

***ENGLISH***

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**WARNING :**

This Instruction Manual is for the control panel, CP-170.

Read "Safety Instructions" of the Instruction Manual for the control box carefully beforehand and understand them before using CP-170.

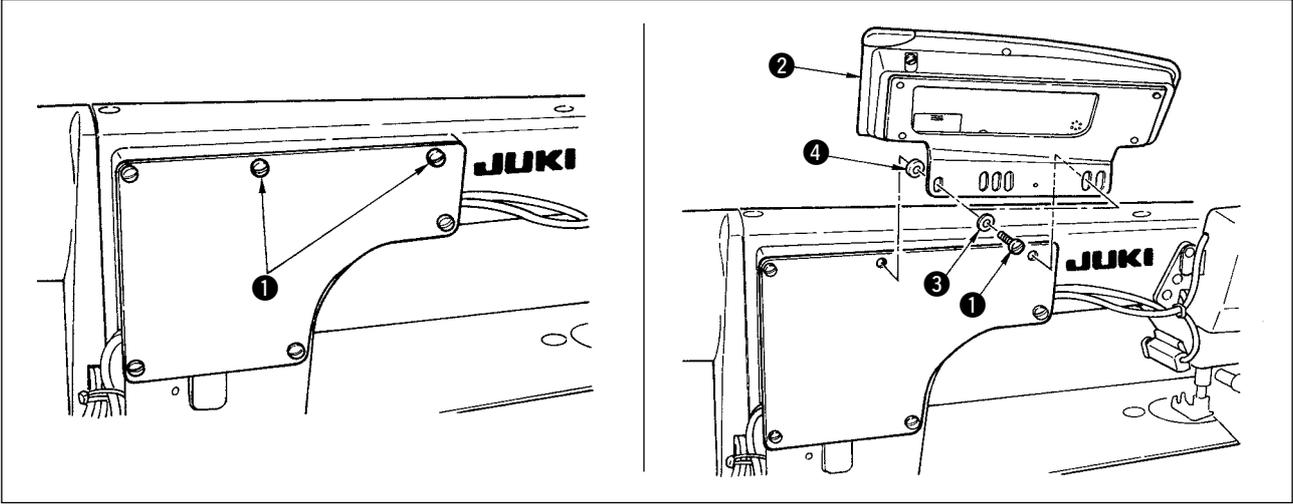
In addition, be careful not to splash water or oil on it, or shock such as dropping and the like since this product is a precision instrument.

# 1. INSTALLING THE CONTROL PANEL



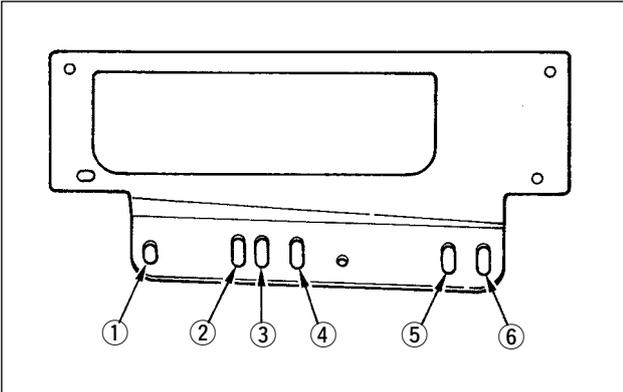
**WARNING :**

To prevent personal injury caused by abrupt start of the sewing machine, carry out the work after turning OFF the power switch and ascertaining that the motor has completely stopped.



- 1) Remove side plate setscrews ❶ from the side plate.
- 2) Install control panel ❷ on the machine head using screw ❶, flat washer ❸ and rubber seat ❹ supplied as accessories.

< The relation between the respective machine heads and the positions of installing hole of the bracket are as described in the table. >



	Installing hole	Screw
DDL-9000A	❶ - ❺	M5
DLN-9010	❷ - ❺	3/16-28
LH-3100	❸ - ❺	11/64-40
LZ-2280	❸ - ❺	3/16-28
LH-4100	❷ - ❺	M5
LH-3500	❷ - ❺	M5
DDL-8700 Series	❸ - ❻	3/16-28

The screws supplied with the machine as the accessories are for LH-3100. When they are used for other machine heads, there is a possibility that the screw hole is crushed.

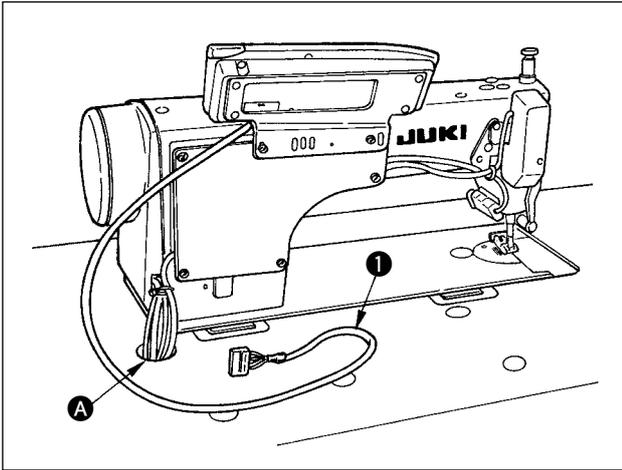
Do not use the screws supplied with the machine as the accessories with the machines other than LH-3100.

**Caution** When installing the control panel on DDL-8700, the machine with AK device is different from that without the device in installing procedure.

With AK device : Install the control panel on the machine head bracket supplied with the AK device.

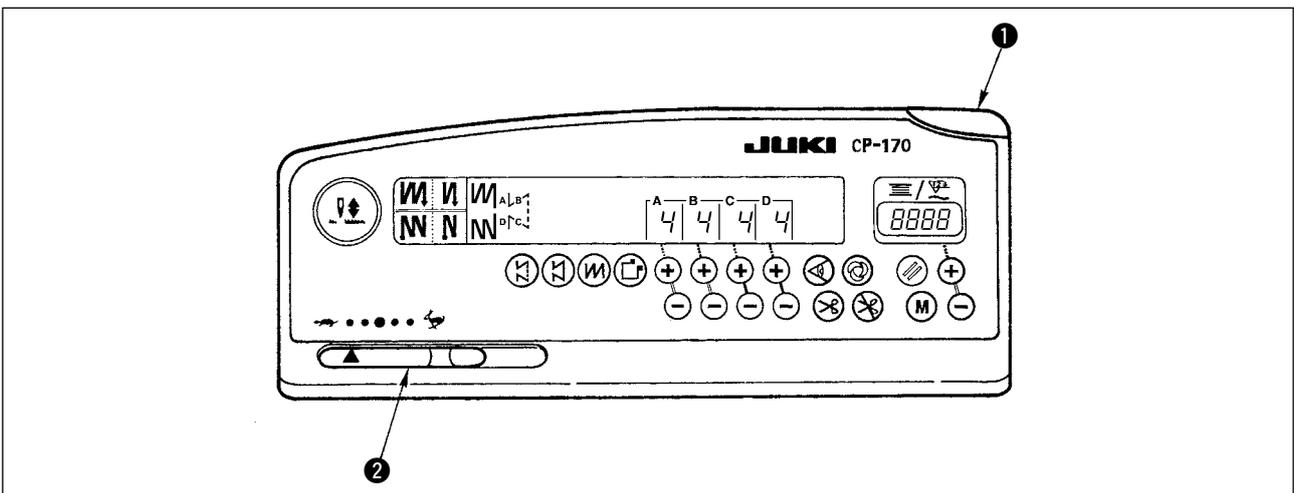
Without AK device : Remove the side plate setscrews and install on the side plate.

## 2. CONNECTING THE CORD



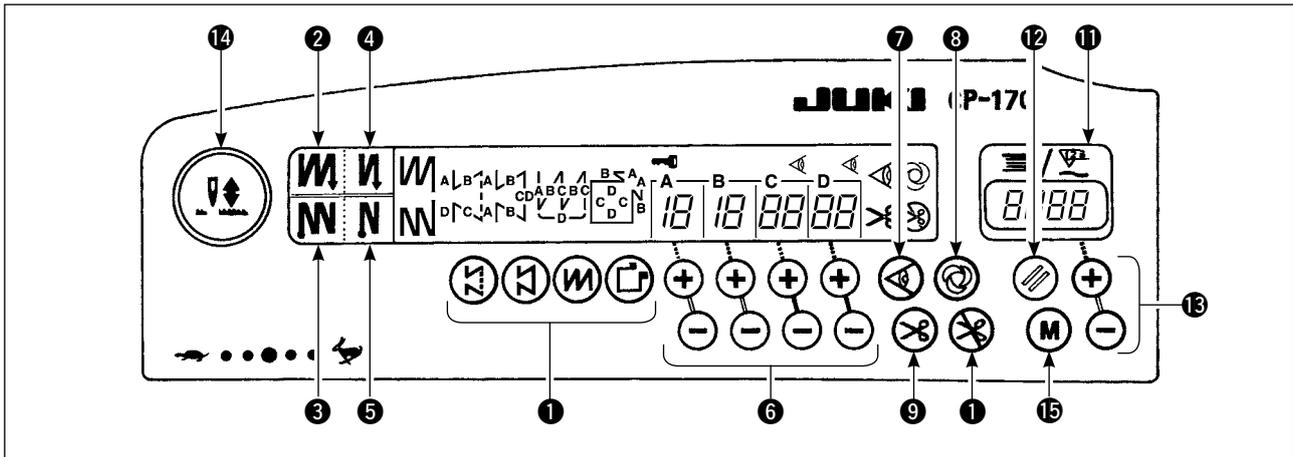
- 1) Pass cord ❶ of the control panel through hole ❷ in the machine table route it to the underside of the table.
- 2) As for the connection of the connector, refer to the Instruction Manual for the control box.

## 3. CONFIGURATION



- ❶ Power indicator lamp (LED) : Lights up when the power switch is turned ON.
- ❷ Max. speed limitation variable resistor : Limits the speed when it is moved to the left ( ➡ ).

## 4. EXPLANATION OF THE CONTROL PANREL



①	<b>Pattern selector switch</b> <ul style="list-style-type: none"> <li>Used for selecting a pattern from among the four different patterns.</li> </ul>
②	<b>Double reverse stitching (for start) switch</b> <ul style="list-style-type: none"> <li>Used for turning ON/OFF the double reverse stitching for start.</li> </ul>
③	<b>Double reverse stitching (for end) switch</b> <ul style="list-style-type: none"> <li>Used for turning ON/OFF the double reverse stitching for end.</li> </ul>
④	<b>Automatic reverse stitching (for start) switch</b> <ul style="list-style-type: none"> <li>Used for turning ON/OFF the automatic reverse stitching for start.</li> </ul>
⑤	<b>Automatic reverse stitching (for end) switch</b> <ul style="list-style-type: none"> <li>Used for turning ON/OFF the automatic reverse stitching for end.</li> </ul>
⑥	<b>Switches for setting the number of stitches</b> <ul style="list-style-type: none"> <li>Used for setting the number of stitches to be sewn in processes A through D.</li> </ul>
⑦	<b>Material edge sensor ON/OFF switch</b> <ul style="list-style-type: none"> <li>Rendered effective when the material edge sensor is installed on the machine.</li> <li>Used for setting whether or not the material edge sensor is used during sewing.</li> </ul>
⑧	<b>One-shot automatic stitching switch</b> <ul style="list-style-type: none"> <li>Rendered effective when the material edge sensor is installed on the machine or when the sewing machine is operated under the constant-dimension stitching mode.</li> <li>Start the sewing machine with this switch, and the sewing machine will run automatically until the material edge is detected or the end of a constant-dimension stitching is reached.</li> </ul>
⑨	<b>Automatic thread trimming switch</b> <ul style="list-style-type: none"> <li>Rendered effective when the material edge sensor is installed on the machine or when the sewing machine is operated under the constant-dimension stitching mode.</li> <li>Even keep depressing the front part of the pedal, the sensor can detect the material edge, or after the completion of the constant-dimension stitching mode, the machine will automatically perform thread trimming.</li> </ul>

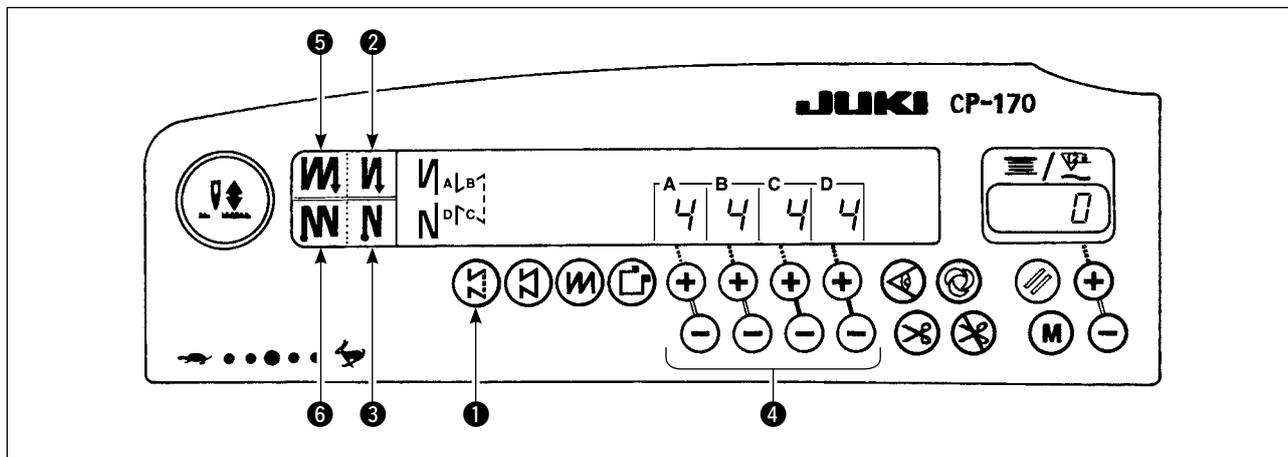
⑩	<b>Thread trimming prohibition switch</b> <ul style="list-style-type: none"> <li>Used for prohibiting thread trimming at any occasion.</li> </ul>
⑪	<b>Bobbin thread counter/thread trimming counter</b> <ul style="list-style-type: none"> <li>Bobbin thread counter/thread trimming counter can be changed over by the function of the control box main body.</li> </ul> <b>Bobbin thread counter :</b> <ul style="list-style-type: none"> <li>Indicates the amount of bobbin thread while counting it by subtracting from the set value.</li> <li>When the bobbin thread remaining amount detecting device is installed on the machine, the counter indicates the number of times of detecting.</li> </ul> <b>Thread trimming counter :</b> <ul style="list-style-type: none"> <li>Every time thread trimming is performed, the counter value is added.</li> </ul>
⑫	<b>Bobbin counter reset switch</b> <ul style="list-style-type: none"> <li>Used for returning the value shown on the bobbin thread counter to the initial value.</li> </ul>
⑬	<b>Bobbin thread amount setting switch</b> <ul style="list-style-type: none"> <li>Used for setting the amount of bobbin thread.</li> <li>When the thread trimming counter is selected, it is reset to [0].</li> </ul>
⑭	<b>No. of pcs. counter</b> <ul style="list-style-type: none"> <li>The indication shown on the counter increase while coupling up the number of finished pieces of garment every time the machine performs thread trimming.</li> </ul> <b>[Changeover selection of needle bar stop position when the pedal is in its neutral position]</b> <ul style="list-style-type: none"> <li>Pressing the needle up/down compensation switch, turn ON the power to the machine, and the needle bar stop position when the pedal is in its neutral position is changed over to down position/up position.</li> <li>Confirmation of the stop position can be performed at the front cover of the control box. When up position stop is specified : " nP UP "</li> <li>When down stop position is specified : " nP Lo "</li> </ul>
⑮	<b>Function setting switch</b> <ul style="list-style-type: none"> <li>Pressing the function setting switch, turn ON the power to the machine, and it is possible to change the various function setting values. The case is the same as the control panel of the front of the control box.</li> </ul>



The respective functions may not be used in accordance with the combined control box.

## 5. HOW TO OPERATE THE CONTROL PANEL FOR SEWING STITCHING PATTERNS

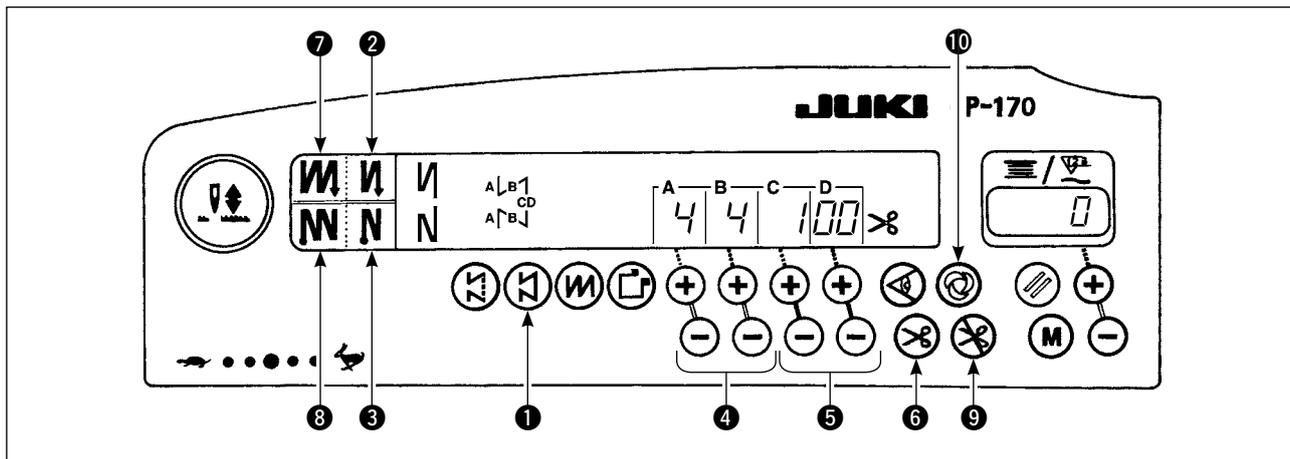
### (1) Reverse stitching pattern



<b>2</b>	OFF	ON	OFF	ON
Sewing pattern				
<b>3</b>	OFF	OFF	ON	ON

- 1) Press reverse stitching pattern switch **1** to specify the reverse stitching pattern.
- 2) The reverse stitching pattern is selected, and the number of stitches and data on reverse stitching which have already been specified are shown on the panel.
- 3) If you want to change the number of stitches, operate the "+" or "-" switch of switches **4** for setting the number of stitches A through D.  
(The range of the number of stitches that can be changed : 0 to 19 stitches)
- 4) Four different stitching patterns can be performed by matching the ON and OFF settings of automatic reverse stitching (for start) switch **2** and automatic reverse stitching (for end) switch **3**.
- 5) Furthermore, the double reverse stitching can be selected by operating double reverse stitching (for start) switch **5** and double reverse stitching (for end) switch **6**.

**(2) Constant-dimension stitching pattern**



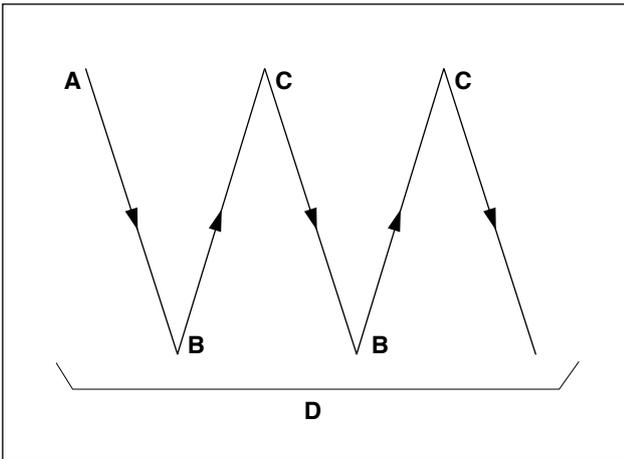
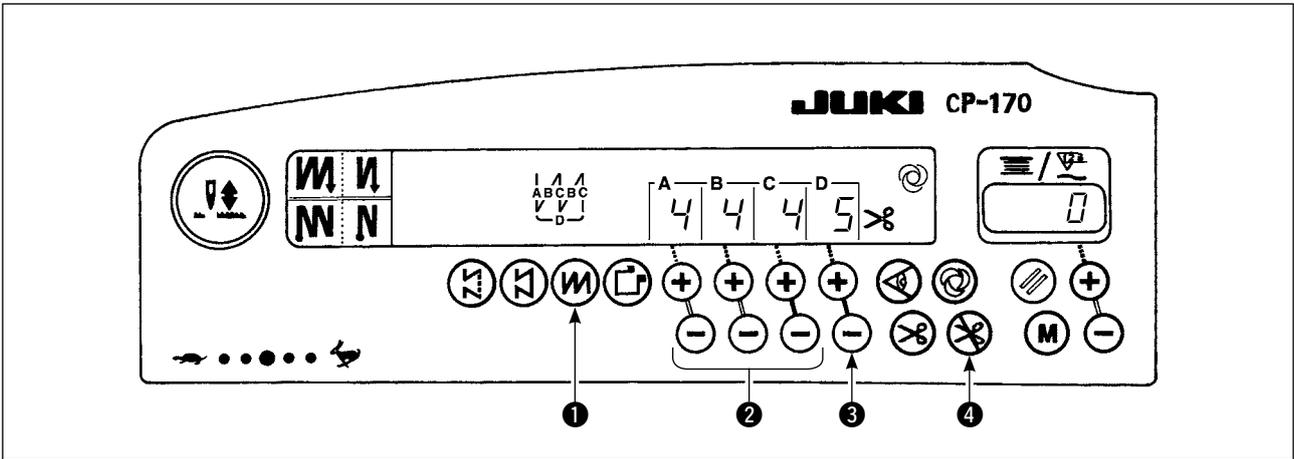
②	OFF	ON	OFF	ON
Sewing pattern				
③	OFF	OFF	ON	ON

- 1) Press constant-dimension stitching pattern switch ① on the control panel to select the constant-dimension stitching pattern.
- 2) The constant-dimension stitching pattern is selected. Now, the predetermined number of stitches and the state of reverse stitching function are shown on the control panel.
- 3) To change the number of stitches of the processes in the constant-dimension stitching pattern, change the number of stitches for processes C and D by operating switches ⑤ for setting the number of stitches for processes C and D. Select the reverse feed stitching accordingly. To change the number of reverse-feed stitches, operate switches ④ for setting the number of stitches for processes A and B.

( Adjusting range : A, B = to 19 stitches  
C, D = 5 to 500 stitches )

- 4) Four different kinds of stitching patterns can be performed according to the combination of ON/OFF settings of automatic reverse stitching (for start) switch ② and automatic reverse stitching (for end) switch ③.
- 5) Furthermore, the double reverse stitching mode can be specified by operating double reverse stitching (for start) switch ⑦ and double reverse stitching (for end) switch ⑧.
- 6) If automatic thread trimming switch ⑥ is turned ON, the sewing machine will automatically perform thread trimming after it finishes the predetermined number of stitches between C and D. (If the automatic reverse feed stitching (for end) is selected, the sewing machine will automatically perform thread trimming after it finishes the automatic reverse stitching (for end) even when the automatic thread trimming switch is not selected.)  
If automatic thread trimming switch ⑥ is turned OFF, operate the touch-back switch after the completion of processes C and D. Then the machine runs at a low speed (stitch compensation operation). Also, if the pedal is returned to its neutral position and depressed its front part again, the sewing can be continued regardless of the setting of number of stitches.
- 7) If thread trimming prohibiting function ⑨ is chosen, the machine will stop with the needle up without performing thread trimming.
- 8) If one-shot automatic stitching function ⑩ is chosen, the machine will automatically perform sewing at a stretch, at the specified speed by depressing the front part of the pedal.

(3) Overlapped stitching pattern

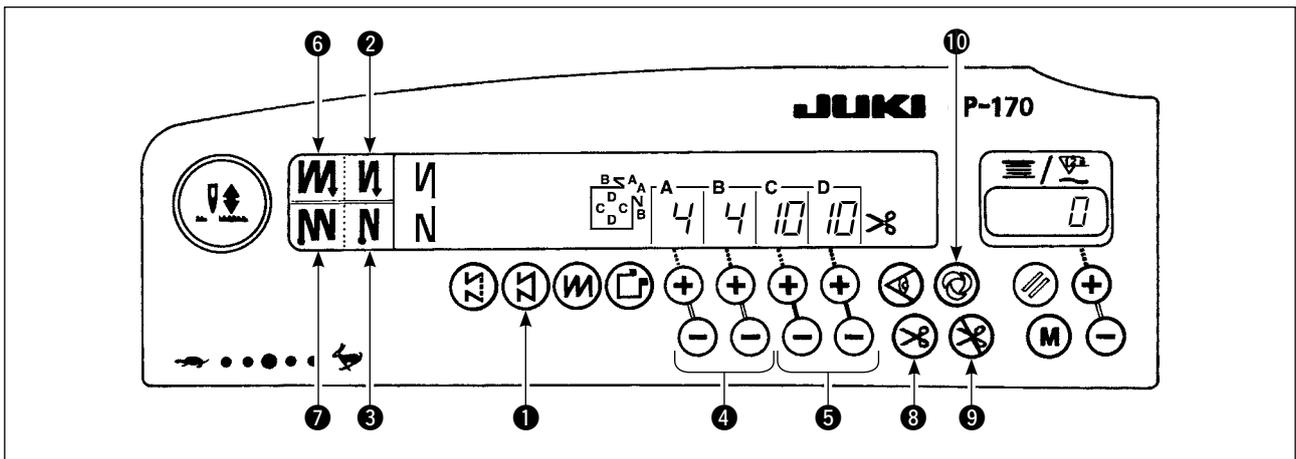


- 1) Press overlapped stitching pattern switch ❶ to specify the overlapped stitching pattern.
- 2) The overlapped stitching pattern is selected, and the number of stitches and data on overlapped stitching which have already been specified are shown on the panel.
- 3) If you want to change the number of stitches, operate number of stitches setting switches ❷ for processes A through C, and to change the number of repeated processes, operate the "+" or "-" switch of switch ❸ for setting the number of processes D.

( The range of the number of stitches A, B and C that can be changed : 0 to 19 stitches.  
The range of the number of processes D that can be changed : 0 to 9 times. )

- 4) Depress the front part of the pedal once, and the sewing machine will repeat the normal stitching and reverse stitching by the predetermined times. Then, the sewing machine will automatically make the thread trimmer actuate and will stop to complete the overlapped stitching procedure. (The one-shot automatic stitching cannot be turned OFF.)
- 5) If thread trimming prohibiting function ❹ is chosen, the machine will stop with the needle up upon completion of the overlapped stitching procedure without performing thread trimming.

#### (4) Rectangular stitching pattern



	OFF	ON	OFF	ON
Sewing pattern				
	OFF	OFF	ON	ON

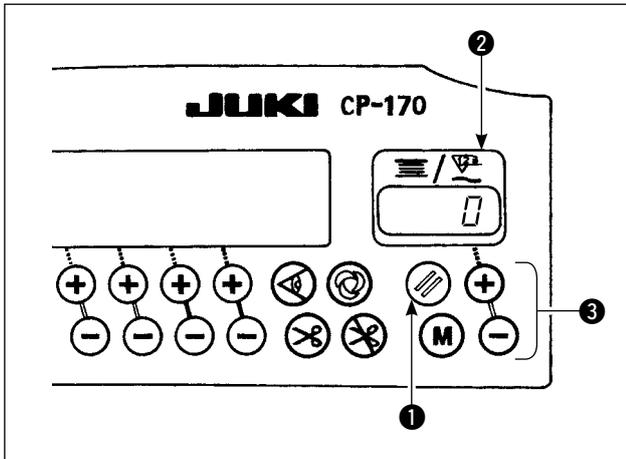
- 1) Press rectangular stitching pattern switch **1** on the control panel to select the rectangular stitching pattern.
- 2) The rectangular stitching pattern is selected. Now, the predetermined number of stitches and other sewing data are shown on the control panel.
- 3) To change the number of stitches of the processes in the rectangular stitching pattern, operate switches **5** (for processes C and D) to change the number of stitches for processes C and D. Select the reverse feed stitching accordingly. To change the number of reverse-feed stitches, operate switches **4** for setting the number of stitches for processes A and B.

(Adjustable range : A, B = 0 to 19 stitches, C, D = 0 to 99 stitches)

- 4) Four different kinds of stitching patterns can be performed according to the combination of ON/OFF settings of automatic reverse stitching (for start) switch **2** and automatic reverse stitching (for end) switch **3**.
- 5) Furthermore, the double reverse stitching mode can be specified by operating double reverse stitching (for start) switch **6** and double reverse stitching (for end) switch **7**.  
At each step the sewing machine automatically stops after sewing the predetermined number of stitches. At this time, if the touch-back switch is operated, the sewing machine runs at a low speed (stitch compensation operation). Also, at the last process, if the pedal is returned to its neutral position and depressed its front part again, the sewing can be continued regardless of the setting of number of stitches.
- 6) If automatic thread trimming switch **8** is turned ON, the sewing machine will automatically perform thread trimming after the completion of the last process. (If the automatic reverse stitching (for end) is selected, the sewing machine will automatically perform thread trimming after it finishes the automatic reverse stitching (for end).)
- 7) If thread trimming prohibiting function **9** is chosen, the machine will stop with the needle up without performing thread trimming.
- 8) If one-shot automatic stitching function **10** is chosen, the machine will automatically perform sewing at a stretch until the number of stitches specified is reached, at the predetermined sewing speed by depressing the pedal while the sewing machine is engaged in the sewing of process C or D. The machine performs thread trimming in the last process of one-shot automatic stitching pattern.
- 9) For the sewing machine equipped with an auto-lifter, the presser foot will automatically go up after the completion of each sewing process.

# 6. HOW TO USE THE BOBBIN THREAD COUNTER

The machine detects the number of stitches. The preset value on the bobbin thread counter is subtracted in accordance with the number of stitches detected. (Every time the detector detects 10 stitches, 1 is subtracted from the preset value on the bobbin thread counter.) When the value on the counter becomes a minus value as "1 → 0 → -1", the buzzer beeps three times to warn the operator that the time to change the bobbin thread has come.

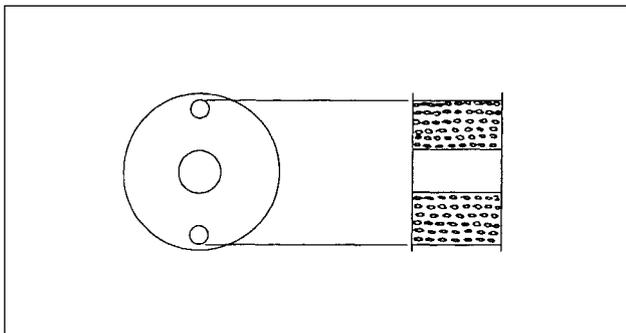


- 1) Press bobbin thread counter reset switch ① to return the value indicated on bobbin thread counter ② to the initial value (it has been factory-set to "0" at the time of delivery).

**Caution** The bobbin thread counter cannot be reset during sewing. In this case, make the thread trimmer actuate once.

- 2) Specify an initial value using bobbin thread amount setting switch ③. When keeping pressing the switch, the changeover speed is increased.

### < Initial value on the bobbin thread counter for reference >



The table below gives the initial setting values for reference when the bobbin is wound with thread to the extent that the pinhole in the outside of the bobbin case is reached as shown in the figure given above.

Thread used	Length of thread wound round the bobbin	Value on bobbin thread counter
Polyester spun thread #50	36m	1200 (stitch length : 3 mm)
Cotton thread #50	31m	1000 (stitch length : 3 mm)

Thread tension rate 100 %

※ Actually, the bobbin thread counter is affected by the material thickness and the sewing speed. So, adjust the initial value of the bobbin thread counter in accordance with the operating conditions.

- 3) Once the initial value is specified properly, start the sewing machine.
- 4) When a minus value is shown on the counter and the buzzer beeps three times, replace the bobbin thread.
- 5) After the bobbin thread has been properly replaced, press bobbin thread counter reset switch ① to return the value on the bobbin thread counter to the initial value. Now, re-start the sewing machine.
- 6) If the remaining amount of bobbin thread is excessive or the bobbin thread runs out before the bobbin thread counter indicates a minus value, adjust the initial value appropriately using the "+" or "-" switch of bobbin thread adjustment switch ③.

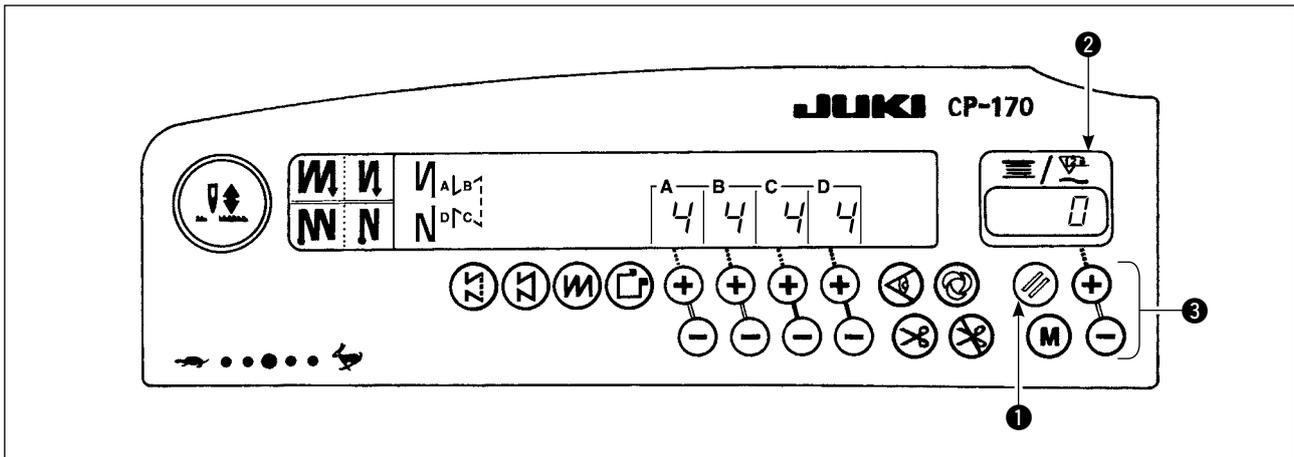
If the remaining amount of bobbin thread is excessive ... Increase the initial value using the "+" switch.

If the remaining amount of bobbin thread is insufficient ... Decrease the initial value using the "-" switch.

**Caution**

1. Uneven performance may occur in accordance with the winding way of thread or the thickness of materials and it is necessary to set the thread trimming amount with some surplus.
2. If the bobbin thread counter is used in combination with the bobbin thread remaining amount detecting device, the bobbin thread counter indicates the number of detections of the bobbin thread remaining amount detecting device. So, be sure to use the device after carefully reading the Instruction Manual for the bobbin thread remaining amount detecting device.

## 7. HOW TO USE THE THREAD TRIMMING COUNTER



Bobbin thread counter indication can be changed over to thread trimming counter (simplified sewing counter) indication by the operation below.

- 1) Function setting No. 6 Turn OFF the setting of bobbin thread counter function. .  
Function setting No. 6 0 : off / 1 : on
- 2) Function setting No. 14 Turn ON the setting of sewing counter function.  
Function setting No. 14 0 : off / 1 : on
- 3) From turning ON the power next, the counter indication works as the thread trimming counter.  
Every time thread trimming is performed, the counter indication is upped.



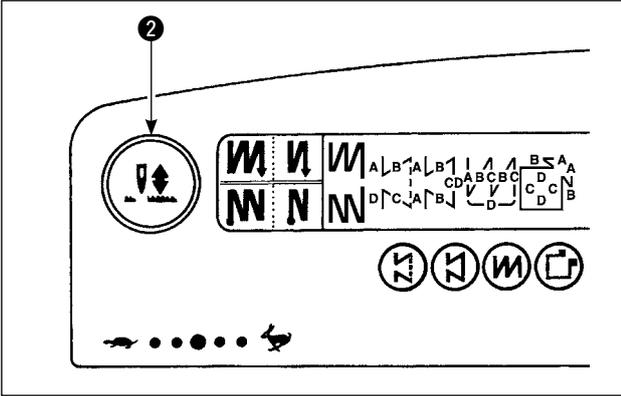
After selecting each item, be sure to perform updating of the function setting No.

When turning OFF the power without performing updating, the set contents are not changed.

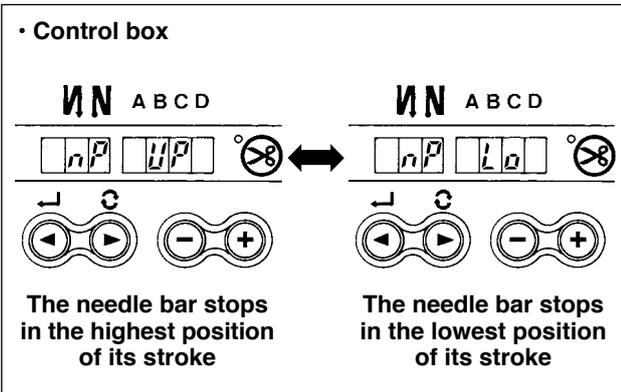
For the updating procedure, refer to the function setting procedure described in the Instruction Manual supplied with the control box.

- 4) When reset switch ① is pressed, the contents of indication ② will be reset to " 0 ".
- 5) When modifying the count value, increase/decrease the value with setting switch ③.

## 8. NEEDLE UP/DOWN COMPENSATION SWITCH



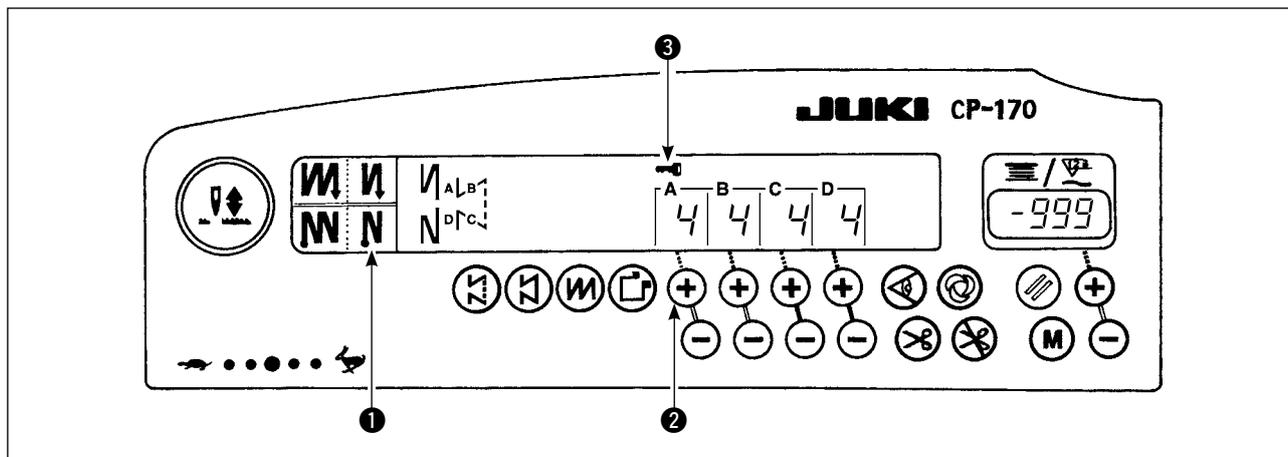
Every time needle up/down compensation switch ❶ is pressed, the needle goes up when it is in its lowest position or comes down when it is in its highest position. This compensates the stitch by a half of the predetermined stitch length. However, note that the machine does not run continuously at a low speed even if you keep the switch held pressed. Also, note that the needle up/down compensation switch is inoperative after turning the handwheel by hand. Sewing of needle up/down compensation operation does not make the thread trimming operation operative.



Whenever pressing the needle up/down compensation switch ❶ and turning ON the power to the machine, the stop position when the pedal is in its neutral position can be changed over. Also, the specified state at this time can be confirmed at the control box. (The contents shown there will be reflected when turning ON the power after next time.)

## 9. KEY LOCK FUNCTION

In order to prevent the specified data on the number of stitches or the processes (A, B, C and D) to be changed by mistake, the setting switch can be locked. (Even with the setting keys locked, the pattern to be sewn and the value on the bobbin thread counter can be changed.)



- 1) After the completion of the setting of data on the number of stitches, etc., turn OFF the power to the machine once.
  - 2) Turn ON the power switch while simultaneously pressing automatic reverse stitching (for end) switch ① and the "+" switch of number of stitches setting switch ② for process A with fingers.
  - 3) Key mark ③ is shown on the control panel. This completes the locking of keys.  
(If the key mark is not shown on the control panel, carry out the aforementioned steps 1) through 3) again.)
- \* To release the keys from the locked state, perform again the steps 1) and 2).  
(Once the key mark goes out, the keys are released from the locked state.)

## 10. ON/OFF SWITCH ④ OF THE MATERIAL EDGE SENSOR

- When the material edge sensor, which is optionally available, is connected to the control panel, the ON/OFF switch of the material edge sensor becomes effective.
- If the material edge sensor is specified, the sewing machine will automatically stop running or perform thread trimming when the sensor detects the material edge.



If the material edge sensor is used in combination with the control panel, carefully read the Instruction Manual for the material edge sensor beforehand.

## 11. AUTOMATIC THREAD TRIMMING SWITCH ⑧

- This switch is used to automatically actuate the thread trimmer in a process where the sewing machine automatically stops or when the material edge sensor is used.  
(If the automatic reverse stitching (for end) is specified, the thread trimmer will actuate after the sewing machine completes the automatic reverse stitching (for end).)

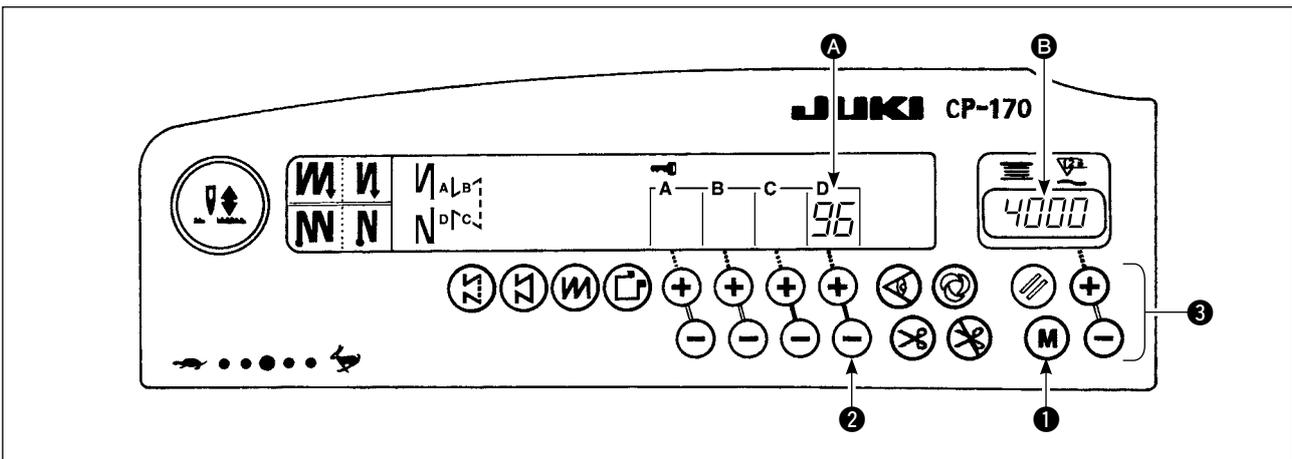
## 12. ONE-SHOT AUTOMATIC STITCHING SWITCH ⑨

- This switch is used, in the constant-dimension stitching mode, rectangular stitching mode, or in the process where the material edge sensor is specified, to make the sewing machine automatically perform sewing at the specified speed until the end of the process is reached only by driving the sewing machine mode.

## 13. THREAD TRIMMING PROHIBITION SWITCH

- This switch is used to temporarily make the thread trimming function inoperative. The other performance of sewing machine is not affected by this switch. (If the automatic reverse stitching (for end) is specified, the sewing machine will perform the automatic reverse stitching at the end of sewing.)
- If the automatic thread trimming switch and the thread trimming prohibition switch are both specified, the machine will not perform thread trimming but stop with its needle up.

## 14. FUNCTION SETTING SWITCH



- 1) Pressing function setting switch ①, turn ON the power to the machine.
- 2) The indication on the control panel is changed over to the function setting indication mode. Function setting No. is shown at section A and the set value is shown at section B of counter indication section.
  - \* The contents to be shown will be different according to the contents that were set in the last time.
- 3) Function setting No. can be changed over by operating switch ②.
- 4) Function set value (setting state in case of on/off) can be changed over by operating switch ③.
- 5) After completion of setting, the changed contents are stored in memory and reflected from the next time.
- 6) For the details of the contents of function setting, refer to the Instruction Manual supplied with the control box.