









***ENGLISH***



# CONTENTS

<b>1. INSTALLING THE OPERATION PANEL .....</b>	<b>1</b>
<b>2. CONNECTING THE CORD .....</b>	<b>2</b>
<b>3. HOW TO USE THE OPERATION PANEL .....</b>	<b>3</b>
3-1. Names and functions of each components .....	3
3-2. Adjusting the contrast of the operation panel display .....	5
3-3. Production control switch connecting connector .....	5
<b>4. STANDARD PANEL .....</b>	<b>6</b>
4-1. Screen list .....	6
4-2. How to operate the operation panel for sewing stitching patterns .....	8
(1) Reverse stitching pattern .....	8
(2) Overlapped stitching pattern .....	10
(3) Programmed stitching pattern .....	11
(4) Cycle sewing pattern .....	15
4-3. How to use the bobbin thread counter .....	17
4-4. No. of pcs. counter .....	18
4-5. Re-sewing switch .....	18
4-6. Needle up/down compensation switch .....	19
4-7. ON/OFF switch  of the material edge sensor .....	19
4-8. Automatic thread trimming switch  .....	19
4-9. One-shot automatic stitching switch  .....	19
4-10. Thread trimming prohibition switch  .....	19
4-11. Key lock .....	19
4-12. Information .....	20
(1) Sewing management information .....	20
(2) Production control function .....	24
(3) Working measurement function .....	26
4-13. Setting for functions .....	28
(1) How to change over to the function setting mode .....	28
(2) Function setting list .....	31
<b>5. PANEL FOR LH-4168/4188 .....</b>	<b>34</b>
5-1. Screen list .....	34
5-2. How to operate the operation panel for sewing stitching patterns .....	38
(1) Reverse stitching pattern .....	38
(2) Overlapped stitching pattern .....	40
(3) Corner pattern .....	41
(4) Step pattern .....	47
(5) Cycle sewing pattern .....	50
5-3. How to use the bobbin thread counter .....	51
5-4. No. of pcs. counter .....	52
5-5. Re-sewing switch .....	53
5-6. Needle up/down compensation switch .....	54
5-7. ON/OFF switch  of the material edge sensor .....	54

5-8. Automatic thread trimming switch 	54
5-9. One-shot automatic stitching switch 	54
5-10. Thread trimming prohibition switch 	54
5-11. Key lock	54
5-12. Information	55
(1) Sewing management information	55
(2) Production control function	59
(3) Working measurement function	61
5-13. Setting for functions	63
(1) How to change over to the function setting mode	63
(2) Function setting list	66
(3) Communication mode	70
<b>6. EXTERNAL INTERFACE</b>	<b>74</b>
<b>7. ERROR DISPLAY</b>	<b>74</b>
7-1. Error code list (Error display in panel)	75

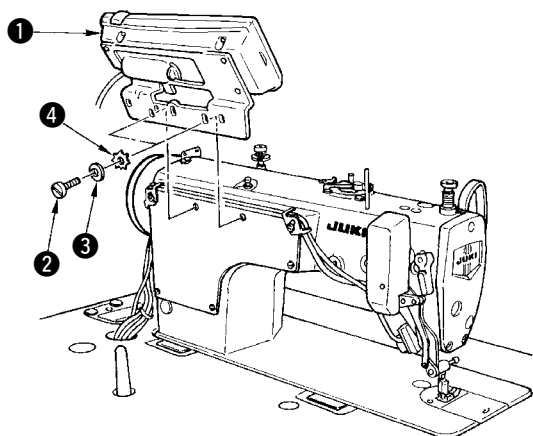
# 1. INSTALLING THE OPERATION PANEL



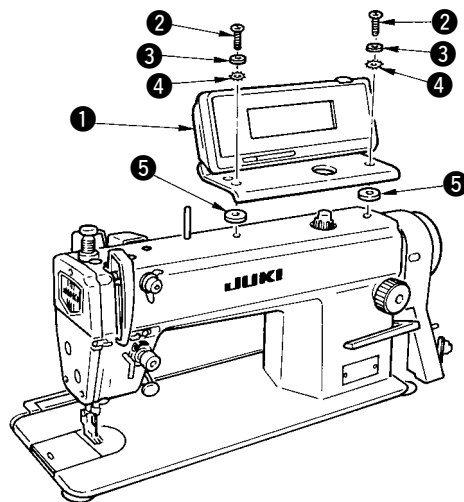
## WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

Type B (Type name plate TYPE B0 \*)

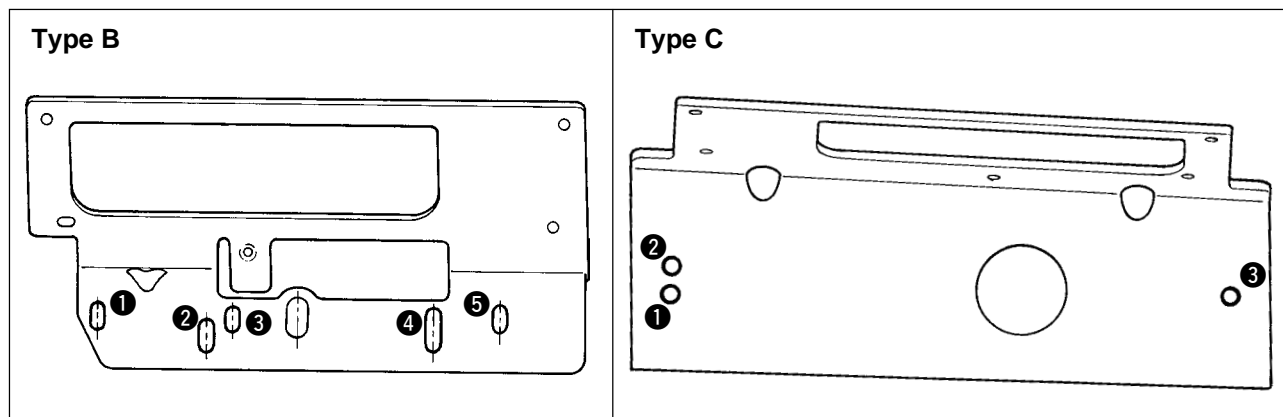


Type C (Type name plate TYPE C0 \*)



- 1) Attach operation panel ① to the machine head using screw ②, plain washer ③, toothed lock washer ④ and spacer ⑤ (for type C) supplied with the operation panel. Select and use screw ② referring to the table.
- 2) The positions of the holes in the bracket for installing the operation panel are different from each other according to the respective models. Refer to the table below.

## IP-100 / bracket type classified by model correspondence table



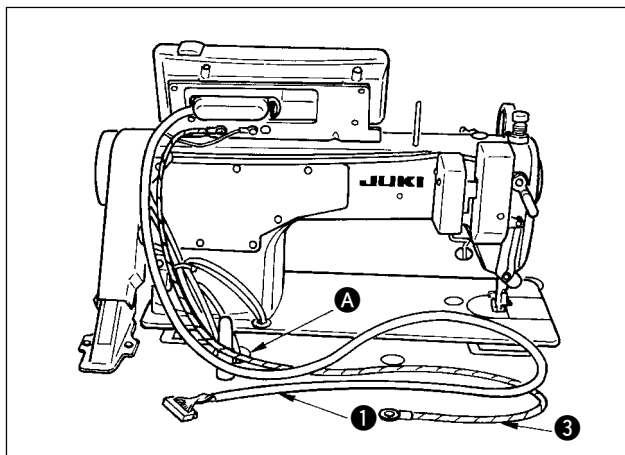
No.	Mounted machine head	Bracket type	Installing hole used	Part No. of screw	Remarks
1	DDL-9000	Type B	② - ④	SS4121415SP(3/16-28)	
2	DLN-9010	Type B	② - ④	SS4121415SP(3/16-28)	
3	LH-31 **, LH-35 **	Type B	① - ⑤	SS6111210SP(11/64-40)	
4	LZ-228 * N	Type B	③ - ④	SS4121415SP(3/16-28)	To be fixed on the exclusive bracket for installing standard panel
5	DDL-5550N	Type C	① - ③	SS7121410SN(3/16-24)	Use ② - ③ in case of optional unit (V0 and the like).
6	DDL-8700	Type C	① - ③	SS7121410SN(3/16-24)	
7	DLN-5410N	Type C	① - ③	SS7121410SN(3/16-24)	
8	DLU-5494N	Type C	① - ③	SS7121410SN(3/16-24)	
9	LH-41 **	Type B	② - ④	SS4121415SP(3/16-28)	

## 2. CONNECTING THE CORD

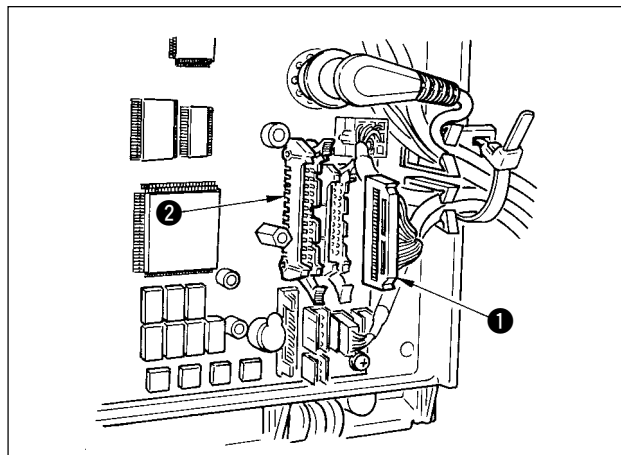


### WARNING :

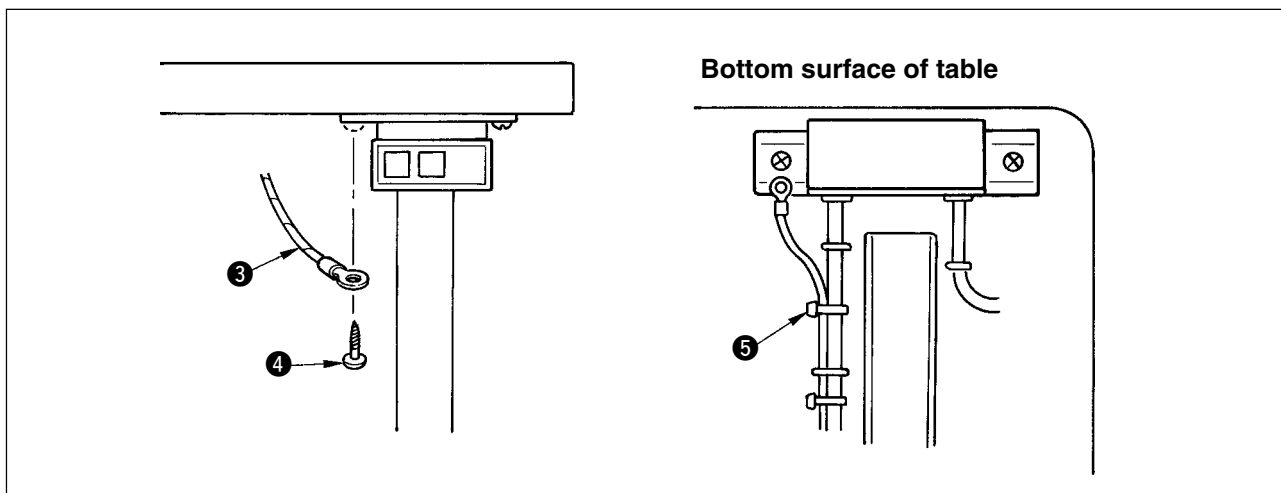
Turn OFF the power and start the work after 5 minutes or more have passed so as to prevent accidents caused by abrupt start of the sewing machine.



1) Pass cord ① and FG cord ③ (for type C) of the operation panel through hole A in the machine table to route it to the underside of the table.



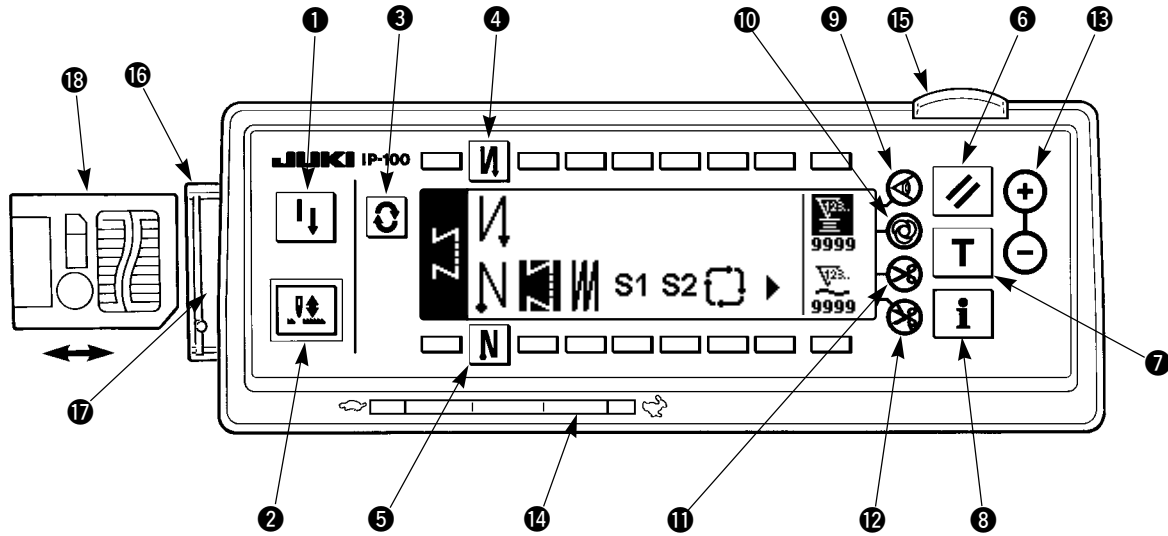
2) Connect the connector of cord ① to connector CN34 ② in the control box.









3) For type C, fix FG cord ③ to the power switch with wood screw ④ supplied with the panel as accessories. Wire FG cord ③ after bundling it with the power cable and the like with cable clip band ⑤ supplied with the panel as accessories.








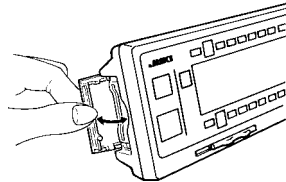
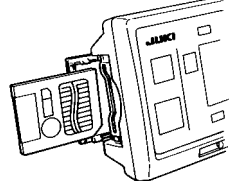
### 3. HOW TO USE THE OPERATION PANEL

#### 3-1. Names and functions of each components

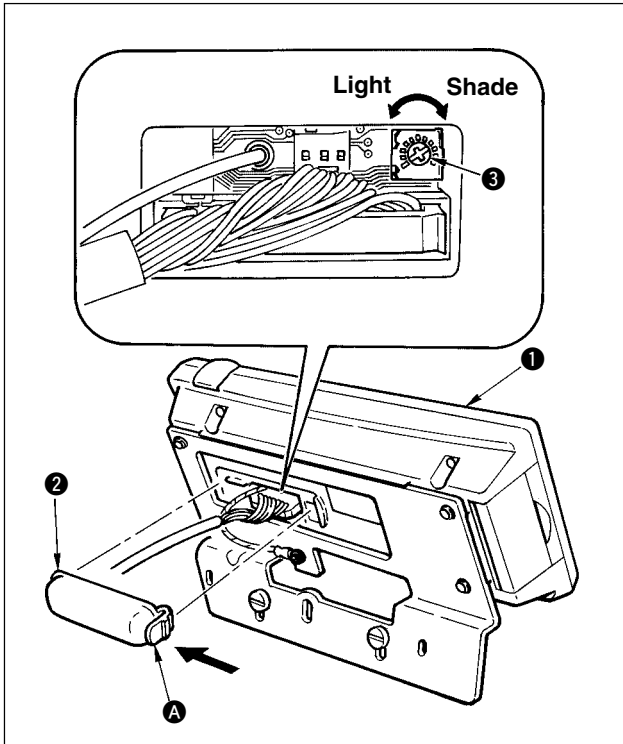


- |   |  |   |
|---|--|---|
| ① Re-sewing switch  | ⑧ Information switch                           | ⑮ Power display lamp                                  |
| ② Needle up/down compensating switch                      | ⑨ Material edge sensor switch                  | ⑯ Smart media cover                                   |
| ③ Screen changeover switch                                | ⑩ One-shot stitching switch                    | ⑰ Smart media slot<br>(Smart media inserting opening) |
| ④ With/without reverse feed stitch at sewing start switch | ⑪ With/without automatic thread trimmer switch | ⑱ Smart media<br>(Optional :<br>Part No.HX005750000)  |
| ⑤ With/without reverse feed stitch at sewing end switch   | ⑫ Thread trimming prohibiting switch           |   |
| ⑥ Reset switch  | ⑬ Counter value setting switch                 |   |
| ⑦ Teaching switch   | ⑭ Max.speed limitation variable resistor       |   |

<p>① Re-sewing switch</p> 	<p>This switch is used to continue sewing from the step on the way after replacing bobbin thread when bobbin thread has run out during program stitching step.</p>
<p>② Needle up/down compensating switch</p> 	<p>This is the switch to perform needle up/down compensating stitching. (Needle up/down compensating stitching and one stitch compensating stitching can be changed over with function setting No. 22.)</p>
<p>③ Screen changeover switch</p> 	<p>This is the switch to change over the screen.</p>
<p>④ With/without reverse feed stitch at sewing start switch</p> 	<p>This is the switch to turn ON/OFF automatic reverse feed stitch at sewing start. * This switch cannot be used with the sewing machine which is not provided with automatic reverse feed stitching device.</p>
<p>⑤ With/without reverse feed stitch at sewing end switch</p> 	<p>This is the switch to turn ON/OFF automatic reverse feed stitch at sewing end. * This switch cannot be used with the sewing machine which is not provided with automatic reverse feed stitching device.</p>
<p>⑥ Reset switch</p> 	<p>This is the switch to make the value of bobbin thread counter or sewing counter the set value.</p>

<p>⑦ Teaching switch</p> 	<p>This is the switch to set the setting of the number of stitches with the value of number of stitches which has been actually sewn.</p>
<p>⑧ Information switch</p> 	<p>This is the switch to perform various function settings.</p>
<p>⑨ Material edge sensor switch</p> 	<p>Rendered effective when the material edge sensor is installed on the machine. Used for selecting whether or not the material edge sensor is used during sewing.</p>
<p>⑩ One-shot stitching switch</p> 	<p>When this switch is set to effective at the time of program stitching, the sewing machine automatically operates up to the specified number of stitches.</p>
<p>⑪ With/without automatic thread trimmer switch</p> 	<p>When this switch is set to effective at the time of program stitching, the sewing machine automatically performs thread trimming when the specified number of stitches has been completed.</p>
<p>⑫ Thread trimming prohibiting switch</p> 	<p>This switch prohibits all thread trimmings. * This switch cannot be used with the sewing machine which is not provided with the automatic thread trimming device.</p>
<p>⑬ Counter value setting switch</p> 	<p>This is the switch to set the value of bobbin thread counter or No. of pcs. counter.</p>
<p>⑭ Max. speed limitation variable resistor</p>	<p>When moving the resistor in the left direction, max. speed is limited.</p>
<p>⑮ Power display lamp</p>	<p>This lamp lights up when the power switch is turned ON.</p>
<p>⑯ Smart media cover</p> 	<p>This is the cover for smart media inserting opening. To open the cover, place your finger on the notch located on the side of the cover as shown in the figure and push the cover in the direction of left slanting rear. * There are some functions that are not able to be operated with the cover opened. Do not close the cover unless smart media is completely inserted.</p>
<p>⑰ Smart media slot (Smart media inserting opening)</p> 	<p>To set smart media, insert smart media into smart media slot and push it until it is almost hidden. To remove smart media, push it further again and it protrudes to the position where it can be held between your fingers. Now, draw it out. * Be very careful of the inserting direction of smart media.</p>

### 3-2. Adjusting the contrast of the operation panel display

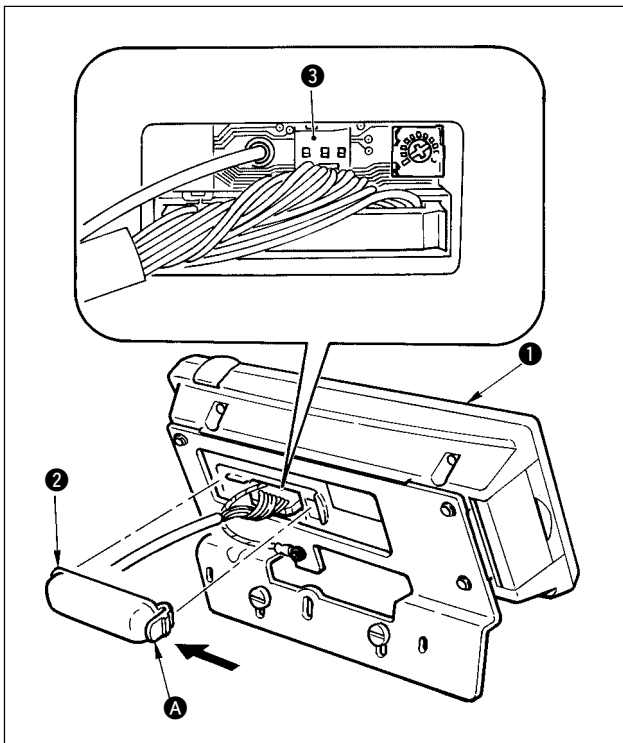


- 1) Press in the direction of arrow mark the click of section **A** of cord outlet cover **2** assembled in the rear of operation panel **1** and remove the cover.
- 2) Turn LCD screen display brightness adjustment variable resistor **3** to adjust the brightness (contrast) of LCD screen.



- Caution**
1. To prevent the operation panel from breakage, do not touch the circuit board pattern and the connector terminal.
  2. Do not disassemble the operation panel to prevent it from breakage.

### 3-3. Production control switch connecting connector

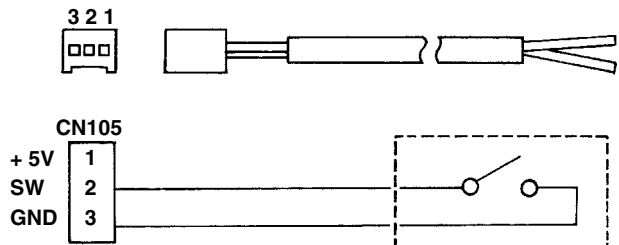


- 1) Press in the direction of arrow mark the click of section **A** of cord outlet cover **2** assembled in the rear of operation panel **1** and remove the cover.
- 2) Connect the optional relay cable connector to CN105 **3** of the production control switch connecting connector.

**Note)** Prepare the switch main unit by the customers or ask JUKI business office about it.

Optional relay cable A (asm.)

JUKI Part No. 40008168

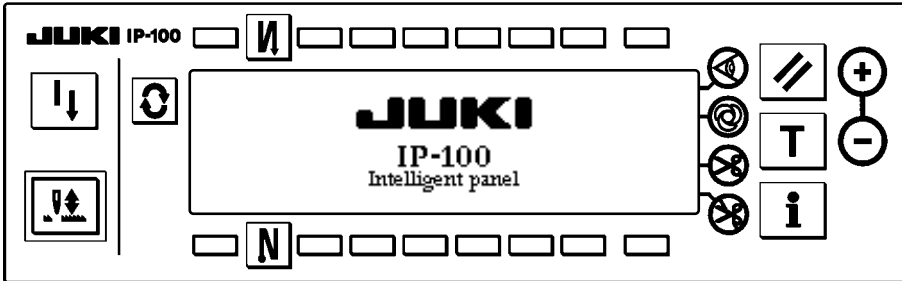




## 4. STANDARD PANEL

### 4-1. Screen list

WELCOME screen is displayed immediately after turning ON the power.

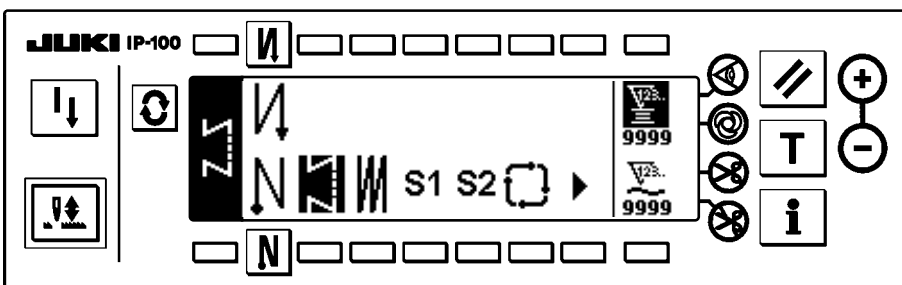


The screen immediately after WELCOME screen becomes the setting screen of pattern selection.

Every time  switch is pressed, the screen changes.

#### ■ Pattern list screen

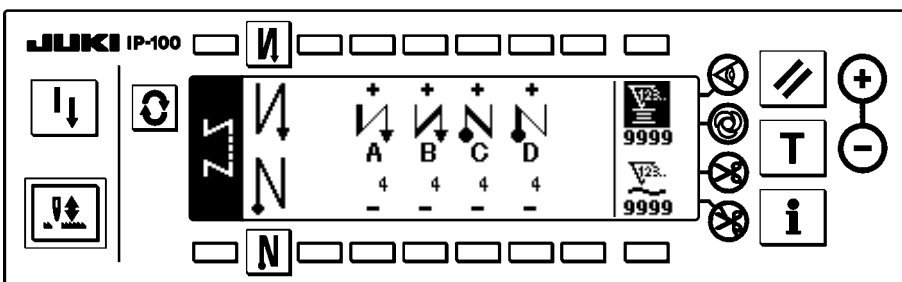
Selection of the respective shapes is performed.



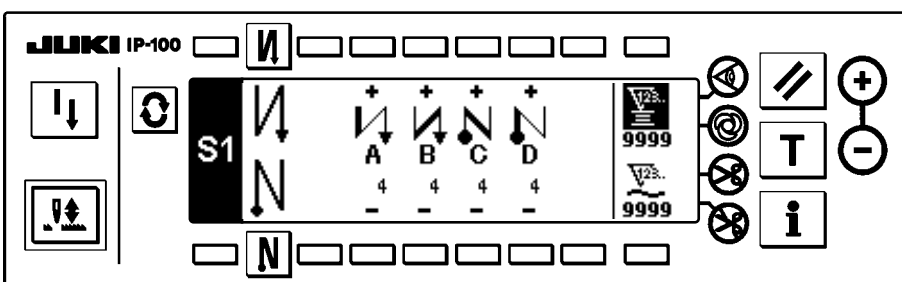
#### ■ Number of stitches of back tuck stitching setting screen

Setting of number of stitches of reverse stitching is performed.

<When reverse stitching pattern is selected>

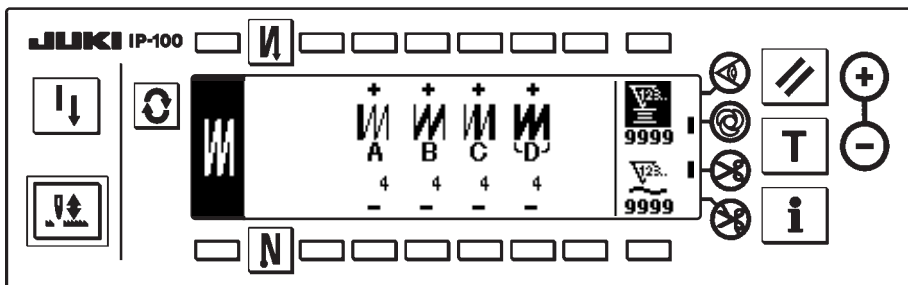


<When programmed stitching pattern 1 is selected>



■ Number of stitches of overlapped stitching setting screen

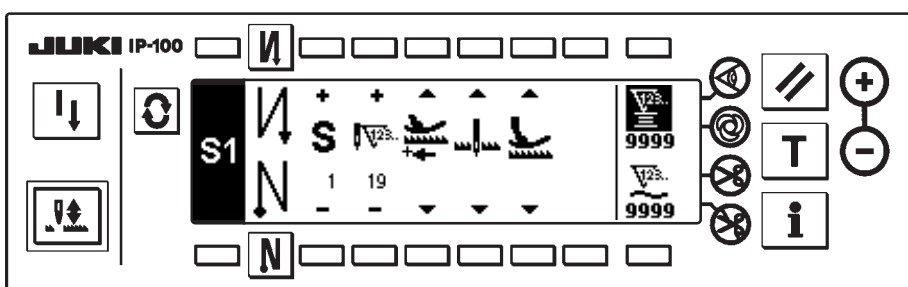
Setting of number of stitches of overlapped stitching is performed.



■ Programmed stitching setting screen

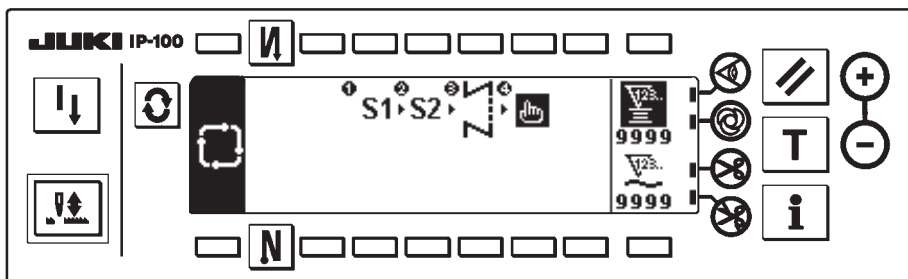
Setting of the respective conditions of programmed stitching is performed.

<When programmed stitching pattern 1 or 2 is selected>



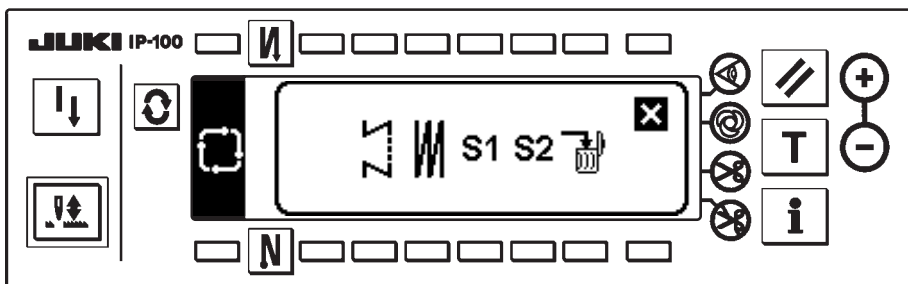
■ Cycle sewing setting screen

Setting of the step of cycle sewing is performed.



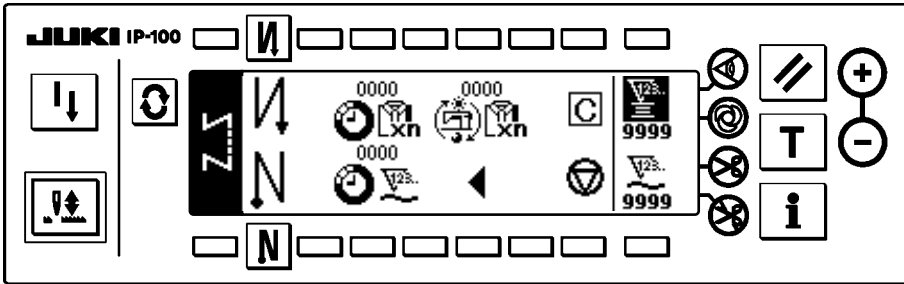
■ Cycle sewing pattern setting pop-up

Setting of the pattern of cycle sewing is performed.









## ■ Output display screen


Final target set value, current target value and actual results up to now are displayed.

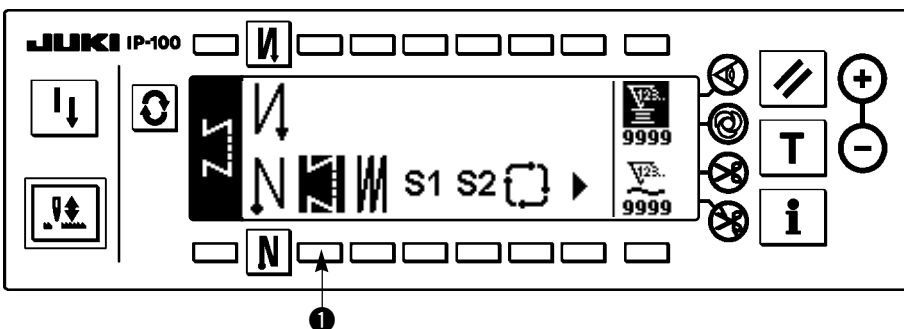


## 4-2. How to operate the operation panel for sewing stitching patterns

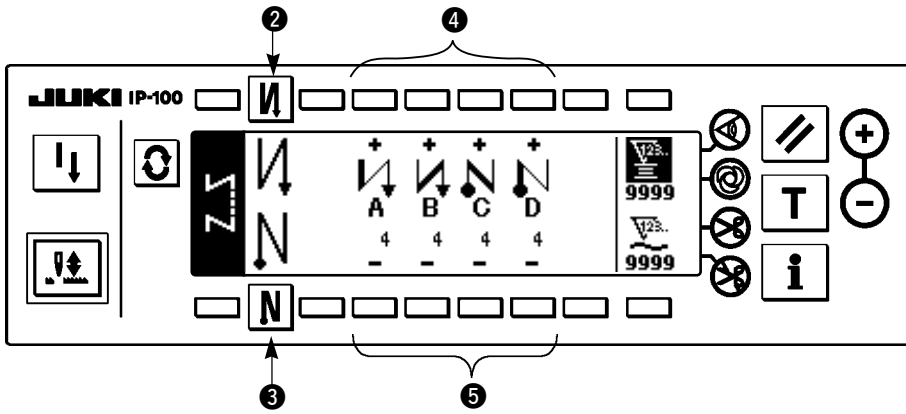
### (1) Reverse stitching pattern

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

Press  to display the pattern list screen.

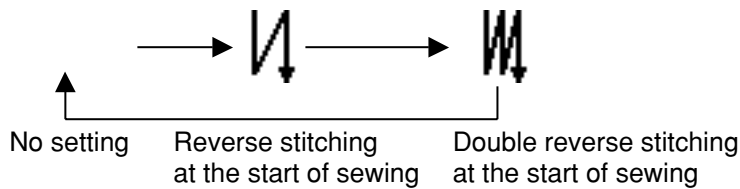


- 1) Press switch ① to select the reverse stitching pattern, and the screen is automatically changed over to the number of stitches of reverse stitching setting screen to display the number of stitches which has already been set.

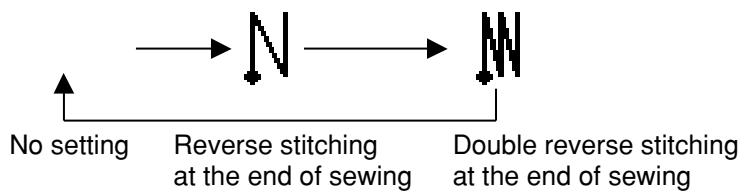


2) When changing the number of stitches, change it with switches ④ and ⑤ for setting the number of stitches A through D.  
 (The range of the number of stitches that can be changed : 0 to 99 stitches)

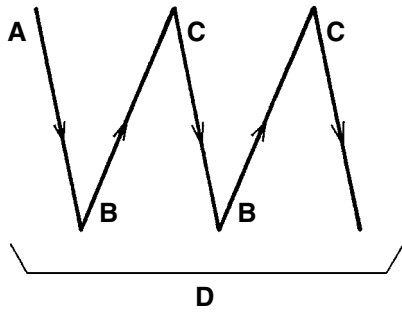
3) Press switch ② to set the reverse stitching at the start of sewing.




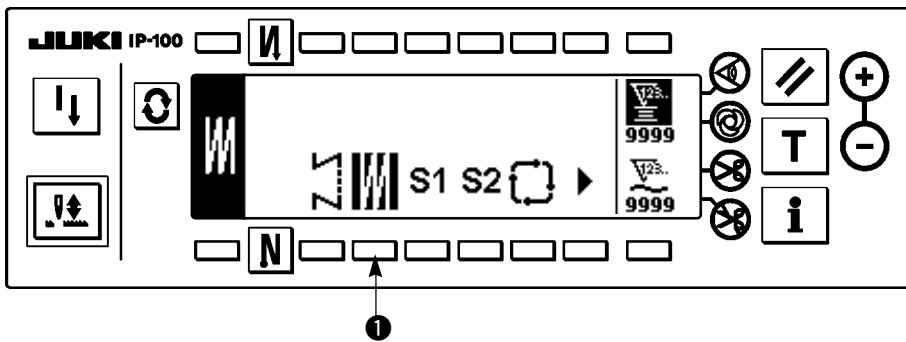
4) Press switch ③ to set the reverse stitching at the end of sewing.



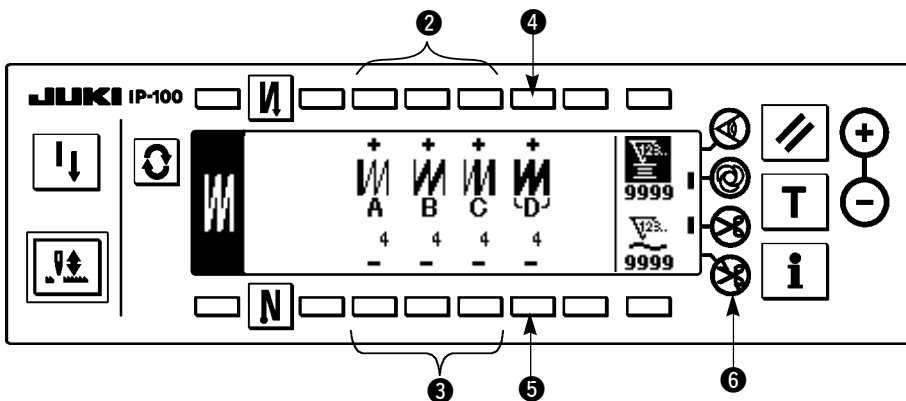
## (2) Overlapped stitching pattern



Press  to display the pattern list screen.



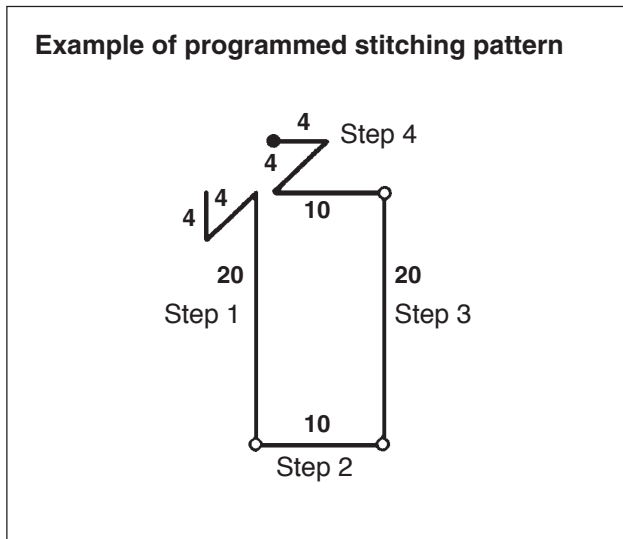
- 1) Press switch **1** to select the overlapped stitching pattern, and the screen is automatically changed over to the number of stitches of overlapped stitching setting screen to display the number of stitches which has already been set.



- 2) When changing the number of stitches, change it with switches **2** and **3** for setting the number of stitches for processes A through C. To change the number of times of the whole processes, change it with switches **4** and **5** 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)
- 3) Depress the front part of the pedal once, and the sewing machine will repeat the normal stitching and reverse stitching as many as the number of specified 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.)
- 4) When thread trimming prohibiting function **6** is selected, the machine will stop with the needle up upon completion of the overlapped stitching procedure without performing thread trimming.

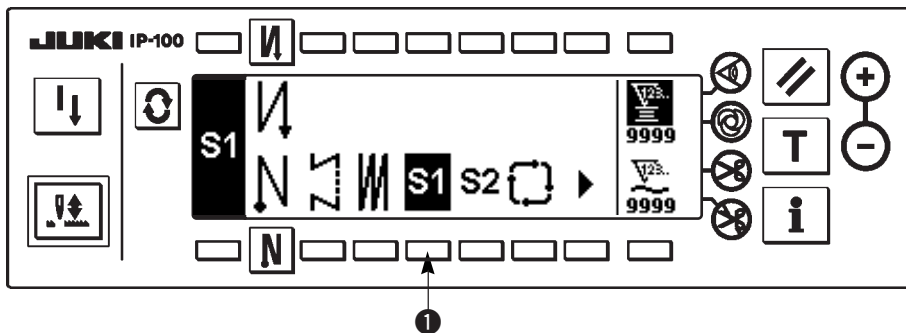
### (3) Programmed stitching pattern

The constant-dimension stitching process can be programmed as many as 20 operation steps. The sewing conditions including the number of stitches, needle up/down stop mode, automatic thread trimming, continuous operation steps, lifting/lowering of presser foot and normal/reverse feed stitching can be separately specified for the respective operation steps. If the lifting of presser foot is specified, the time during which the presser foot is raised can be also specified.

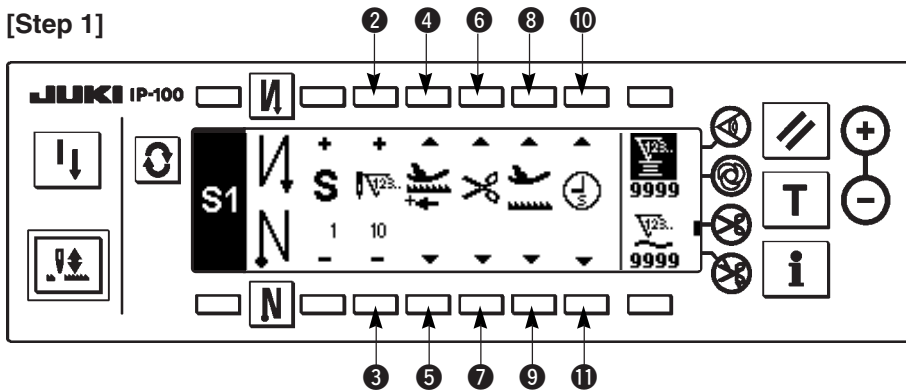


Programming procedure is described below taking the pattern on the left side as an example.

Press to display the pattern list screen.



1) Press switch **1** to select the programmed stitching pattern, and the screen is automatically changed over to the programmed stitching setting screen to display the number of stitches and data on the operation step 1 which have already been specified.



- 1) Confirm that step 1 is displayed on the panel. Now, set the number of stitches to 20 using switches ② and ③.
- 2) Set the feeding direction to the normal direction using switches ④ and ⑤.
- 3) Set the stop state of the sewing machine to the needle-down stop mode using switches ⑥ and ⑦.

**Caution** If the number of stitches is set to 0 stitch or the stop-state of the sewing machine is set to the automatic thread trimming mode ✂, the machine will not proceed to the subsequent operation step.

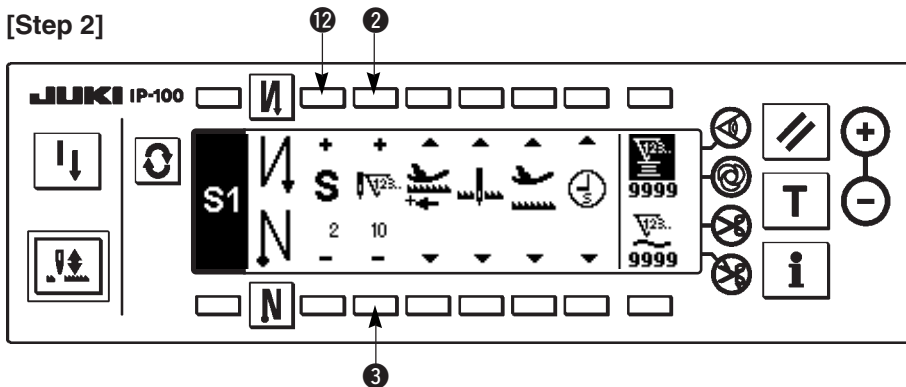
- 4) Set the position of the presser foot, when the sewing machine stops, to the upper stop position using switches ⑧ and ⑨.

(If you want to specify, in particular, the length of time during which the presser foot is raised, set it as desired using switches ⑩ and ⑪. If you do not specify the length of time during which the presser foot is raised, it will be automatically set to 60 seconds.

Possible setting range of the time during which the presser foot is raised : 0.1 sec. to 99.9 sec.)

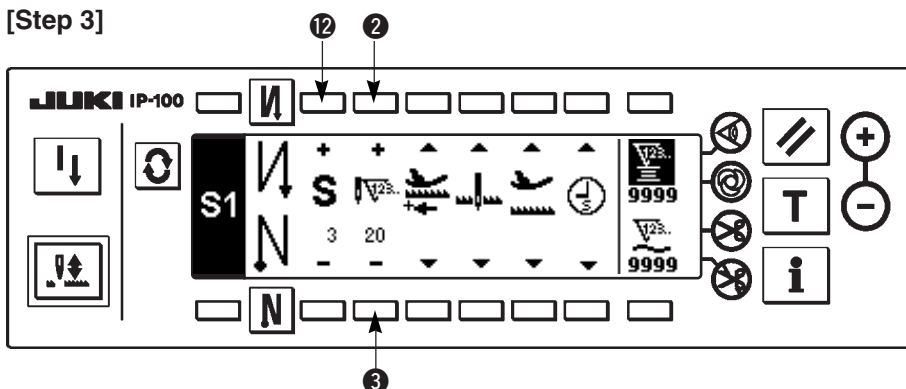
**Caution** Setting with switches ⑧ and ⑨, or ⑩ and ⑪ is possible only in the state that the use of auto lifter can be performed (FL ON). It is possible to change over FL ON / OFF by turning ON the power while pressing UP switch of the control box.

[Step 2]



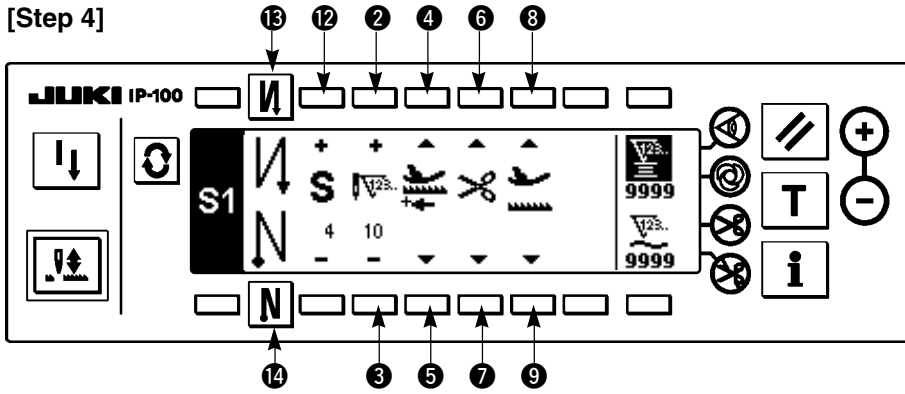
- 5) Press switch ⑫ once to display step 2.
- 6) Set the number of stitches to 10 using switches ② and ③.

[Step 3]



- 7) Set the feeding direction to the normal direction, the stop-state of the sewing machine to the needle-down stop mode and the position of the presser foot to the upper stop position as in the case of step 1.
- 8) Press switch ⑫ once to display step 3.
- 9) Set the number of stitches to 20 using switches ② and ③.
- 10) Set the feeding direction to the normal direction, the stop state of the sewing machine to the needle-down stop mode and the position of the presser foot to the upper stop position as in the case of steps 1 and 2.

[Step 4]



- 11) Press switch 12 once to display step 4.
- 12) Set the number of stitches to 10 using switches 2 and 3.
- 13) Set the feeding direction to the normal direction using switches 4 and 5.
- 14) Set the stop state of the sewing machine to the automatic thread trimming mode ✂ using switches 6 and 7.
- 15) Set the position of the presser foot, when the sewing machine stops, to the upper stop position using switches 8 and 9.
- 16) Select the reverse stitching using switches 13 and 14. This completes the data setting procedure.
- 17) It is also possible to specify the double reverse stitching using switches 13 and 14.

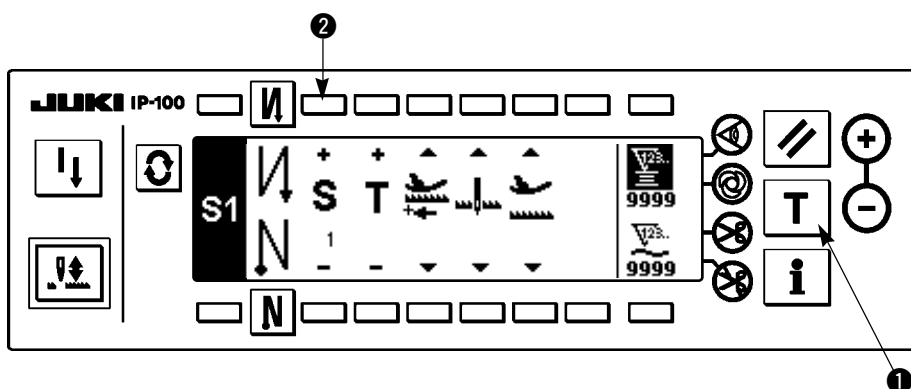
Every time each step is finished, operate the touch-back switch, and the sewing machine runs at a low speed (stitch compensation operation).

You can program another sewing processes in the programmed stitching pattern 2 **S2** following the aforementioned procedure.



### < Teaching mode >

In the teaching mode, it is possible to set the number of stitches of the step in a programmed stitching pattern to the number of stitches that has been actually sewn.



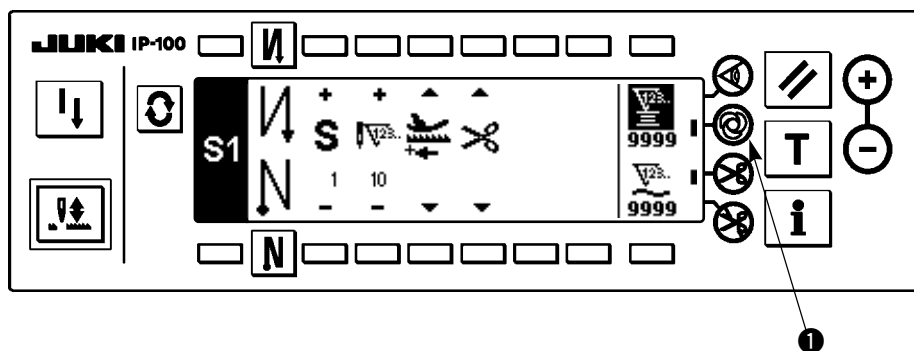
- 1) In the programmed stitching setting screen, press teaching switch ❶ to select the teaching mode.
- 2) The indication shown on the number of stitches input section changes to **T**. This shows that the sewing machine has entered the teaching mode.
- 3) Depress the front part of the pedal to make the sewing machine perform sewing until the last stitch of the current operation step is reached.

**Caution** The number of stitches cannot be inputted by turning the hand wheel by hand or operating the needle up/down switch.

- 4) Return the pedal to its neutral position to make the sewing machine stop running. Now, the number of stitches which has been sewn is displayed.
- 5) Proceed to the subsequent step using switch ❷ or make the sewing machine perform thread trimming. This completes the input of the number of stitches for operation step 1.

### < One-shot automatic stitching >

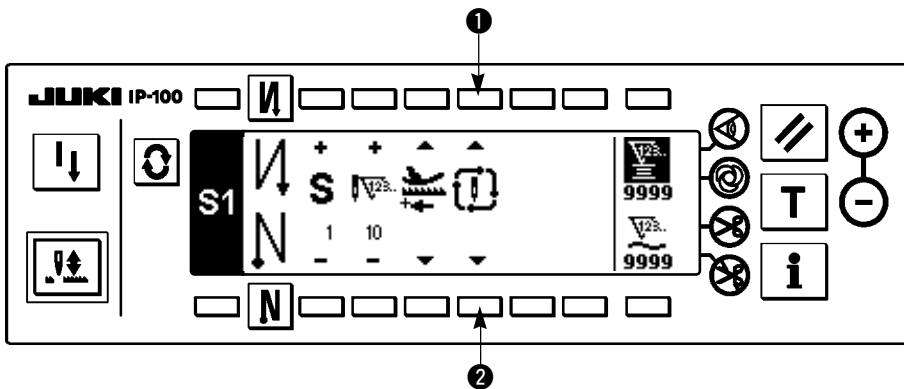
The one-shot automatic stitching function can be separately set by steps.



- 1) In the programmed stitching pattern setting screen, press one-shot automatic stitching switch ❶ to select the one-shot automatic stitching function.
- 2) A mark is displayed on LCD section of the switch, which shows the one-shot automatic stitching function has been selected.
- 3) In the step where the one-shot automatic stitching function has been selected, the sewing machine will automatically continue sewing, once the sewing machine starts running, until the end of the step is reached.

### < Continuous stitching mode >

In this mode, it is possible to make the sewing machine execute the subsequent step after the completion of the current step.



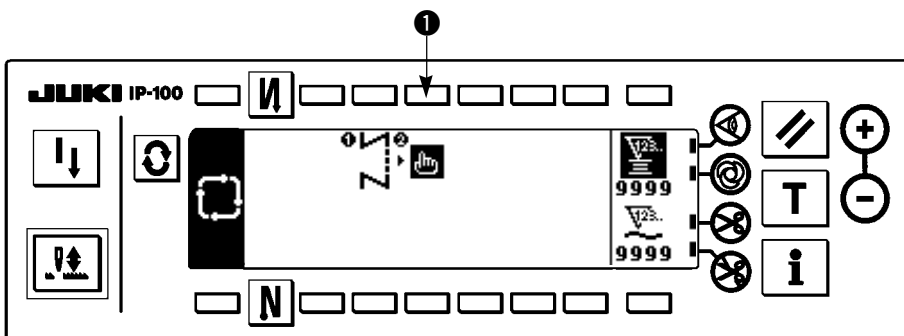
- 1) In the programmed stitching pattern setting screen, select the continuous stitching mode using switches ① and ②.
- 2) As long as the continuous stitching mode is selected, you can make the sewing machine execute the subsequent step set in the program after the completion of the current step by depressing the front part of the pedal.

### < To operate the operation panel in combination with the material edge sensor >

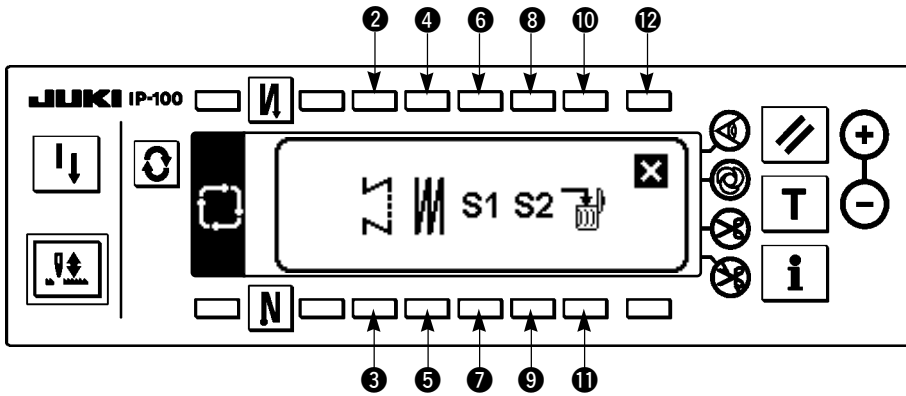
- When the operation panel is used in combination with the material edge sensor, the sewing process can be completed not by the predetermined number of stitches but by the input signal of the material edge sensor.
- Carefully read the Instruction Manual for the material edge sensor before using the sensor with the operation panel.

### (4) Cycle sewing pattern

Reverse stitching pattern, overlapped stitching pattern, programmed stitching pattern 1 and programmed stitching pattern 2 can be set and sewn as desired. (As many as eight different patterns can be set.)

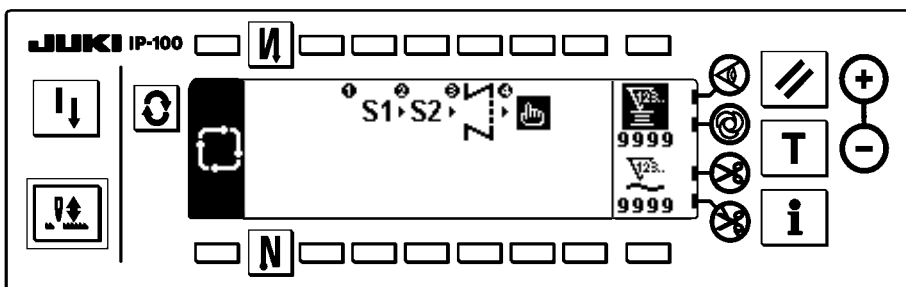


- 1) Press switch ① to display the cycle sewing edit pattern setting pop-up.

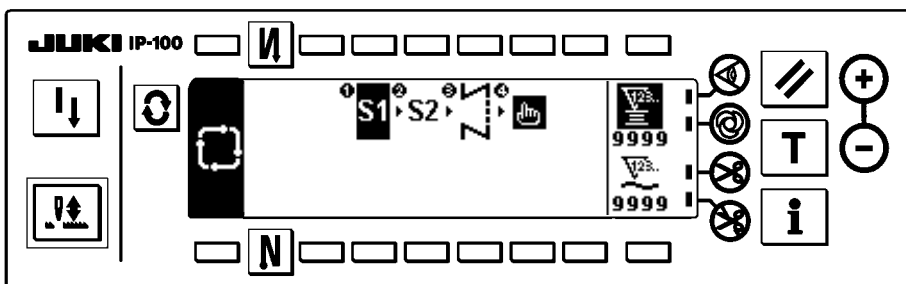


- Switches ② and ③ : These switches set the reverse stitching pattern.
- Switches ④ and ⑤ : These switches set the overlapped stitching pattern.
- Switches ⑥ and ⑦ : These switches set the programmed stitching pattern 1.
- Switches ⑧ and ⑨ : These switches set the programmed stitching pattern 2.
- Switches ⑩ and ⑪ : These switches delete the editing step.
- Switch ⑫ : The screen returns to the cycle sewing setting screen.

**[Example of setting]**



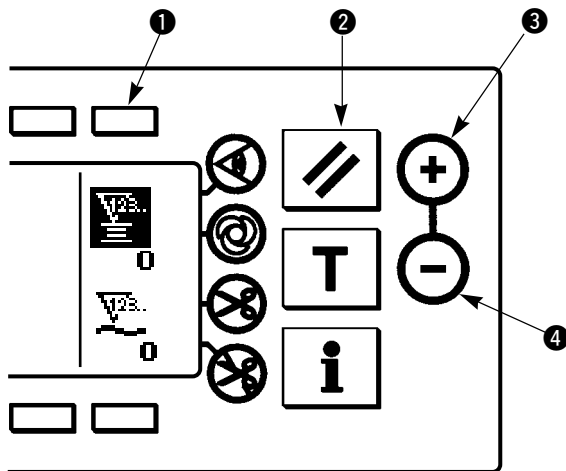
- 2) Every time the thread trimmer actuates, the machine proceeds to the subsequent pattern which has been selected. (The step which is being executed is shown in reverse video during execution.)



**Caution** If the thread trimmer actuates before completion of a pattern, the machine will proceed to the subsequent program.

### 4-3. 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 (peeps three times) and the pop-up display inform that the time to change the bobbin thread has come.

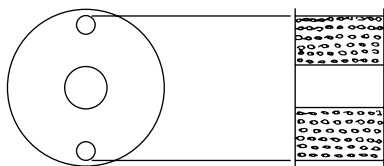


- 1) Press switch ① to select the bobbin thread counter. Then press counter reset switch ② to return the value indicated on the bobbin thread counter to the initial value (it has been factory-set to "0" at the time of delivery).

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

- 2) Set an initial value using counter value setting switches ③ and ④.

#### 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 on the left side.

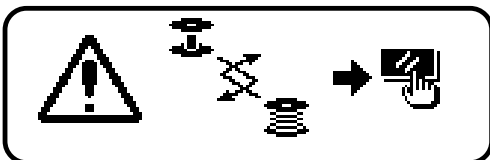
Thread used	Length of thread wound round the bobbin	Value on bobbin thread counter
Polyester spun thread #50	36 m	1200 (stitch length : 3 mm)
Cotton thread #50	31 m	1000 (stitch length : 3 mm)

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, start the sewing machine.
- 4) When a minus value is shown on the counter, the buzzer peeps three times and the pop-up display appears, replace the bobbin thread.

#### Bobbin thread replacement warning pop-up



- 5) After the bobbin thread has been properly replaced, press counter reset switch ② 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 counter value setting switches ③ and ④.

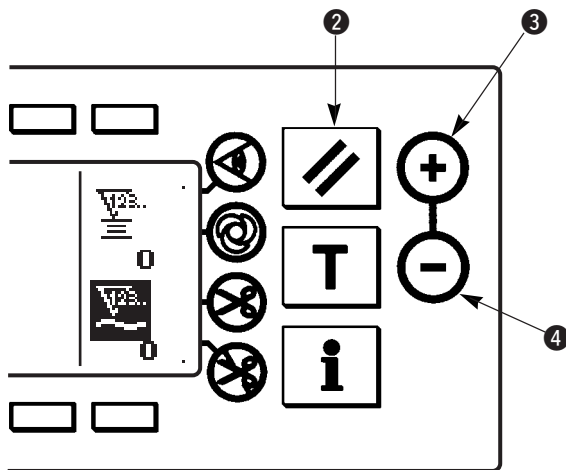
If the remaining amount of bobbin thread is excessive .... Increase the initial value using the "+" switch.

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

**Caution** 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 times of detection 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.

#### 4-4. No. of pcs. counter

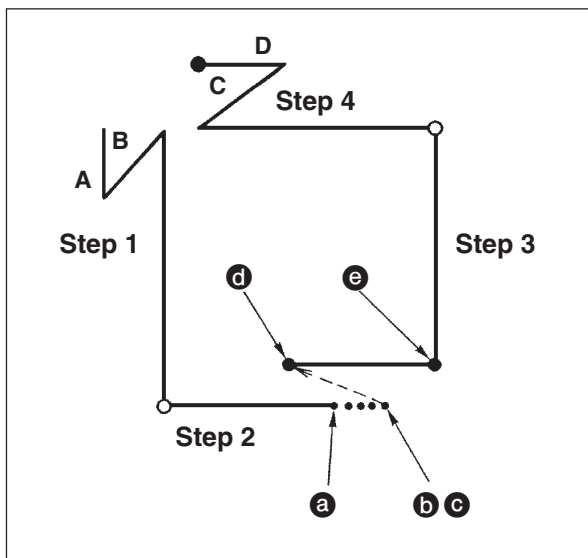
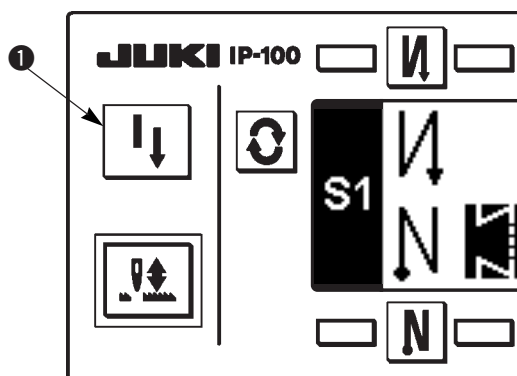
The No. of pcs. counter counts up the number of finished products every time the machine performs thread trimming. (0 → 1 → 2 ..... → 9999)



The value on the No. of pcs. counter can be modified using counter value setting switches 3 and 4. The value on the No. of pcs. counter is reset to "0" by pressing counter reset switch 2.

#### 4-5. Re-sewing switch

The re-sewing switch is used when the bobbin thread runs out during the programmed stitching pattern sewing steps or the like.



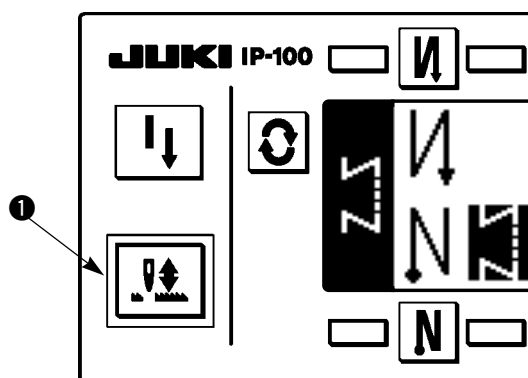
- 1) The bobbin thread runs out during the operations steps for sewing. **a**
- 2) Bring the pedal to its neutral position to make the sewing machine stop. Now, depress the back part of the pedal to make the thread trimmer actuate. **b**
- 3) Turn ON re-sewing switch **1**. **c**
- 4) Replace the bobbin. Slightly feed the material on the machine in the reverse direction to return the material to the position where the sewing was interrupted to allow the sewing machine to sew over the finished seam in step 2. **d**
- 5) Depress the front part of the pedal until stop position **e** of step 2 is reached.
- 6) Turn ON re-sewing switch **1** again at position **e** where the sewing has been interrupted, and the next step will be indicated on the operation panel. Now, you can restart sewing of the programmed stitching pattern.

\* If the needle thread breaks or any other trouble occurs, which is caused by re-sewing switch **1** during the operation steps (**d** → **e**) in the free sewing mode, bring the pedal to its neutral position, Then depress the back part of the pedal to actuate the thread trimmer. Thread the machine head and slightly feed the material in the reverse direction, and press re-sewing switch **1**. This enables the sewing machine to continue the sewing under the free sewing mode. Then operate the operation panel as described in the aforementioned steps 5) and 6).



To return to the first step of the programmed stitching pattern without using re-sewing switch **1**, depress the back part of the pedal to actuate the thread trimmer. This makes the operation panel give the step indication 1. Now, you can start sewing from the first step of the programmed stitching pattern.

#### 4-6. Needle up/down compensation switch



Every time needle up/down compensation switch ① 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.

Note, however, 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.

Thread trimming is operative only at the time of stitch compensation after depressing the front part of the pedal once.

#### 4-7. ON/OFF switch Ⓞ of the material edge sensor

- When the material edge sensor, which is optionally available, is connected to the operation 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.



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

#### 4-8. Automatic thread trimming switch Ⓞ

- 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).)

#### 4-9. One-shot automatic stitching switch Ⓞ

- 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 once.

#### 4-10. 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.

#### 4-11. Key lock

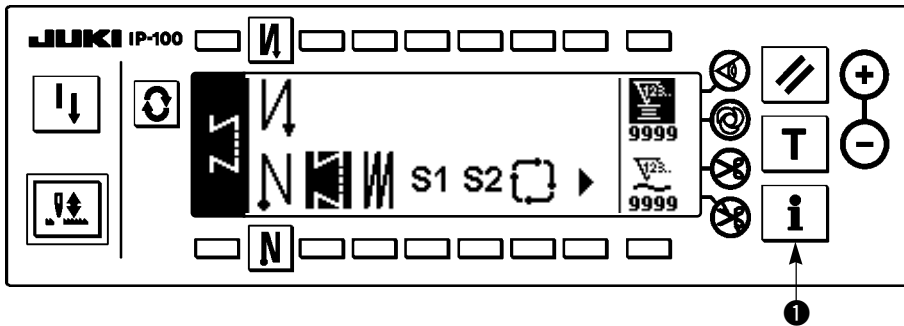
- In order to prevent the specified data on the number of stitches or the processes (A, B, C and D, or step information) from changing by mistake, the setting switch can be locked. (Even with the setting key locked, the pattern to be sewn and the value on the bobbin thread counter can be changed.)
- For the setting procedure, refer to 4-13 Setting for functions and set function No. 17, Key lock function (key lock is effective with setting of "1").

## 4-12. Information

Setting and checking of various data can be performed with the information.

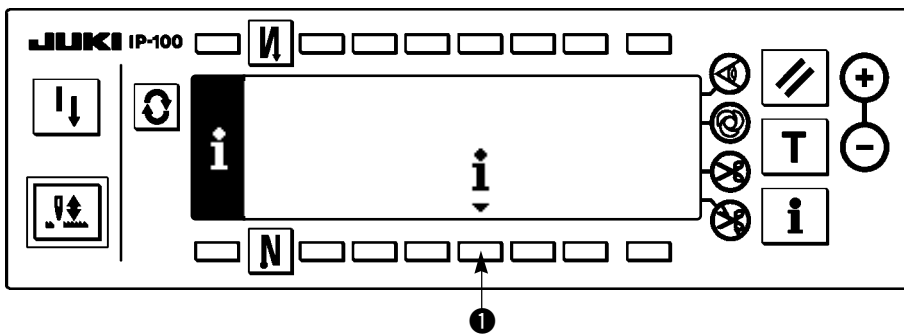
For the information, there are the operator level and the maintenance personnel level.

### [Operator level]



- 1) Turn ON the power.
- 2) Press switch ❶ to display the information screen.

### ■ Information screen (operator level)

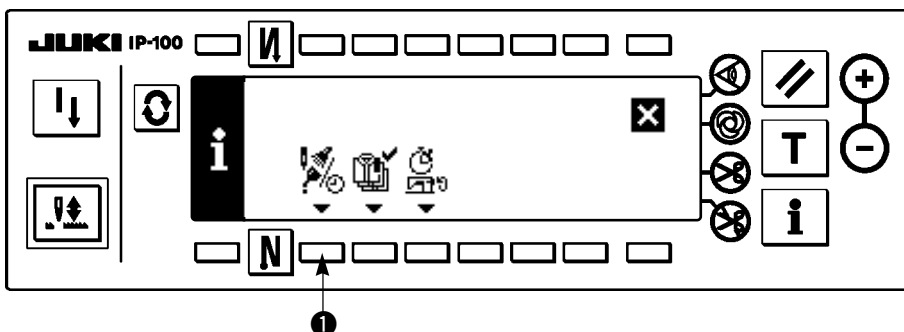


❶ : Sewing management information

### (1) Sewing management information

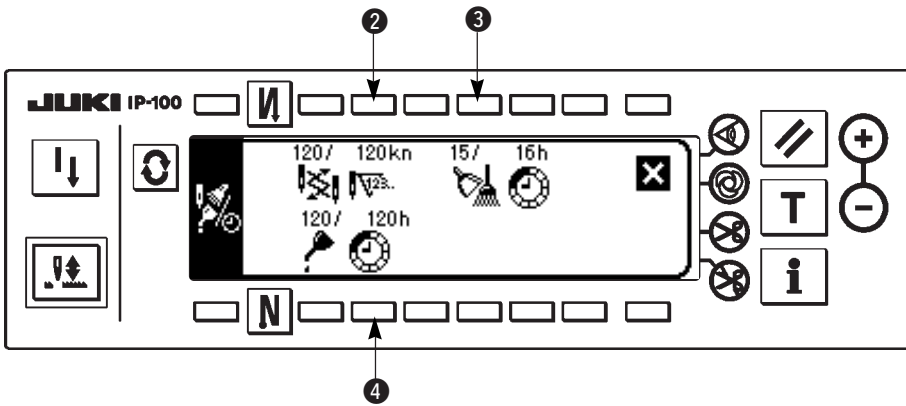
For the sewing management information, there are the maintenance management function, production control function and working measurement function.

### [Maintenance management function]



- 1) Press ❶ to display the maintenance function screen.

■ Maintenance function screen



[Explanation of the respective items]

- ② Time of replacement of needle ..... Unit : X 1,000 stitches
- ③ Time of cleaning ..... Unit : Hour
- ④ Time of replacement of oil ..... Unit : Hour

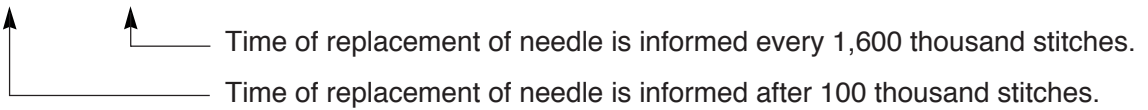
[Explanation of the contents of display]

(Numerator / denominator)

\* Number of remaining stitches up to \* thousand stitches / \* \* thousand stitches

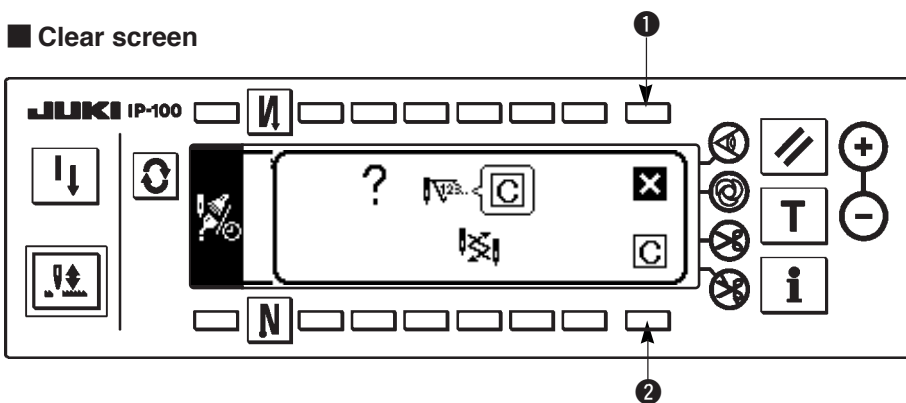
Example) Replacement of needle

100 / 1600 kn



When ②, ③ and ④ switches are pressed, the clear checking screen is displayed.

■ Clear screen

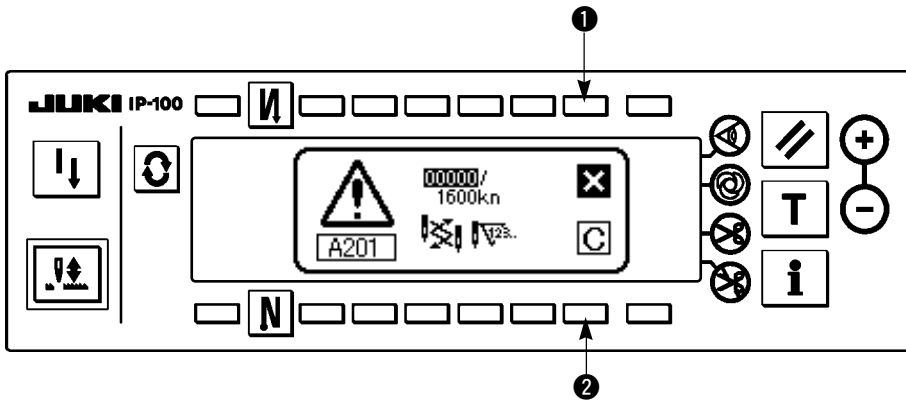


- ① : The screen returns to the maintenance function screen without performing clearing.
- ② : The screen returns to the maintenance function screen after executing clearing.



## ■ Warning screen

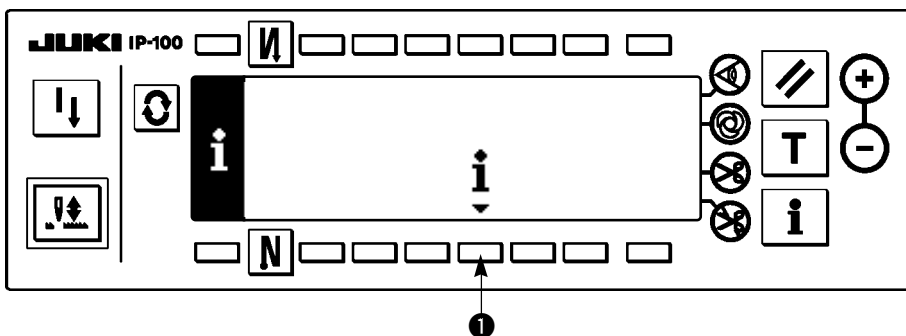
Warning screen is displayed when the warning time is reached.



- ① : When ① is pressed, the screen can be cleared. However, the counter itself cannot be cleared. In case of the replacement of needle, the warning screen is displayed at intervals of 10 minutes until clearing is performed. In case of other warnings, the warning screen is displayed at the time of turning ON the power until the counter is cleared.
- ② : When ② is pressed, the screen is cleared and the counter value is cleared as well. From this time, counting starts newly.

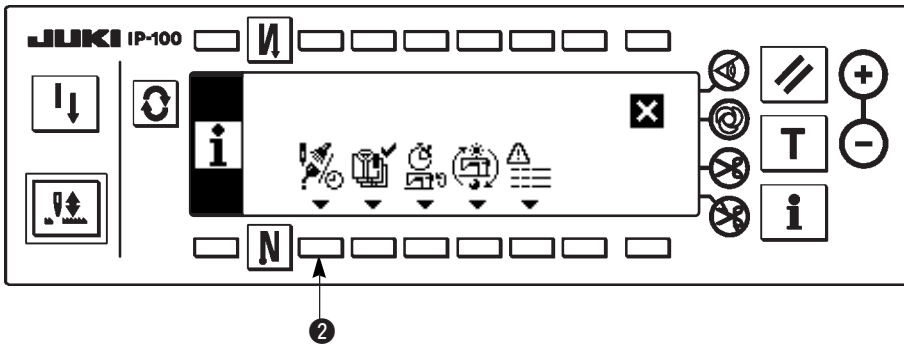
### [Setting of the warning setting time]

## ■ Information screen



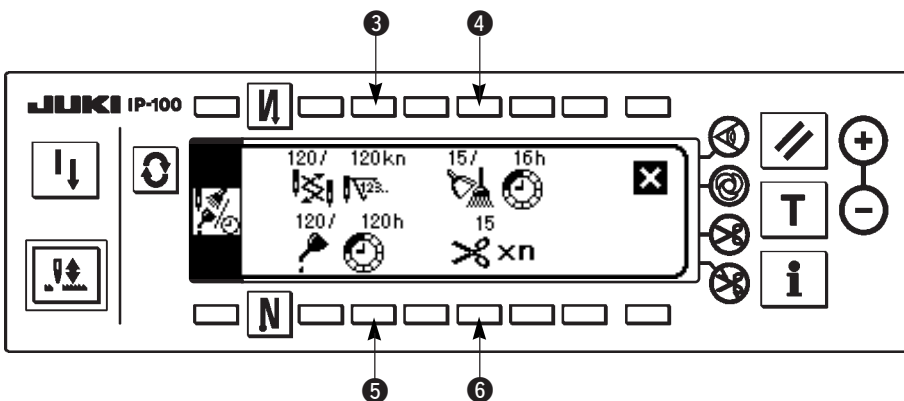
- 1) Press switch ① for approximately three seconds in the information screen.

## ■ Sewing management information selection screen



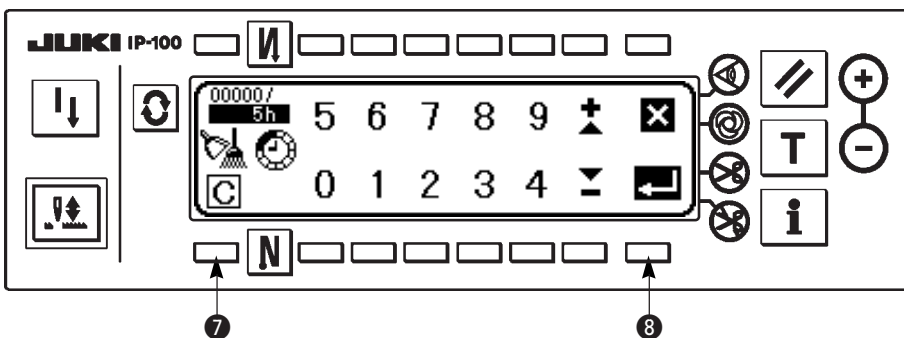
- 2) Press ② to display the maintenance function screen.  
(For other functions, refer to the Engineer's Manual.)

## ■ Maintenance function screen



- ③, ④, ⑤ : Inspection time (number of times of thread trimming) input screen is displayed.  
⑥ : ✂ x n Number of times of thread trimming per sewing ... Unit : Number of times

## ■ Inspection time (number of times of thread trimming) input screen



Clear checking screen is displayed in ⑦. (It is not displayed when the number of times of thread trimming is specified.)

After inputting the setting time, determine the time with ⑧.

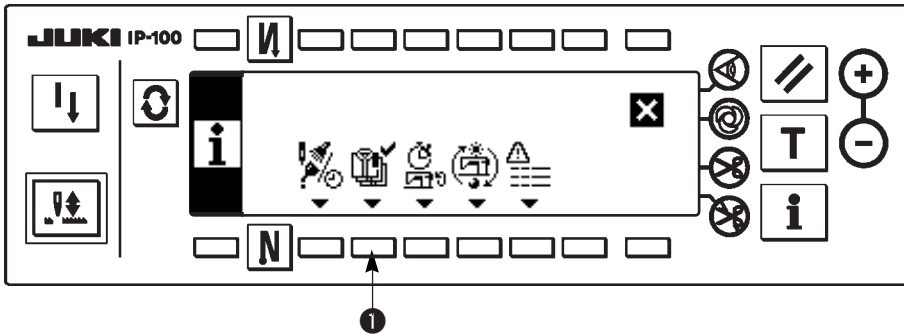


**In case of stopping the warning function, set the set value to "0".**

**It is possible to individually set replacement of needle, cleaning, and replacement of oil respectively.**

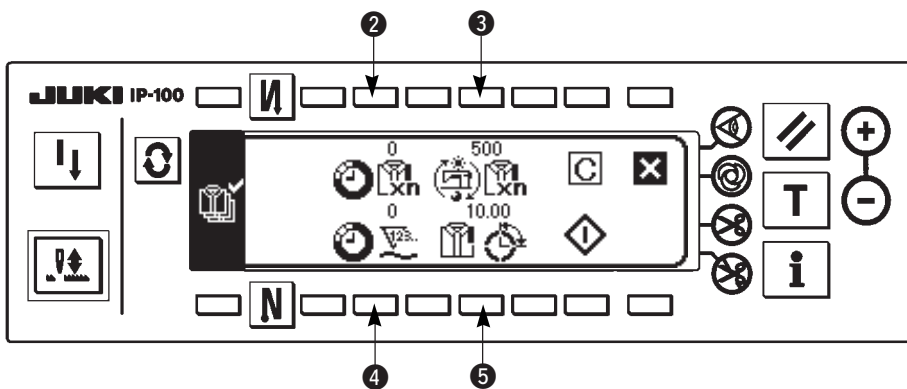
**In case of stopping all, set "0" to each.**

## (2) Production control function



1) Press ❶ to display the production control screen.

### ■ Production control screen



#### [Explanation of the respective items]

Number of pcs. of current target ..... Unit : Piece

Number of pcs. of final target ..... Unit : Piece

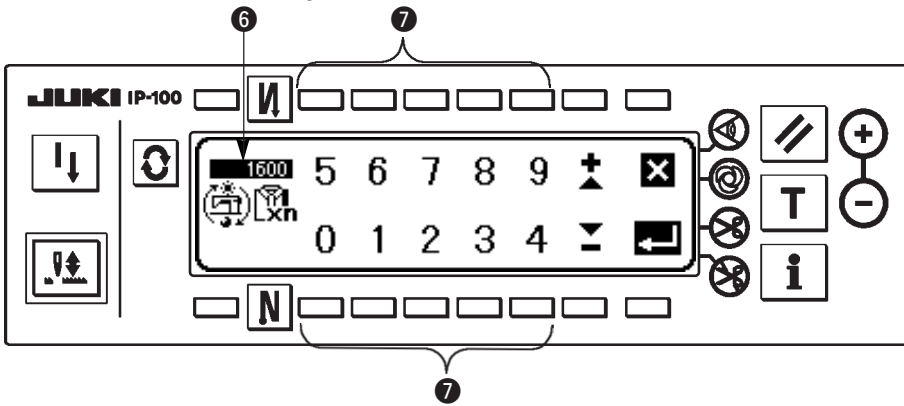
Current output ..... Unit : Piece

Time required to sew one piece (pitch time) ..... Unit : Second

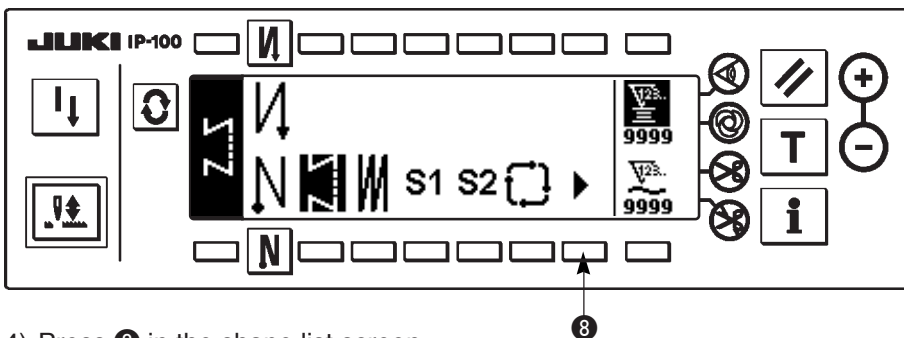
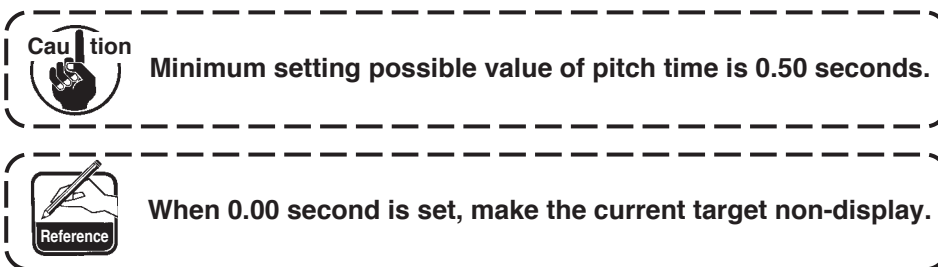
This item displays that the measurement is stopped. This item displays that the measurement is being performed.

2) Press ❷, ❸, ❹ and ❺ to display the production control input screen.

## ■ Production control input screen

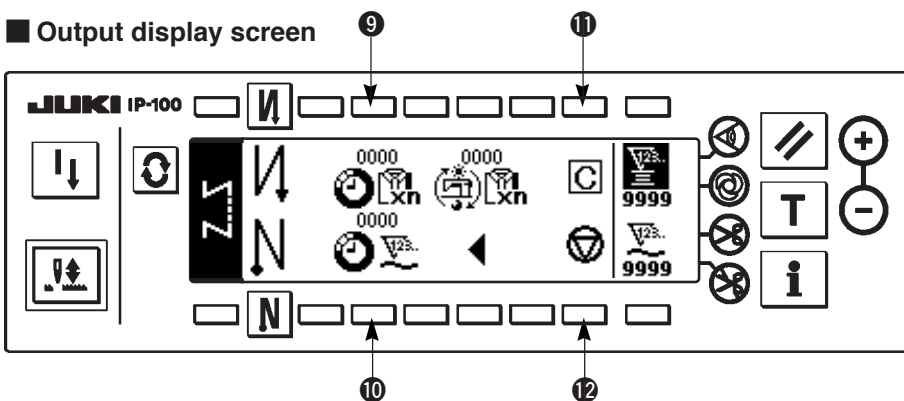


3) Set the respective setting items with ⑦. Setting time inputted in ⑥ is shown in reverse video.



4) Press ⑧ in the shape list screen.

## ■ Output display screen



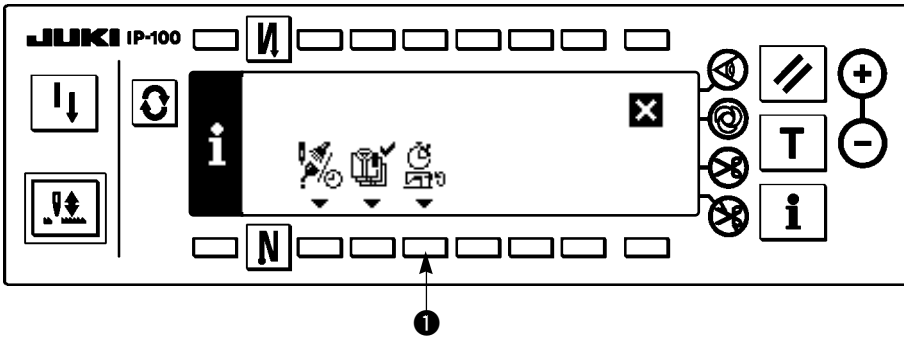
5) The output display screen is displayed. Sewing is possible with this screen.

Set value can be changed with switches ⑨ and ⑩ (Editing of the final target value and pitch time cannot be performed in this screen.)

The current target value and the current output can be cleared (make them "0") with switch ⑪.

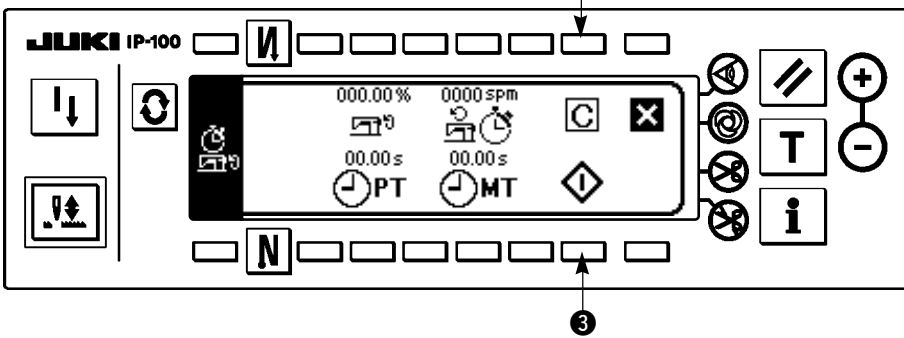
Setting of start/stop of the output display function can be performed with switch ⑫.

### (3) Working measurement function







1) Press ❶ to display the working measurement function screen.

#### ■ Working measurement function screen



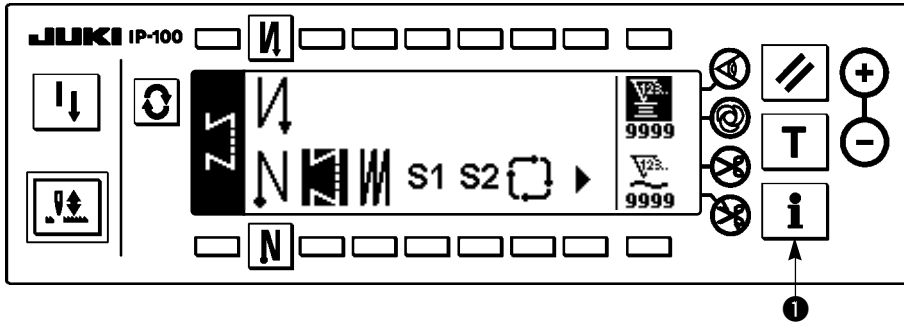
#### [Explanation of the respective items]

-  Working factor ..... Unit : %
-  Working mean speed ..... Unit : rpm
-  PT Pitch time ..... Unit : Second
-  MT Machine time ..... Unit : Second

- 2) Press ❸ to start the working measurement.
- 3) To stop the measurement, press ❸ again.
- 4) The result of measurement can be cleared with ❷.

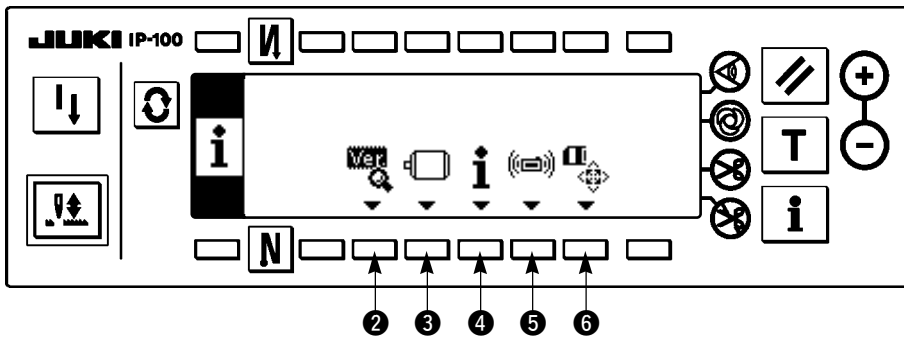
**Caution** When “Clear” is not executed, the measurement from the last time can be continued.

## [Maintenance personnel level]



- 1) Turn ON the power.
- 2) Press switch ❶ for approximately three seconds to display the information screen.

## ■ Information screen (Maintenance personnel level)



- ❷ Ver display ..... For the details, refer to the Engineer's Manual.
- ❸ Function setting ..... Refer to the item "Function setting procedure".
- ❹ Sewing management information
- ❺ Communication mode ..... For the details, refer to the Engineer's Manual.
- ❻ Smart media format ..... For the details, refer to the Engineer's Manual.



**When the smart media format is executed, all data which have been currently recorded will disappear. Be careful not to use the format for any other than the initialization of the smart media.**

## 4-13. Setting for functions

### (1) How to change over to the function setting mode



**Caution** Do not perform switch operations other than those described in the following explanations. Be sure to re-turn the power switch ON after one second or more has passed. If the power is turned ON immediately after turning it OFF, the sewing machine may not work normally. In this case, turn ON the power again.



#### **WARNING :**

To avoid possible personal injuries caused by movement other than that you desired, do not operate the switches in the procedure other than those required, as described below, to specify the functions.

There are two kinds of function settings, Level 1 and Level 2.

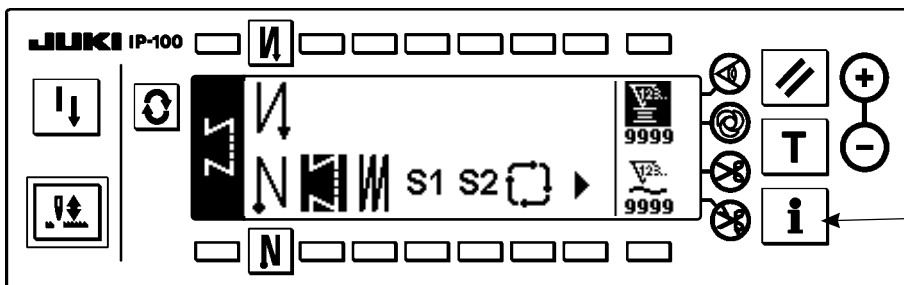
Level 1 : Change of setting can be performed without turning OFF the power switch.

Level 2 : It is necessary to turn OFF the power switch after change of setting.

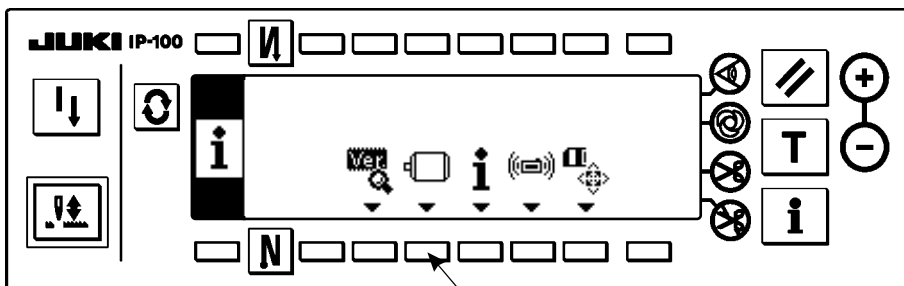
For the details of setting No., see P.31.

#### [Setting procedure of Level 2]

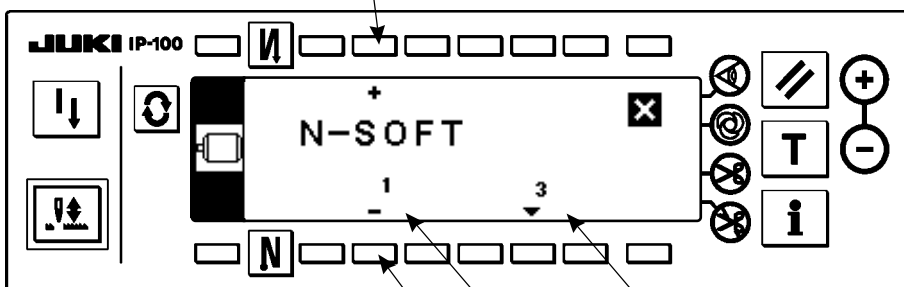
1) Turn ON the power. When the needle bar is not in its UP position, turn the handwheel to bring the needle bar to its UP position.



2) Press switch **1** for approximately three seconds.



3) Press switch **2** for approximately three seconds.



4) This screen is the function setting screen.

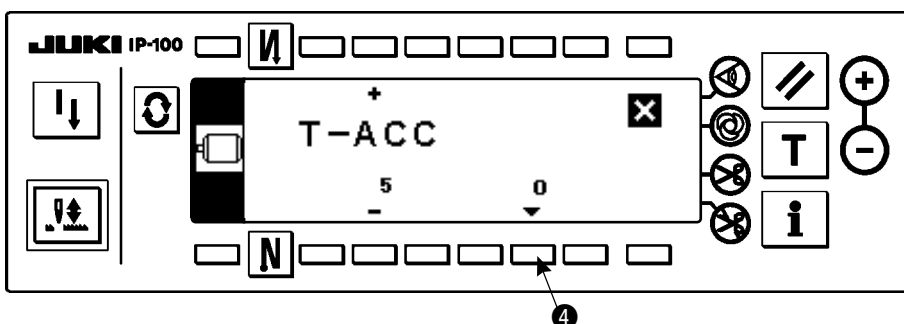
Change the setting No. with “+/-” Key of switch **3**.

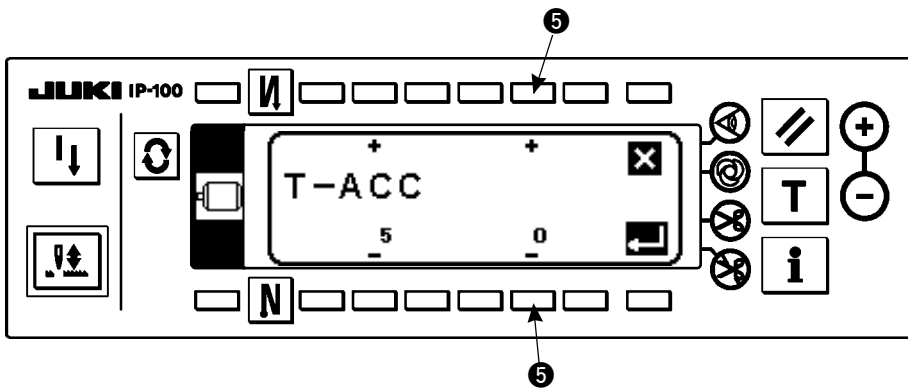
For the details of setting No., see P. 31.

**Example) Changing the flicker reducing function (Setting No. 5)**

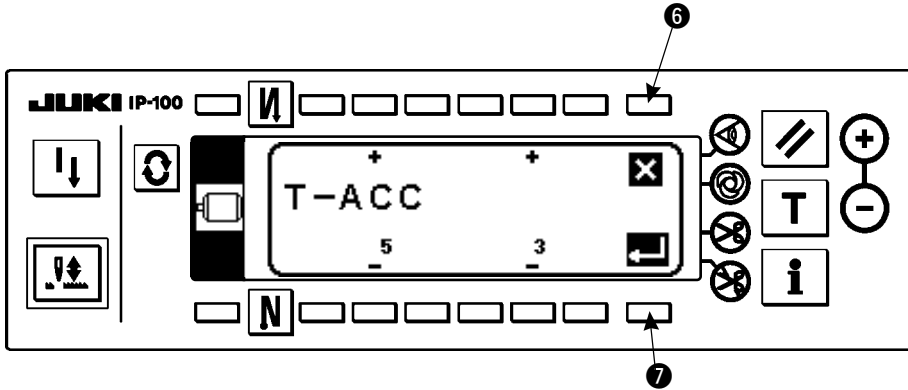
Change the setting No. to “5” with “+” Key of switch **3** in the figure above.

• Press switch **4**.



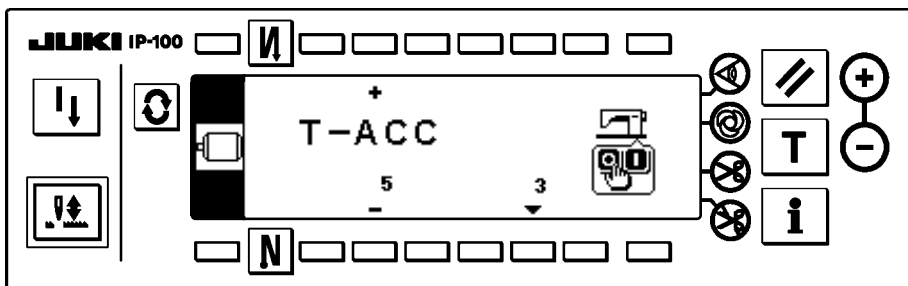


- Change set value with “+/-” Key of switch ⑤.



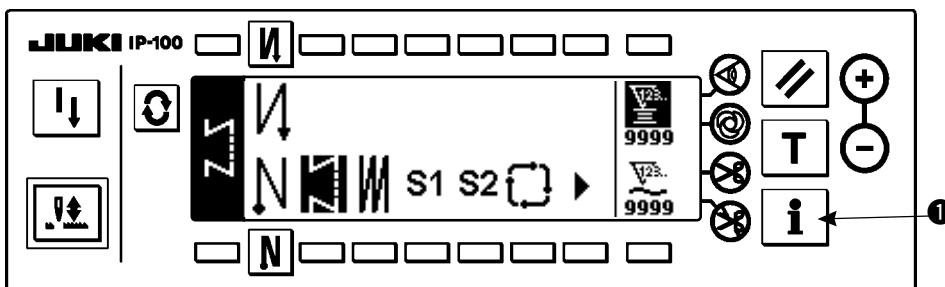
The set value has been changed from “0” to “3”.

- When this changed value is acceptable, press switch ⑦. When you desire to return the value to the previous one, press switch ⑥.

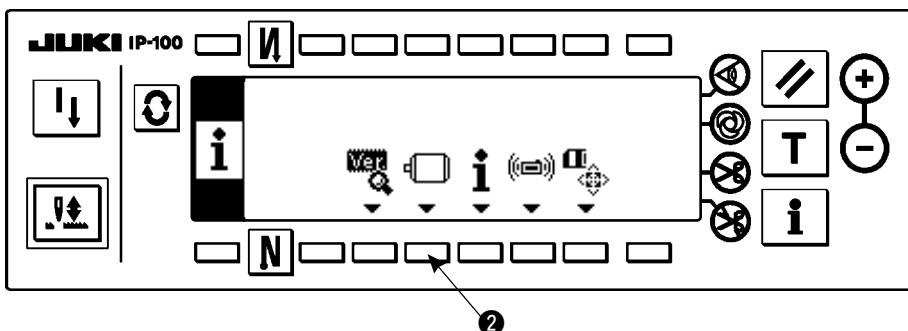


- Turn OFF the power switch and turn ON the power switch after approximately one second.
- Change of the set value is determined by turning OFF the power switch.

[Setting procedure of Level 1]

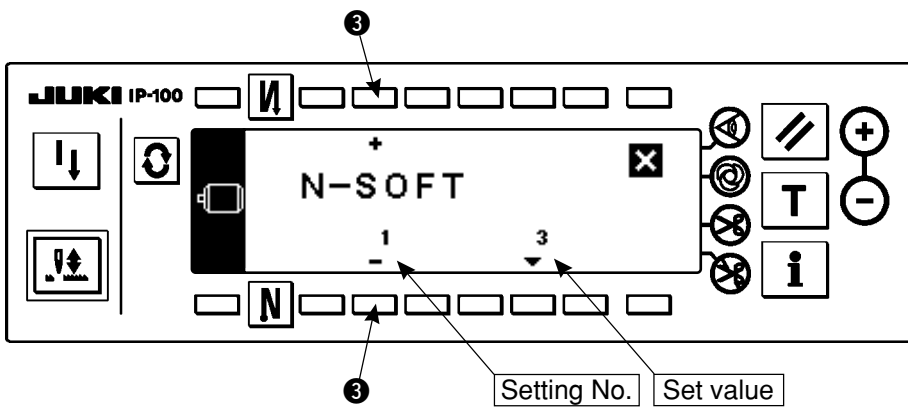


- 1) Press switch ① for approximately three seconds.

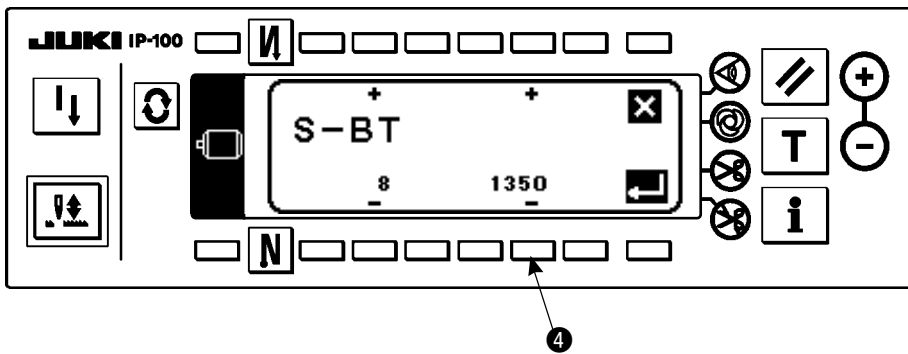


- 2) Press switch ②.





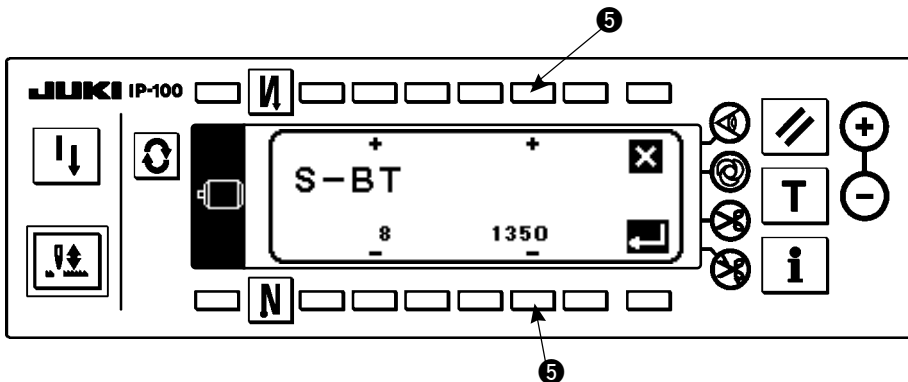
- 3) This screen is the function setting screen.  
 Change the setting No. with “+/-” Key of switch ③.  
 For the details of setting No., see P. 31.



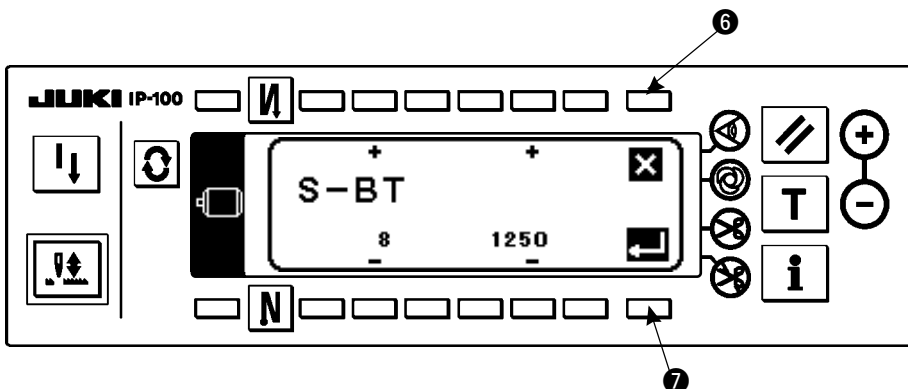
**Example) Changing the number of rotation of reverse feed stitching (Setting No. 8)**

Change the setting No. to “8” with “+” Key of switch ③ in the figure above.

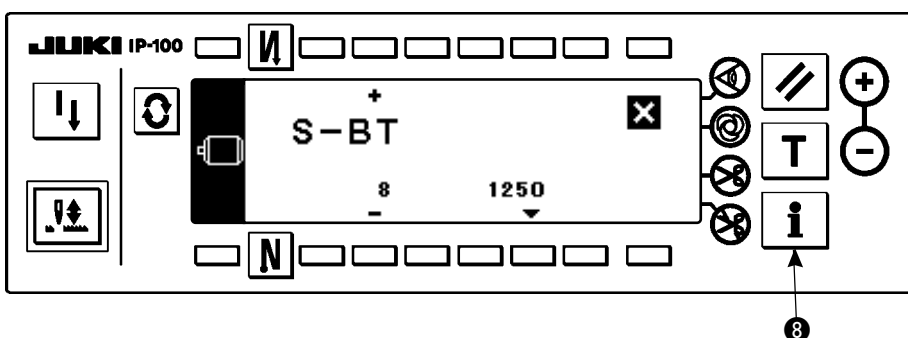
- Press switch ④.



- Change the set value with “+/-” Key of switch ⑤.



- Set value has been changed from 1350 to 1250.
- When this changed value is acceptable, press switch ⑦. Press switch ⑥ when you desire to return the value to the former one.



- Press switch ⑧ in case of sewing.

## (2) Function setting list

For the details of the items, refer to the Instruction Manual for SC-910.

\* DDL-8700 is given as an example here. However, initial value changes according to the machine head to be connected.

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
1	Number of stitches of soft-start	1	N-SOFT 0	0 to 9
5	Flicker prevention	2	T-ACC 0	0 to 8
6	Bobbin thread counting function	1	SCBOB 1	0 to 1
7	Counting down unit	1	RATIO 0	0 to 2
8	Number of rotation of reverse feed stitching	1	S-BT 1900	150 to 3000
10	Specifying position of needle bar when the sewing machine stops	2	NPS 0	0 to 1
11	Click sound of key switch * This function makes ineffective the key click sound of panel.	2	SOUND 1	0 to 1
12	Compact panel SW2 function	2	SW2 0	0 to 8
13	Bobbin thread counter stop function	2	ASCNT 0	0 to 2
14	No. of pcs. counting function	2	NTO 1	0 to 1
15	Number of times of detection of run-out of bobbin thread remaining amount	2	BTDS 1	0 to 19
17	Key lock function	2	KEYLOCK 0	0 to 1
18	Bird's nest prevention function	2	BNC 0	0 to 2
19	Bird's nest needle thread release function	2	THOLD 0	0 to 1
20	Number of condensation stitches	1	N-CS 0	0 to 9
21	Lifting presser foot when pedal is in neutral position	1	N-NPL 0	0 to 1
22	Operation panel SW function	2	F-CMSP 0	0 to 1
24	Fine adjustment rate of number of rotation	2	F-FAS 0	-15 to 15
25	Motion after turning handwheel by hand (Thread trimming)	2	F-TRMC 1	0 to 1
26	Motor brake locking force	2	F-RTPC 0	0 to 9
27	Motor lock retry returning force	2	F-RTRC 50	1 to 100
28	Number of stitches of bird's nest needle thread release	1	F-UTHR 1	0 to 30
29	BT initial start time	2	T-RSS 250	50 to 300
30	Reverse feed stitching on the way function	2	OBT 0	0 to 1
31	Number of stitches of reverse feed stitching on the way	2	N-OBT 4	0 to 19

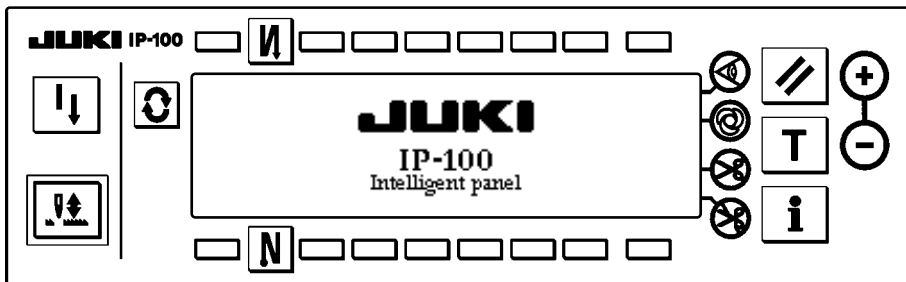
Function No.	Function name	Setting level	Panel display Standard set value	Setting range
32	Effective condition of reverse feed stitching on the way	2	OBTS 0	0 to 1
33	Thread trimming function by reverse feed stitching on the way	2	OBTT 0	0 to 1
35	Number of minimum rotation by pedal	1	S-POS 200	20 to 400
36	Number of rotation of thread trimming	2	S-TRM 210	20 to 250
37	Number of rotation of soft-start	1	S-SOFT 800	150 to 5500
38	Number of rotation of soft-start	1	S-ASS 2000	200 to Max
39	Position at the start of rotation	2	P-SSP 30	10 to 50
40	Position at the start of acceleration	2	P-LSA 60	10 to 100
41	Position where cloth presser starts lifting	2	P-FLW -21	-60 to -10
42	Position where cloth presser starts lowering	2	P-FLD 10	8 to 50
43	Position 2 where thread trimming starts	2	P-TRM2 -51	-60 to -10
44	Position where sewing machine reaches its highest sewing speed	2	P-MAX 150	10 to 150
45	Compensation value of neutral point of pedal	2	P-ANP 0	-15 to 15
46	Cloth presser lifting function	2	FLSEL 0	0 to 1
47	Holding time of lifting cloth presser	2	T-FL 60	10 to 600
48	Position 1 where thread trimming starts	2	P-TRM1 -35	-60 to -10
49	Lowering time of cloth presser	2	T-FLWT 140	0 to 250
51	Compensation of ON timing of reverse feed stitching at the start of sewing	1	T-SON 10	-36 to 36
52	Compensation of OFF timing of reverse feed stitching at the start of sewing	1	T-SOFF 16	-36 to 36
53	Compensation of OFF timing of reverse feed stitching at the end of sewing	1	T-EOFF 18	-36 to 36
55	Lifting cloth presser after thread trimming	2	FLAT 1	0 to 1
56	Reverse revolution to lift needle after thread trimming	2	RATRM 0	0 to 1
57	Bobbin thread remaining amount after thread trimming	2	BTDF 0	0 to 1
58	Holding predetermined position of needle bar	2	HPOS 0	0 to 1
59	Selection of motion of reverse feed stitching at the start of sewing	2	SBTO 1	0 to 1
60	Stop after reverse feed stitching at the start of sewing	2	SBTQ 0	0 to 1
61	Stop of the sewing machine by detection of bobbin thread remaining amount	2	ASBOB 1	0 to 1

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
64	Number of rotation of start of reverse feed stitching at the end of sewing	2	S-WAIT 180	0 to 250
65	Condensation compensation 1	2	T-CS1 - 15	- 36 to 0
66	Condensation compensation 2	2	T-CS2 - 15	- 36 to 0
67	Number of times of air purge drive	2	N-ABSS 2	0 to 9
68	Air purge starting position	2	A-ABS 27	0 to 35
69	Air purge pause position	2	A-ABE 12	0 to 35
70	Function of soft-down of cloth presser	2	F-SDFL 0	0 to 1
71	Limitation of re-acceleration from reduction of speed	2	F-ACRA 0	0 to 5
72	Limitation of acceleration at the start of rotation	1	F-ACR 0	0 to 5
73	Motor lock retry function	1	F-RET 1	0 to 1
75	Normal rotating direction of motor	2	DM 1	0 to 1
76	Hard mode	2	F-SCS 0	0 to 1
87	Pedal acceleration characteristics	2	F-PCS 0	0 to 2
89	Tension release after thread trimming	2	TRS 0	0 to 1
91	Motion after turning handwheel by hand (needle up/down, compensation, reverse feed stitching on the way)	2	F-PMAT 1	0 to 1
92	Function of reducing speed of reverse feed stitching at the start of sewing	2	F-DSBT 0	0 to 1
93	Function of one stitch compensation SW added to needle up/down compensation SW	2	F-MADF 0	0 to 1
94	Continuous stitching + one-shot stitching non-stop function	2	F-SBTC 0	0 to 1
96	Max. number of rotation	2	S-MAX 4000	50 to Max
101	Selection of No. of pcs. counter * This function changes over the No. of pcs. counter to whether measuring by thread trimming or measuring by the production control switch.	2	F-MAC 0	0 to 1


## 5. PANEL FOR LH-4168/4188

### 5-1. Screen list

WELCOME screen is displayed immediately after turning ON the power.

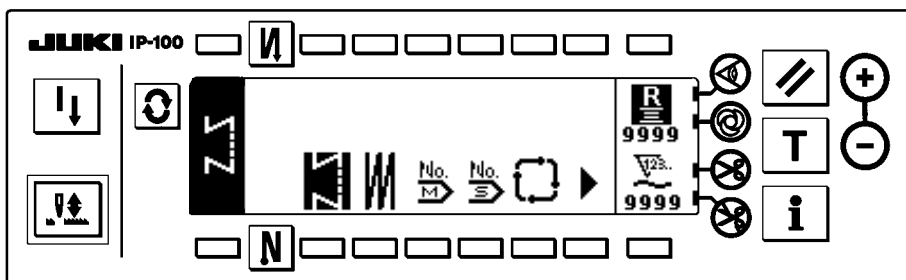


The screen immediately after WELCOME screen becomes the setting screen of pattern selection.

Every time  switch is pressed, the screen changes.

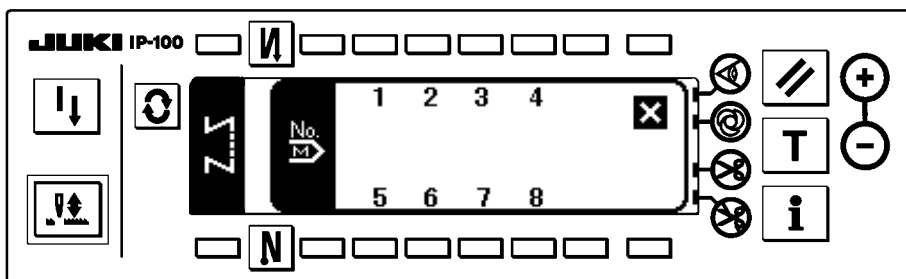
#### ■ Pattern list screen

Selection of the respective shapes is performed.



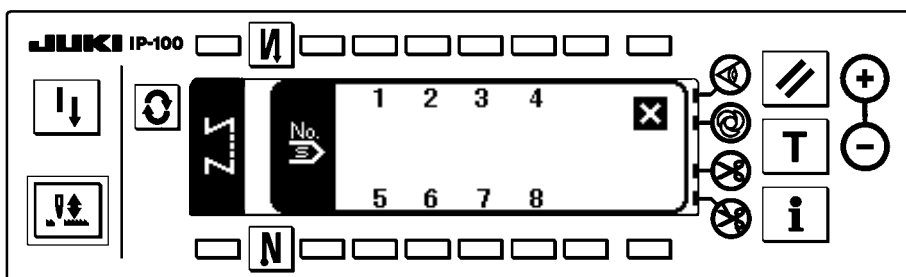
#### ■ Corner pattern selection pop-up

Corner pattern No. is selected.



#### ■ Step pattern selection pop-up

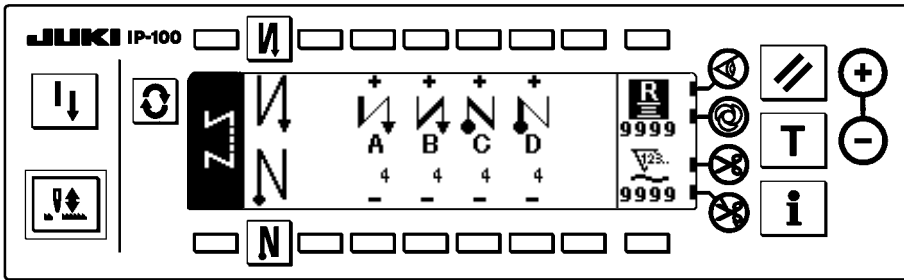
Step pattern No. is selected.



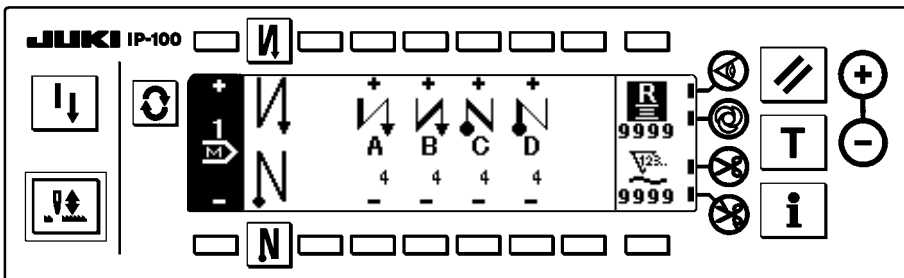
**Number of stitches of back tuck stitching setting screen**

Setting of number of stitches of reverse stitching is performed.

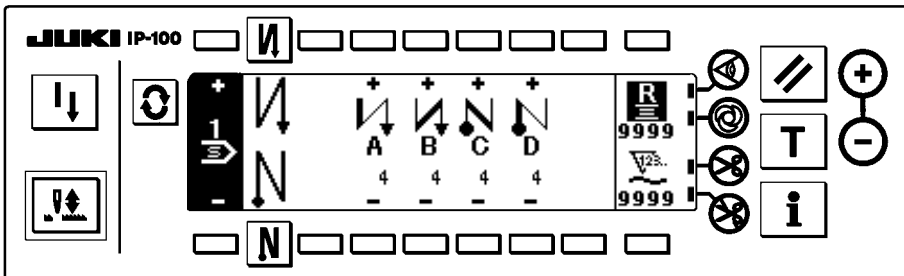
<When reverse stitching pattern is selected>



<When corner pattern is selected>

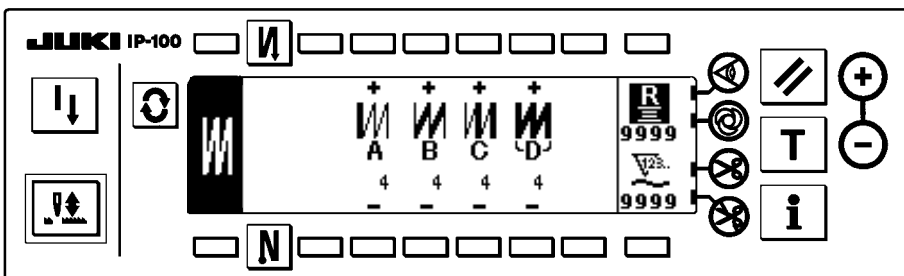


<When step pattern is selected>



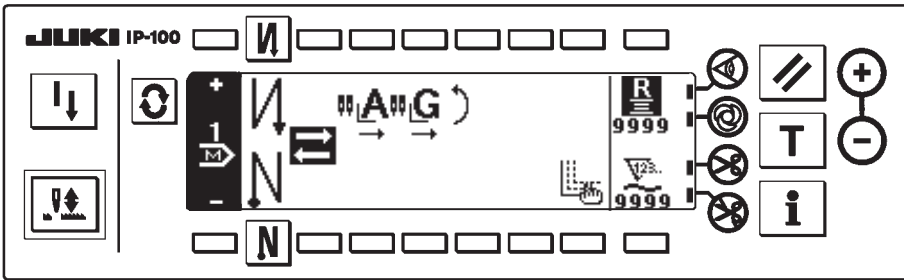
**Number of stitches of overlapped stitching setting screen**

Setting of number of stitches of overlapped stitching is performed.



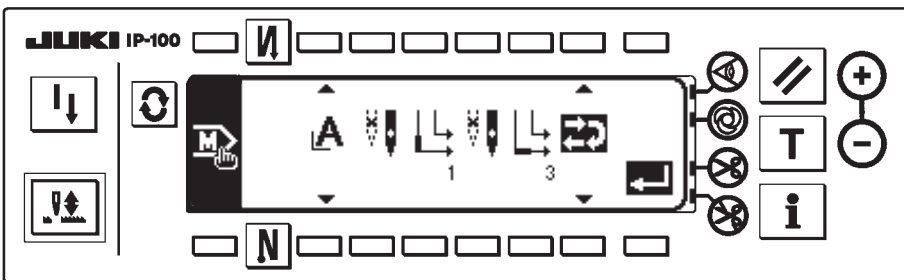
### ■ Corner pattern setting screen

Setting of the corner pattern is displayed.



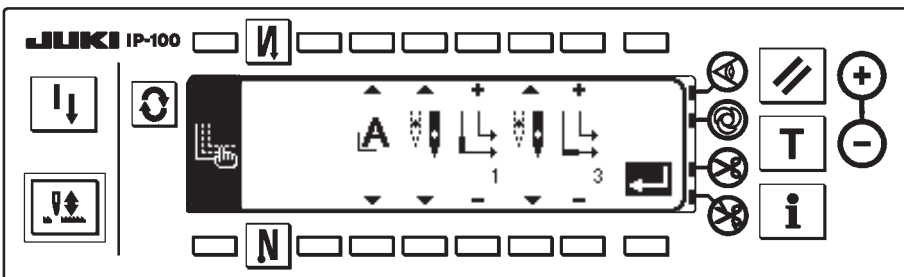
### ■ Step edit screen

Contents of the step are set.



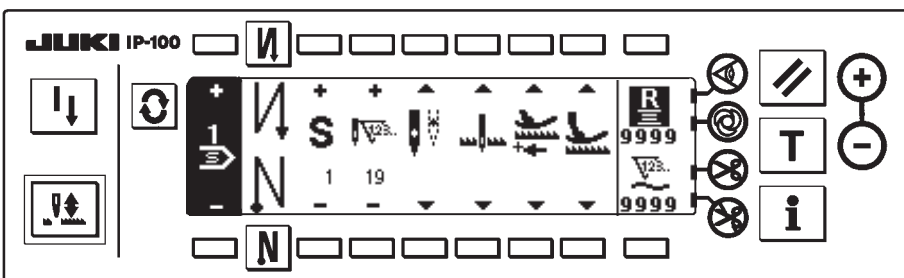
### ■ Corner edit screen

Contents of the corner are set.



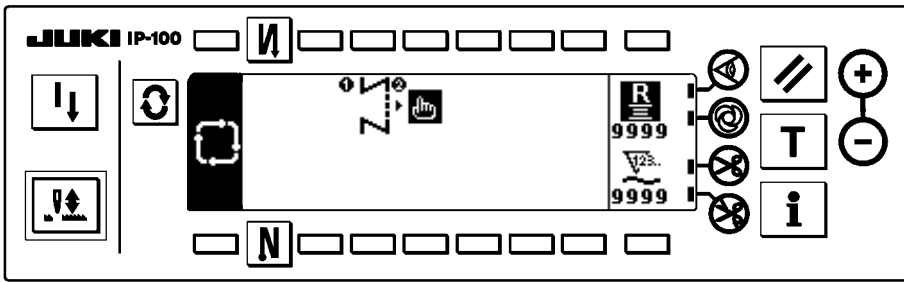
### ■ Step pattern setting screen

Setting of the respective conditions of the step pattern is performed.



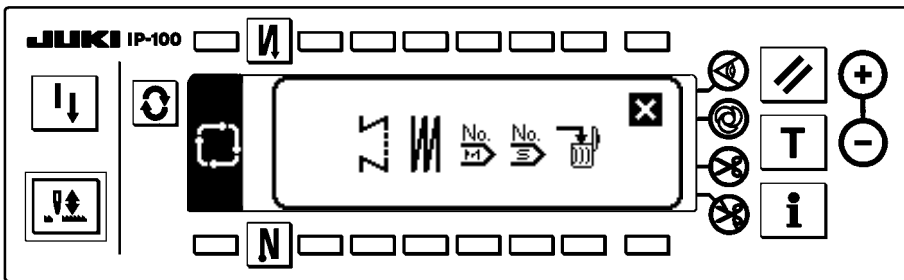
■ Cycle sewing setting screen

Setting of the step of cycle sewing is performed.



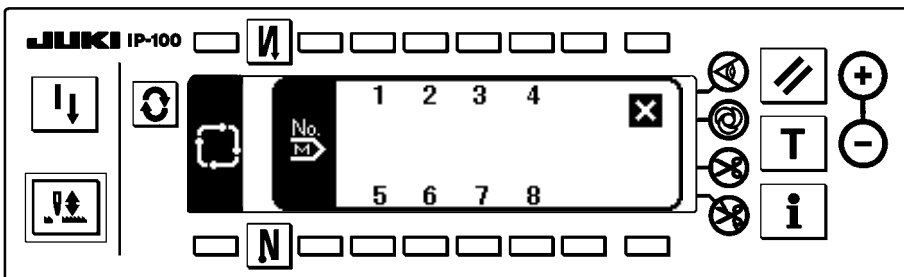
■ Cycle sewing step setting pop-up

Setting of the step of cycle sewing is performed.



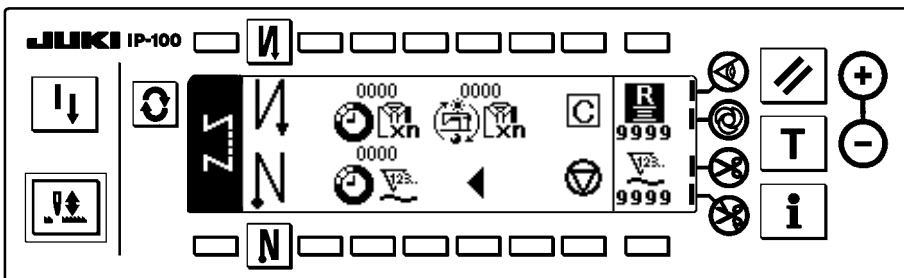
■ Cycle sewing step No. selection pop-up

Setting of the corner pattern and the step cycle sewing is performed.



■ Output display screen









Final target set value, current target value and actual results up to now are displayed.




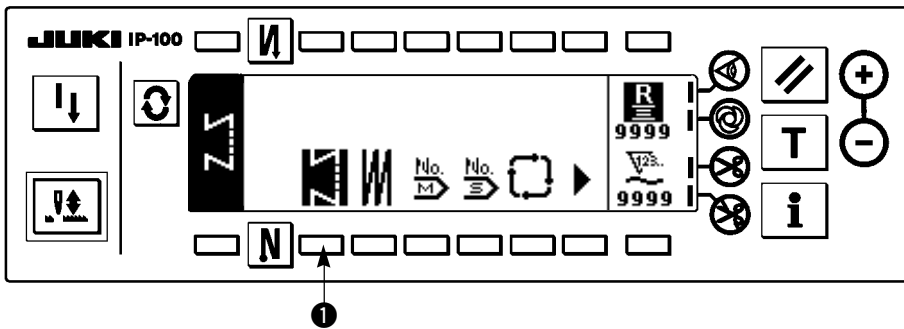


## 5-2. How to operate the operation panel for sewing stitching patterns

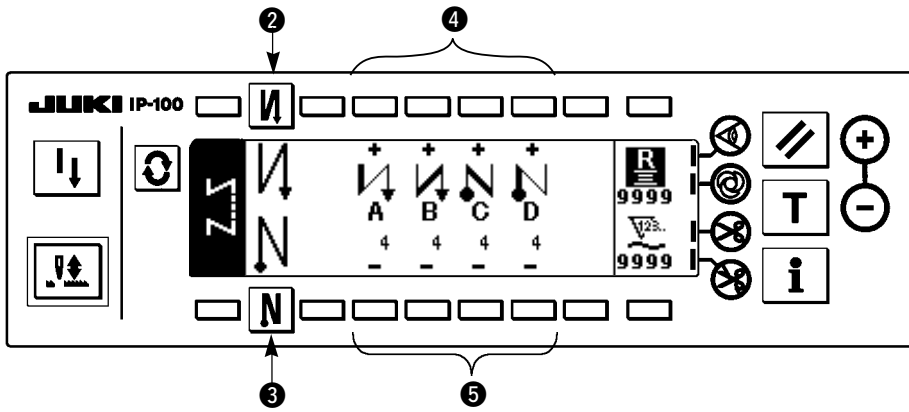
### (1) Reverse stitching pattern

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

Press  to display the pattern list screen.

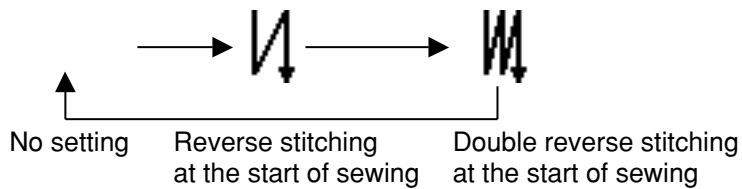


- 1) Press switch ❶ to select the reverse stitching pattern, and the screen is automatically changed over to the number of stitches of reverse stitching setting screen to display the number of stitches which has already been set.

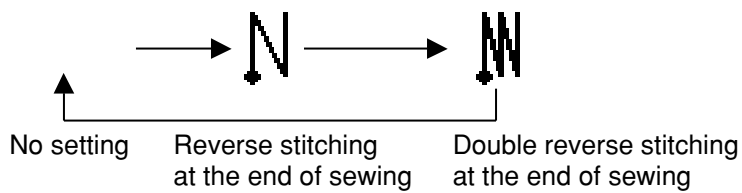


2) When changing the number of stitches, change it with switches ④ and ⑤ for setting the number of stitches A through D.  
 (The range of the number of stitches that can be changed : 0 to 99 stitches)

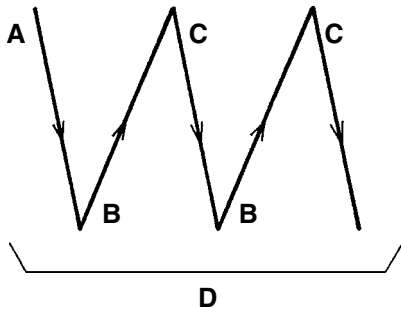
3) Press switch ② to set the reverse stitching at the start of sewing.




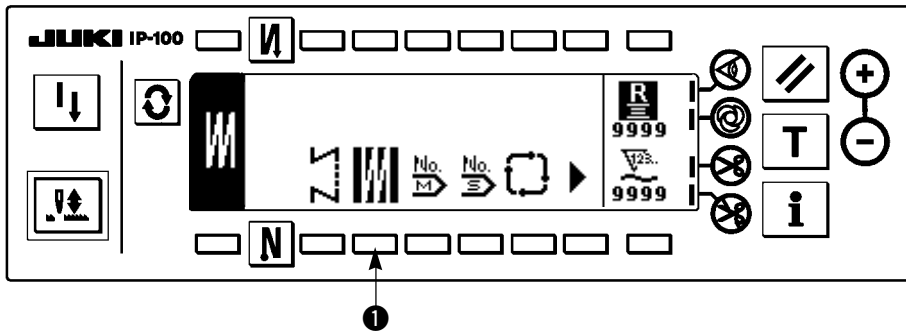
4) Press switch ③ to set the reverse stitching at the end of sewing.



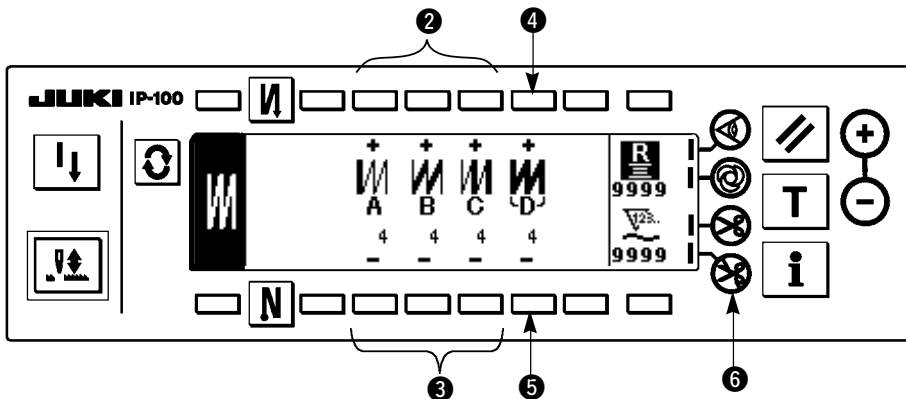
## (2) Overlapped stitching pattern



Press  to display the pattern list screen.



- 1) Press switch **1** to select the overlapped stitching pattern, and the screen is automatically changed over to the number of stitches of overlapped stitching setting screen to display the number of stitches which has already been set.

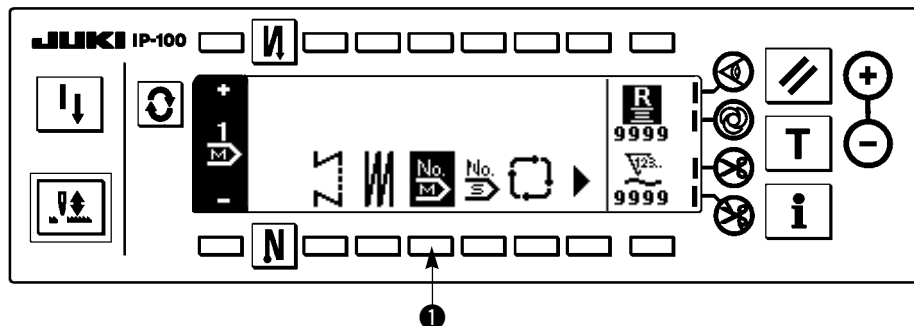



- 2) When changing the number of stitches, change it with switches **2** and **3** for setting the number of stitches for processes A through C. To change the number of times of the whole processes, change it with switches **4** and **5** for setting the number of processes D.  
(The range of the number 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)
- 3) Depress the front part of the pedal once, and the sewing machine will repeat the normal stitching and reverse stitching as many as the number of specified 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.)
- 4) When thread trimming prohibiting function **6** is selected, the machine will stop with the needle up upon completion of the overlapped stitching procedure without performing thread trimming.

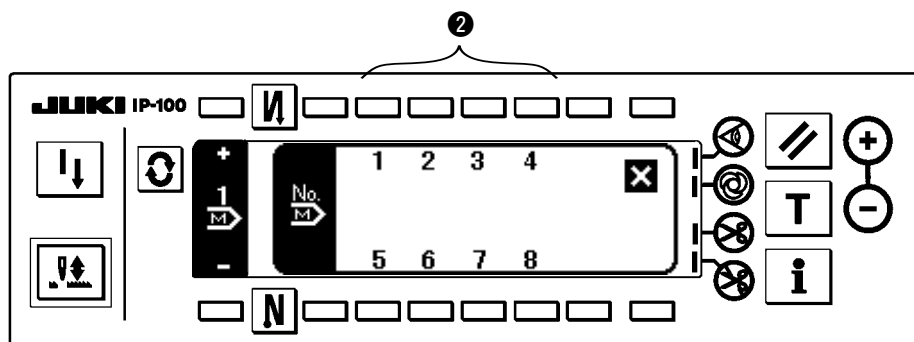
### (3) Corner pattern


The corner stitching process can be programmed as many as 8 processes (as many as 16 processes when repeating is effective) in advance. The needle bar to be stopped and the number of stitches of sewing with single needle can be specified in advance for the respective processes.

Press  switch to display the pattern list screen.

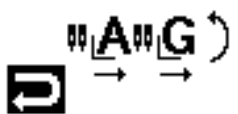
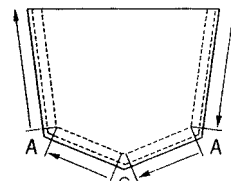
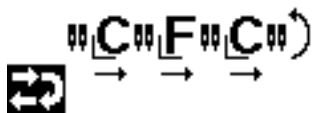
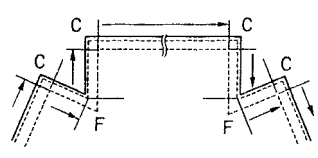



1) Press switch  to display the corner pattern No. selection pop-up.


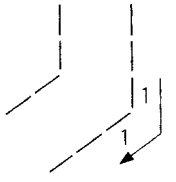

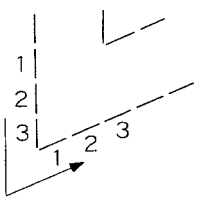

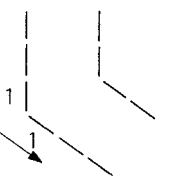

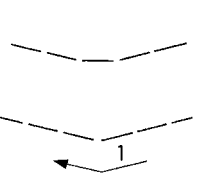

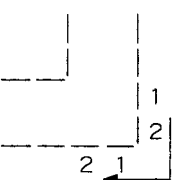

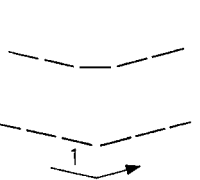

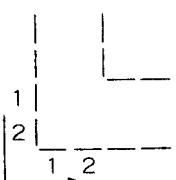



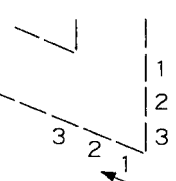




2) When switches  are pressed and the corner pattern No. is selected, the screen is automatically changed over to the corner pattern setting screen to display the state of the pattern which has been already specified.

3) The table below shows the initial setting of each pattern.

Pattern No.	Indication	Corner type of the corner stitching processes	Example of sewing
1		<p>→ A → G → A →</p>	 <p>Attaching pocket on jeans or the like</p>
2		<p>→ C → F → C → C → F → C →</p>	 <p>Sewing collars of jackets or the like</p>
3 to 8		<p>→ A →</p>	<p>—</p>

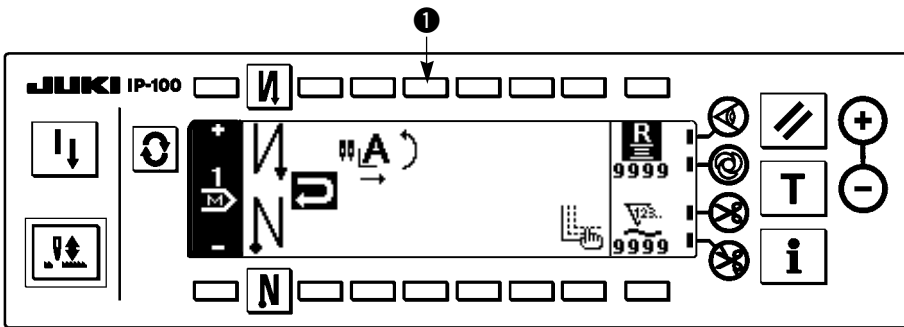
4) The table below shows the initial setting of each corner type.

Corner type	Indicating section	Needle bar to be stopped and the number of stitches	Example of sewing	Corner type	Indicating section	Needle bar to be stopped and the number of stitches	Example of sewing
A		Left-hand needle bar Inside corner 1 stitch Outside corner 1 stitch		F		Right-hand needle bar Inside corner 3 stitch Outside corner 3 stitch	
B		Right-hand needle bar Inside corner 1 stitch Outside corner 1 stitch		G		Left-hand needle bar Inside corner 1 stitch Outside corner 0 stitch	
C		Left-hand needle bar Inside corner 2 stitch Outside corner 2 stitch		H		Right-hand needle bar Inside corner 1 stitch Outside corner 0 stitch	
D		Right-hand needle bar Inside corner 2 stitch Outside corner 2 stitch		L		Left-hand needle bar Inside corner Outside corner Number of stitches is determined by operating the pedal.	
E		Left-hand needle bar Inside corner 3 stitch Outside corner 3 stitch		R		Right-hand needle bar Inside corner Outside corner Number of stitches is determined by operating the pedal.	

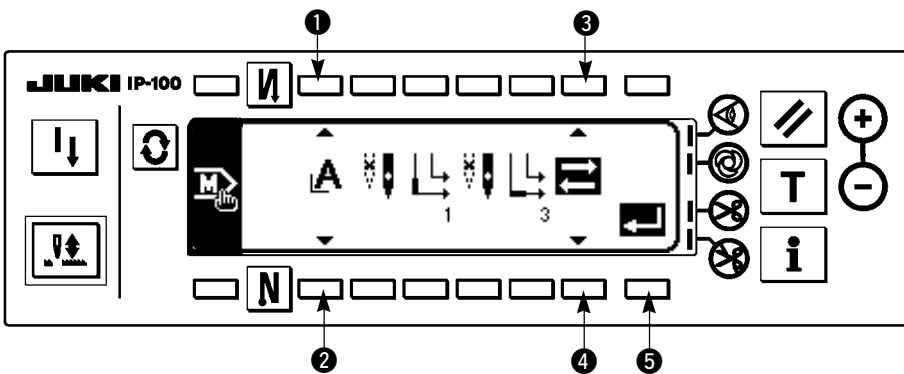
5) Modification of the pattern

[To add the step]

1. When adding the step, press the switch to which nothing is registered (example in the illustration is SW ①).



2. Corner type which is used in the step and the kind of return are selected in the step edit pop-up.



- ① and ② : These switches select the corner type.
- ③ and ④ : These switches select the kind of return.
- ⑤ : Change is determined and the screen returns to the step setting screen.

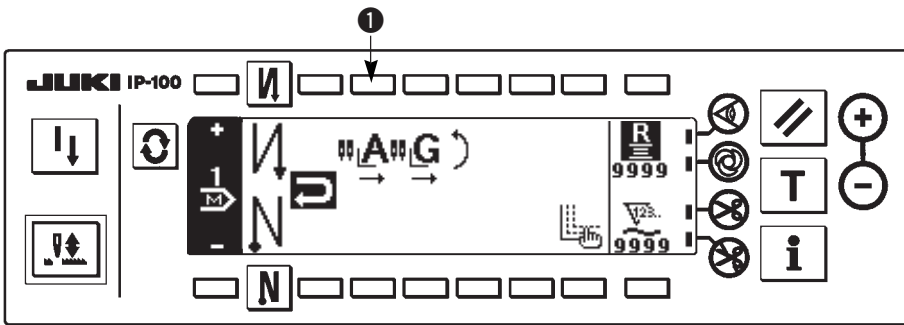
There are 4 kinds of returns in total.

- : Return is performed after executing the selected corner step.
- : Return is not performed.
- : It is the step on the way of return. It cannot be selected in the last step.
- : 2-needle sewing is performed after executing the selected corner, and return is performed.

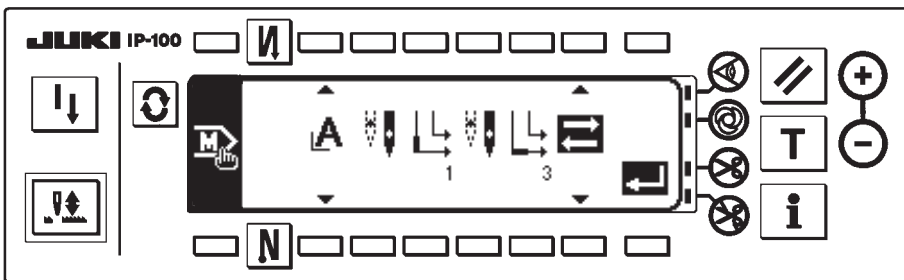
**Caution** When or is selected in the kinds of returns, the step after it is deleted.

**[To change the step]**

1. In order to edit the step which has been already registered, press the switch of the step you desire to edit.  
(Example in the illustration is switch of ①)

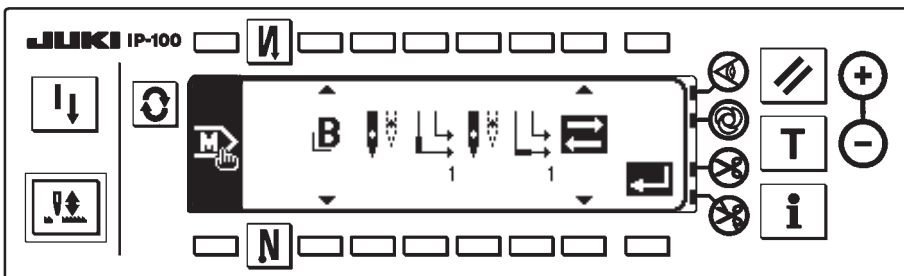
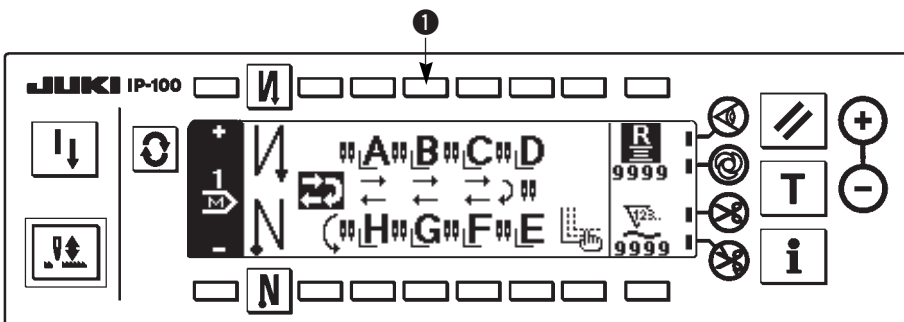


Setting procedure is the same as that of adding the step.





**[To delete the step]**


1. When deleting the step, press the switch ① of step which is one before the process you desire to delete.  
As an example, select the step in which "B" exists to delete after "C".

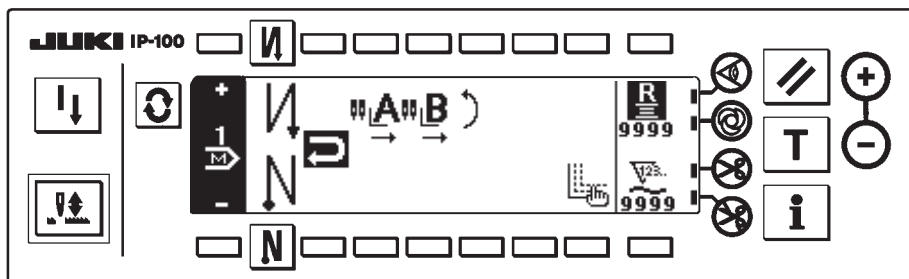




2. Set the kind of return to  or  with switch ② in the step pop-up screen.

**Caution** Even when  or  is selected on the way of return, it is not reflected.

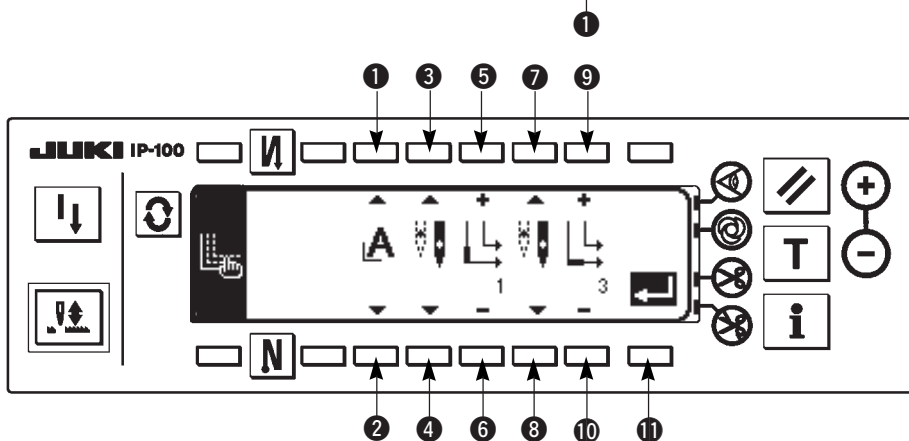
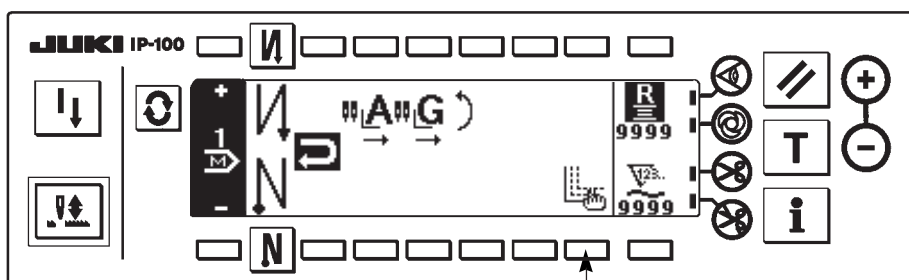
3. Step after the set step is deleted. (Screen is the case where  is set in the kinds of returns.)



6) Edit of the corner

Contents of the corners A to H are edited.

Press switch ① to display the corner edit pop-up.

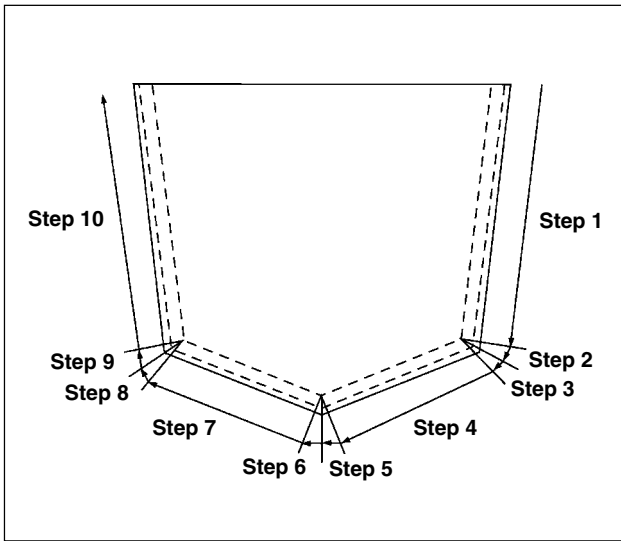


- ① and ② : These switches change the corner type of the object to be edited.
- ③ and ④ : These switches select the needle bar to be stopped for inside corner.
- ⑤ and ⑥ : These switches set the number of stitches for inside corner.
- ⑦ and ⑧ : These switches select the needle bar to be stopped for outside corner.
- ⑨ and ⑩ : These switches set the number of stitches for outside corner.
- ⑪ : This switch stores the data of all corners which have been edited, and the screen returns to the step setting screen.


**Caution** Edit of corner L and corner R cannot be performed.

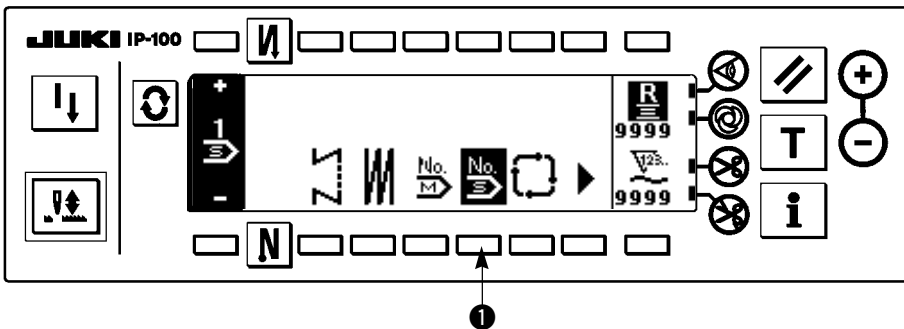
#### (4) Step pattern

The constant-dimension stitching process can be programmed as many as 20 operation steps. The sewing conditions including the number of stitches, needle bar to be stopped, up/down stop mode, automatic thread trimming, continuous steps, lifting/lowering of presser foot and normal/reverse feed stitching can be separately specified for the respective operation steps.

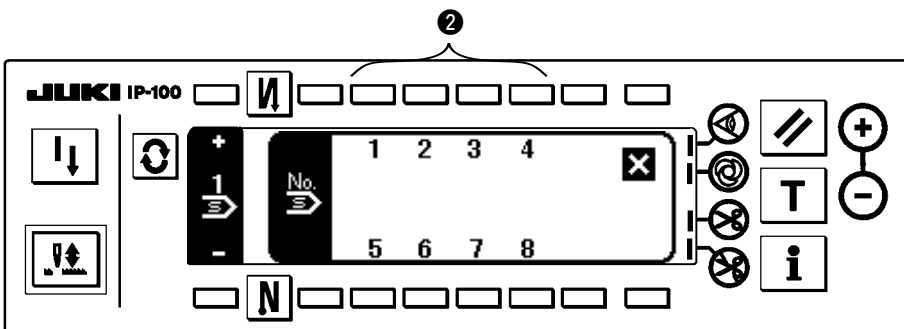


Programming procedure is described below taking the pattern on the left side as an example.

Press  to display the pattern list screen.

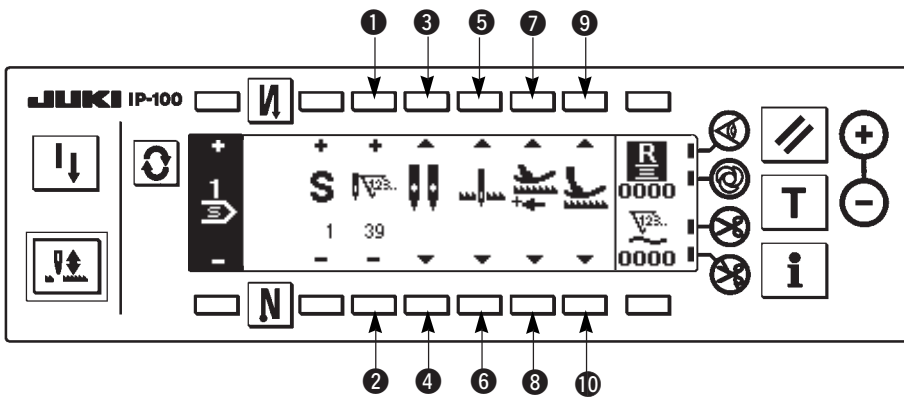


1) Press switch **1** to display the step pattern No. selection pop-up.



2) When switches **2** are pressed and step pattern No. is selected, the screen is automatically changed over to the step pattern setting screen to display the state of the pattern which has been already specified.

[Step 1]



- 3) Confirm that step 1 is displayed on the panel. Now, set the number of stitches to 39 using switches ① and ②.
- 4) Change the needle bar to be stopped to the needle bar not to be stopped using switches ③ and ④.
- 5) Set the stop state of the sewing machine to the needle-down stop mode using switches ⑤ and ⑥.
- 6) Set the feeding direction to the normal direction using switches ⑦ and ⑧.

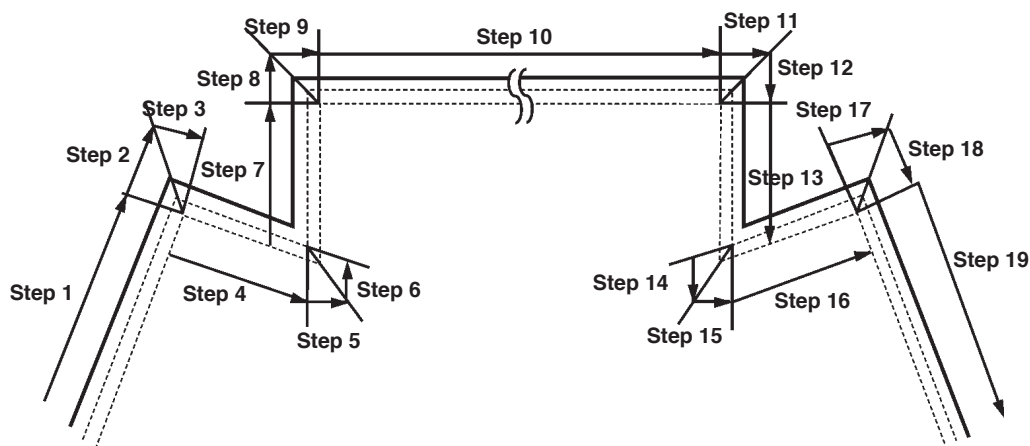
**Caution** When the number of stitches is “0” or the stop state selects automatic thread trimming , it is not possible to go to the next step.

- 7) Set the state of the presser foot at the time of stop to the down stop using switches ⑨ and ⑩.

8) Input the steps after the operations above as shown in the table below.

	Number of stitches	Needle bar to be stopped	Feeding direction	Stop state	State of presser foot at the time of stop
Step 2	2	Left	Normal direction	Needle-down stop	Up stop
Step 3	2	Left	Normal direction	Needle-down stop	Down stop
Step 4	20	Without stop	Normal direction	Needle-down stop	Down stop
Step 5	2	Left	Normal direction	Needle-down stop	Up stop
Step 6	2	Left	Normal direction	Needle-down stop	Down stop
Step 7	20	Without stop	Normal direction	Needle-down stop	Down stop
Step 8	2	Left	Normal direction	Needle-down stop	Up stop
Step 9	2	Left	Normal direction	Needle-down stop	Down stop
Step 10	39	Without stop	Normal direction	Automatic thread trimming	Up stop

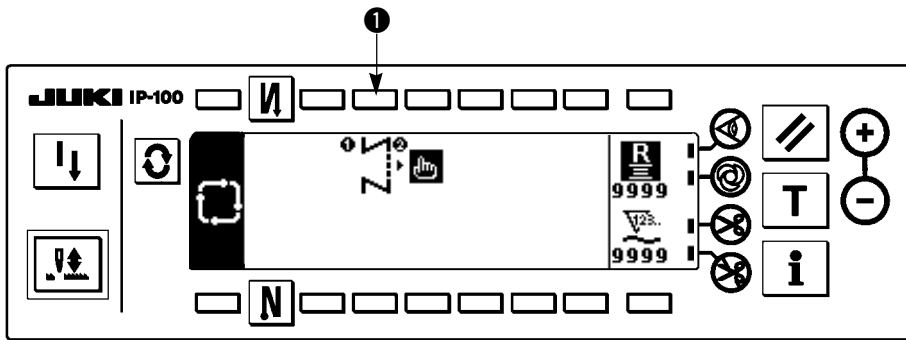
(Reference) In case of sewing of lapels of jacket or the like, refer to the table below.



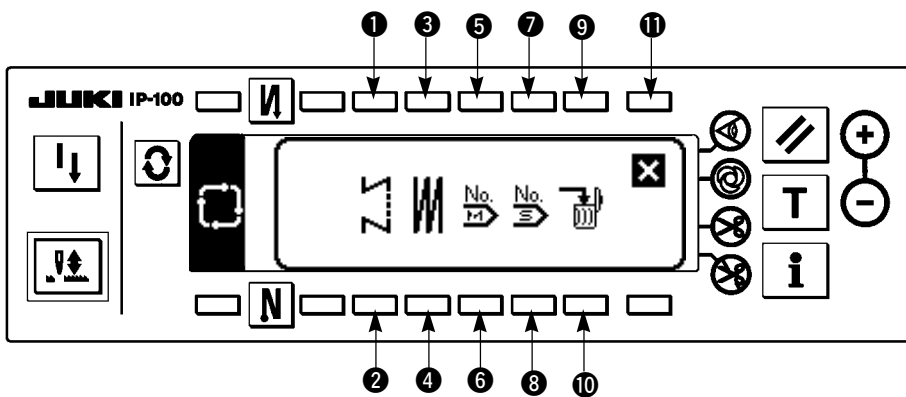
	Number of stitches	Needle bar to be stopped	Feeding direction	Stop state	State of presser foot at the time of stop
Step 1	35	Without stop	Normal direction	Needle-down stop	Down stop
Step 2	2	Left	Normal direction	Needle-down stop	Up stop
Step 3	2	Left	Normal direction	Needle-down stop	Down stop
Step 4	15	Without stop	Normal direction	Needle-down stop	Down stop
Step 5	5	Right	Normal direction	Needle-down stop	Up stop
Step 6	5	Right	Normal direction	Needle-down stop	Down stop
Step 7	20	Without stop	Normal direction	Needle-down stop	Down stop
Step 8	2	Left	Normal direction	Needle-down stop	Up stop
Step 9	2	Left	Normal direction	Needle-down stop	Down stop
Step 10	126	Without stop	Normal direction	Needle-down stop	Down stop
Step 11	2	Left	Normal direction	Needle-down stop	Up stop
Step 12	2	Left	Normal direction	Needle-down stop	Down stop
Step 13	20	Without stop	Normal direction	Needle-down stop	Down stop
Step 14	5	Right	Normal direction	Needle-down stop	Up stop
Step 15	5	Right	Normal direction	Needle-down stop	Down stop
Step 16	15	Without stop	Normal direction	Needle-down stop	Down stop
Step 17	2	Left	Normal direction	Needle-down stop	Up stop
Step 18	2	Left	Normal direction	Needle-down stop	Down stop
Step 19	35	Without stop	Normal direction	Automatic thread trimming	Up stop

## (5) Cycle sewing pattern

Reverse stitching pattern, overlapped stitching pattern, corner pattern and step pattern can be set and sewn as desired. (As many as eight patterns can be set.)



1) Press switch ① to the cycle sewing edit pattern setting pop-up.



Switches ① and ② : These switches set the reverse stitching pattern.

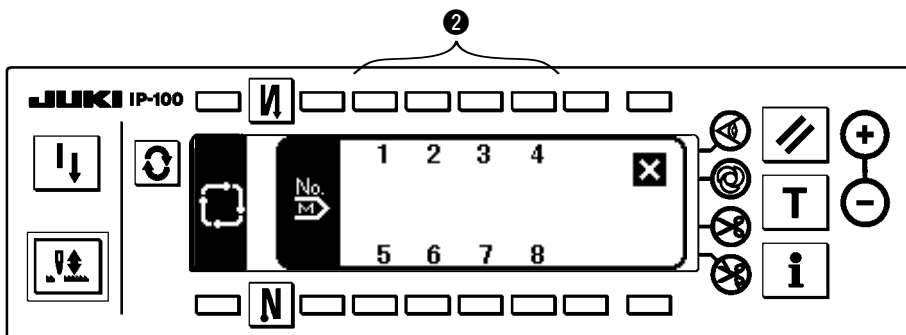
Switches ③ and ④ : These switches set the overlapped stitching pattern.

Switches ⑤ and ⑥ : These switches display the corner pattern No. setting pop-up.

Switches ⑦ and ⑧ : These switches display the step pattern No. setting pop-up.

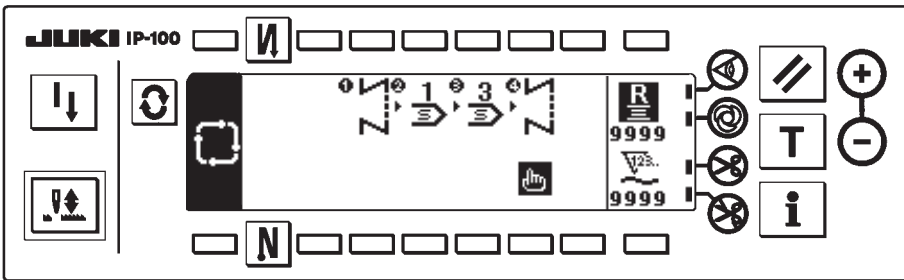
Switches ⑨ and ⑩ : These switches delete the editing step.

Switch ⑪ : The screen returns to the cycle sewing setting screen.

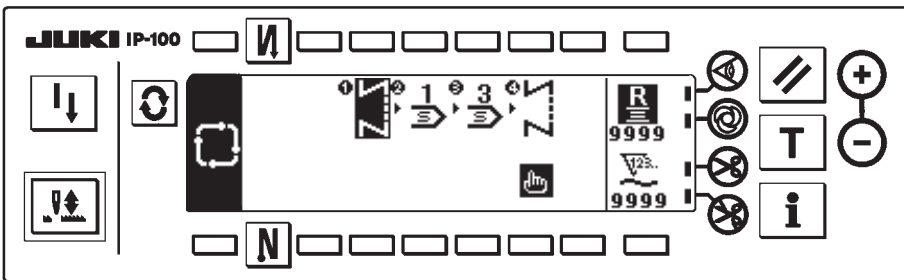


When registering the corner pattern or the step pattern to the cycle sewing step, select pattern No. using switches of ② in the pattern No. setting screen.

[Example of setting]



2) Every time the thread trimmer actuates, the machine proceeds to the subsequent pattern which has been selected. (The step which is being executed is shown in reverse video during execution.)

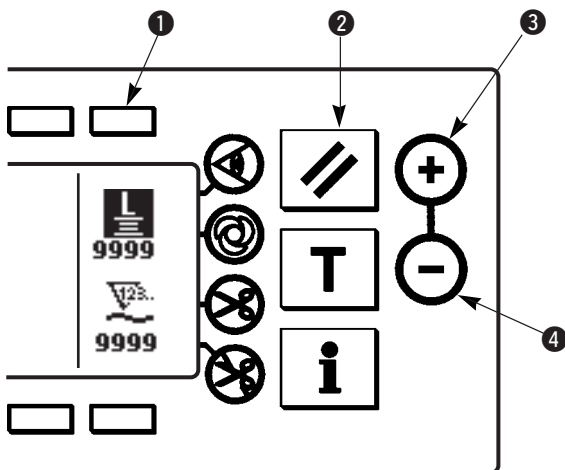


**Caution** If the thread trimmer actuates before completion of a pattern, the machine will proceed to the subsequent program.

### 5-3. 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 (peeps three times) and the pop-up display inform that the time to change the bobbin thread has come.

When IP-100 is mounted on LH-4168 and LH-4188, the bobbin thread counters are separately installed for left-hand bobbin L and right-hand bobbin R. However, the display on the panel is either one of them, and the display can be changed with switch ①.

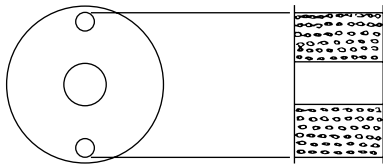


1) Press switch ① to select the bobbin thread counter. Then press counter reset switch ② to return the value indicated on the bobbin thread counter to the initial value (it has been factory-set to "0" at the time of delivery).

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

2) Set an initial value using counter value setting switches ③ and ④.

**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 on the left side.

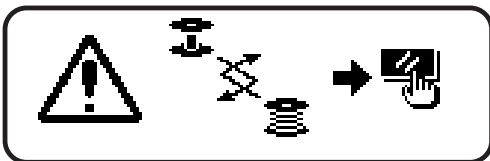
Thread tension rate 100 %

Sewing machine	Thread used	Length of thread wound round the bobbin	Value on bobbin thread counter
LH-4168	Polyester spun thread #60	Approx. 51 m	2000 (stitch length : 2.5 mm)
	Polyester filament #80	Approx. 130 m	6500 (stitch length : 2 mm)
	Core spun thread #20	Approx. 14 m	400 (stitch length : 3.5 mm)
LH-4188	Core spun thread #20	Approx. 27 m	770 (stitch length : 3.5 mm)

\* 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, start the sewing machine.
- 4) When a minus value is shown on the counter, the buzzer peeps three times and the pop-up appears, replace the bobbin thread.

**Bobbin thread replacement warning pop-up**

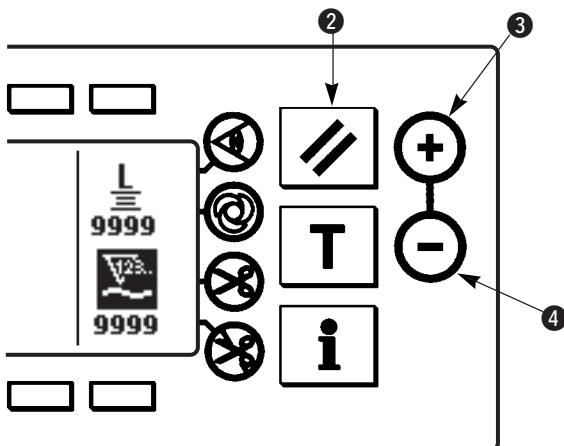


- 5) After the bobbin thread has been properly replaced, press counter reset switch ② to return the value on the bobbin thread counter to the initial value. Now, re-start the sewing machine.
- 6) If the remaining amount of bobbin thread is excessive or the bobbin thread runs out before the bobbin thread counter indicates a minus value, adjust the initial value appropriately using counter value setting switches ③ and ④.

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 “-” switch.

**5-4. No. of pcs. counter**

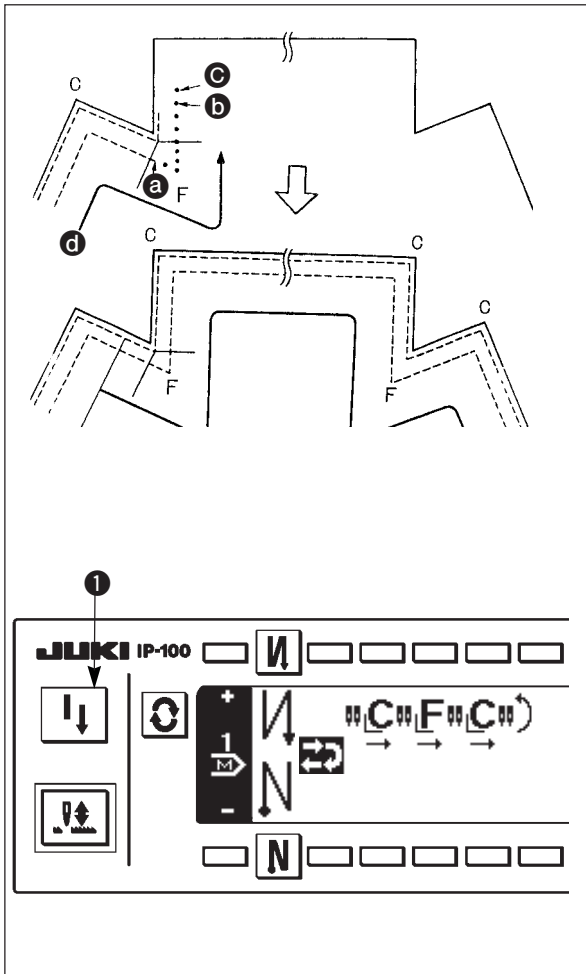
The No. of pcs. counter counts up the number of finished products every time the machine performs thread trimming. (0 → 1 → 2 ..... → 9999)



The value on the No. of pcs. counter can be modified using counter value setting switches ③ and ④. The value on the No. of pcs. counter is reset to "0" by pressing counter reset switch ②.

## 5-5. Re-sewing switch

The re-sewing switch is used when the bobbin thread runs out during the corner pattern sewing step or the step pattern sewing step. Explanation of the re-sewing switch is given using the corner pattern as an example.



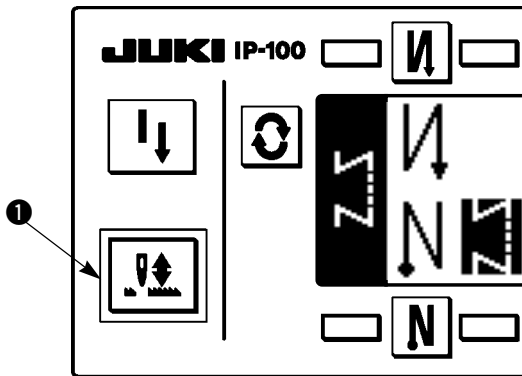
- 1) When the bobbin thread has run out during the sewing of a corner **a**, take the position at which you have noticed run out of the bobbin thread as **b**. Bring the pedal to its neutral position to allow the sewing machine to stop.
  - 2) Depress the back part of the pedal to perform thread trimming.
  - 3) Press re-sewing switch **1**. **C**
  - 4) Replace the bobbin with a new bobbin and sew over the finished seam. **d**
  - 5) Depress the front part of the pedal and continue to depress the pedal until the stop position of the current step.
  - 6) When re-sewing switch **1** is turned ON again at the stop position, the step is changed over to the subsequent step, and the corner pattern can be continued.
- \* When thread breakage or the like occurs during the free stitching operation **d** using re-sewing switch **1**, set the pedal to neutral and perform thread trimming operation by depressing the back part of the pedal. Perform threading and slightly return the material edge. Then press re-sewing switch **1** and the free stitching can be continued. After this, the operation is the same as steps 5) and 6).



**When returning to the first step without using re-sewing switch **1**, the step display returns to “1” and the sewing can be performed from the first by depressing the back part of the pedal to perform thread trimming.**



## 5-6. Needle up/down compensation switch



Every time needle up/down compensation switch ① 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.

Note, however, 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.

Thread trimming is operative only at the time of stitch compensation after depressing the front part of the pedal once.

## 5-7. ON/OFF switch of the material edge sensor

- When the material edge sensor, which is optionally available, is connected to the operation 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.



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



## 5-8. Automatic thread trimming switch

- 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).)

## 5-9. One-shot automatic stitching switch

- This switch is used, in the step pattern, 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 once.

## 5-10. 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.

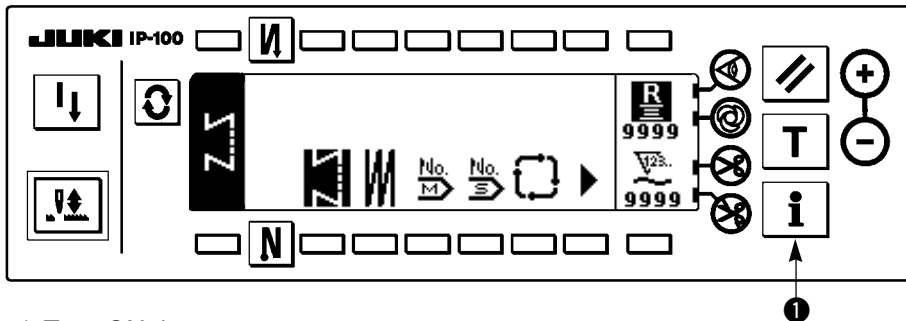
## 5-11. Key lock

- In order to prevent the specified data on the number of stitches or the processes (A, B, C and D, or step information) from changing by mistake, the setting switch can be locked. (Even with the setting key locked, the pattern to be sewn and the value on the bobbin thread counter can be changed.)
- For the setting procedure, refer to 5-13 Setting for functions and set function No. 17, Key lock function (key lock is effective with setting of "1").

## 5-12. Information

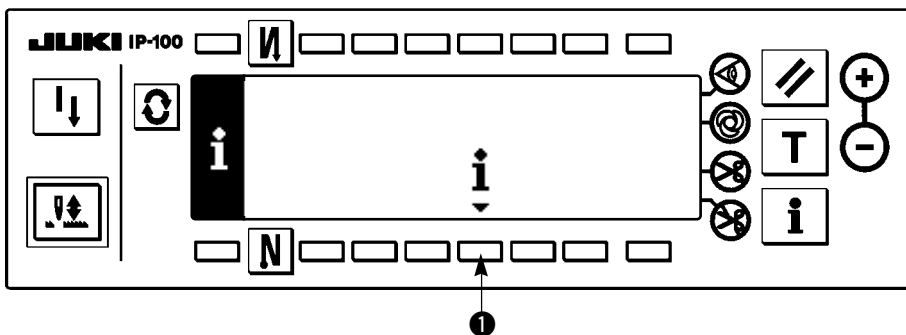
Setting and checking of various data can be performed with the information.  
For the information, there are the operator level and the maintenance personnel level.

### [Operator level]



- 1) Turn ON the power.
- 2) Press switch ❶ to display the information screen.

### ■ Information screen (operator level)

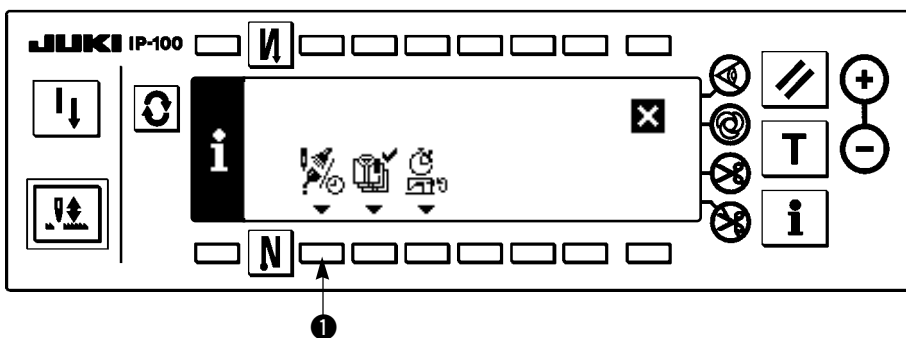


❶ : Sewing management information

### (1) Sewing management information

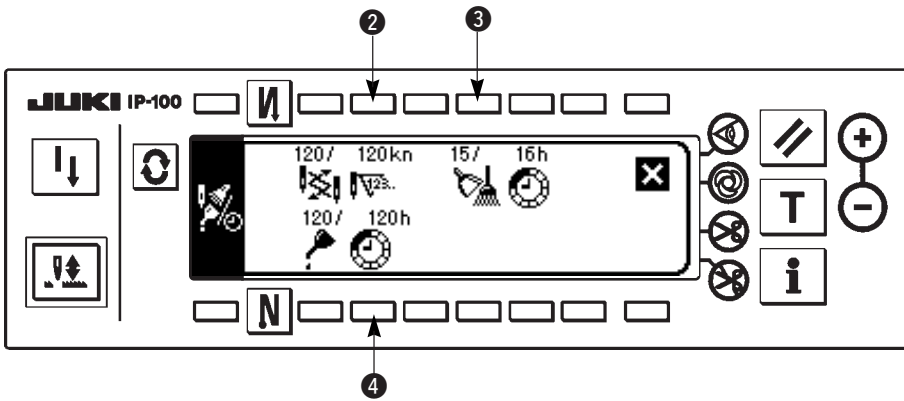
For the sewing management information, there are the maintenance management function, production control function and working measurement function.

### [Maintenance management function]



- 1) Press ❶ to display the maintenance function screen.

■ Maintenance function screen



[Explanation of the respective items]

- ② Time of replacement of needle ..... Unit : X 1,000 stitches
- ③ Time of cleaning ..... Unit : Hour
- ④ Time of replacement of oil ..... Unit : Hour

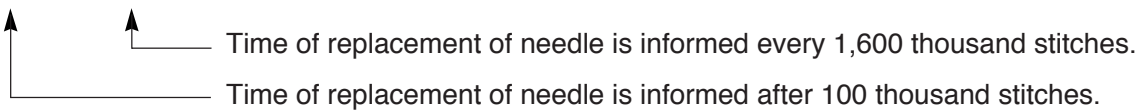
[Explanation of the contents of display]

(Numerator / denominator)

\* Number of remaining stitches up to \* thousand stitches / \* \* thousand stitches

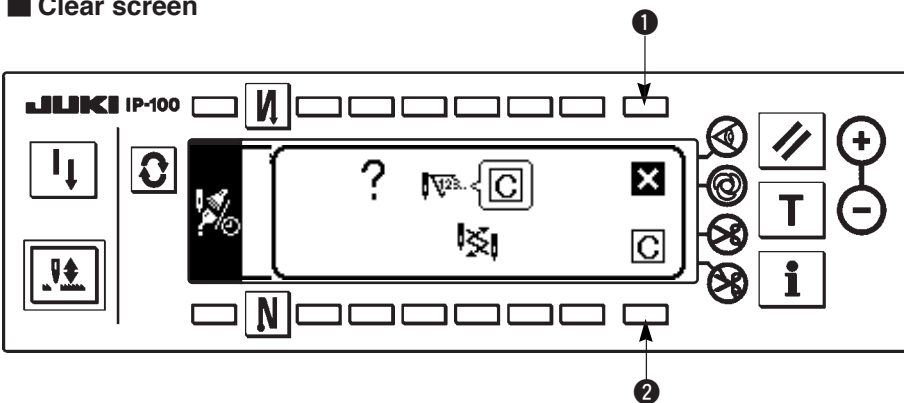
Example) Replacement of needle

100 / 1600 kn



When ②, ③ and ④ switches are pressed, the clear checking screen is displayed.

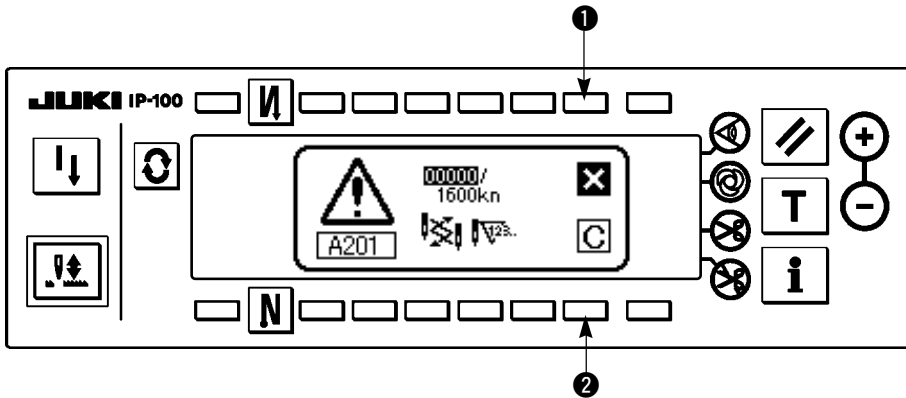
■ Clear screen



- ① : The screen returns to the maintenance function screen without performing clearing.
- ② : The screen returns to the maintenance function screen after executing clearing.

## ■ Warning screen

Warning screen is displayed when the warning time is reached.

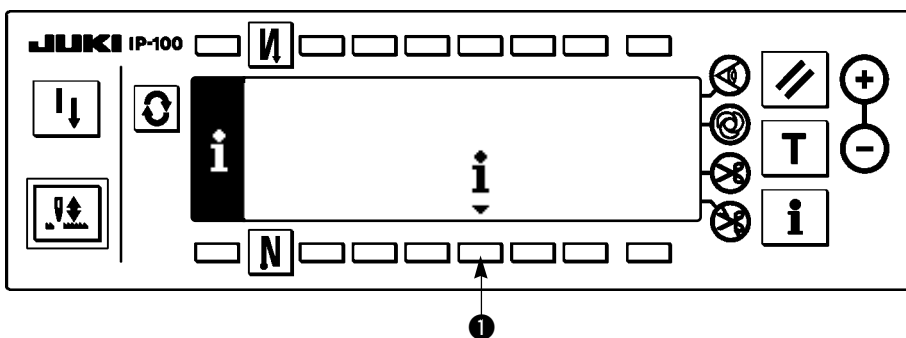


① : When ① is pressed, the screen can be cleared. However, the counter itself cannot be cleared. In case of the replacement of needle, the warning screen is displayed at intervals of 10 minutes until clearing is performed. In case of other warnings, the warning screen is displayed at the time of turning ON the power until the counter is cleared.

② : When ② is pressed, the screen is cleared and the counter value is cleared as well. From this time, counting starts newly.

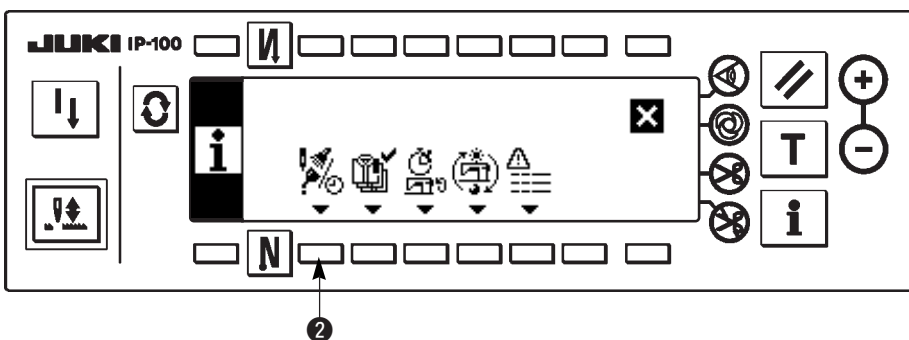
## [Setting of the warning setting time]

### ■ Information screen



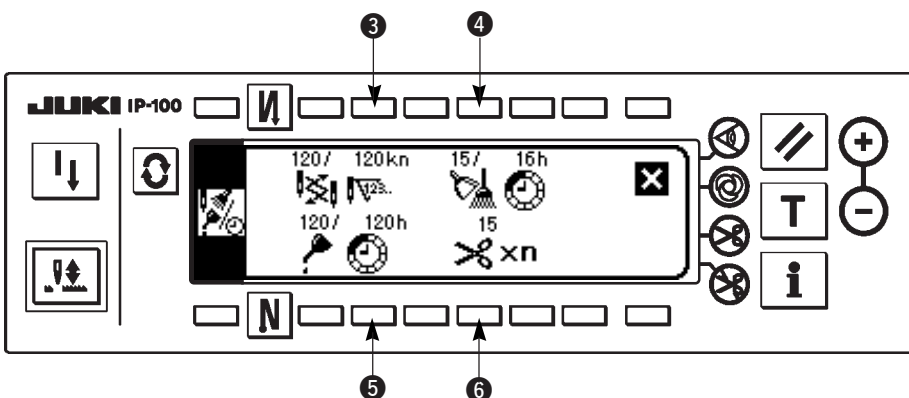
1) Press switch ① for approximately three seconds in the information screen.

## ■ Sewing management information selection screen



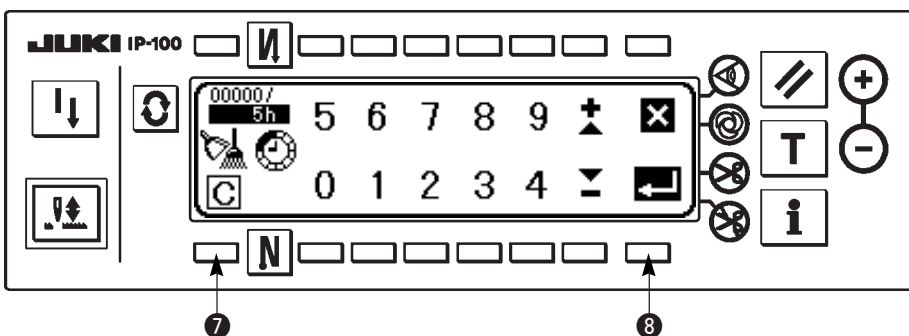
- 2) Press ② to display the maintenance function screen.  
(For other functions, refer to the Engineer's Manual.)

## ■ Maintenance function screen



- ③, ④, ⑤ : Inspection time (number of times of thread trimming) input screen is displayed.  
⑥ : ✂ x n Number of times of thread trimming per sewing ... Unit : Number of times

## ■ Inspection time (number of times of thread trimming) input screen



Clear checking screen is displayed in ⑦. (It is not displayed when the number of times of thread trimming is specified.)

After inputting the setting time, determine the time with ⑧.

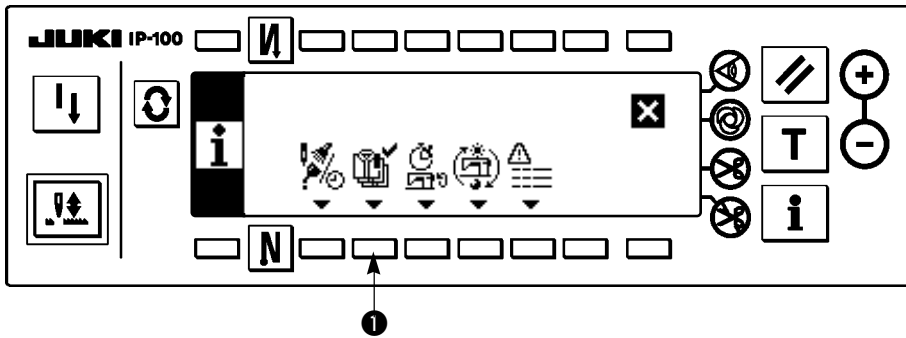


**In case of stopping the warning function, set the set value to "0".**

**It is possible to individually set replacement of needle, cleaning, and replacement of oil respectively.**

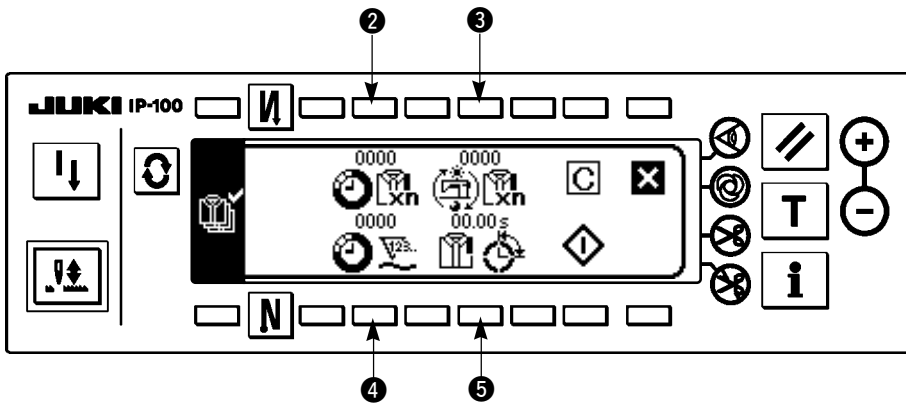
**In case of stopping all, set "0" to each.**

## (2) Production control function



1) Press ❶ to display the production control screen.

### ■ Production control screen



#### [Explanation of the respective items]

Number of pcs. of current target ..... Unit : Piece

Number of pcs. of final target ..... Unit : Piece

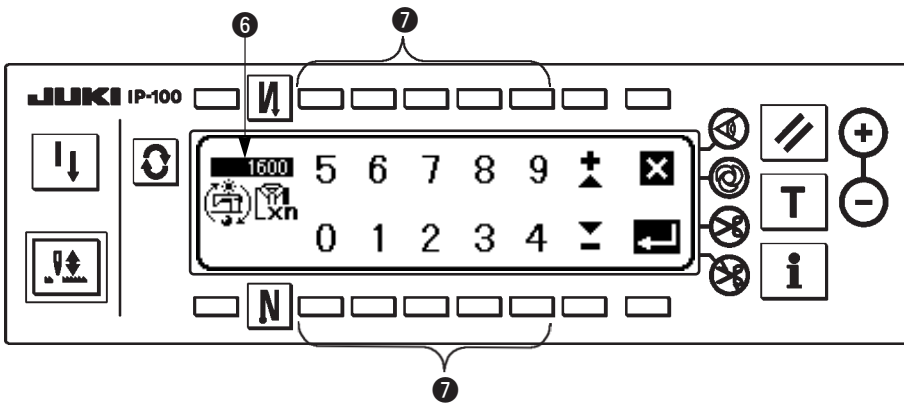
Current output ..... Unit : Piece

Time required to sew one piece (pitch time) ..... Unit : Second

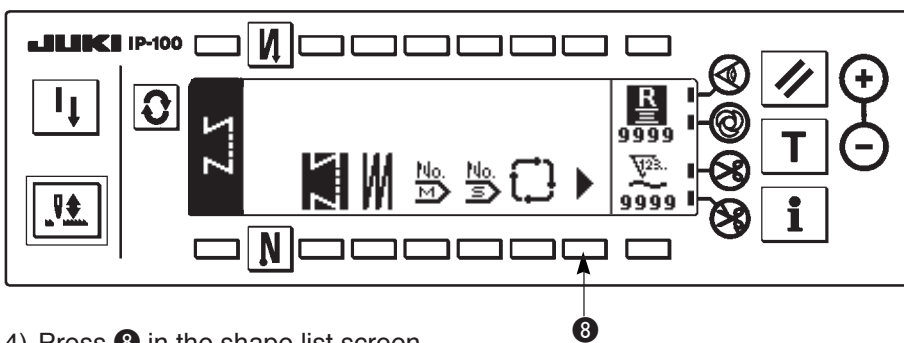
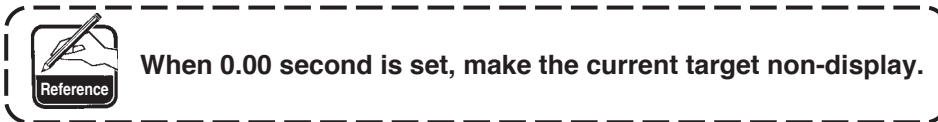
This item displays that the measurement is stopped. This item displays that the measurement is being performed.

2) Press ❷, ❸, ❹ and ❺ to display the production control input screen.

## ■ Production control input screen

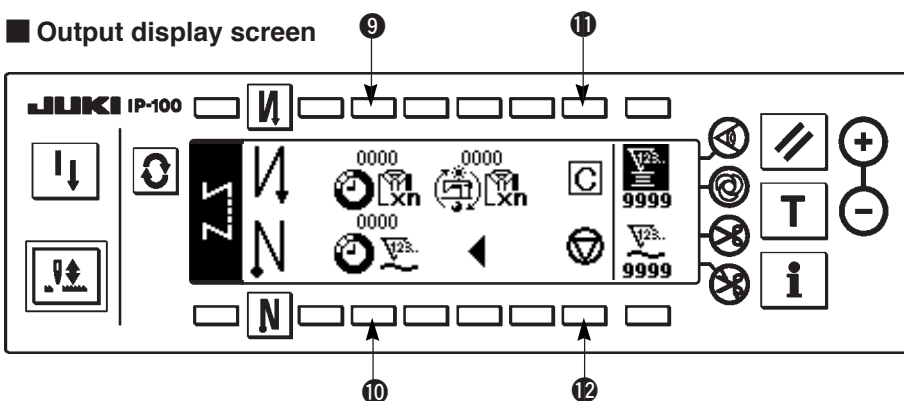


3) Set the respective setting items with ⑦. Setting time inputted in ⑥ is shown in reverse video.



4) Press ⑧ in the shape list screen.

## ■ Output display screen



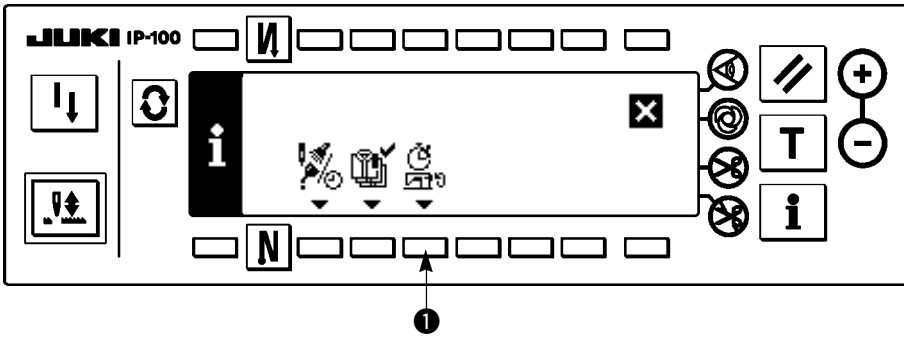
5) The output display screen is displayed. Sewing is possible with this screen.

Set value can be changed with switches ⑨ and ⑩ (Editing of the final target value and pitch time cannot be performed in this screen.)

The current target value and the current output can be cleared (make them "0") with switch ⑪.

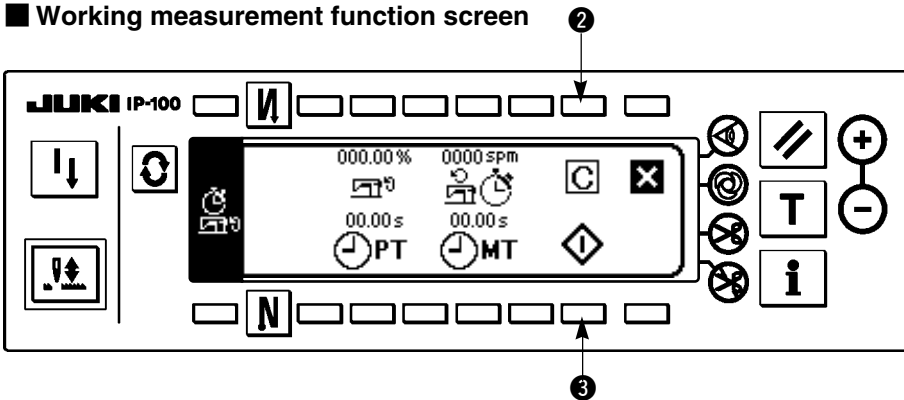
Setting of start/stop of the output display function can be performed with switch ⑫.

### (3) Working measurement function







1) Press ❶ to display the working measurement function screen.

#### ■ Working measurement function screen



#### [Explanation of the respective items]

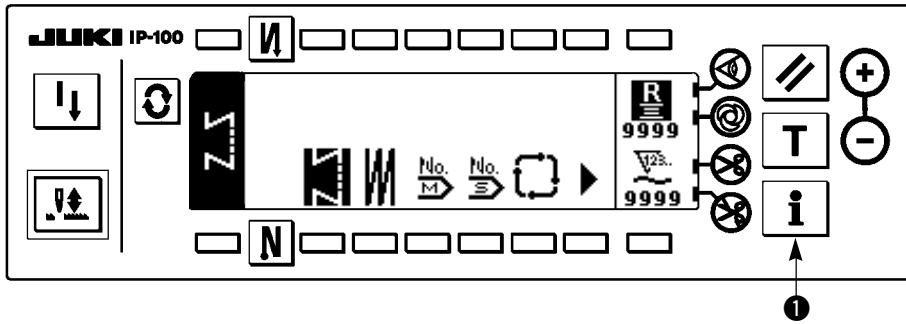
-  Working factor ..... Unit : %
-  Working mean speed ..... Unit : rpm
-  PT Pitch time ..... Unit : Second
-  MT Machine time ..... Unit : Second

- 2) Press ❸ to start the working measurement.
- 3) To stop the measurement, press ❸ again.
- 4) The result of measurement can be cleared with ❷.

**Caution** When “Clear” is not executed, the measurement from the last time can be continued.

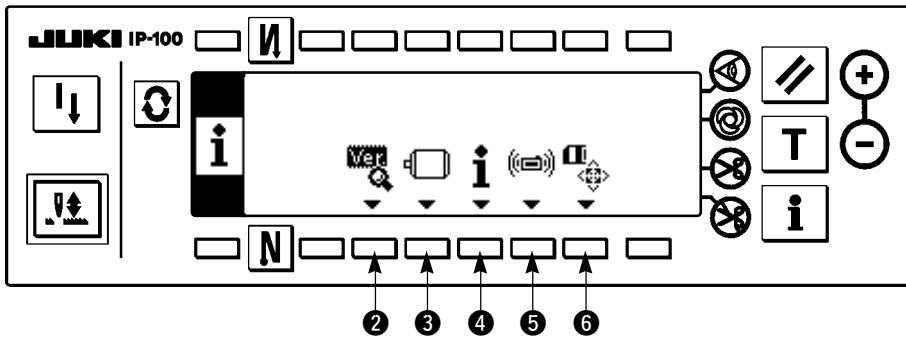


## [Maintenance personnel level]



- 1) Turn ON the power.
- 2) Press switch ❶ for approximately three seconds to display the information screen.

## ■ Information screen (Maintenance personnel level)



- ❷ Ver display ..... For the details, refer to the Engineer's Manual.
- ❸ Function setting ..... Refer to the item "Function setting procedure".
- ❹ Sewing management information
- ❺ Communication mode ..... For the details, refer to the Engineer's Manual.
- ❻ Smart media format ..... For the details, refer to the Engineer's Manual.



**When the smart media format is executed, all data which have been currently recorded will disappear. Be careful not to use the format for any other than the initialization of the smart media.**

## 5-13. Setting for functions

### (1) How to change over to the function setting mode



**Caution** Do not perform switch operations other than those described in the following explanations. Be sure to re-return the power switch ON after one second or more has passed. If the power is turned ON immediately after turning it OFF, the sewing machine may not work normally. In this case, turn ON the power again.



#### **WARNING :**

To avoid possible personal injuries caused by movement other than that you desired, do not operate the switches in the procedure other than those required, as described below, to specify the functions.

There are two kinds of function settings, Level 1 and Level 2.

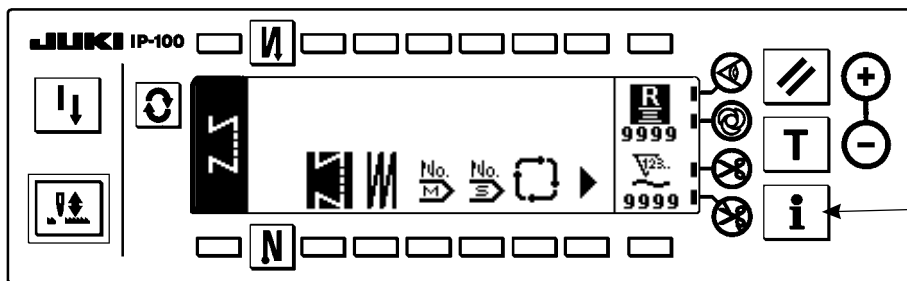
Level 1 : Change of setting can be performed without turning OFF the power switch.

Level 2 : It is necessary to turn OFF the power switch after change of setting.

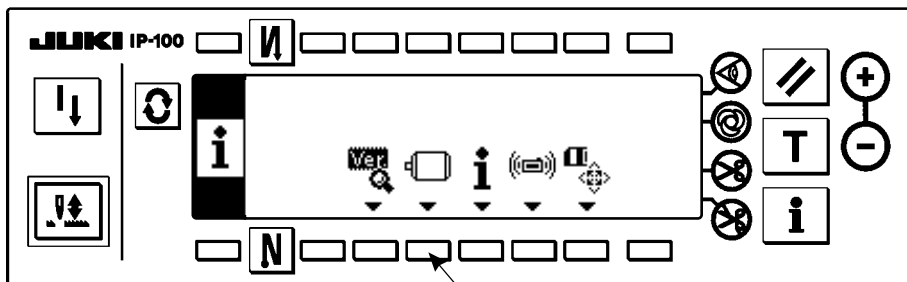
For the details of setting No., see P.66.

#### [Setting procedure of Level 2]

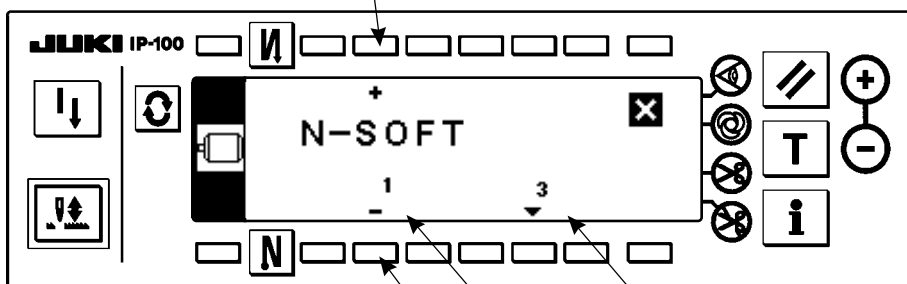
1) Turn ON the power. When the needle bar is not in its UP position, turn the handwheel to bring the needle bar to its UP position.



2) Press switch **1** for approximately three seconds.



3) Press switch **2** for approximately three seconds.



4) This screen is the function setting screen.

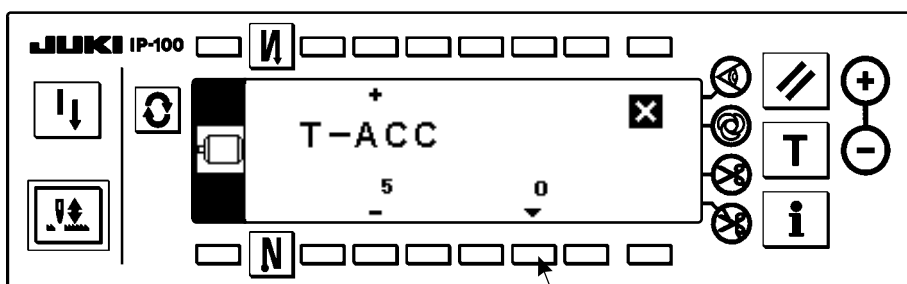
Change the setting No. with “+/-” Key of switch **3**.

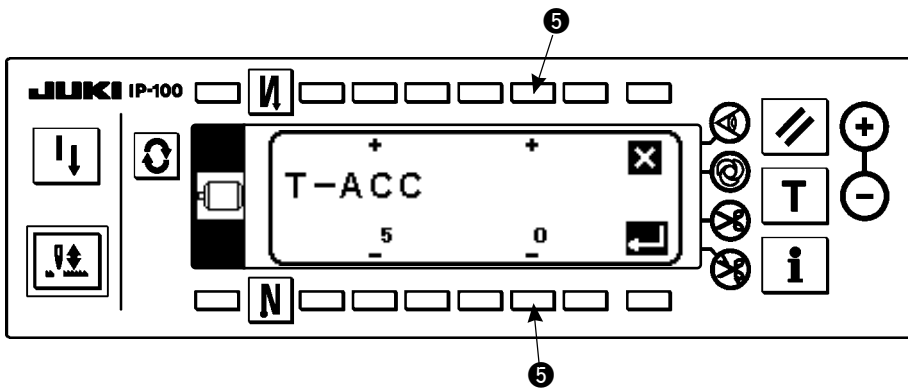
For the details of setting No., see P.66.

**Example) Changing the flicker reducing function (Setting No. 5)**

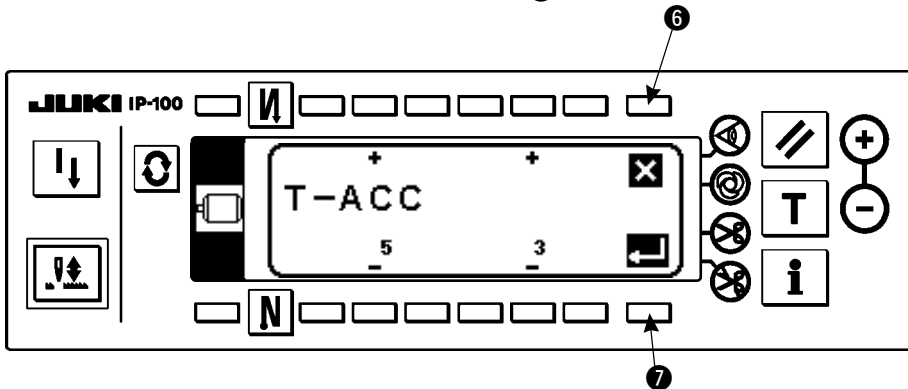
Change the setting No. to “5” with “+” Key of switch **3** in the figure above.

• Press switch **4**.



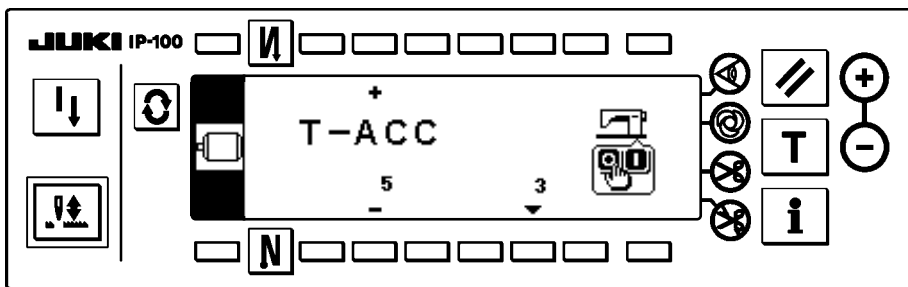


- Change set value with “+/-” Key of switch **5**.



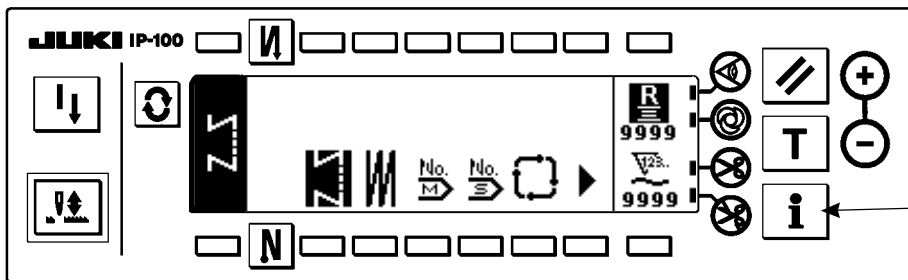
The set value has been changed from “0” to “3”.

- When this changed value is acceptable, press switch **7**. When you desire to return the value to the previous one, press switch **6**.

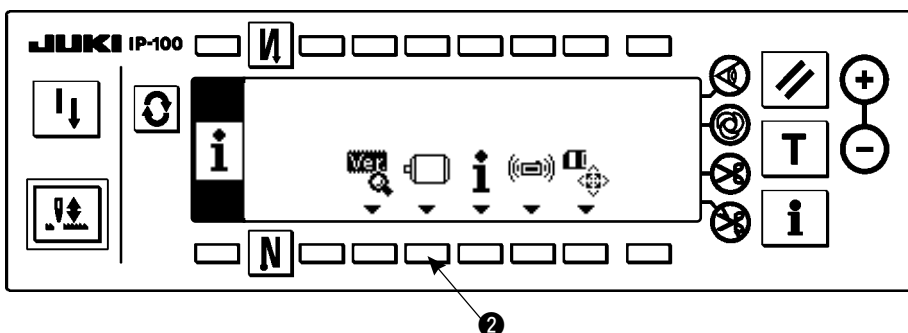


- Turn OFF the power switch and turn ON the power switch after approximately one second.
- Change of the set value is determined by turning OFF the power switch.

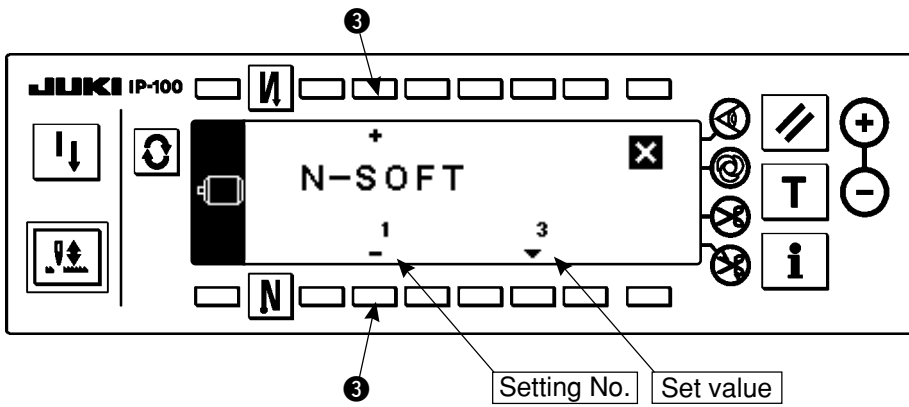
### [Setting procedure of Level 1]



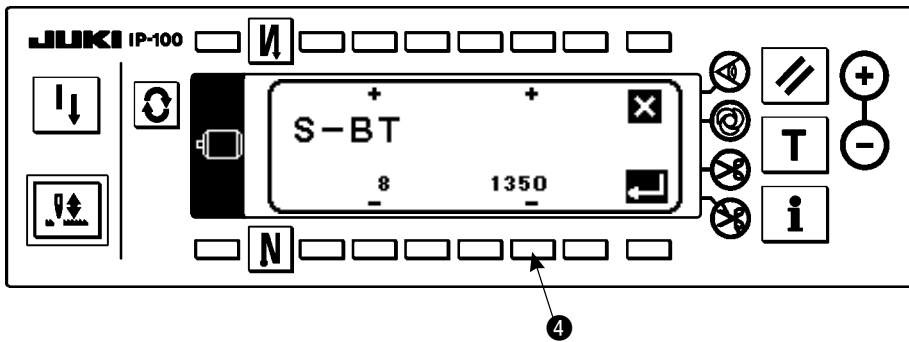
- 1) Press switch **1** for approximately three seconds.



- 2) Press switch **2**.



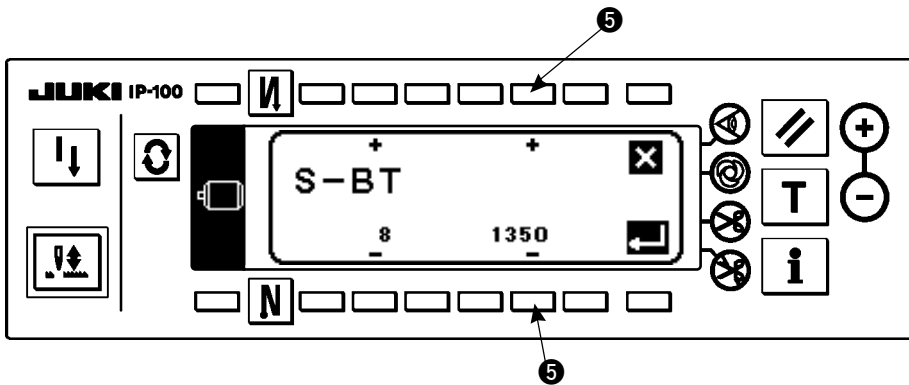
- 3) This screen is the function setting screen.  
 Change the setting No. with “+/-” Key of switch ③.  
 For the details of setting No., see P.66.



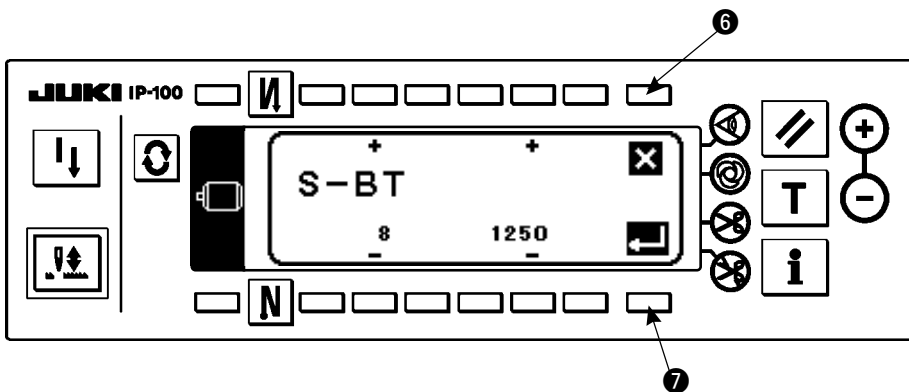
**Example) Changing the number of rotation of reverse feed stitching (Setting No. 8)**

Change the setting No. to “8” with “+” Key of switch ④ in the figure above.

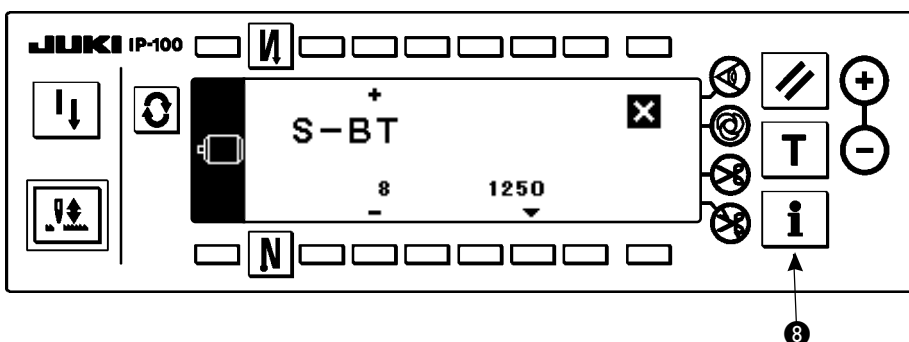
- Press switch ④.



- Change the set value with “+/-” Key of switch ⑤.



- Set value has been changed from 1350 to 1250.
- When this changed value is acceptable, press switch ⑦. Press switch ⑥ when you desire to return the value to the former one.



- Press switch ⑧ in case of sewing.

## (2) Function setting list

For the details of the items, refer to the Instruction Manual for SC-910.

\* LH-4168S is given as an example here. However, initial value changes according to the machine head to be connected.

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
1	Number of stitches of soft-start	1	N-SOFT 1	0 to 9
5	Flicker prevention	2	T-ACC 0	0 to 8
6	Bobbin thread counting function	1	SCBOB 1	0 to 1
7	Counting down unit	1	RATIO 0	0 to 2
8	Number of rotation of reverse feed stitching	1	S-BT 1500	150 to 3000
10	Specifying position of needle bar when the sewing machine stops	2	NPS 0	0 to 1
11	Click sound of key switch * This function makes ineffective the key click sound of panel.	2	SOUND 1	0 to 1
12	Compact panel SW2 function	2	SW2 0	0 to 8
13	Bobbin thread counter stop function	2	ASCNT 0	0 to 2
14	No. of pcs. counting function	2	NTO 1	0 to 1
15	Number of times of detection of run-out of bobbin thread remaining amount	2	BTDS 1	0 to 19
17	Key lock function	2	KEYLOCK 0	0 to 1
18	Bird's nest prevention function	2	BNC 1	0 to 2
19	Bird's nest needle thread release function	2	THOLD 0	0 to 1
20	Number of condensation stitches	1	N-CS 0	0 to 9
21	Lifting presser foot when pedal is in neutral position	1	N-NPL 0	0 to 1
22	Operation panel SW function	2	F-CMSP 0	0 to 1
24	Fine adjustment rate of number of rotation	2	F-FAS 0	-15 to 15
25	Motion after turning handwheel by hand (Thread trimming)	2	F-TRMC 1	0 to 1
26	Motor brake locking force	2	F-RTPC 0	0 to 9
27	Motor lock retry returning force	2	F-RTRC 50	1 to 100
28	Number of stitches of bird's nest needle thread release	1	F-UTHR 1	0 to 30
29	BT initial start time	2	T-RSS 250	50 to 300
30	Reverse feed stitching on the way function	2	OBT 0	0 to 1
31	Number of stitches of reverse feed stitching on the way	2	N-OBT 4	0 to 19

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
32	Effective condition of reverse feed stitching on the way	2	OBTS 0	0 to 1
33	Thread trimming function by reverse feed stitching on the way	2	OBTT 0	0 to 1
35	Number of minimum rotation by pedal	1	S-POS 200	20 to 400
36	Number of rotation of thread trimming	2	S-TRM 155	20 to 250
37	Number of rotation of soft-start	1	S-SOFT 600	150 to 5500
38	Number of rotation of soft-start	1	S-ASS 1500	200 to Max
39	Position at the start of rotation	2	P-SSP 30	10 to 50
40	Position at the start of acceleration	2	P-LSA 60	10 to 100
41	Position where cloth presser starts lifting	2	P-FLW - 21	- 60 to - 10
42	Position where cloth presser starts lowering	2	P-FLD 10	8 to 50
43	Position 2 where thread trimming starts	2	P-TRM2 - 51	- 60 to - 10
44	Position where sewing machine reaches its highest sewing speed	2	P-MAX 150	10 to 150
45	Compensation value of neutral point of pedal	2	P-ANP 0	- 15 to 15
46	Cloth presser lifting function	2	FLSEL 0	0 to 1
47	Holding time of lifting cloth presser	2	T-FL 60	10 to 600
48	Position 1 where thread trimming starts	2	P-TRM1 - 35	- 60 to - 10
49	Lowering time of cloth presser	2	T-FLWT 140	0 to 250
51	Compensation of ON timing of reverse feed stitching at the start of sewing	1	T-SON 10	- 36 to 36
52	Compensation of OFF timing of reverse feed stitching at the start of sewing	1	T-SOFF 20	- 36 to 36
53	Compensation of OFF timing of reverse feed stitching at the end of sewing	1	T-EOFF 25	- 36 to 36
55	Lifting cloth presser after thread trimming	2	FLAT 1	0 to 1
56	Reverse revolution to lift needle after thread trimming	2	RATRM 0	0 to 1
57	Bobbin thread remaining amount after thread trimming	2	BTDF 0	0 to 1
58	Holding predetermined position of needle bar	2	HPOS 0	0 to 1
59	Selection of motion of reverse feed stitching at the start of sewing	2	SBTO 1	0 to 1
60	Stop after reverse feed stitching at the start of sewing	2	SBTQ 0	0 to 1
61	Stop of the sewing machine by detection of bobbin thread remaining amount	2	ASBOB 1	0 to 1

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
64	Number of rotation of start of reverse feed stitching at the end of sewing	2	S-WAIT 150	0 to 250
65	Condensation compensation 1	2	T-CS1 - 15	- 36 to 0
66	Condensation compensation 2	2	T-CS2 - 15	- 36 to 0
67	Number of times of air purge drive	2	N-ABSS 2	0 to 9
68	Air purge starting position	2	A-ABS 27	0 to 35
69	Air purge pause position	2	A-ABE 12	0 to 35
70	Function of soft-down of cloth presser	2	F-SDFL 0	0 to 1
71	Limitation of re-acceleration from reduction of speed	2	F-ACRA 0	0 to 5
72	Limitation of acceleration at the start of rotation	1	F-ACR 0	0 to 5
73	Motor lock retry function	1	F-RET 1	0 to 1
75	Normal rotating direction of motor	2	DM 0	0 to 1
76	Hard mode	2	F-SCS 0	0 to 1
87	Pedal acceleration characteristics	2	F-PCS 0	0 to 2
89	Tension release after thread trimming	2	TRS 0	0 to 1
91	Motion after turning handwheel by hand (needle up/down, compensation, reverse feed stitching on the way)	2	F-PMAT 1	0 to 1
92	Function of reducing speed of reverse feed stitching at the start of sewing	2	F-DSBT 0	0 to 1
93	Function of one stitch compensation SW added to needle up/down compensation SW	2	F-MADF 0	0 to 1
94	Continuous stitching + one-shot stitching non-stop function	2	F-SBTC 0	0 to 1
96	Max. number of rotation	2	S-MAX 3200	50 to Max
101	Selection of No. of pcs. counter * This function changes over the No. of pcs. counter to whether measuring by thread trimming or measuring by the production control switch.	2	F-MAC 0	0 to 1
105	Touch-back switch half stitch compensation function	2	C-BT 0	0 to 1
106	Foot switch one stitch compensating stitching function	2	C-FT 1	0 to 1
107	Inside corner sewing one-shot function	2	A1-1 0	0 to 1
108	Inside corner presser lifting function	2	ALIF 1	0 to 1
109	Re-sewing function	2	STRT 1	0 to 1
110	Single needle changeover function (free stitching)	2	MEDL 1	0 to 1

Function No.	Function name	Setting level	Panel display Standard set value	Setting range
111	Single needle changeover function (corner pattern)	2	ANDL 1	0 to 1
112	Teaching motion selection	2	TCMD 0	0 to 2
113	Teaching replay number of stitches	2	TCRN 0	0 to 1
114	Left-hand bobbin thread counter function	2	L-TR 1	0 to 1
115	Right-hand bobbin thread counter function	2	R-TR 1	0 to 1
116	Corner start switch selection	2	A2-1 5	0 to 6
117	Presser lifter function by presser lifter switch	2	F-FPL 0	0 to 1
118	Grease fill-up warning clear	2	GN-CLR 0	0 to 1



### (3) Communication mode

Changing procedure to the communication mode



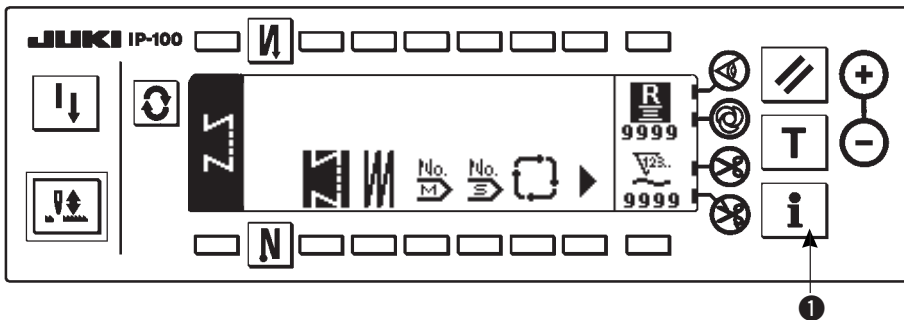
Do not perform switch operations other than those described in the following explanations. Be sure to re-turn the power switch ON after one second or more has passed. If the power is turned ON immediately after turning it OFF, the sewing machine may not work normally. In this case, turn ON the power again.



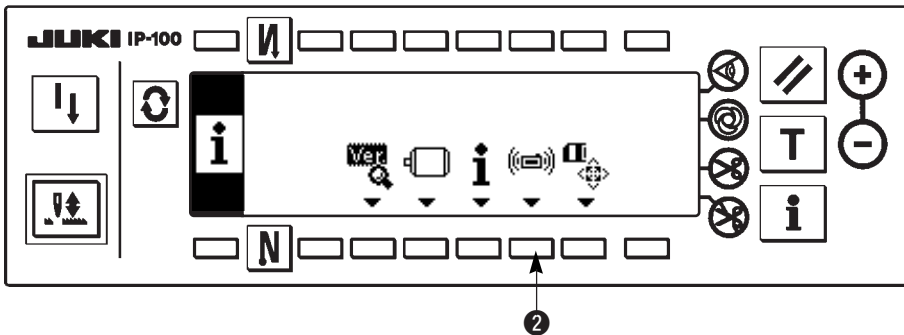
#### WARNING :

To avoid possible personal injuries caused by movement other than that you desired, do not operate the switches in the procedure other than those required, as described below, to specify the functions.

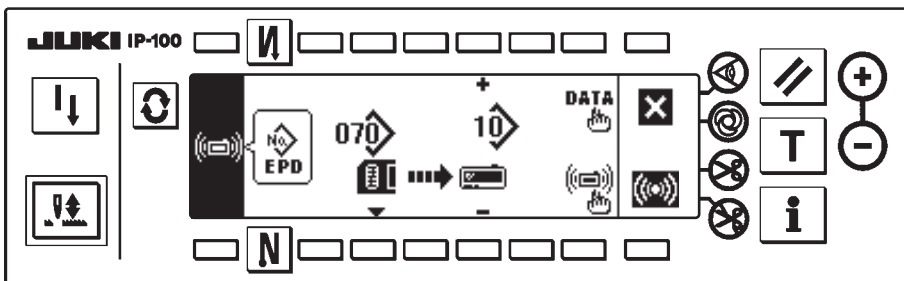
- 1) Turn ON the power. When the needle bar is not in the UP position, turn the handwheel to bring the needle bar to the UP position.
- 2) Press switch ❶ for approximately three seconds.



- 3) Press switch ❷ for approximately three seconds. The screen changes to the communication mode screen.



#### ■ Communication mode screen

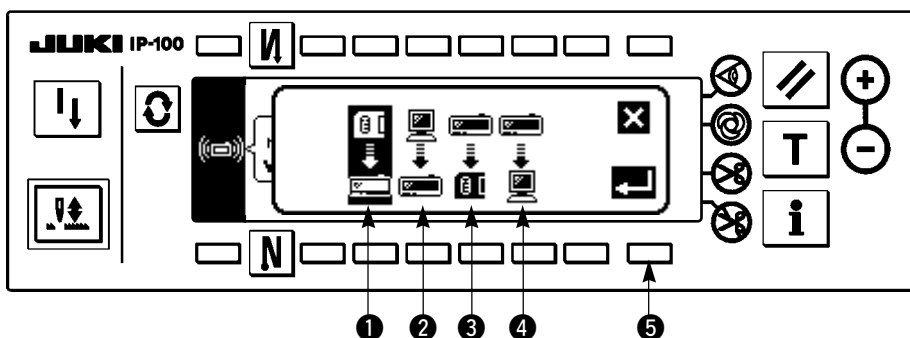


## Example of download

Example) Parameter file No. 70 of the smart media is downloaded to the sewing pattern No. 10.





- ①. Open the smart media cover and insert the smart media (Optional Part No. : HX005750000) from the insertion opening.  
\* Panel function does not work with the cover opened.
- ②. Selection of data  
EPD is selected from the beginning since the data of EPD form only is handled for LH4168/4188.
- ③. Selection of communication method  
Press ② in the communication setting screen to display the communication method setting screen.

### ■ Communication setting screen



Communication method which is selected at present is shown in reverse video.

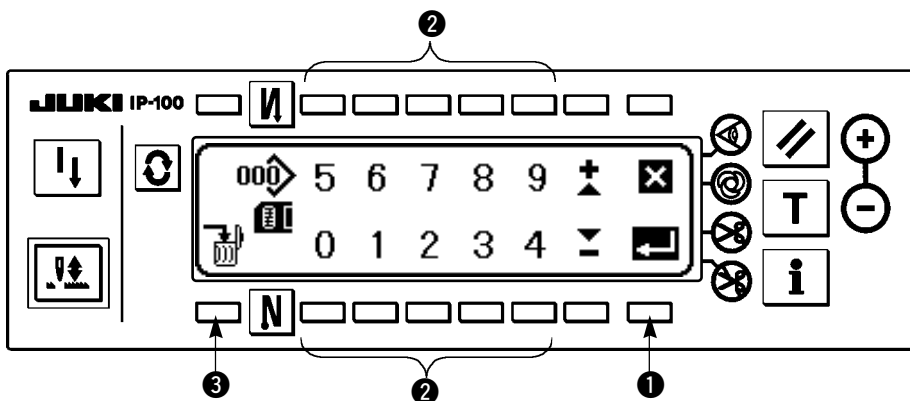
#### [Explanation of the pictograph]


- |   |  |
|---|--|
| ①  : Download from the smart media | ②  : Download from SU-1 |
| ③  : Upload to the smart media     | ④  : Upload to SU-1     |

Press ① to select download from the smart media. Then press ⑤ to determine.

- ④. Selection of file No. of the smart media  
Press ③ in the communication setting screen to display the file No. of smart media input screen.

### ■ File No. input screen

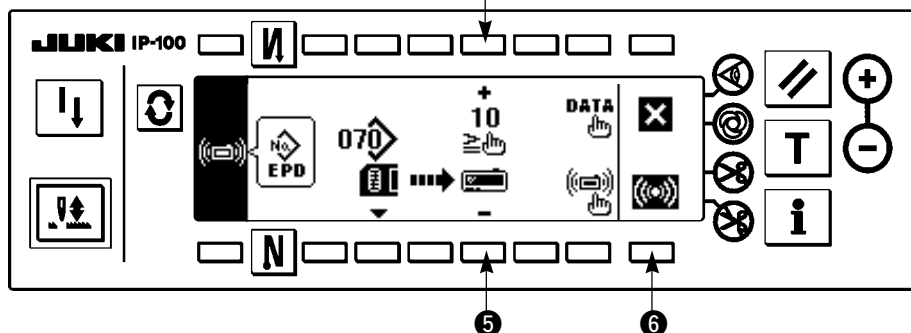


Input the file No. of smart media with ②. The file No. which has been inputted is displayed in . The No. is determined with ① after inputting the file No.

⑤. Custom pattern No. setting

Press ④ and ⑤ in the communication setting screen to set the custom pattern No.

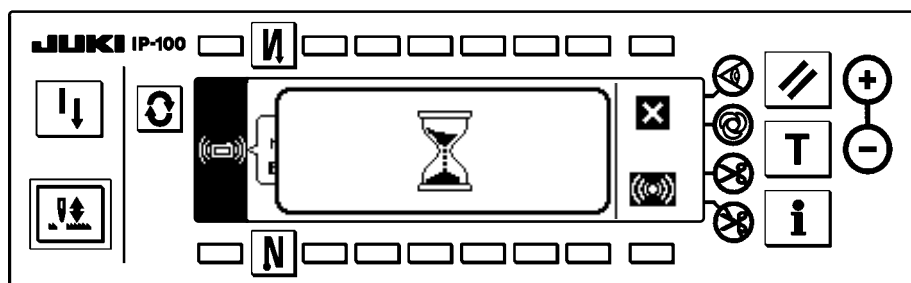
■ Communication setting screen ④



⑥. Start of download

When all setting procedures have been completed, press ⑥ in the communication setting screen to start downloading.

■ During communication screen



When the screen returns to the communication setting screen after display of the during communication screen, communication is completed.

**Example of upload**

Example) Sewing pattern No. 8 is uploaded as the parameter form file No. 15 of the smart media.

①. Open the smart media cover and insert the smart media (Optional Part No. : HX005750000) from the insertion opening.

\* Panel function does not work with the cover opened.

②. Selection of data

EPD is selected from the beginning since the data of EPD form only is handled for LH4168,4188.

③. Selection of communication method

Press ② in the communication setting screen to display the communication method setting screen.

**[Explanation of the pictograph]**

① Download from the smart media

② Download from SU-1

③ Upload to the smart media

④ Upload to SU-1


Press ③ to select the upload to the smart media. Then press ⑤ to determine.

④. Setting of the custom pattern No.

Press ④ and ⑤ in the communication setting screen to set the custom pattern No.

⑤. Selection of the file No. of the smart media

Press ③ in the communication setting screen to display the file No. of the smart media input screen.

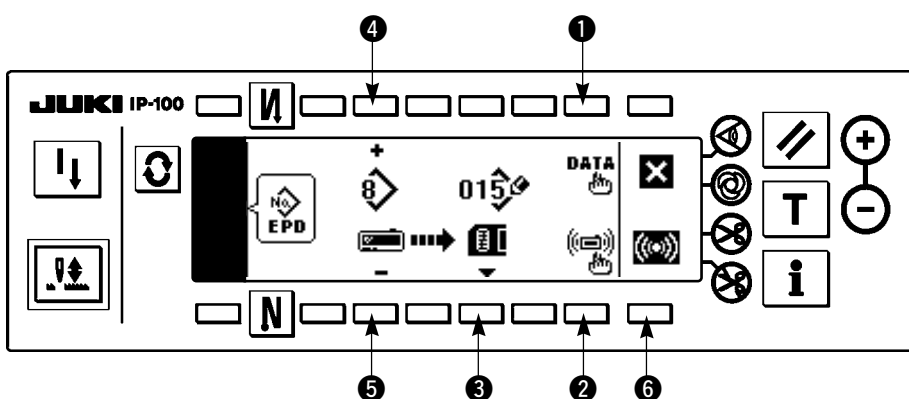
Input the file No. of the smart media. The inputted file No. is displayed in . After inputting the file No., determine it with ①.

⑥. Start of the upload

When all setting procedures have been completed, press ⑥ in the communication setting screen to start uploading.

When the screen returns to the communication setting screen after display of the during communication screen, communication is completed.

■ Communication setting screen

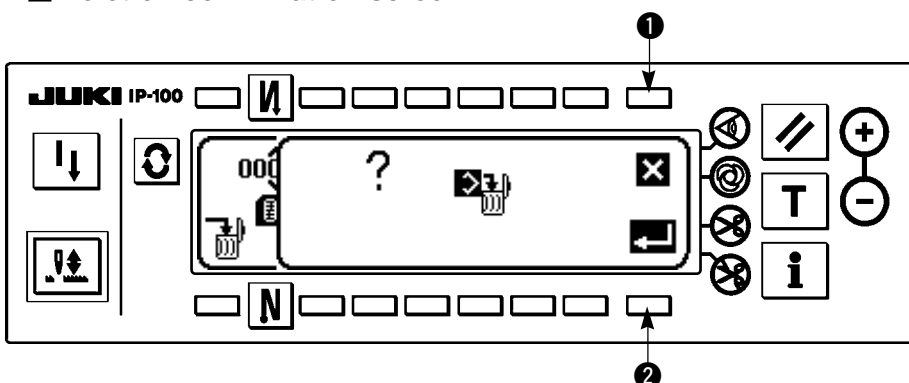


When the screen returns to the communication setting screen after display of the during communication screen, communication is completed.


[How to delete the file of the smart media]

Press switch ③ after selecting the No. you desire to delete in the file No. of the smart media input screen, and the screen moves to the deletion confirmation screen.

■ Deletion confirmation screen



Press ① and the deletion is discontinued. Then the screen returns to the file No. input screen. Press ② and the deletion is executed. Then the screen returns to the file No. input screen.

 **Caution** The deleted file is not restored. Be very careful when executing the deletion.

## 6. EXTERNAL INTERFACE

External interface means the section to connect the operation panel and the system which is different from the operation panel.

For the use and details, refer to the Engineer's Manual.

### 1) Smart media slot

Smart media slot is installed in the face cover located on the left side of operation panel.

### 2) RS-232C port

RS-232C connector is installed in the rubber cap located on the back side of operation panel.

### 3) General input port (Production control switch connecting connector)

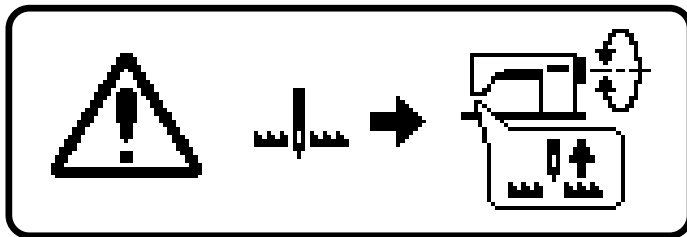
General input connector, CN105 is installed in the cord outlet cover located on the back side of operation panel.

## 7. ERROR DISPLAY

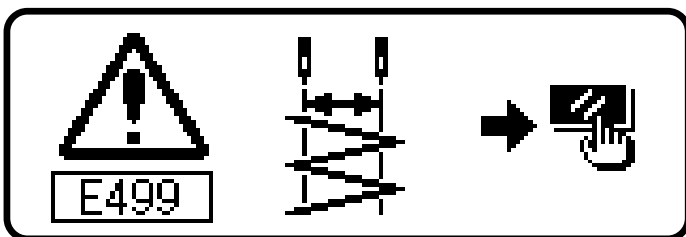


Error is informed by means of the panel display and control box buzzer.

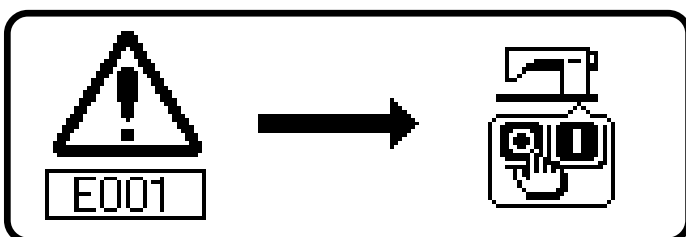
Three different kinds of screens of the panel display screen appear due to the difference of the procedures.



- 1) Error screen disappears when the operator removes the cause.



- 2) Press the reset switch, and remove the cause of error after erasing the error screen.



- 3) Remove the cause of error after turning OFF the power.

## 7-1. Error code list (Error display in panel)

There are the following error codes in this device. These error codes interlock (or limit function) and inform the problem so that the problem is not enlarged when any problem is discovered. When you request our service, please confirm the error codes.

No.	Description of error detected	Cause	Item to be checked or corrective measure
—	Smart media cover open	<ul style="list-style-type: none"> <li>• Lid of smart media slot is open.</li> </ul>	<ul style="list-style-type: none"> <li>• Close the lid.</li> </ul>
000	Execution of data initialization (Not error)	<ul style="list-style-type: none"> <li>• When machine head is replaced.</li> <li>• When initializing operation is executed.</li> </ul>	
302	Fall detection switch failure (When safety switch works)	<ul style="list-style-type: none"> <li>• When fall detection switch is inputted in the state that the power is turned ON.</li> </ul>	<ul style="list-style-type: none"> <li>• Check whether the machine head is tilted without turning OFF the power switch (sewing machine operation is prohibited for safety sake).</li> <li>• Check whether the fall detection switch cord is caught in the sewing machine or the like and has broken.</li> <li>• Check whether the fall detection switch lever is caught in something.</li> </ul>
003	Disconnection of synchronizer connector	<ul style="list-style-type: none"> <li>• When position detection signal is not inputted from the sewing machine head synchronizer.</li> <li>• When the synchronizer has broken.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the synchronizer connector (CN30) for loose connection and disconnection.</li> <li>• Check whether the synchronizer cord has broken since the cord is caught in the machine head or the like.</li> </ul>
004	Synchronizer lower position sensor failure		
005	Synchronizer upper position sensor failure		
906	Operation panel transmission failure	<ul style="list-style-type: none"> <li>• Disconnection of operation panel cord</li> <li>• Operation panel has broken.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the operation panel connector (CN34,CN35) for loose connection and disconnection.</li> <li>• Check whether the operation panel cord has broken since the cord is caught in the machine head or the like.</li> </ul>
007	Overload of motor	<ul style="list-style-type: none"> <li>• When the machine head is locked.</li> <li>• When sewing extra-heavy material beyond the guarantee of the machine head.</li> <li>• When the motor does not run.</li> <li>• Motor or driver is broken.</li> </ul>	<ul style="list-style-type: none"> <li>• Check whether the thread has been entangled in the motor pulley.</li> <li>• Check the motor output connector (4P) for loose connection and disconnection.</li> <li>• Check whether there is any draw when turning motor by hand.</li> </ul>
008	Machine head connector failure (Resistance pack)	<ul style="list-style-type: none"> <li>• When the machine head connector is not properly read.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the machine head connector (CN31) for loose connection and disconnection.</li> </ul>
011	Smart media not inserted	<ul style="list-style-type: none"> <li>• Smart media is not inserted.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
012	Read error	<ul style="list-style-type: none"> <li>• Data read from smart media is not possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
013	Write error	<ul style="list-style-type: none"> <li>• Data write to smart media is not possible.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
014	Write protect	<ul style="list-style-type: none"> <li>• Smart media is in write prohibition state.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
015	Format error	<ul style="list-style-type: none"> <li>• Formatting cannot be performed.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
016	External media capacity over	<ul style="list-style-type: none"> <li>• Media capacity of smart media is short.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
019	File size over	<ul style="list-style-type: none"> <li>• File is too big.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>
032	File compatibility error	<ul style="list-style-type: none"> <li>• There is no file compatibility.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn OFF the power.</li> </ul>

No.	Description of error detected	Cause	Item to be checked or corrective measure
703	Connection of panel which is not supposed	<ul style="list-style-type: none"> <li>When panel connected to the sewing machine is the kind which is not supposed.</li> </ul>	<ul style="list-style-type: none"> <li>Turn OFF the power.</li> <li>Connect the proper panel.</li> </ul>
704	Inconsistency of system versions	<ul style="list-style-type: none"> <li>When system versions are inconsistent.</li> </ul>	<ul style="list-style-type: none"> <li>Turn OFF the power.</li> <li>Consist system versions with each other.</li> </ul>
810	Solenoid short-circuit	<ul style="list-style-type: none"> <li>When the short-circuited solenoid is desired to be driven.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the solenoid is short-circuited.</li> </ul>
811	Overvoltage	<ul style="list-style-type: none"> <li>When voltage upper than guaranteed one is inputted.</li> <li>When 200V is inputted for 100V setting.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the applied power voltage is higher than the rated voltage + (plus) 10% or more.</li> <li>Check whether 100V/200V changeover connector is set by mistake.</li> </ul> <p>Check whether fuse or regenerative resistance is broken. In the above cases, POWER circuit board has broken.</p>
813	Low voltage	<ul style="list-style-type: none"> <li>When voltage lower than guaranteed one is inputted.</li> <li>When 100V is inputted for 200V setting.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the voltage is lower than the rated voltage – (minus) 10% or less.</li> <li>Check whether 100V/200V changeover connector is set by mistake.</li> <li>Check whether fuse or regenerative resistance is broken.</li> </ul>
924	Motor driver failure	<ul style="list-style-type: none"> <li>Motor driver has broken.</li> </ul>	
930	Encoder failure	<ul style="list-style-type: none"> <li>When the motor signal is not properly inputted.</li> </ul>	<ul style="list-style-type: none"> <li>Check the motor signal connector (CN38, CN39) for loose connection and disconnection.</li> </ul>
931	Motor hole sensor failure		<ul style="list-style-type: none"> <li>Check whether the motor signal cord has broken since the cord is caught in the machine head or the like.</li> </ul>
343	Bobbin thread remaining amount sensor unit trouble	<ul style="list-style-type: none"> <li>When the position of detection rod of AE device is out of the home position.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the detection rod of AE device is returned to the proper position.</li> <li>Check whether function setting No. 57 is wrongly set.</li> <li>Check whether connectors (CN121 and CN123) of AE device are loosened or disconnected.</li> <li>Check whether cord of AE device is broken due to pinching of cord or the like by machine head.</li> </ul>
939	Stepping motor origin retrieval error	<ul style="list-style-type: none"> <li>When the origin position of the stepping motor is not detected at the time of turning ON the power.</li> </ul>	<ul style="list-style-type: none"> <li>Check the detecting connector (CN139) for loose connection and disconnection.</li> <li>Check whether the detecting connector (CN139) is wrongly inserted.</li> </ul>
944	Left needle lock error	<ul style="list-style-type: none"> <li>When the left needle is not changed over at the time of stopping/driving the left needle.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the detecting connector (CN128, 129) is wrongly inserted.</li> </ul>
945	Right needle lock error	<ul style="list-style-type: none"> <li>When the right needle is not changed over at the time of stopping/driving the right needle.</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the detecting connector (CN128, 129) is wrongly inserted.</li> </ul>
220	Grease fill-up time information	<ul style="list-style-type: none"> <li>When grease fill-up time to the specified place has come</li> </ul>	<ul style="list-style-type: none"> <li>After turning OFF the power, perform grease fill-up, and set Function No. 118 to "1". When grease fill-up cannot be performed during sewing, release of error can be performed with the reset key of the panel.</li> </ul>
221	Grease fill-up warning error	<ul style="list-style-type: none"> <li>When the period of grease fill-up time to the specified place has passed</li> </ul>	<ul style="list-style-type: none"> <li>Immediately perform grease fill-up, and set Function No. 118 to "1".</li> </ul>