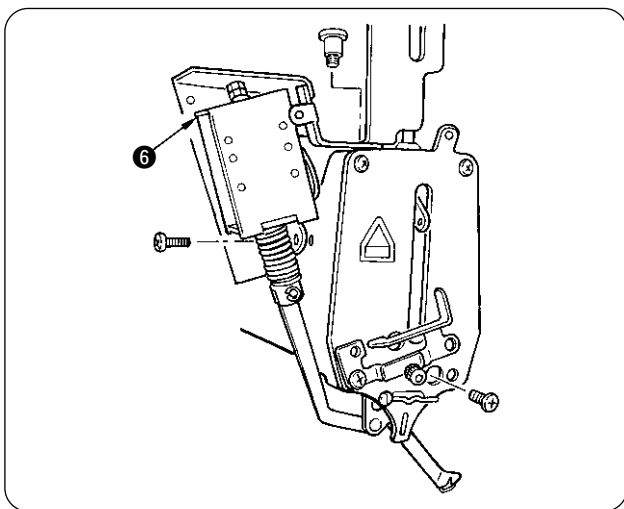
1) Remove top cover ①.



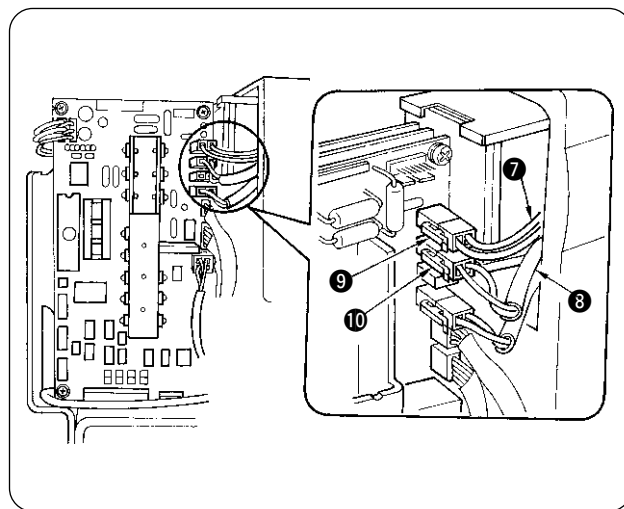
2) Remove screws ② with spanner and remove adjusting plate ③.



3) Install thread adjusting solenoid (asm.) ④ on top cover ① with screw ⑤.



4) Install wiper solenoid (asm.) ⑥ as illustrated.



5) Remove the rubber cap in the top cover, enter cords ⑦ and ⑧ inside the top cover, and draw out the cords on the electrical component cover side. Connect thread adjusting solenoid connector (black) ⑨ and wiper solenoid connector (yellow) ⑩.

6) After completion of connection of the connectors, install the electrical component cover.

