

JUKI

SC-800

CP-60 · CP-160

CP-360

ENGINEER'S MANUAL

29315207

No.00

PREFACE

This Engineer's Manual is written for the technical personnel who are responsible for the service and maintenance of the machine.

The Instruction Manual for these machines intended for the maintenance personnel and operators at an apparel factory contains operating instructions in detail. And this manual describes "Standard Adjustment", "Adjustment Procedures", "Results of Improper Adjustment", and other important information which are not covered by the Instruction Manual.

It is advisable to use the relevant Instruction Manual and Parts List together with this Engineer's Manual when carrying out the maintenance of these units.

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1. SPECIFICATIONS

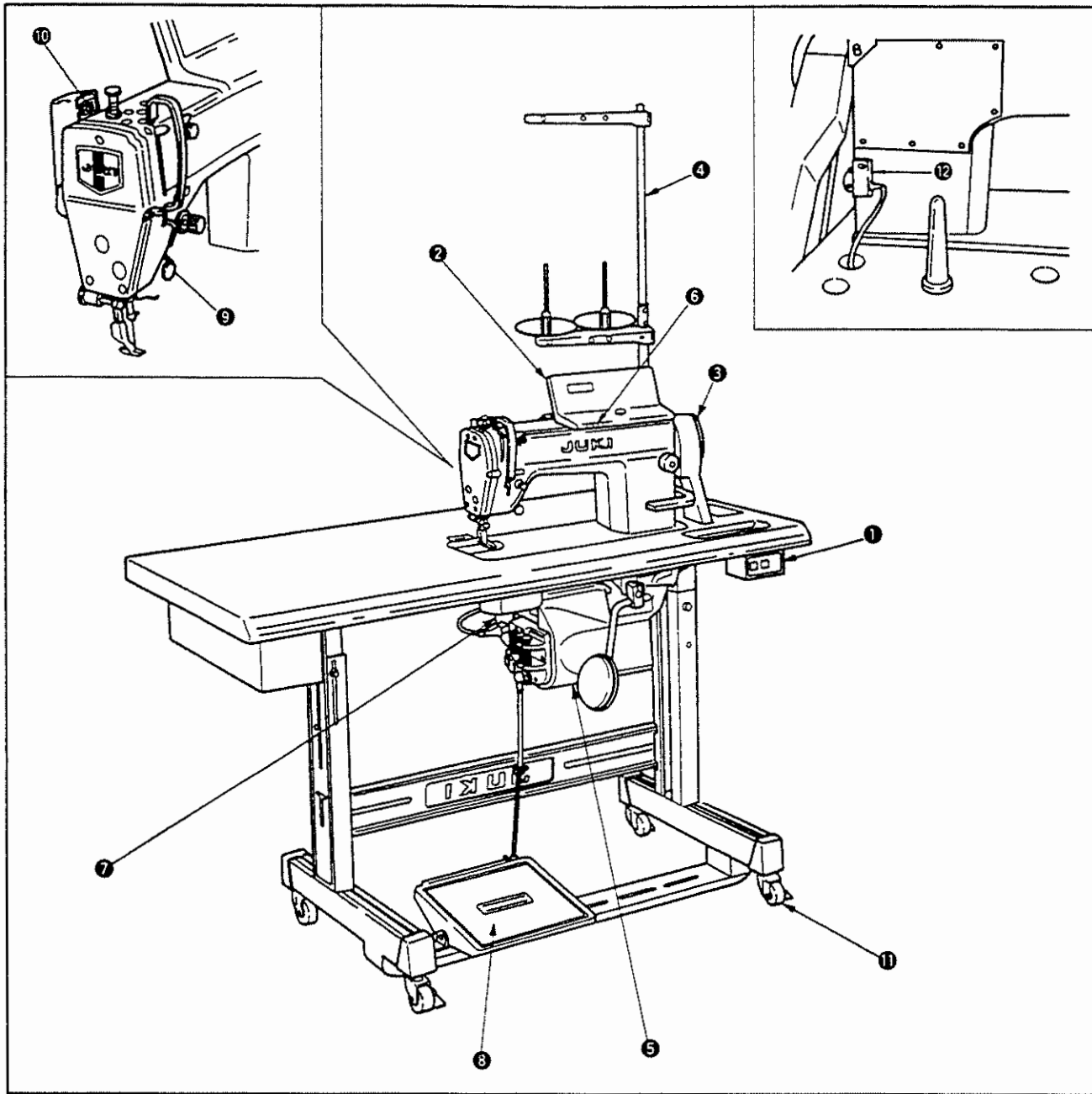
Supply voltage	Single phase 100V / 3-phase 200V
Frequency	50 Hz / 60 Hz
Rated voltage	4.9 A (single phase 100V) / 1.4 A (3-phase 200V)
Operating environment	Temperature : 0 to 40°C Humidity : 90% or less

2. OUTLINE

(1) Features

- 1) Change over function of single phase 100V / 3-phase 200V is provided.
Control box for the domestic market can be used for both single phase 100V and 3-phase 200V by replacing the power cord connecting to the power switch and changing the voltage change over connector located in the control box.
- 2) Variable resistor to limit maximum speed is mounted on the control panel for easy operation.
- 3) LCD panel is used in the indicator of the control panel, and the numerals become large and visible.
- 4) Depressing front and back parts of the pedal is lightened, and it improves the operation.
- 5) By adding the optional unit A, material end sensor (ED), bobbin thread remaining amount detecting device (AE), pedal for standing work, etc. can be used.
- 6) Mechanical brake of the motor is discontinued.
- 7) Complete non-contact type of the pedal sensor is adopted, and reliability is improved.

3. CONFIGURATION



- ① Power switch
- ② Control panel
- ③ Synchronizer
- ④ L-shaped thread stand
- ⑤ PSC box
- ⑥ Max. speed control knob
- ⑦ Motor
- ⑧ Operation pedal
- ⑨ Touch-back switch
- ⑩ Thread wiping (wiper) device
- ⑪ Screw or caster for level adjustment of table / stand
- ⑫ Resistor pack

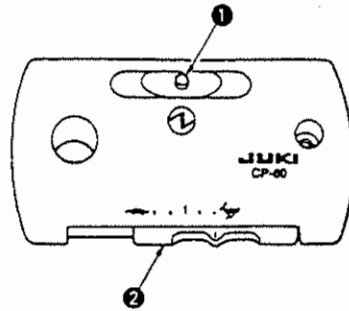
- ① Power switch
Power switch for motor, PSC, operation panel, etc.
- ② Control panel
Used to set automatic reverse feed stitch, pattern sewing, etc.
- ③ Synchronizer
Built inside the sewing machine pulley, detects up / down position of the needle, and sends out input command to the PSC box.
- ④ L-shaped thread stand
- ⑤ PSC box
Consists of circuit to control the sewing machine and motor, output circuit to actuate various outputs (thread trimmer solenoid, back solenoid, etc.), pedal sensor to detect operation of the pedal, and power circuit to actuate respective functions.
- ⑥ Max. speed control knob (Max. speed limit variable resistor)
Variable resistor to limit maximum speed in an analog manner instead of replacing the pulley
- ⑦ Motor
Drives the sewing machine at high speed \longleftrightarrow medium speed \longleftrightarrow low speed by the output commands sent from the PSC box.
- ⑧ Operation pedal
Speed control of the sewing machine, thread trimmer operation, and presser lifting operation (AK-85 type only) can be performed by the operation of depressing front part or back part of the pedal.
- ⑨ Touch-back switch
Operation switch to perform the reverse feed stitch by the manual switch.
- ⑩ Thread wiping (wiper) device
Needle thread after thread trimming can be wiped from the fabric by the wiper command output from the PSC box.
- ⑪ Screw or caster for level adjustment of table / stand
Adjust the screws or casters so as to install the table and stand on a flat and vibration-free floor of workshop.
- ⑫ Resister pack
Automatic discrimination of the model of sewing machine used

4. EXPLANATION OF CONTROL PANEL

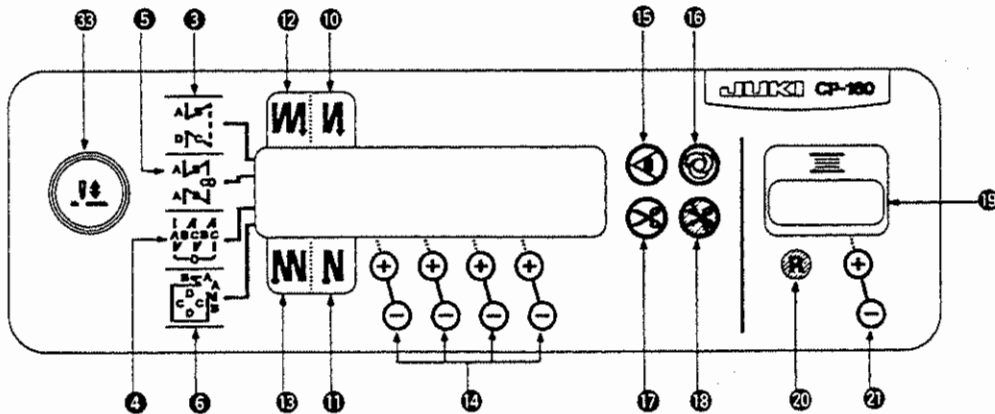
(1) List of control panels of CP-60, 160, and 360

(All the indications on the control panel are illustrated in the lit-up state for the sake of explanation.)

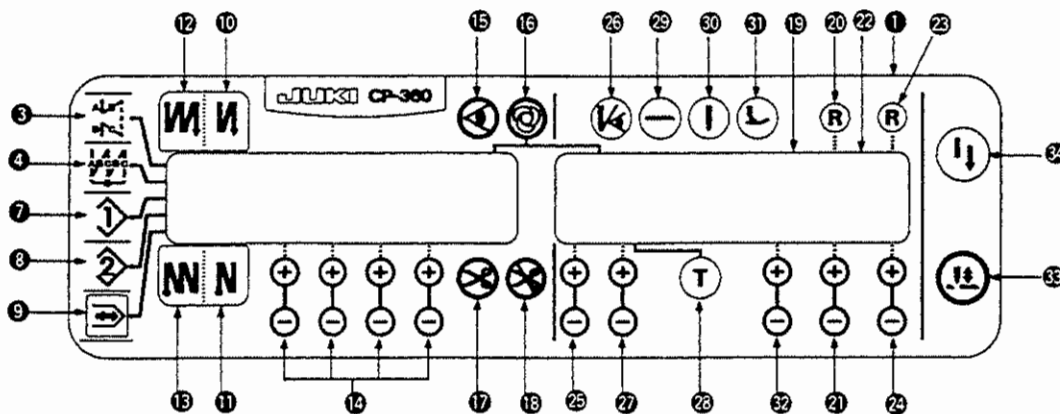
CP-60



CP-160



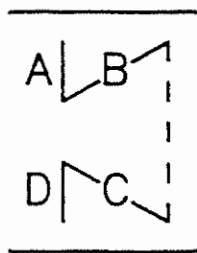
CP-360



No	Description	CP60	CP160	CP360
1	Power indication LED : Lights up when the power switch is turned ON.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Max. speed limit variable resistor : Maximum speed is limited when this resistor is moved in the left direction (←).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Reverse stitching pattern switch : Used for specifying the reverse stitching pattern to be sewn.		<input type="radio"/>	<input type="radio"/>
4	Overlapped stitching pattern switch : Used for specifying the overlapped stitching pattern to be sewn.		<input type="radio"/>	<input type="radio"/>
5	Constant dimension stitching pattern switch : Used for specifying the constant dimension stitching pattern to be sewn.		<input type="radio"/>	
6	Rectangular stitching pattern switch : Used for specifying the rectangular stitching pattern to be sewn.		<input type="radio"/>	
7	Programmed stitching pattern 1 switch : Used for specifying the programmed stitching pattern 1.			<input type="radio"/>
8	Programmed stitching pattern 2 switch : Used for specifying the programmed stitching pattern 2.			<input type="radio"/>
9	Combined stitching pattern switch : Used for sewing stitching patterns 3, 4, 7 and 8 with combined.			<input type="radio"/>
10	Automatic reverse stitching at the start of sewing switch : Used for turning ON / OFF the automatic reverse stitching at the start of sewing.			<input type="radio"/>
11	Automatic reverse stitching at the end of sewing switch : Used for turning ON / OFF the automatic reverse stitching at the end of sewing.		<input type="radio"/>	<input type="radio"/>
12	Automatic double reverse stitching at the start of sewing switch : Used for turning ON / OFF the automatic double reverse stitching at the start of sewing.		<input type="radio"/>	<input type="radio"/>
13	Automatic double reverse stitching at the end of sewing switch : Used for turning ON / OFF the automatic double reverse stitching at the end of sewing.		<input type="radio"/>	<input type="radio"/>
14	Switches for setting the number of stitches : Used for setting the number of stitches to be sewn in processes A through D.		<input type="radio"/>	<input type="radio"/>
15	Material edge sensor ON / OFF switch : Rendered effective when the material edge sensor is installed on the machine. Used for selecting whether or not the material sensor is used during sewing.		<input type="radio"/>	<input type="radio"/>
16	One-shot automatic stitching switch : Start the sewing machine with this switch, and the sewing machine will run automatically until the material edge is detected or the end of the set number of stitches is reached.		<input type="radio"/>	<input type="radio"/>
17	Automatic thread trimming switch : When the material edge is detected, the machine will perform thread trimming even when keeping depressing the front part of the pedal.		<input type="radio"/>	<input type="radio"/>
18	Thread trimming prohibition switch : Used for prohibiting thread trimming at any occasion.		<input type="radio"/>	<input type="radio"/>
19	Bobbin thread counter : Indicates the amount of bobbin thread while counting it by subtracting from the set value. When the bobbin thread remaining amount detecting device is installed on the machine, the counter indicates the number of times of detecting.		<input type="radio"/>	<input type="radio"/>
20	Bobbin counter reset switch : Used for returning the value shown on the bobbin thread counter to the initial value.		<input type="radio"/>	<input type="radio"/>
21	Bobbin thread amount setting switch : Used for setting the amount of bobbin thread.		<input type="radio"/>	<input type="radio"/>
22	No. of pcs. counter : The indication shown on the counter increases while counting up the number of finished pieces of garment every time the machine performs thread trimming.			<input type="radio"/>
23	No. of pcs. counter reset switch : Used for resetting the value on the No. of pcs. counter to zero (0).			<input type="radio"/>
24	No. of pcs. counter value correction switch : Used for correcting the value on the No. of pcs. counter.			<input type="radio"/>
25	Step setting switch : Used for changing over the operation steps of a programmed stitching pattern			<input type="radio"/>
26	Number of stitches / sensor change-over switch : Used for selecting whether or not the operation step is controlled by the number of stitches or the material edge sensor.			<input type="radio"/>
27	Number of stitches input switch : Used for inputting the number of stitches for a programmed stitching pattern.			<input type="radio"/>
28	Teaching switch : Used for setting the number of stitches to a value which has been actually sewn.			<input type="radio"/>
29	Feeding direction change - over switch : Used for changing over the direction in which the material is fed between the normal direction and the reverse direction.			<input type="radio"/>
30	Stop-state selector switch : Used for specifying the stop-state of the sewing machine when the operation steps complete.			<input type="radio"/>
31	Presser foot selector switch : Used for specifying the state of the presser foot.			<input type="radio"/>
32	Lifting time setting switch : Used for setting the length of time during which the presser foot is raised.			<input type="radio"/>
33	Needle up / down compensating switch : Used when performing needle up / down compensating stitching.		<input type="radio"/>	<input type="radio"/>
34	Re-sewing switch : If the bobbin thread runs out before the completion of the operation steps of a programmed stitching pattern, this switch is used for re-starting stitching from the position where the stitching has been interrupted after replacing the bobbin.			<input type="radio"/>

(2) Explanation of control panel

1) Reverse stitching pattern (CP-160 / 360)



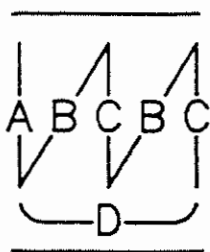
When the sewing machine performs the free stitching operation, the machine performs the reverse stitching operation at the start and end of sewing.

The reverse stitching operation can set the ON and OFF settings. Furthermore, single and double reverse stitching patterns can be selected.

Setting of number of stitches or other settings can be performed by operating the control panel.

A, B, C and D = 0 to 19 stitches

2) Overlapped stitching pattern (CP-160 / 360)



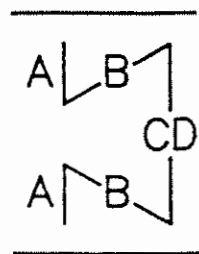
The sewing machine repeats the normal stitching and reverse stitching by the predetermined time, and performs the line bartacking. Then, the machine makes the thread trimmer actuate and stop to complete the overlapped stitching procedure.

Change of the number of stitches or the number of times of repetition can be performed by operating the control panel.

A, B and C = 0 to 19 stitches

D = 0 to 9 times

3) Constant-dimension stitching pattern (CP-160)



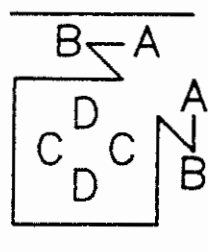
The free stitching process in the reverse stitching pattern becomes the set value of the number of stitches. The sewing machine will automatically stop (automatically perform thread trimming if the automatic thread trimming is selected.) after the machine finishes the predetermined number of stitches in the process of CD.

If the automatic thread trimming is not selected, operate the touch-back switch after the machine has automatically stopped. Then, the machine runs at a low speed (stitch compensation operation). Also, if the pedal is returned to its neutral position and depressed its front part again, the sewing can be continued regardless of the setting of number of stitches.

Setting of number of stitches or selection of automatic thread trimming can be performed by operating the control panel.

A and B = 0 to 19 stitches CD = 0 to 500 stitches

4) Rectangular stitching pattern (CP-160)



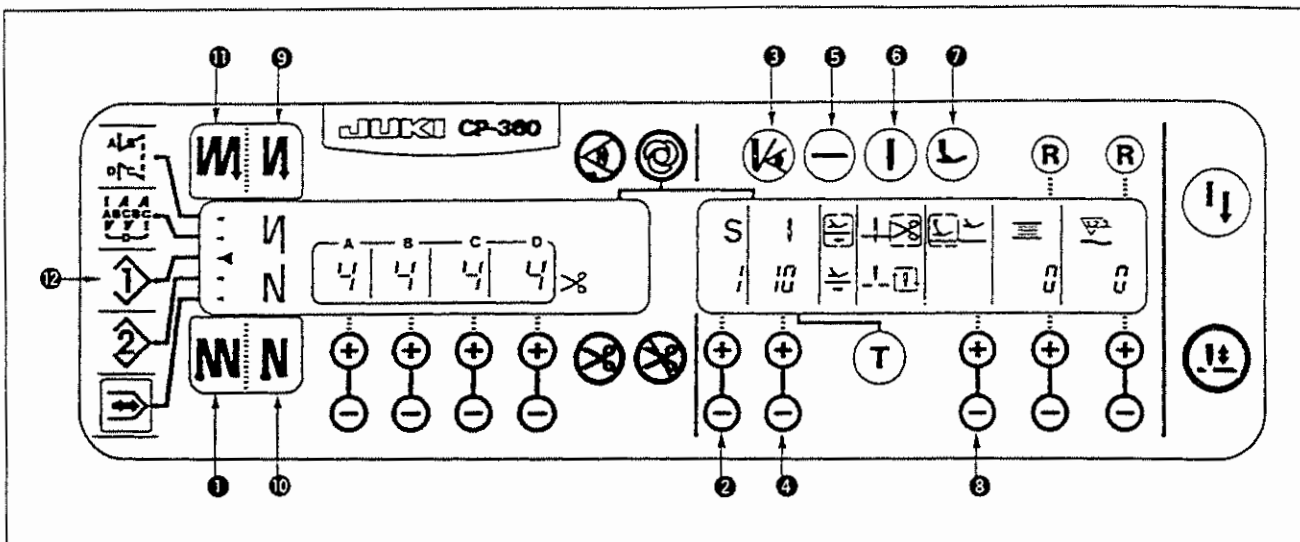
There are 4 operation steps in the process of constant-dimension stitching pattern. At each operation step the sewing machine automatically stops after sewing the predetermined number of stitches. At this time, if the touch-back switch is operated, the sewing machine runs at a low speed (stitch compensation operation). Also, in case of the last operation step, if the pedal is returned to its neutral position and depressed its front part again, the sewing can be continued regardless of the setting of number of stitches. However, if the automatic thread trimming is set, the machine will perform thread trimming. Setting of number of stitches or selection of automatic thread trimming can be performed by operating the control panel.

A and B = 0 to 19 stitches C and D = 0 to 99 stitches

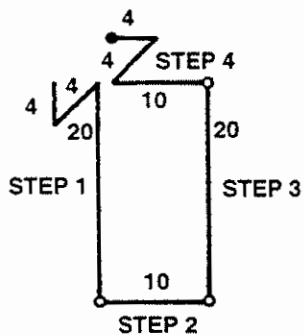
5) Programmed stitching pattern (CP-360)

The constant-dimension stitching pattern can be programmed as many as 15 operation steps. The sewing conditions including the number of stitches (max. 500 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. In addition, if the lifting of presser foot is specified (when KFL or PFL device is provided.), the time during which the presser foot is raised can also be specified.

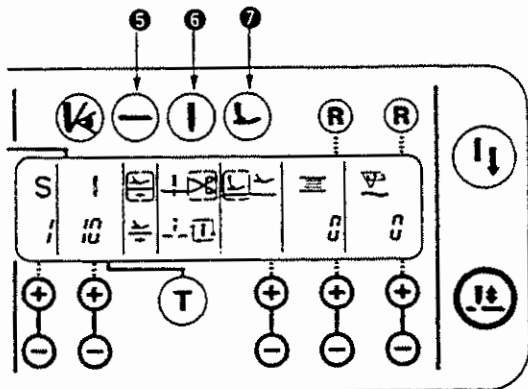
<How to set data on a programmed stitching pattern>



Example of programmed stitching pattern



Data setting state of operation step 1



Data setting state of operation step 1

Programming procedure is described below taking the pattern shown in the left figure as an example.

(Step 1)

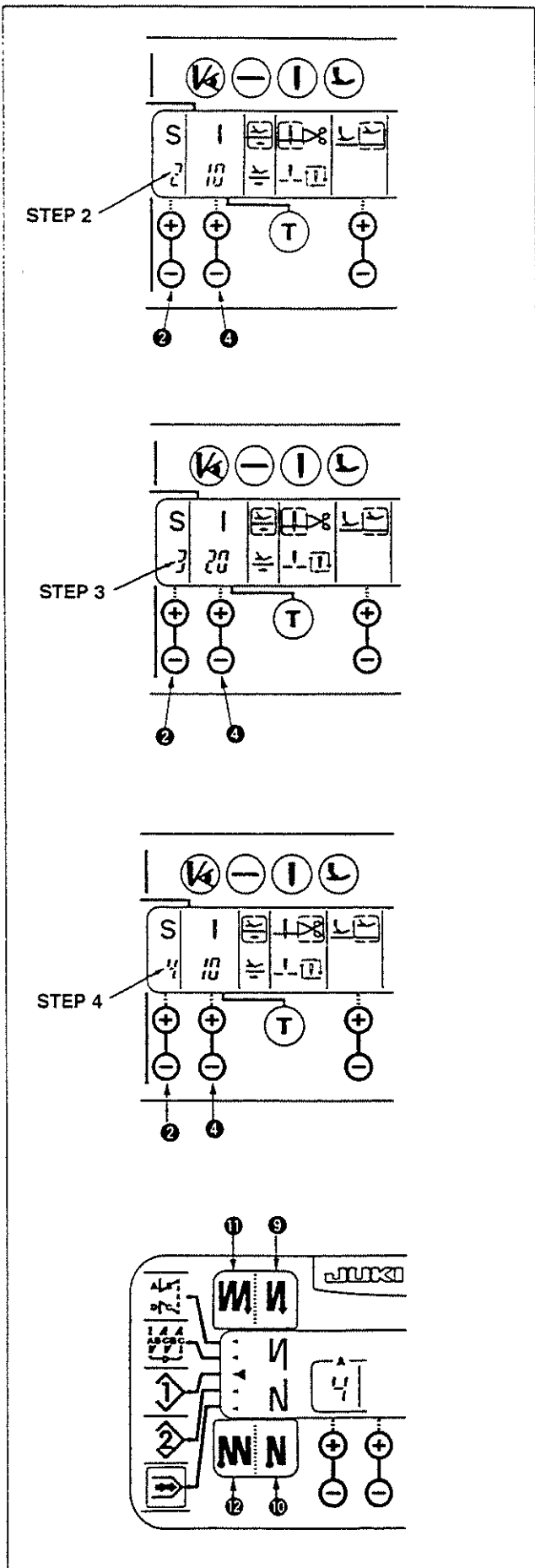
- ① Press programmed stitching pattern switch ① to specify the programmed stitching pattern .
- ② The programmed stitching pattern is selected, and the number of stitches and data on the operation step 1 which have already been specified are shown on the panel.
- ③ Confirm that step 1 is indicated on the panel. Now, set the number of stitches to 20 using number of stitches input switch ④.
- ④ Set the feeding direction to the normal direction using feeding direction change-over switch ⑤.
- ⑤ Set the stop state of the sewing machine to the needle-down stop mode using stop-state selector switch ⑥.

(Caution)

If 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.

- ⑥ Set the position of the presser foot, when the sewing machine stops, to the upper stop position using presser foot selector switch ⑦.

If you want to specify, in particular, the length of time during which the presser foot is raised, set it as desired using lifting time setting switch ③. 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 length of time during which the presser foot is raised : 0.1 sec to 99.95 sec



(Step 2)

- ⑦ Press the "+" switch of step setting switch ② once to make the control panel indicate step 2.
- ⑧ Set the number of stitches to 10 using number of stitches input switch ④.
- ⑨ 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.

(Step 3)

- ⑩ Press the "+" switch of step setting switch ② once to make the control panel indicate step 3.
- ⑪ Set the number of stitches to 20 using number of stitches input switch ④.
- ⑫ 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)

- ⑬ Press the "+" switch of step setting switch ② once to make the control panel indicate step 4.
- ⑭ Set the number of stitches to 10 using the number of stitches input switch ④.
- ⑮ Set the feeding direction to the normal direction using feeding direction change-over switch ⑤.
- ⑯ Set the stop state of the sewing machine to the automatic thread trimming mode using stop-state selector switch ⑥.
- ⑰ Set the position of the presser foot, when the sewing machine stops, to the upper stop position using presser foot selector switch ⑦.
- ⑱ Select the reverse stitching using automatic reverse stitching at the start of sewing switch ⑨ and automatic reverse stitching at the end of sewing switch ⑩. This completes the data setting procedure.
- ⑲ It is also possible to specify the double reverse stitching using double reverse stitching at the start of sewing switch ⑪ and double reverse stitching at the end of sewing switch ⑫.

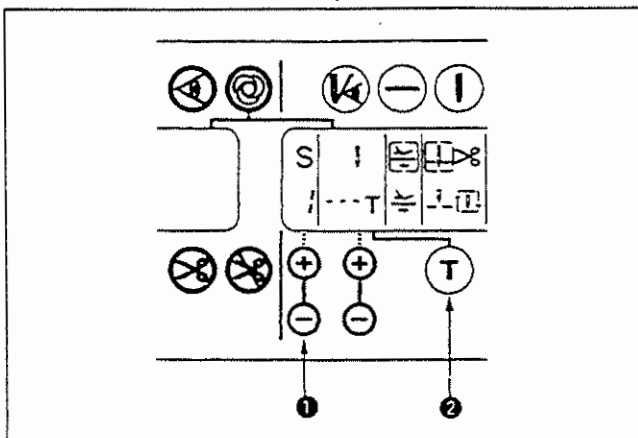
(Caution)

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 following the aforementioned procedure.

<Teaching mode>

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



- ① In the programmed stitching pattern process, press teaching switch ① to specify the teaching mode.
- ② The indication shown on the number of stitches indicator 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.

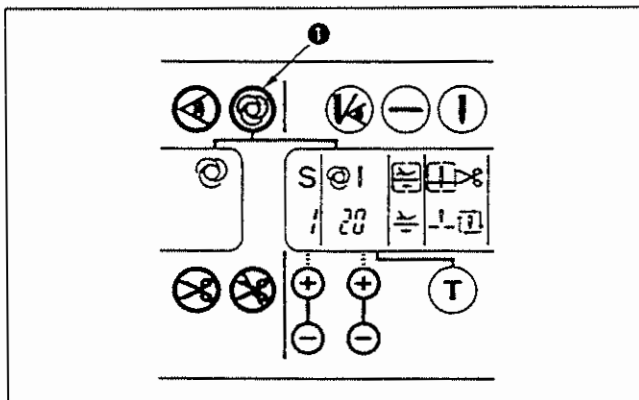
(Caution)

The number of stitches cannot be input 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 shown on the control panel.
- ⑤ Proceed to the subsequent step using step setting switch ② 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>

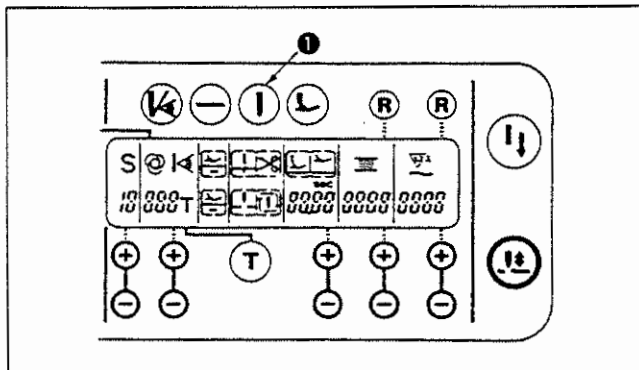
The one-shot automatic stitching function can be separately set by steps.



- ① In the programmed stitching pattern process, press one-shot automatic stitching switch ① to specify the one-shot automatic stitching function.
- ② ① is shown on the control panel, which shows the one-shot automatic stitching function has been specified.
- ③ In the step where the one-shot automatic stitching function has been specified, the sewing machine will automatically continue sewing, once the 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.



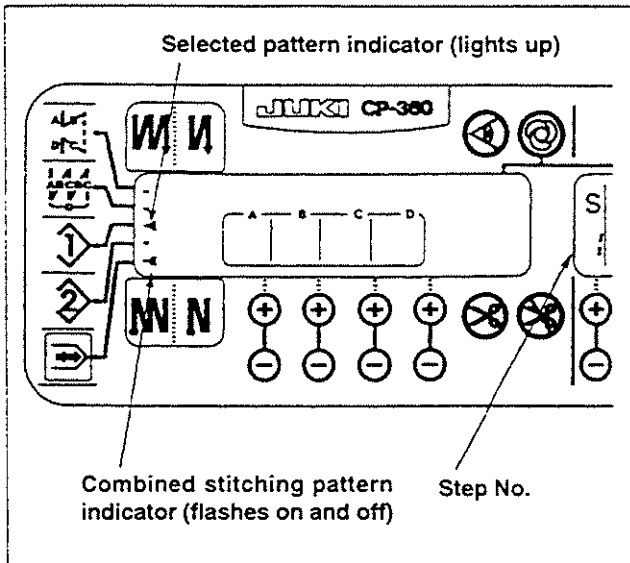
- ① In the programmed stitching pattern process, press stop-state selector switch ① to specify the continuous stitching mode.
- ② As long as the continuous stitching mode is specified, you can make the sewing machine execute the subsequent step specified in the program after the completion of the current step by depressing the front part of the pedal.

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

- When the control 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 before using the material edge sensor with the control panel.

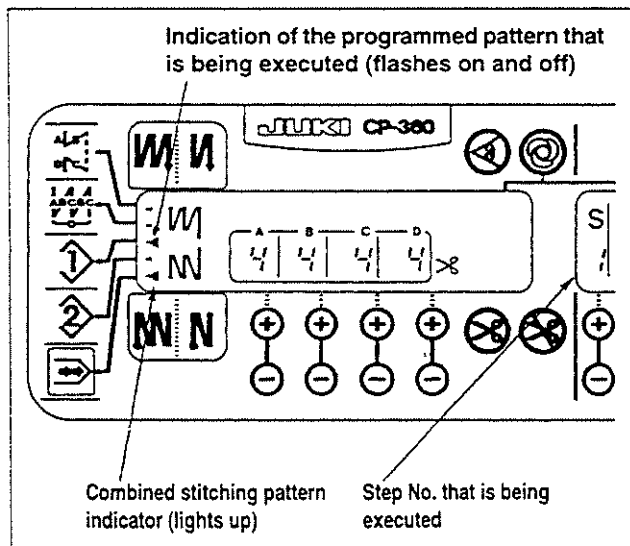
6) Combined stitching pattern

Reverse stitching pattern ↶, overlapped stitching pattern ↷, programmed stitching pattern ↵ and programmed stitching pattern ↷ can be sewn with combined as desired. (As many as eight different patterns can be combined.)



① Programming mode

- Press the "➡" key twice to select the programming mode for the combined stitching pattern program. (Liquid crystal displays go out while the step No. indication and the selected pattern indication stay ON.)
- Now, press the keys corresponding to the patterns you want to combine in the order of sewing. (Every time a pattern is selected, the pattern indicator "◀" located on the side of the selected pattern lights up and, at the same time, the step No. increases as 1, 2, 3 and so on.)
- If you want to execute the same pattern twice continuously, press the pattern switch twice.



② Execution mode

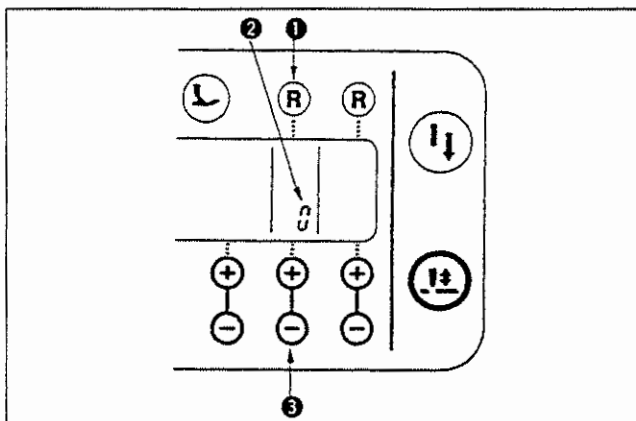
- Upon completion of the programming of a combined stitching pattern, press the "➡" key again, and the combined program executing mode will start.
- Every time the thread trimmer actuates, the machine proceeds to the subsequent pattern which has been selected. (The selected pattern indicator "◀" flashes on and off to indicate the pattern that is being executed.)
- To finish the combined pattern stitching program, press the other pattern selecting key after thread trimming.

(Caution)

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

7) How to use the bobbin thread counter (CP-160 / 360)

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



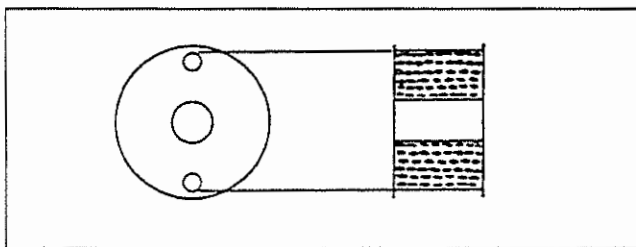
- ① Press bobbin thread counter reset switch ① to return the value indicated on bobbin thread counter ② to the initial value (it has been factory-set to "0" at the time of delivery.).

(Caution)

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

- ② Specify an initial value using bobbin thread amount setting switch ②.
(Max. set value : 9,999)

<Initial value on the bobbin thread counter for reference>



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

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

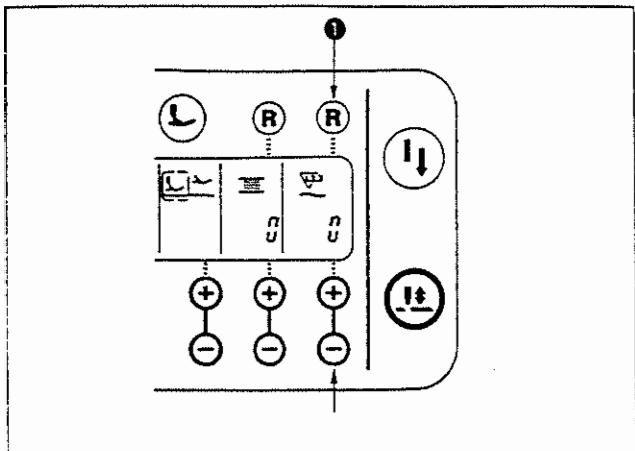
* Actually, the bobbin thread counter is affected by the material thickness and the sewing speed. So, adjust the initial value of the bobbin thread counter in accordance with the operating conditions.

(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 detections of the bobbin thread remaining amount detecting device. So, be sure to use the device after carefully reading the Instruction Manual for the bobbin thread remaining amount detecting device.

- ③ Once the initial value is specified properly, start the sewing machine.
When a minus value is shown on the counter and the buzzer beeps three times, replace the bobbin thread.
- ④ After the bobbin thread has been properly replaced, press bobbin thread counter reset switch ① to return the value on the bobbin thread counter to the initial value. Now, re-start the sewing machine.
- ⑤ If the remaining amount of bobbin thread is excessive or the bobbin thread runs out before the bobbin thread counter indicates a minus value, adjust the initial value appropriately using the "+" or "-" switch of bobbin thread amount adjusting switch ②.

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

8) No. of pcs. counter (CP-360)

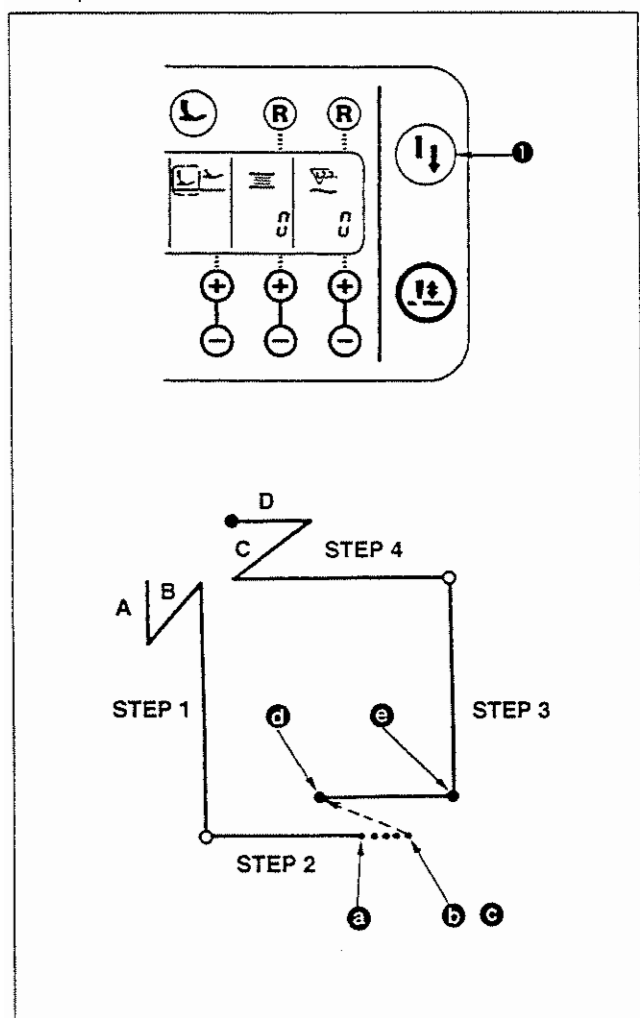


The No. of pcs. counter counts up the number of finished products every time the machine performs thread trimming. (0 → 1 → 2 → 9999)

The value on the No. of pcs. counter can be modified using switch **1**, on the control panel, for correcting the value on the No. of pcs. counter. In addition, the value on the No. of pcs. counter is reset to "0" by pressing No. of pcs. counter reset switch **2**.

9) Re-sewing switch (CP-360)

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



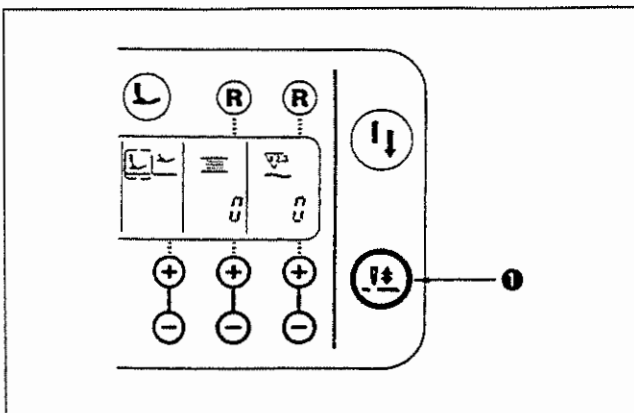
- ① The bobbin thread runs out during the operation steps for sewing. **a**
- ② Bring the pedal to its neutral position to make the sewing machine stop. Now, depress the back part of the pedal to make the thread trimmer actuate. **b**
- ③ Turn ON re-sewing switch **1**. **c**
- ④ Replace the bobbin. 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 of 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 control panel. Now, you can re-start 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 control panel as described in the aforementioned steps ⑤ and ⑥.

(Caution)

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 control panel give the step indication 1. Now, you can start sewing from the first step of the programmed stitching pattern.

10) Needle up/down compensation switch (CP-60 / 360)



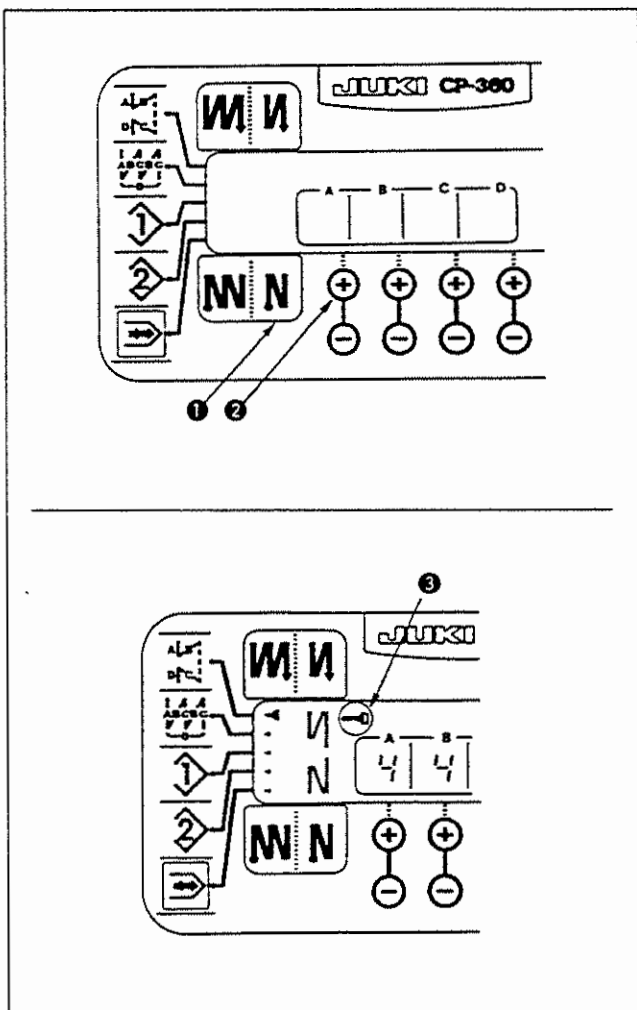
Every time needle up / down compensation switch ① is pressed, the needle goes up when it is in its lowest position or comes down when it is in its highest position. This compensates the stitch by a half of the predetermined stitch length.

However, note that the machine does not run continuously at a low speed even if you keep the switch held pressed. Also, note that the needle up / down compensation switch is inoperative after turning the handwheel by hand.

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

11) Key lock function (CP-160 / 360)

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



- ① After completion of the setting of data on the number of stitches, turn OFF the power to the machine once.
- ② Turn ON the power switch while simultaneously pressing automatic reverse stitching at the end of sewing switch ① on the control panel and the "+" switch of number of stitches setting switch ② for process A on the control panel with fingers.

- ③ Key mark ③ is shown on the control panel. This completes the locking of keys.

(If the key mark is not shown on the control panel, perform the aforementioned steps ① and ②.)

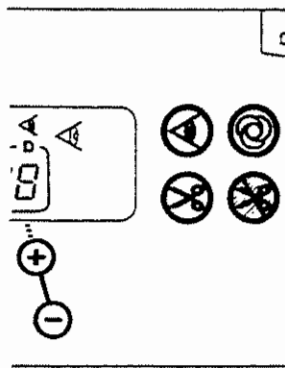
- * To release the keys from the locked state, perform the aforementioned steps ① and ②.

(Once the key mark goes out, the keys are released from the locked state.)

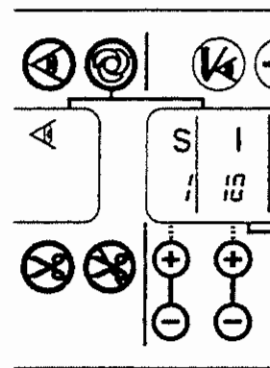
12) ON / OFF switch of the material edge sensor

- When the material edge sensor, which is optionally available, is connected to the control panel, the ON/OFF switch of 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 control panel, carefully read the Instruction Manual for the material edge sensor beforehand.

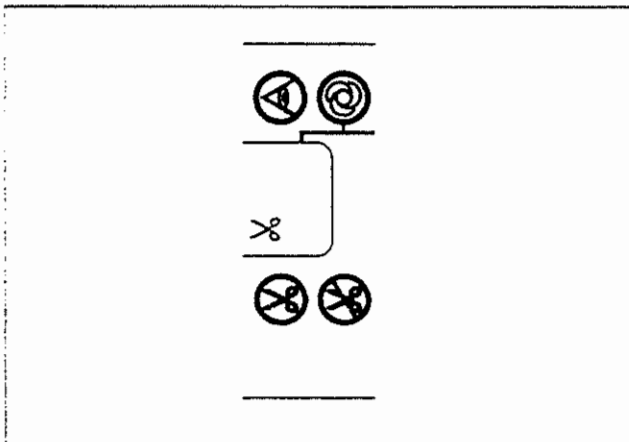


CP-160



CP-360

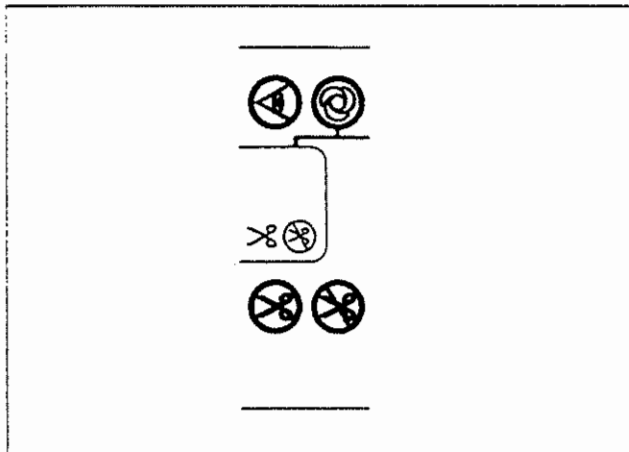
13) Automatic thread trimming switch





- 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 at the end of sewing is specified, the thread trimmer will actuate after the sewing machine completes the automatic reverse stitching at the end of sewing.)

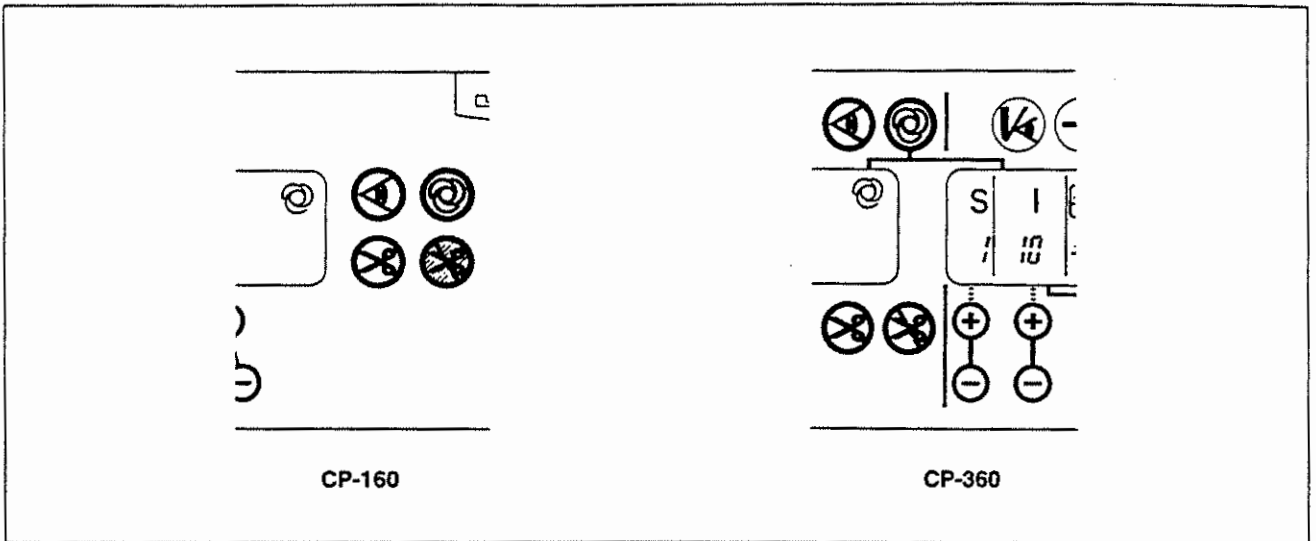
14) Thread trimming prohibition switch



- 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 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.

15) One-shot automatic stitching switch

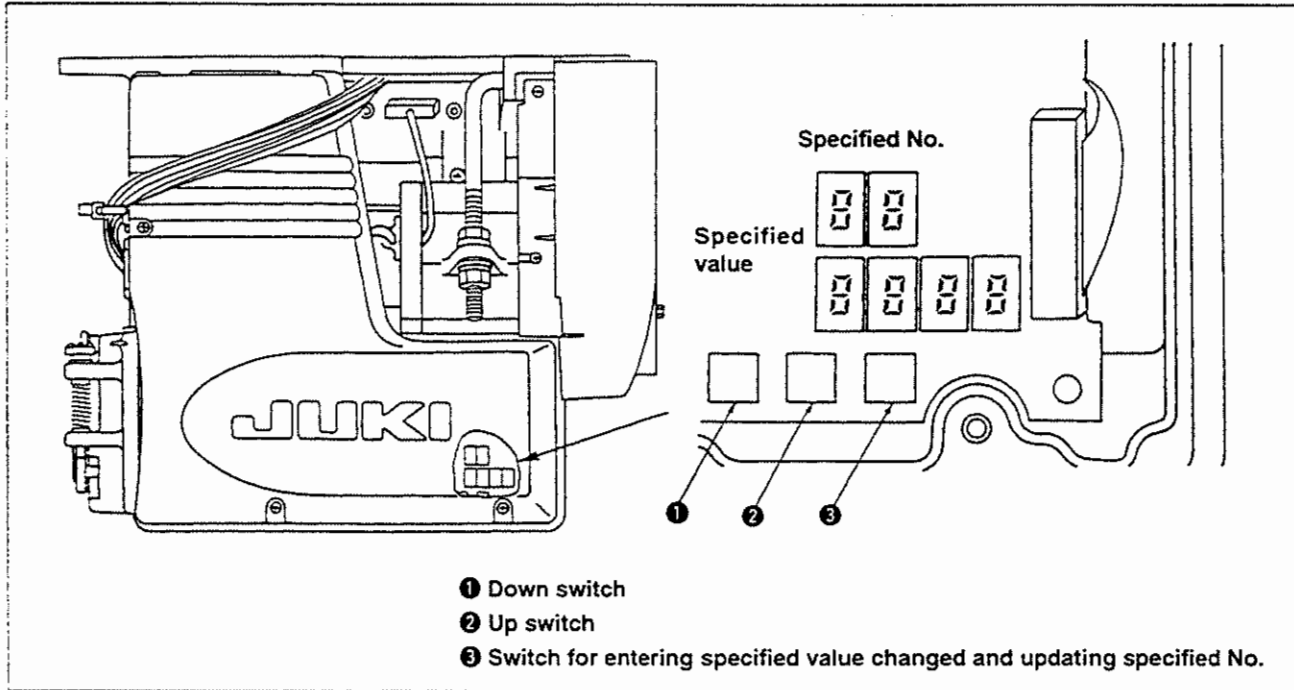
This switch is used in the overlapped stitching mode or in the process where the material edge sensor is used, to make the sewing machine automatically perform sewing at the specified speed until the end of process is reached only by driving the sewing machine mode.



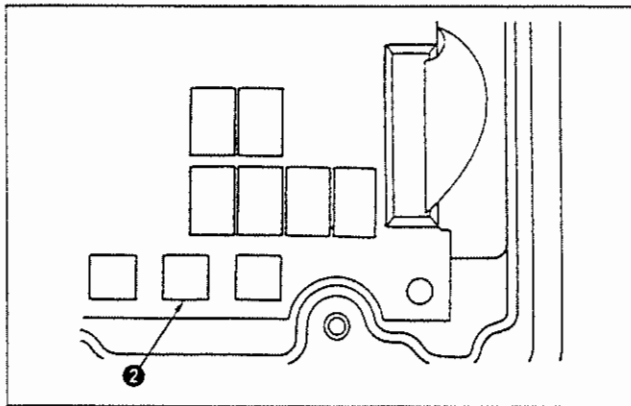
5. FOR THE OPERATOR

(1) Setting for functions of SC-800

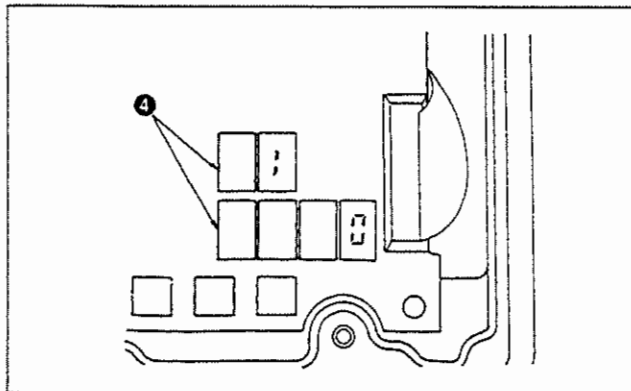
Functions can be selected and specified by means of the three setting switches and indicator located inside the front cover of the SC-800.



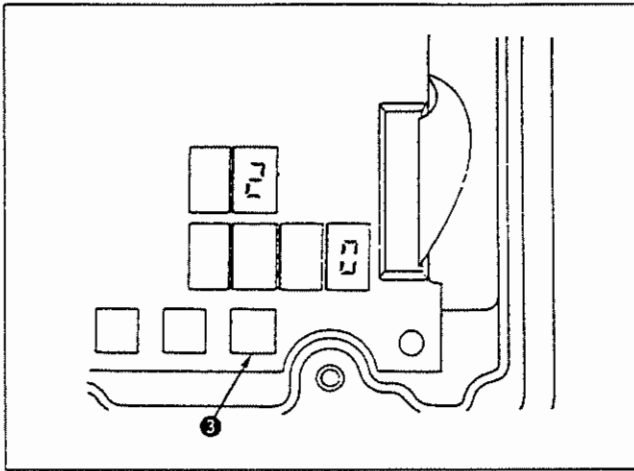
(Caution) Do not operate the switches in the procedure other than those required, as described below, to specify the functions.



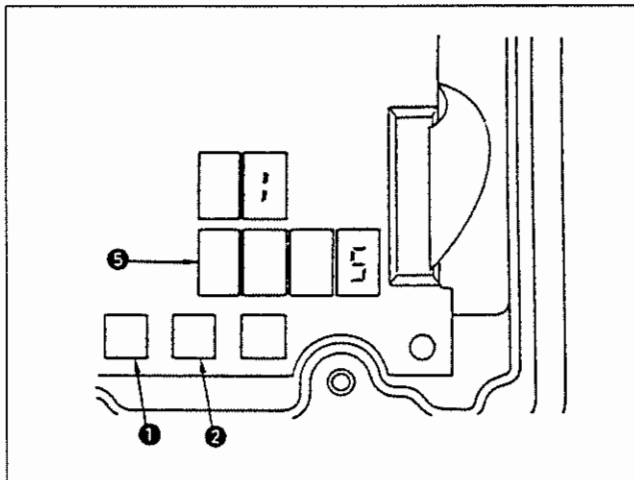
- 1) Turn OFF the power to the unit.
- 2) Remove the front cover.
- 3) Pressing switch ②, turn ON the power to the unit.



- 4) Indication ④ will be shown on the display. (If the indication fails to change, re-perform the procedures 1) and 3).



- 5) If you want to advance the setting No., press switch **3** to advance the setting No.
When you want to return the setting No., turn OFF the power to the unit and perform again.



Example) Changing the number of stitches for soft-start function

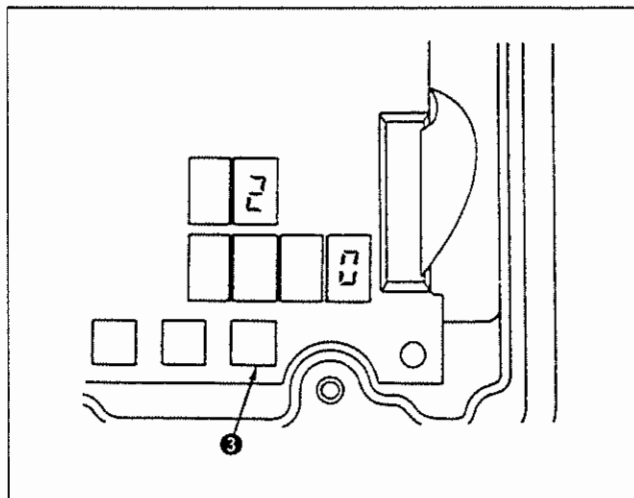
- 6) Press switch **2** five times to set the number of stitches to five.

Indication on the LED **5**

(To decrease the number of stitches, operate switch **1** .

(Caution)

Keep pressing switch **1** or **2**, and the specified number of stitches will be updated continuously.



- 7) After you have changed the number of stitches, press switch **3** to enter the specified value.

(Caution)

- If you press switch **3** , the indication on the LCD will change to the next specified value.
- If this operation is not performed, the specified value will not be updated.

After the completion of the operation, turn OFF the power to the unit and attach the front cover. Then, re-turn ON the power to the unit, and the normal operation mode will be restored.

(2) Function setting list

No.	Item	Description	Setting range	Indication of standard function setting	Page
1	Number of stitches for soft-start	The number of stitches to be sewn at a low speed when the soft-start function is used at the start of sewing. 0 : Soft-start function is not operative.	0 to 9 (Stitches)	<input type="checkbox"/> 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P21-1
2	Material end sensor function	Material end sensor function (used with the CP-60 panel) 0 : Material end detection function is not operative. 1 : After detecting material end, the specified number of stitches (No. 4) will be sewn, and the sewing machine will stop.	0/1	<input type="checkbox"/> 2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P21-2
3	Thread trimming function by material end sensor	Thread trimming function by material end sensor (used with the CP-60 panel) 0 : Automatic thread trimming function after detection of material end is not operative. 1 : After detecting material end, the specified number of stitches (No. 4) will be sewn, and the sewing machine will stop and perform automatic thread trimming.	0/1	<input type="checkbox"/> 3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P21-2
4	Number of stitches for material end sensor	Number of stitches for material end sensor (used with the CP-60 panel) Number of stitches from detection of material end to stop of the sewing machine.	0 to 19 (Stitches)	<input type="checkbox"/> 4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	P21-2
5	Flicker reducing function	Flicker reducing function (if the hand lamp flickers.) Hand lamp is not necessarily supplied to all destinations. 0 : Flicker reducing function is not operative. 1 : Less effective → 8 : Highly effective	0 to 8	<input type="checkbox"/> 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> *	P22-3
6	Bobbin thread counting function	Bobbin thread counting function 0 : Bobbin thread counting function is not operative. 1 : Bobbin thread counting function is operative.	0/1	<input type="checkbox"/> 6 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	P22-4
7	Unit of bobbin thread counting down	Unit of bobbin thread counting down 0 : Count/10 stitches 1 : Count/15 stitches 2 : Count/20 stitches	0 to 2	<input type="checkbox"/> 7 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P22-4
8	Number of rotation of reverse feed stitching	Sewing speed of reverse feed stitching	180 to 3,000 (rpm)	<input type="checkbox"/> 8 1 <input type="checkbox"/> 9 <input type="checkbox"/> 0 <input type="checkbox"/> 0	P22-5
9	Thread trimming prohibiting function	Thread trimming prohibiting function (used with the CP-60 panel) 0 : Thread trimming is prohibited. (Output of solenoid is prohibited. : Thread trimmer and wiper)	0/1	<input type="checkbox"/> 9 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P22-6
10	Setting of needle bar stop position when the sewing machine stops	Position of needle bar is specified when the sewing machine stops. 0 : Predetermined lowest position 1 : Predetermined highest position	0/1	1 <input type="checkbox"/> 0 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P22-7
11	Click sound of key switch mounted on PSC	Click sound of key switch mounted on PSC is specified. 0 : Click is not operative. 1 : Click is operative.	0/1	1 <input type="checkbox"/> 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	P23-8
12	Not used.	Normally use with NF without fail.	-	1 <input type="checkbox"/> 2 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P23-9
13	Stop of the sewing machine by bobbin thread counting	Stop function of the sewing machine by bobbin thread counting 0 : Prohibiting function of revolution of the sewing machine is not operative even when counting is out (-1 or less).	0/1	1 <input type="checkbox"/> 3 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P22-4
14	Sewing counter	Counting function of sewing (number of completion of process) 0 : Sewing counter function is not operative.	0/1	1 <input type="checkbox"/> 4 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	P 23 - 10
15	Number of times of detection of run-out of bobbin thread remaining amount	Number of times of detection of run-out of bobbin thread remaining amount 0 : Function of bobbin thread remaining amount is not operative. 1 to 19 : Number of times during which the signal is not made even if run-out of bobbin thread remaining amount is detected.	0 to 19 (Stitches)	1 <input type="checkbox"/> 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	P 23 - 11
18	Bird's nest prevention function	Optional unit B is necessary. Effective when it is combined with the DDL-5556.	-	1 <input type="checkbox"/> 8 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 1	P 24 - 12
19	Needle thread release function at the sewing start	Optional unit B is necessary. Effective when it is combined with the DDL-5556.	-	1 <input type="checkbox"/> 9 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P 24 - 12
20	Number of condensation stitches	Optional unit B is necessary. Effective when it is combined with the DDL-5556.	-	2 <input type="checkbox"/> 0 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P 24 - 12
21	Neutral presser foot lifting function	It is possible to lift the presser foot when the pedal is in its neutral position. 0 : Function of lifting the presser foot is OFF. 1 : Function of lifting the presser foot is ON.	0/1	2 <input type="checkbox"/> 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P 24 - 13
30	Function of reverse feed stitching on the way	Function of reverse feed stitching on the way 0 : Function of reverse stitching on the way is not operative.	0/1	3 <input type="checkbox"/> 0 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 0	P 25 - 14

No.	Item	Description	Setting range	Indication of standard function setting	Page
31	Number of stitches of reverse feed stitching on the way	Number of stitches of reverse feed stitching on the way.	0 to 19 (Stitches)	<input type="text" value="3"/> <input type="text" value="1"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="4"/>	P 25 - 14
32	Effective condition of reverse feed stitching on the way when the sewing machine is stopping.	Effective condition of reverse feed stitching on the way 0 : Function is not operative when the sewing machine stops. 1 : Function is operative when the sewing machine stops.	0/1	<input type="text" value="3"/> <input type="text" value="2"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0"/>	P 25 - 14
33	Thread trimming function by reverse feed stitching on the way	Thread trimming function by reverse feed stitching on the way 0 : Automatic thread trimming function after completion of reverse feed stitching on the way is not operative. 1 : Automatic thread trimming after completion of reverse feed stitching on the way is performed.	0/1	<input type="text" value="3"/> <input type="text" value="3"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0"/>	P 25 - 14
35	Number of rotation at a low speed	Lowest speed by pedal	20 to 400 (rpm)	<input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value=""/> <input type="text" value="2"/> <input type="text" value="0"/> <input type="text" value="0"/>	P 26 - 15
36	Number of rotation of thread trimming	Thread trimming speed	20 to 250 (rpm)	<input type="text" value="3"/> <input type="text" value="6"/> <input type="text" value=""/> <input type="text" value="2"/> <input type="text" value="1"/> <input type="text" value="0"/>	P 26 - 15
37	Number of rotation of soft-start	Sewing speed at the start of sewing (soft-start)	130 to 2000 (rpm)	<input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value=""/> <input type="text" value="8"/> <input type="text" value="0"/> <input type="text" value="0"/>	P21-1
38	One-shot speed	One-shot speed (The max. value depends on the number of rotation of the sewing machine head.)	200 to MAX (rpm)	<input type="text" value="3"/> <input type="text" value="8"/> <input type="text" value="2"/> <input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value="0"/>	P 26 - 17
39	Pedal stroke at the start of rotation	Stroke between the pedal in its neutral position and starting position of rotation of the sewing machine	10 to 50 (0.1 mm)	<input type="text" value="3"/> <input type="text" value="9"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="3"/> <input type="text" value="0"/>	P 26 - 18
40	Low speed section of pedal	Stroke between the pedal in its neutral position and starting position of acceleration of the sewing machine	10 to 100 (0.1 mm)	<input type="text" value="4"/> <input type="text" value="0"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="6"/> <input type="text" value="0"/>	P 26 - 18
41	Starting position of lifting presser foot by pedal	Stroke between the pedal in its neutral position and starting position of lifting presser foot by pedal	-60 to 50 (0.1mm)	<input type="text" value="4"/> <input type="text" value="1"/> <input type="text" value="-"/> <input type="text" value=""/> <input type="text" value="2"/> <input type="text" value="1"/>	P 26 - 18
42	Starting position of lowering presser foot by pedal	Stroke between the pedal in its neutral position and starting position of lowering presser foot by pedal	8 to 50 (0.1 mm)	<input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="0"/>	P 26 - 18
43	Pedal stroke 2 for starting thread trimming	Stroke between the pedal in its neutral position and the starting position 2 of thread trimming by pedal (when the function of lifting presser foot by pedal is provided.)	-60 to 10 (0.1 mm)	<input type="text" value="4"/> <input type="text" value="3"/> <input type="text" value="-"/> <input type="text" value=""/> <input type="text" value="5"/> <input type="text" value="1"/>	P 26 - 18
44	Pedal stroke for reaching the maximum number of rotation	Stroke between the pedal in its neutral position and the position where the sewing machine reaches at its highest speed.	10 to 150 (0.1 mm)	<input type="text" value="4"/> <input type="text" value="4"/> <input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="5"/> <input type="text" value="0"/>	P 26 - 18
45	Compensation of neutral point of the pedal	Compensation value of the pedal sensor	-15 to 15	<input type="text" value="4"/> <input type="text" value="5"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0"/>	P 28 - 19
46	Auto-lifter selecting function	Function of lifting presser foot 0 : A holding time control at the upper dead point is provided (solenoid type). 1 : A holding time control at the upper dead point is not provided (pneumatic type).	0/1	<input type="text" value="4"/> <input type="text" value="6"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0"/>	P 28 - 20
47	Holding time of lifting presser foot	Holding time control at the upper dead point when lifting presser foot	60 to 600 (second)	<input type="text" value="4"/> <input type="text" value="7"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="6"/> <input type="text" value="0"/>	P 28 - 20
48	Pedal stroke 2 for starting thread trimming	Stroke between the pedal in its neutral position and starting position of thread trimming by pedal	-60 to -10 (0.1 mm)	<input type="text" value="4"/> <input type="text" value="8"/> <input type="text" value="-"/> <input type="text" value=""/> <input type="text" value="3"/> <input type="text" value="5"/>	P 26 - 18
50	Foot lifter by pedal	Function of lifting presser foot by pedal 0 : The function is not operative. 1 : Lifting presserfoot by pedal depressing is performed.	0/1	<input type="text" value="5"/> <input type="text" value="0"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="0"/>	P 29 - 21
51	Compensation of solenoid-on timing of reverse feed stitching at the start of sewing	Compensation of starting the solenoid for reverse feed stitching when reverse feed stitching at the start of sewing is performed.	-36 to 36 (10°)	<input type="text" value="5"/> <input type="text" value="1"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="0"/>	P 29 - 22
52	Compensation of solenoid-off timing of reverse feed stitching at the start of sewing	Compensation of releasing the solenoid for reverse feed stitching when reverse feed stitching at the start of sewing is performed.	-36 to 36	<input type="text" value="5"/> <input type="text" value="2"/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value="1"/> <input type="text" value="6"/>	P 29 - 22

No.	Item	Description	Setting range	Indication of standard function setting	Page
53	Compensation of solenoid-off timing of reverse feed stitching at the end of sewing	Compensation of releasing the solenoid for reverse feed stitching when reverse feed stitching at the end of sewing is performed.	-36 to 36 (10°)	5 3 □ □ 1 8	P 29 - 22
54	Effective diameter of motor pulley	Effective diameter of motor pulley	200 to 2,000 (0.1 mm)	5 4 □ 7 0 0	P 33 - 24
55	Foot lift after thread trimming	Function of lifting presser foot at the time of (after) thread trimming 0 : Not provided with the function of lifting presser foot after thread trimming	0/1	5 5 □ □ □ 1	P 33 - 25
56	Reverse revolution to lift the needle after thread trimming	Function of reverse revolution to lift the needle at the time of (after) thread trimming 0 : Not provided with the function of reverse revolution to lift the needle after thread trimming	0/1	5 6 □ □ □ 0	P 33 - 26
57	Bobbin thread remaining amount detection function	Function of sensing bobbin thread remaining amount at the time of (after) thread trimming 0 : Not provided with the function of lifting presser foot after thread trimming	0/1	5 7 □ □ □ 0	P 23 - 11
58	Function of holding predetermined upper/lower position of the needle bar	Function of holding predetermined upper/lower position of the needle bar 0 : Not provided with the function of holding predetermined upper/lower position of the needle bar	0/1	5 8 □ □ □ 0	P 33 - 27
59	Function of Auto/Manual change-over of reverse feed stitching at the start of sewing	This function can specify the sewing speed of reverse feed stitching at the start of sewing. 0 : The speed will depend on the manual operation by pedal, etc. 1 : The speed will depend on the specified reverse feed stitching speed (No. 8).	0/1	5 9 □ □ □ 1	P 33 - 28
60	Function of stop immediately after reverse feed stitching at the start of sewing	Function at the time of completion of reverse feed stitching at the start of sewing 0 : Not provided with the function of temporary stop of the sewing machine at the time of completion of reverse feed stitching at the start of sewing	0/1	6 0 □ □ □ 0	P 33 - 28
61	Function of stop of the sewing machine by detection of bobbin thread remaining amount	Function of stop of the sewing machine by detection of bobbin thread remaining amount 0 : Not provided with the function of prohibiting the rotation of the sewing machine even when counting is out (-1 or less).	0/1	6 1 □ □ □ 1	P 23 - 11
64	Change-over speed of condensation stitch or EST (end back tack)	Initial speed when starting condensation stitch or EST	0 to 250 (rpm)	6 4 □ 1 8 0	P 31 - 23
65	On-timing of solenoid for condensation stitch (when condensation stitch is performed by 1 stitch.)	Starting (compensation) timing of solenoid for condensation stitch : -1 Compensation value of starting the solenoid when condensation stitch is performed by 1 stitch.	-36 to 0 (10°)	6 5 - □ 1 5	P 24 - 12
66	On-timing of solenoid for condensation stitch (when condensation stitch is performed by 2 stitches.)	Starting (compensation) timing of solenoid for condensation stitch : -2 Compensation value of starting the solenoid when condensation stitch is performed by 2 stitches.	-36 to 0 (10°)	6 6 - □ 1 5	P 24 - 12
67	Number of air blow times at the sewing start	Optional unit B is necessary. Effective when it is combined with the air clampless.	0 to 9 (Stitches)	6 7 □ □ □ 2	P 34 - 29
68	Starting angle of air blow	Optional unit B is necessary. Effective when it is combined with the air clampless.	0 to 35 (10°)	6 8 □ □ 2 7	P 34 - 30
69	Ending angle of air blow	Optional unit B is necessary. Effective when it is combined with the air clampless.	0 to 35 (10°)	6 9 □ □ 1 2	P 34 - 31
75	Rotating direction of motor	Normal rotating direction of motor 0 : Clockwise 1 : Counterclockwise	0/1	7 5 □ □ □ 1	P 34 - 32
76	Max. number of rotation setting	Max. number of rotation of the sewing machine head can be set. * The speed depends on the model of sewing machine head.	50 to MAX (rpm)	7 6 4 0 0 0	P 34 - 33

3) Flicker reducing function (Function setting No. 5)

The function reduces flickering of the hand lamp at the start of sewing. The higher the set value increases, the more effective the function will work.

5 Setting range
 0 to 8
0 : Flicker reducing function does not work.
5
8 : Flickering is effectively reduced.

(Caution) The more effective the flicker reducing function works (the more the set value is made), the lower the start-up speed of the sewing machine will become.

4) Bobbin thread counting function (Function setting No. 6)

① When the control panel (CP-160 or higher class model) is used, the function subtracts from the predetermined value indicates the used amount of bobbin thread. For the details, refer to the Instruction Manual for the control panel.

6
 1

(Caution) If "0" is set, the LCD indication on the control panel will go out and the bobbin thread counting function will be invalid.

② Unit of bobbin thread count-down (Function setting No. 7)

Unit of count-down (subtraction) of the bobbin thread counter can be changed.

7 0 : 1 count-down by 10 stitches
 0 1 : 1 count-down by 15 stitches
2 : 1 count-down by 20 stitches

③ Function to stop the sewing machine by the bobbin thread counter (Function setting No. 13)

This function stops the sewing machine when the value on the bobbin thread counter becomes "-1" or less.

1 3 0 : Sewing machine stop function is not provided even when the count is out ("-1" or less).
 0 1 : Sewing machine stops when the count is out.

(Caution) If the value becomes "-1" or less in the sewing process, the sewing machine stops after the completion of the process (after thread trimming).

5) Number of rotations of reverse feed stitching (Function setting No. 8)

This function sets the number of rotations of sewing machine when the reverse feed stitching at the start of sewing, reverse feed stitching at the end of sewing or overlapped stitching is performed.

8 Setting range
 1 9 0 0 180 to 3,000 rpm <10 / rpm>

(Caution) If the value other than the standard set value is selected, overlapped stitching seams will slip off. In this case, adjust the number of stitches in the processes A through D. Further, refer the stitch compensation to the items of Nos. 51, 52 and 53.

6) Thread trimming prohibiting function (Function setting No. 9)

This function temporarily prohibits thread trimming. [If the control panel (CP-160 or higher class model) is used with the sewing machine, the function will work in accordance with the function setting on the control panel.]

9 0 : Thread trimming is operative.
 0 1 : Thread trimming is inoperative.

7) Setting of the needle bar stop position when the sewing machine stops (Function setting No. 10)

The position of the needle bar when the pedal is in its neutral position is specified.

1 0 0 : Down The needle bar stops in the lowest position of its stroke.
 0 1 : Up The needle bar stops in the highest position of its stroke.

(Caution) If the stop position of the needle bar is set to the highest position, the thread trimming action will be taken after the needle bar comes down once to the lowest position.

12) Bird's nest prevention function (Function setting Nos. 18 to 20, 65 and 66)

This function is effective when the optional unit B asm. and DDL-556-7 are used.

① Bird's nest prevention function (Function setting No. 18)

1 8
 1

1 : Bird's nest prevention function is effective.

0 : Bird's nest prevention function is ineffective.

Setting of the function setting Nos. 19, 20, 65 and 66 will become ineffective.

② Needle thread release function at the sewing start (Function setting No. 19)

1 9
 0

Normally use this function at "0" : off.

③ Number of condensation stitches (Function setting No. 20)

This function sets the number of condensation stitches at the sewing end.

2 0
 0

Setting range

1 to 9 stitches <1 / stitch>

0 : Condensation function is ineffective.

④ On-timing of solenoid for condensation stitch (when condensation stitch is performed by one stitch.) (Function setting No. 65)

Angle correction of on-timing of solenoid can be set when condensation stitch is performed by one stitch.

6 5
 - 1 5

Adjusting range

-36 to 0 <1 / 10°>

⑤ On-timing of solenoid for condensation stitch (when condensation stitch is performed by two stitches or more.) (Function setting No. 66)

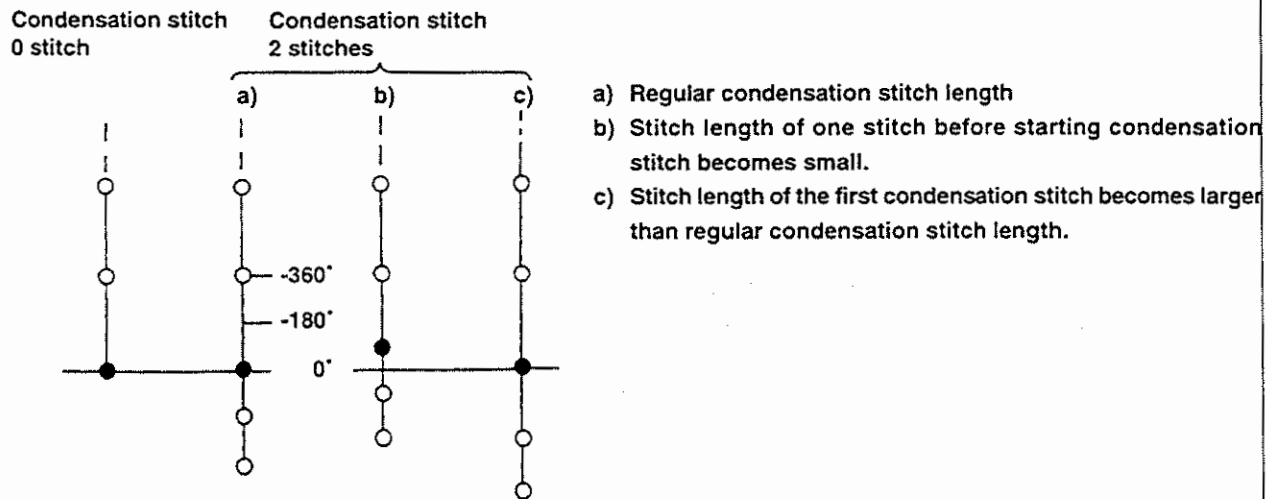
Angle correction of on-timing of solenoid can be set when condensation stitch is performed by two stitches or more.

6 6
 - 1 5

Adjusting range

-36 to 0 <1 / 10°>

Example) When condensation stitch is performed by 2 stitches.



- When the stitch length of one stitch before starting condensation stitch becomes small, set the value in the delaying direction against the set value (in direction of 0°).
- When the stitch length of condensation stitch is large, set the value in the advancing direction against the set value (in direction of -36°).

13) Automatic neutral presser foot lifting function (Function setting No. 21)

The function can automatically lift the presser foot when the pedal is in its neutral position.

Automatic raising time of the pedal depends on the automatic raising time after thread trimming. If the pedal has automatically come down, it will automatically go up at the second neutral position after shifting from the first neutral position once.

2 1
 0

0 : Automatic neutral presser foot lifting function is inoperative.

1 : Automatic neutral presser foot lifting function is operative.

15) Number of rotations at a low speed (Function setting No.35)

By depressing the front part of the pedal, the lowest speed can be adjusted.

 Adjusting range
 130 to 400 [rpm] <5 / rpm>

16) Number of rotations of thread trimming (Function setting No. 36)

The speed which should be lowered at the time of thread trimming can be adjusted regardless of the speed control by the pedal.

 Adjusting range
 130 to 250 [rpm] <5 / rpm>

17) Number of rotations of one-shot stitching (Function setting No. 38)

This function can set , by the pedal operation of one time, the sewing speed of one-shot stitching when the sewing machine continues stitching until completing the number of stitches specified or detecting the material end.

 Setting range
 200 to 10,000 rpm <50 / rpm>

- (Caution) 1. Setting of the one-shot stitching is made by the control panel of the CP-160 or higher class model.
2. The max. number of rotations of one-shot stitching is limited by the model of the sewing machine head. (However, the indication can be set up to max. 10,000 rpm.

18) Adjustment of the pedal stroke (Function setting Nos. 39 to 44 and 48)

① Pedal stroke at the start of rotation (Function setting No. 39)

Stroke between the pedal in its neutral position and starting position of rotation of the sewing machine can be adjusted.

 Adjusting range
 1.0 to 5.0 [mm] <0.1 / mm>

② Low speed section of the pedal (Function setting No. 40)

Stroke of the low speed section can be adjusted by operating the pedal.

 Adjusting range
 1.0 to 10.0 [mm] <0.1 / mm>

③ Starting position of lifting presser foot by pedal (Function setting No. 41)

Stroke between the pedal in its neutral position and starting position of lifting presser foot can be adjusted. (When lifting presser foot by pedal is applied.)

 Adjusting range
 - 6.0 to 5.0 [mm] <0.1 / mm>

④ Starting position of lowering presser foot by pedal (Function setting No. 42)

Stroke between the pedal in its neutral position and starting position of lowering presser foot can be adjusted. (When the automatic neutral presser foot lifting function is used.)

 Adjusting range
 0.8 to 0.5 [mm] <0.1 / mm>

⑤ Pedal stroke 2 for starting thread trimming (Function setting No. 43)

Stroke between the pedal in its neutral position and starting position of thread trimming can be adjusted.

(When the function of lifting presser foot by pedal is provided.)

 Adjusting range
 -6.0 to 1.0 [mm] <0.1 / mm>

⑥ Pedal stroke for reaching the maximum number of rotations (Function setting No. 44)

Stroke between the pedal in its neutral position and the position where the sewing machine reaches at its highest speed can be adjusted.

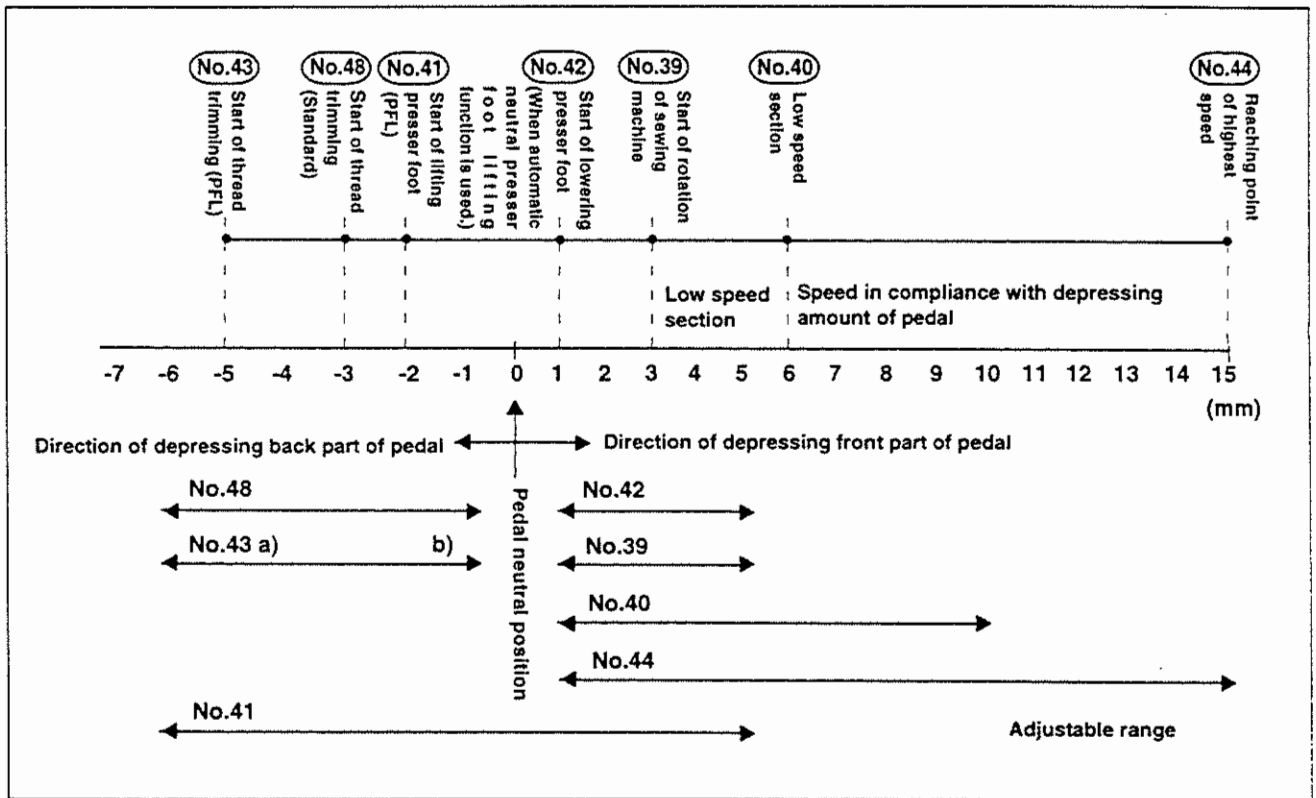
 Adjusting range
 1.0 to 15.0 [mm] <0.1 / mm>

⑦ Pedal stroke 1 for starting thread trimming (Function setting No. 48)

Stroke between the pedal in its neutral position and starting position of thread trimming can be adjusted.

(Standard type, or when the function of lifting presser foot by knee switch is provided.)

 Adjusting range
 -6.0 to 1.0 [mm] <0.1 / mm>



(Caution) The above-stated setting positions are for DDL-5581.

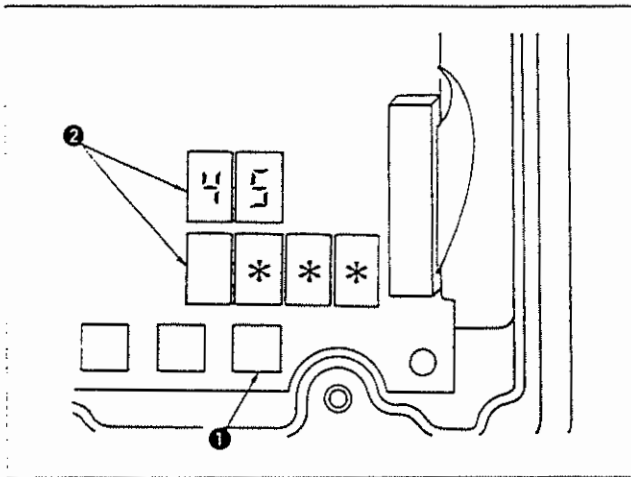
18) Compensation of neutral point of the pedal (Function setting No. 45)

Compensation value of neutral point of the pedal is indicated. Setting of the compensation value of neutral point of the pedal is performed by the automatic compensation of neutral position of the pedal function.

 Adjusting range
 -15 to 15

Automatic compensation of neutral position of the pedal

Be sure to perform following operations when the pedal sensor or spring is replaced.



- 1) Pressing switch ❶, turn ON the power switch.
- 2) Indication on the panel is the same as ❷. At this time, the value shown in the fourth figure is the compensation value.

(Caution)

At this time, if the pedal is depressed, the function does not work properly. Do not put legs or anything on the pedal.

20) Automatic presser foot lifting function (Function setting Nos. 46, 47 and 49)

① Selection of auto-lifter (Function setting No. 46)

This function selects whether the auto-lifter is of solenoid type or of pneumatic type.

 0 : Solenoid type (Holding time control is provided.)
 1 : Pneumatic type (Holding time control is not provided.)

② Holding time of lifting presser foot Function setting No. 47)

In case of the solenoid type presser foot lifter (No. 46 : 0), holding time control of lifting presser foot can be adjusted.

When the pneumatic type presser foot lifter is selected (No. 46 : 1), holding time control becomes limitless regardless of the set value.

 Adjusting range
 60 to 600 [sec] <10 / sec>

21) Selection of the function of lifting the presser foot by the pedal (Function setting No. 50)

It is possible to lift the presser foot by depressing the back part of the pedal. This function is effective when the SC-800 is used in combination with the AK device.

- 0 : Function of lifting the presser foot by the pedal is ineffective.
 1 : Function of lifting the presser foot by the pedal is effective.

(Caution) If the function of lifting presser foot by the pedal is selected, the point at which thread trimming is performed will automatically descend.

22) Compensation of timing of the solenoid for reverse feed stitching

(Function setting Nos. 51 to 53)

When the normal and reverse feed stitches are not uniform under the automatic reverse feed action, this function can change the ON / OFF timing of the solenoid for back-tuck and compensate the timing.

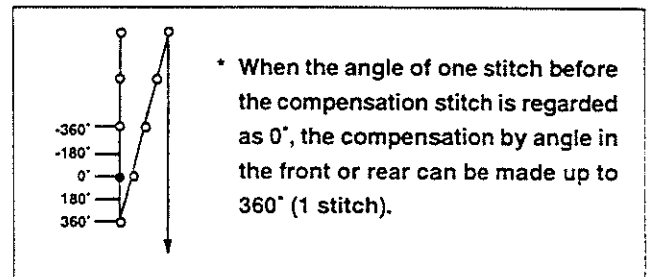
Adjust with this function when sewing slippage occurs due to the change of sewing speed of automatic reverse feed stitching, change of sewing machine head, etc.

① Compensation of on-timing of solenoid for reverse feed stitching at the start of sewing (Function setting No. 51)

On-timing of solenoid for reverse feed stitching at the start of sewing can be compensated by angle.

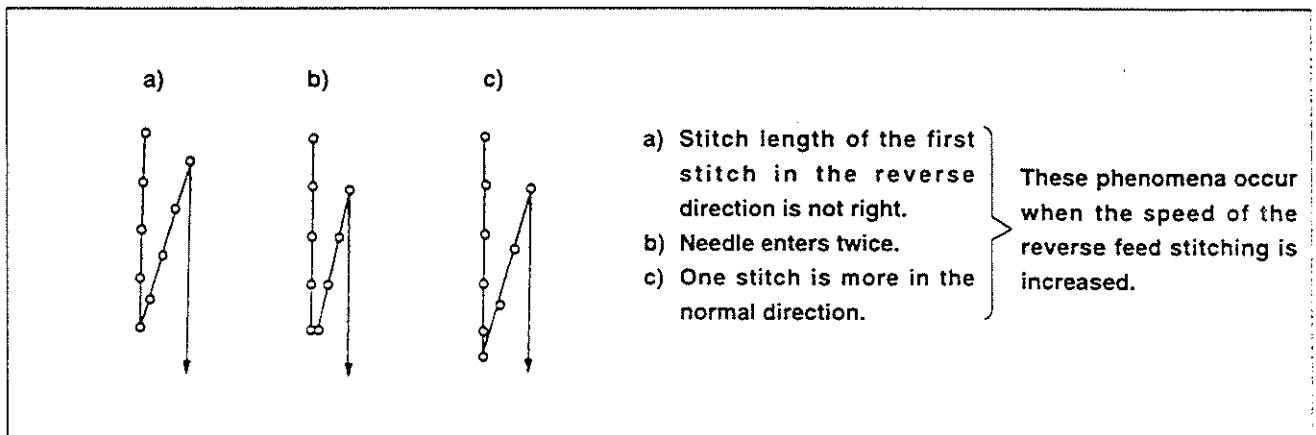
- Adjusting range
 -36 to 36 <1 / 10°>

Set value	Compensation angle	Compensation value
-36	-360°	-1
-18	-180°	-0.5
0	0°	0
18	180°	0.5
36	360°	1



(Note) The reason why the solenoid is drawn in front of the original starting position is that the delay occurs by the time when the mechanism works against the electrical signal.

Example 1) 4 stitches of the reverse feed stitching at the start of sewing - At 4-stitch setting, seam in the reverse direction is not right.



When the above-stated phenomena, a), b) and c), have occurred, set the angle (in direction of "-") so that the solenoid for back-tuck draws faster than the set value.

Example 2) 4 stitches of the reverse feed stitching at the start of sewing - At 4-stitch setting, seam in the normal direction is not right.

a) b) c)

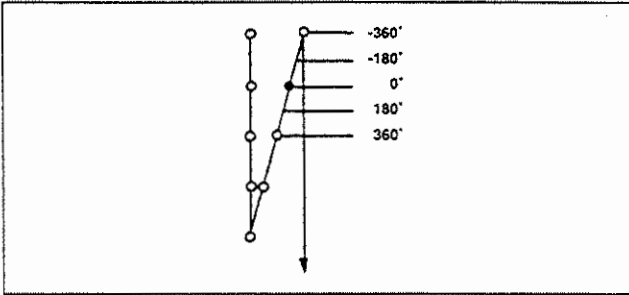
a) Stitch length of the 4th stitch in the reverse direction is not right.
 b) Needle enters twice.
 c) One stitch is more in the reverse direction.

In case of a), b) and c), these phenomena occur when the speed of the reverse feed stitching is decreased. In this case, set the angle (in direction of "+") so that the solenoid for back-tuck draws slower than the set value.

② Compensation of off-timing of solenoid for reverse feed stitching at the start of sewing (Function setting No. 52)
 Off-timing of solenoid for reverse feed stitching at the start of sewing can be compensated by angle.

5 2 Adjusting range
 1 6 -36 to 36 <1 / 10°>

Set value	Compensation angle	Compensation value
-36	-360°	-1
-18	-180°	-0.5
0	0°	0
18	180°	0.5
36	360°	1



Example 1) 4 stitches of the reverse feed stitching at the start of sewing - At 4-stitch setting, seam in the reverse direction is less.

a) b) c)

a) Stitch length of the last stitch is not right.
 b) Needle enters twice.
 c) One stitch is less (one stitch is included in the free stitching.)

These phenomena occur when the speed of reverse feed stitching is decreased.

In this case, set the angle (in direction of "+") so that the solenoid for back-tuck turns OFF slower than the set value.

Example 2) 4 stitches of the reverse feed stitching at the start of sewing - At 4-stitch setting, seam in the normal direction is more.

a) **Stitch length of the first stitch of the free sewing is not right.**

b) **Needle enters twice at the point of the last stitch.**

c) **The first stitch of the free sewing becomes a reverse stitch**

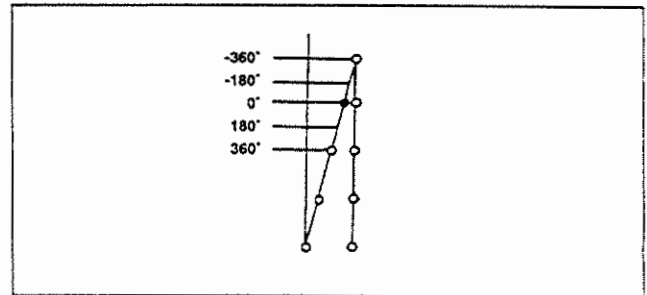
These phenomena occur when the speed of reverse feed stitching is increased.

In this case, set the angle (in direction of "-") so that the solenoid for back-tuck turns OFF faster than the set value.

③ Compensation of off-timing of solenoid for reverse feed stitching at the end of sewing (Function setting No. 53)
Off-timing of solenoid for reverse feed stitching at the end of sewing can be compensated by angle.

5 3 Adjusting range
 1 8 -36 to 36 <1 / 10°>

Set value	Compensation angle	Compensation value
-36	-360°	-1
-18	-180°	-0.5
0	0°	0
18	180°	0.5
36	360°	1



Example 1) 4 stitches of the reverse feed stitching at the end of sewing - At 4-stitch setting, seam in the reverse direction is more.

a) **Stitch length of the first stitch of the normal sewing is not right.**

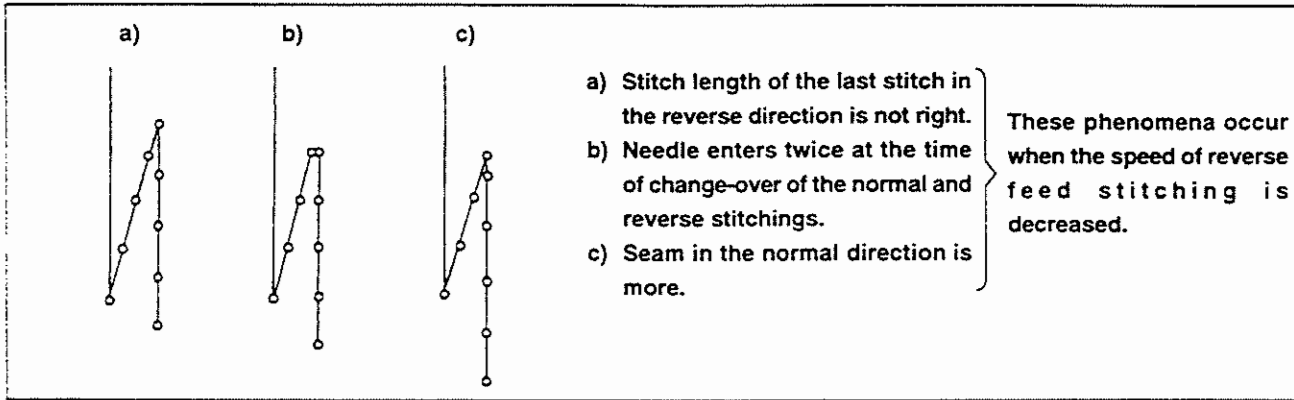
b) **Needle enters twice at the time of change-over of the normal and reverse stitchings.**

c) **Seam in the reverse direction is more.**

These phenomena occur when the speed of reverse feed stitching is increased.

In this case, set the angle (in direction of "-") so that the solenoid for back-tuck turns OFF faster than the set value.

Example 2) 4 stitches of the reverse feed stitching at the end of sewing - At 4-stitch setting, seam in the normal direction is less.



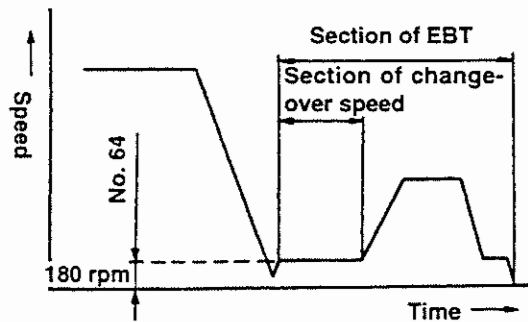
In this case, set the angle (in direction of "+") so that the solenoid for back-tuck turns OFF slower than the set value.

(Caution) On-timing of solenoid for automatic reverse feed stitching at the end of sewing can be compensated by drawing from the low speed and the command from the free sewing. Accordingly, the compensation cannot be performed.

23) Change-over speed of EBT (Function setting No. 64)

This function can adjust the initial speed when EBT starts.

0 to 250 [rpm] <5 / rpm>



29) Number of times of air blow at the sewing start [Normally two times] (Function setting No. 67)

Function of LH air clampless

This function is effective when it is combined with LH provided with the air clampless function.

Optional unit B is necessary.

067	N - AP → 2
	[N]

When using thin thread (equivalent to tetoron thread #80), set the 2 [N] to the 0 [N].

(Caution) Set value is "0" or "2". Do not set the value other than "0" or "2".

30) Starting angle of air blow [270°] (Function setting No. 68)

(Caution) Do not change the set value.

068	N - Apon
	→ 27

31) Ending angle of air blow [120°] (Function setting No. 69)

(Caution) Do not change the set value.

068	N - Apon
	→ 27

32) Rotating direction of motor (Function setting No. 75)

This function specifies the rotating direction of motor.

 1 : Counterclockwise
 0 : Clockwise

33) Max. number of rotations of the sewing machine head (Function setting No. 96)

This function can change the maximum number of rotations of the sewing machine head.

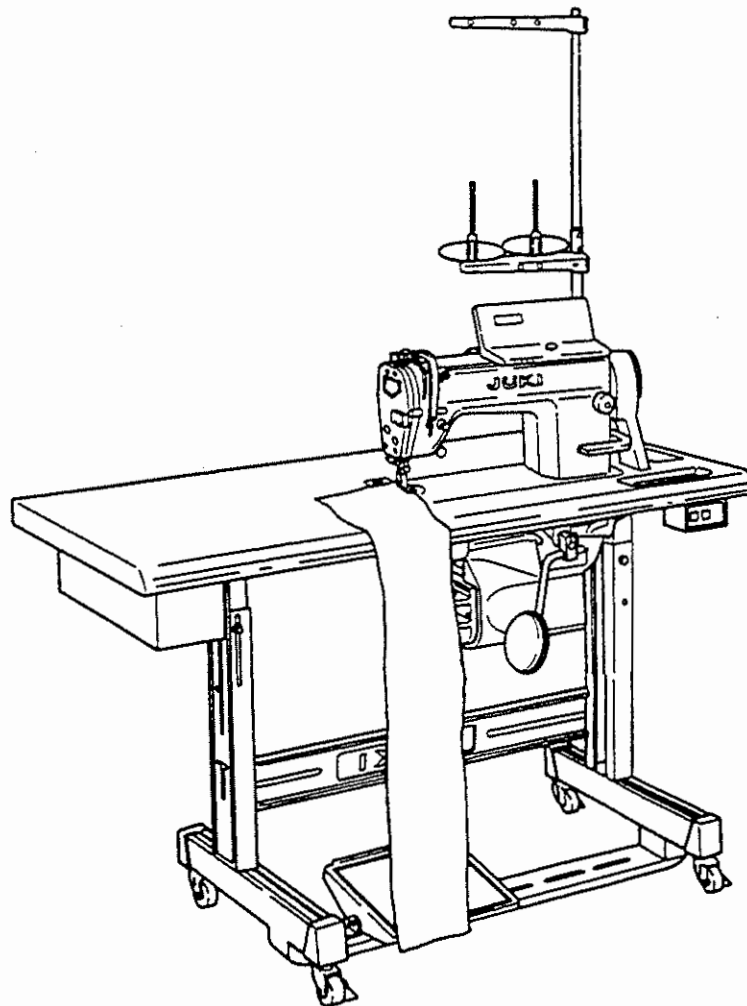
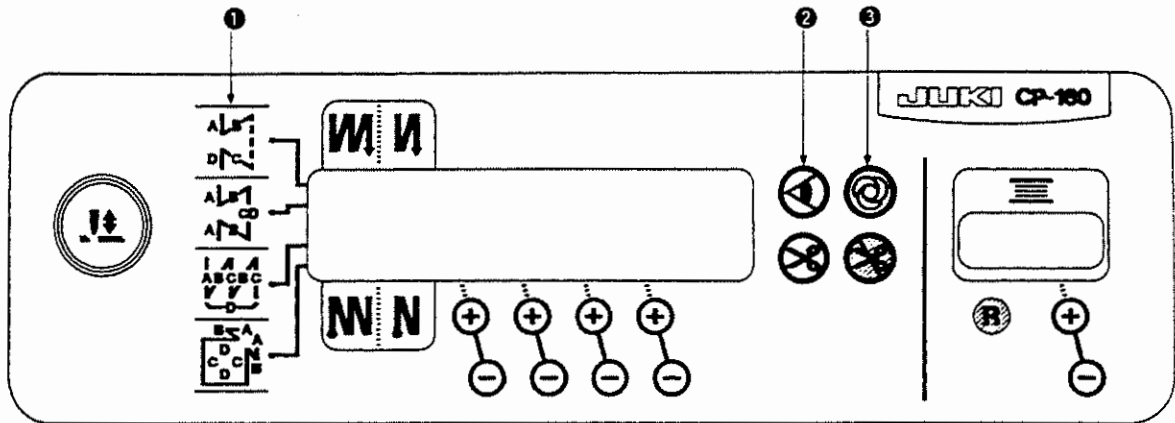
 50 to Max. [rpm]

(Caution) Limit of the maximum number of rotations will vary in accordance with the model of the sewing machine head.

(4) Examples of usage



- 1) When the CP-160 is used together with the material end sensor (ED : optional), it can be used as a small edge-controller.

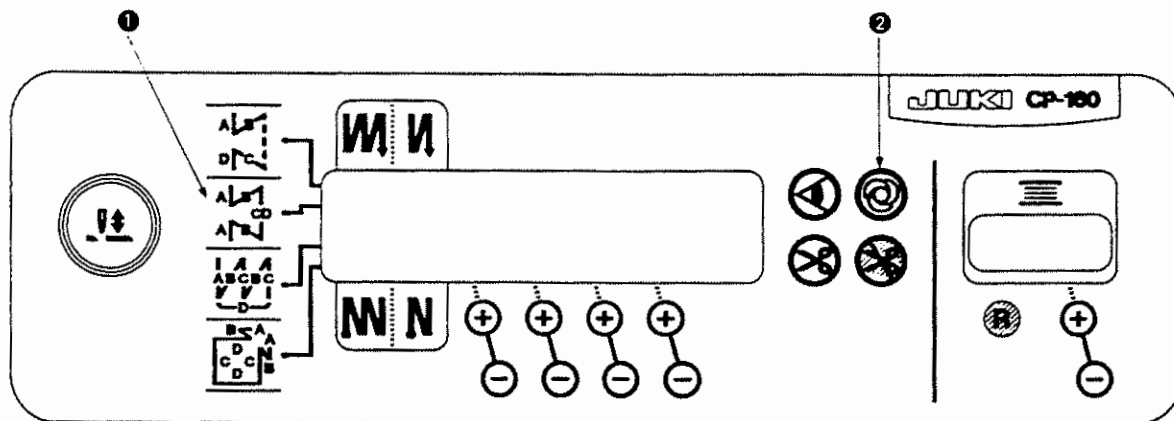
Method) Turn ON material end sensor ON / OFF switch ② attached to the CP-160, and turn ON ☉ mark ③ of the automatic one-shot stitching.



Caution) Number of rotations of the automatic one-shot stitching can be changed by the function setting (No. 38).

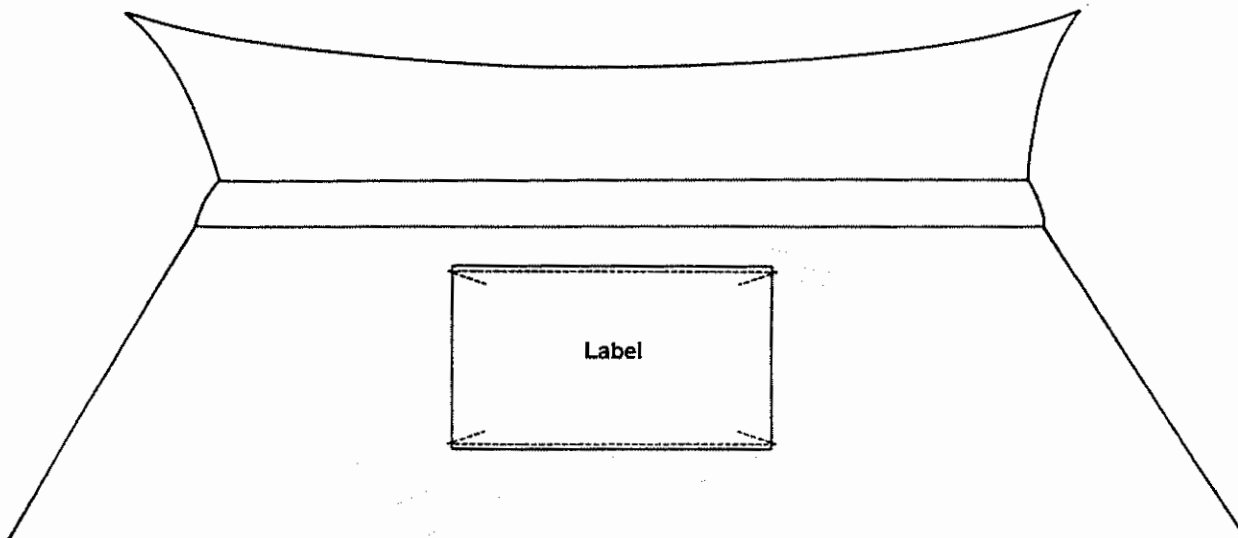
2) Label attaching is performed by the automatic one-shot stitching with the CP-160

Method) Select  mark ① on the CP-160, and turn ON  mark ② of the automatic one-shot stitching.



Explanation) Number of stitches at the section CD can be set up to 500 stitches. If the stitch length is 2 mm, it is possible to sew approximately 1,000 mm (1 m).

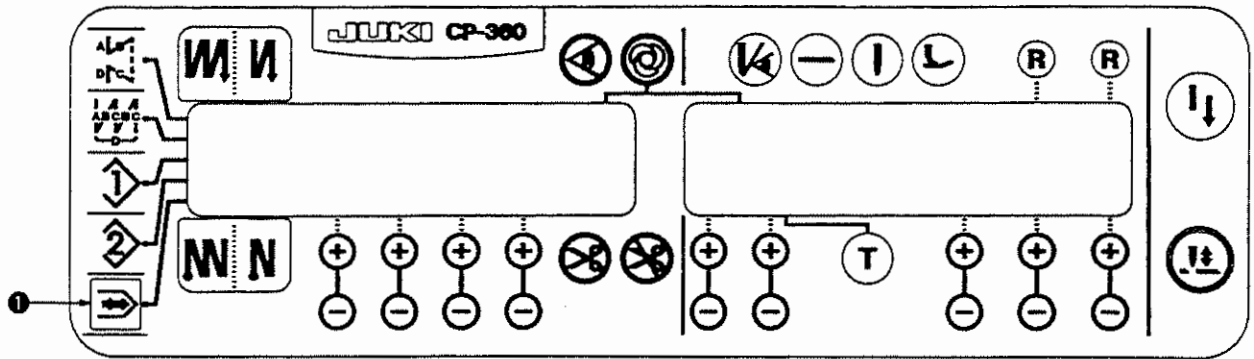
This function can perform the automatic one-shot stitching without using the material end sensor (ED : optional). Therefore, the sewing machine performs the sewing to the last according to the sewing pattern even if the label is not located at the end of material when the pedal is depressed once.



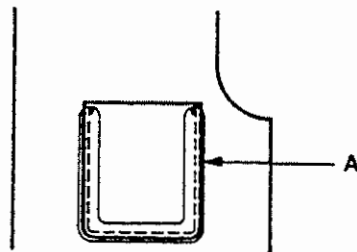
3) Application for sewing small things with the CP-360


Method) Select the continuous stitching mode  ① of the CP-360.

Example) Attaching the pen inserting hole of working wear (4 processes with one sewing machine)

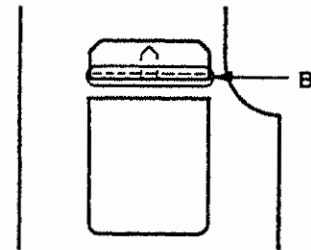




(1) Pocket attaching



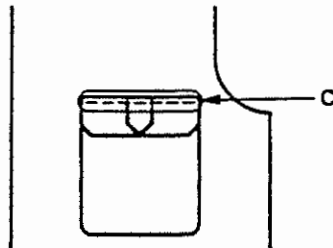
Input A to the pattern .



(2) Flap attaching



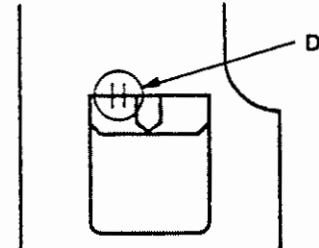
Input B to  or .


(3) Flap counter stitching



Input C to  or .

(4) Pen inserting hole tacking

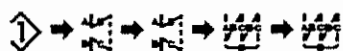


Input D to .

Process order)

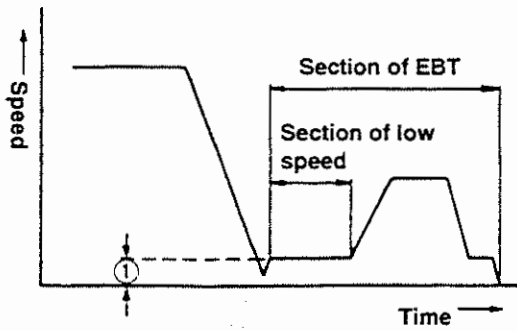
(1) - A → (2) - B → (3) - C → (4) - D

Input order)



4) Seam joining of the reverse feed stitching at the end of sewing (For thick materials)

Especially some sewing machine heads for thick materials are likely to fail joining the seam at the section of the following figure even if the timing of reverse feed stitching at the end of sewing is compensated.



- ① At the timing to move to the reverse feed stitching action, the rotating speed at the section where the sewing machine is rotated at a low speed can be changed.

SC-1 function setting No. 64

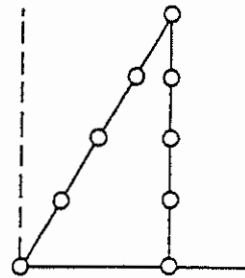
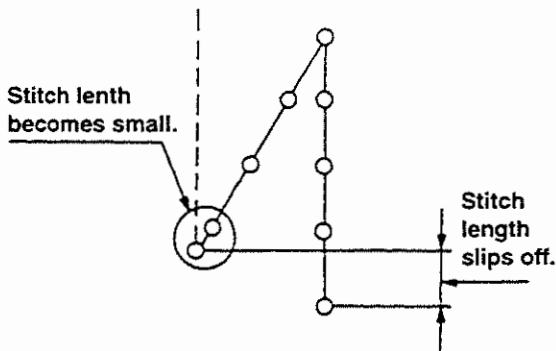
(0 to 250 rpm changeable : 200 rpm was fixed in the past.)

Example) Use for reference.

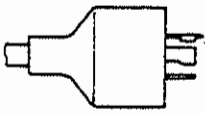
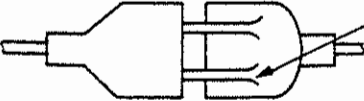
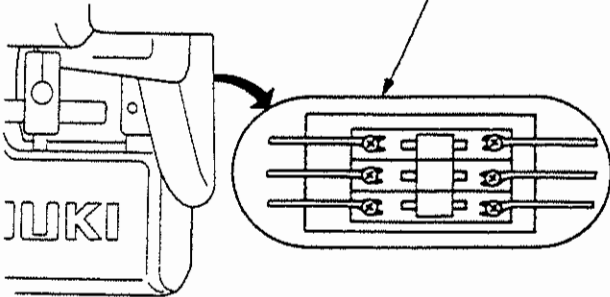
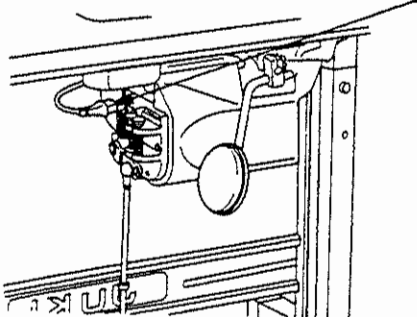
Standard

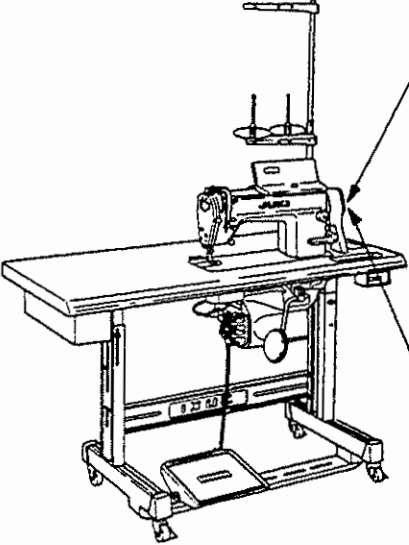
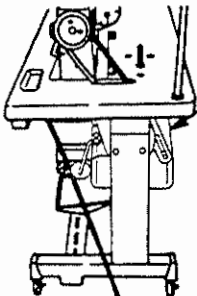
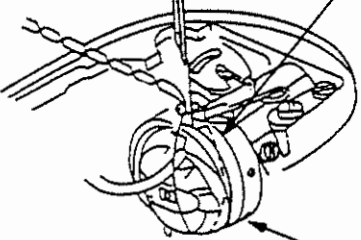
Condition	Machine head of DDL-5570NH (for thick materials)	
	Stitch length	4 mm
	Number of stitches	4 stitches
	ITEM No. 64	170 rpm

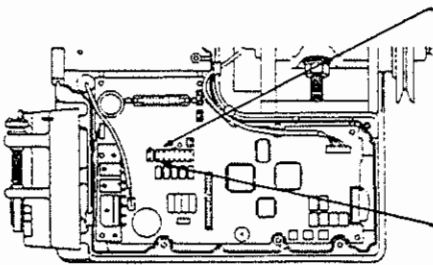
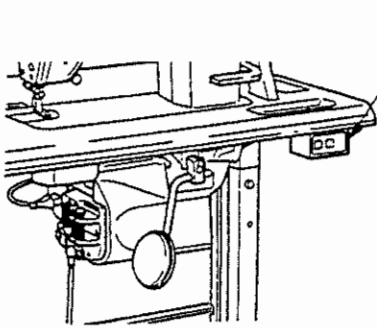
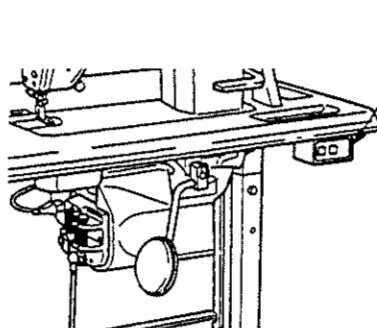
Condition	Machine head of DDL-5570NH (for thick materials)	
	Stitch length	4 mm
	Number of stitches	4 stitches
	ITEM No. 64	"0" rpm

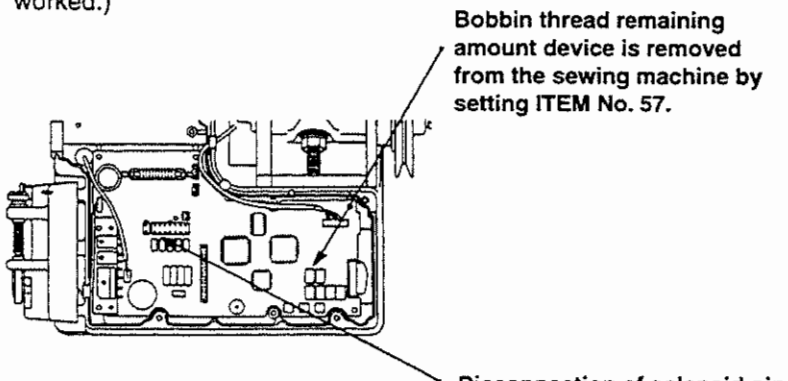
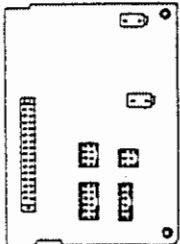
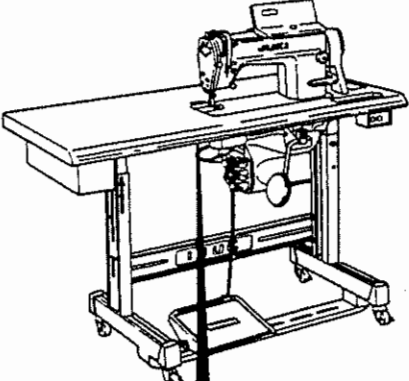
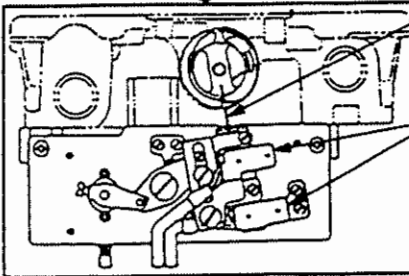


6. ERROR DESCRIPTION AND ACTION TO BE TAKEN

No.	Description and checking point	Action to be taken
E1	<p data-bbox="313 191 776 218">• Defective input power (defective power)</p>  <p data-bbox="743 289 1084 352">Power plug or plug socket is loose or disconnected.</p>  <p data-bbox="768 527 1081 583">Contact of power plug section is not good.</p>  <p data-bbox="764 737 1089 793">Power switch terminal is loose or removed.</p>  <p data-bbox="813 1213 1049 1304">Pin of power connector is loose or disconnected.</p>	<ul style="list-style-type: none"> <li data-bbox="1133 289 1511 352">• Tighten the screw inside the plug. <li data-bbox="1133 373 1446 401">• Re-insert the plug socket. <li data-bbox="1133 527 1425 554">• Correct the plug socket. <li data-bbox="1133 730 1511 793">• Tighten the screw inside the power switch. <li data-bbox="1133 1220 1425 1247">• Re-insert the connector.

No	Description and checking point	Action to be taken
E7	<ul style="list-style-type: none"> • Motor is locked. (In case that motor is running, but there is a failure in the control running.)    <ul style="list-style-type: none"> • Check whether the oil amount of hook is proper. 	<ul style="list-style-type: none"> • Repair the seized part of machine head. • Remove the thread. • Remove the pulley and remove the thread. • Check the hook component. • Adjust the oil amount.

No	Description and checking point	Action to be taken
E10	<ul style="list-style-type: none"> Short circuit of solenoid (When solenoid is operated, and signal of short circuit is detected.)  <p>Short circuit of solenoid for machine head</p> <p>Mis-wiring of solenoid connector</p>	<ul style="list-style-type: none"> Check the resistance value of the solenoid. Check the wiring.
E11	<ul style="list-style-type: none"> Overvoltage of power (When power voltage has become more than normal value.)  <p>Check whether the power voltage is correct.</p>	<ul style="list-style-type: none"> Measure the voltage.
E13	<ul style="list-style-type: none"> Low-voltage of power (When the power voltage has become less than normal value.)  <p>Check whether the power voltage is correct.</p>	<ul style="list-style-type: none"> Measure the voltage.
E20	<ul style="list-style-type: none"> Defective circuit board inside PSC box (In case that action check is performed when the power is ON, and that there is a failure.) 	
E22	<ul style="list-style-type: none"> Failure of rotation control of motor (In case that the number of rotations of motor is faster than the specified value from the motor control circuit.) 	
E24	<ul style="list-style-type: none"> Defective motor DRv element (In case that the error signal from DRv element is input.) 	

No	Description and checking point	Action to be taken
E30	<ul style="list-style-type: none"> Defective motor encoder (In case that motor encoder is less than the specified pulses.) 	
E31	<ul style="list-style-type: none"> Defective motor pole sensor (In case that signal which is not in the combination of input of pole sensor is input.) 	
E33	<ul style="list-style-type: none"> Failure of motor reverse rotation (In case that motor runs in the direction other than the control rotation.) 	
E41	<ul style="list-style-type: none"> Failure of micro-computer (In case that micro-computer fails to control the periphery.) 	
E42	<ul style="list-style-type: none"> E²PROM (In case that access to memory is failed.) 	
E43	<p>Defective home position of bobbin thread remaining amount device [AE-4 or -5] (In case that the device fails to return to the home position after the solenoid for detecting bobbin thread remaining amount has worked.)</p>  <p>Optional circuit board A asm.</p>   <ul style="list-style-type: none"> Check whether connector of bobbin thread remaining amount device is connected. Check whether bobbin thread remaining amount device is clogged with oil, dust, etc. 	<ul style="list-style-type: none"> Set ITEM No. 57 to "OFF". Insert the connector Confirm inserting the solenoid pin. Confirm whether the detecting bar is moved by hand. Replace the bobbin thread remaining amount detection device.

7. CHANGE FROM STANDARD TYPE TO PEDAL TYPE AUTOMATIC PRESSER FOOT LIFTER (PFL)

(1) Parts necessary for change

Part No.	Description	Q'ty
M4009351000A	Spring shaft B	1
M4011351000	Return spring B	2
M4012351000	Return pressure adjusting screw	1
M2010110000	Return pressure adjusting nut	1

(2) Attaching parts

- Loosen return pressure adjusting nut **b** in the pedal sensor A asm. (Fig. 1), remove return pressure adjusting screw **a**, remove return spring A **c**, and replace it with the return spring B. Then, assemble **a** and **b**.
- On side **2** in Fig. 2, same as side **1**, assemble spring shaft B, return spring B, return pressure adjusting screw and return pressure adjusting nut.

Caution) Apply grease to the shaft sections of sections **3** and **4** when assembling.

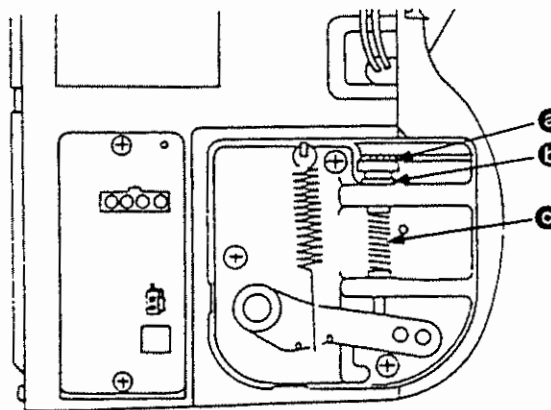


Fig. 1 Pedal sensor A asm.

(3) Adjusting pedal depressing pressure

Perform adjustment of the height of spring changed for the pedal type automatic presser foot lifter (PFL)

Adjust with return pressure adjusting screw **a** so that the length of spring on side **1** in Fig. 2 should be 27 mm and that the length of spring on side **2** in Fig. 2 should be 28 mm. After the adjustment of height, tighten return pressure adjusting nut **b** so that return pressure adjusting screw **a** should not become loose.

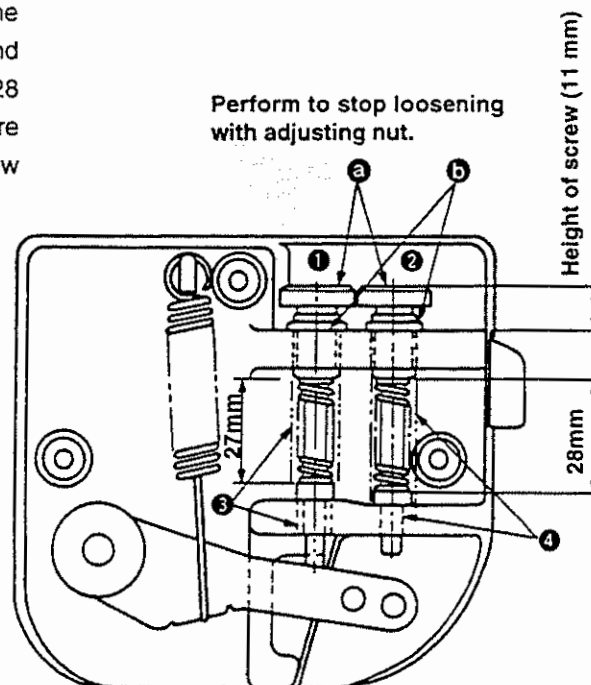


Fig. 2 Pedal sensor B asm.

(4) Setting of PSC box

Change the setting of PSC box from standard setting to PFL setting.

Following two points of setting are different from the standard setting at the time of delivery. Refer to the explanation of the respective functions, and change to the PFL setting.

1) Selection of lifting presser foot by pedal (ITEM No. 50)

5 0

0 : off Function of lifting presser foot by pedal is ineffective.

0

1 : on Function of lifting presser foot by pedal is effective.

2) Function of lifting presser foot after thread trimming (ITEM No. 55)

5 5

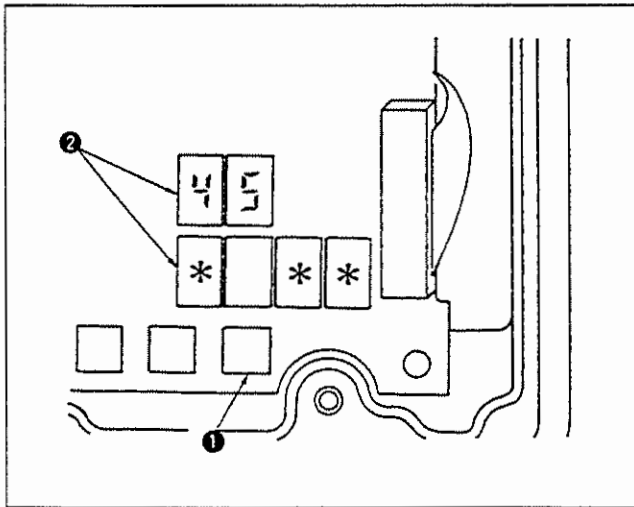
0 : off Automatic lifting function is ineffective.

0

1 : on Automatic lifting function is effective.

(5) Automatic compensation to make the pedal sensor neutral

When the pedal is in its neutral position, compensation of error at the time of assembling is performed.

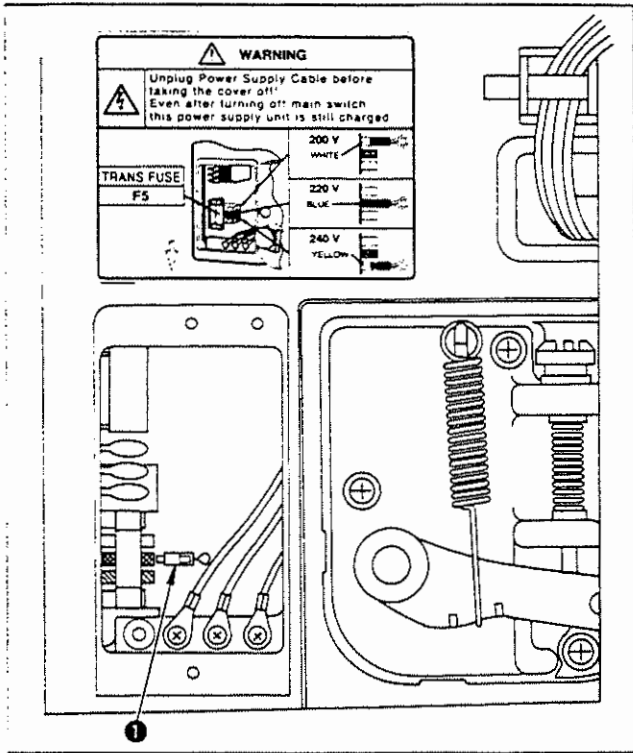


- 1) Pressing switch ❶, turn ON the power switch.
- 2) Indication on the screen will be as illustrated in ❷. At this time, the value indicated in the 7 segments of four figures is the compensation value.

(Caution)

At this time, the pedal sensor does not work properly if the pedal is depressed. Do not place the foot or any object on the pedal.

8. CHANGING OVER THE TRANSFORMER INPUT

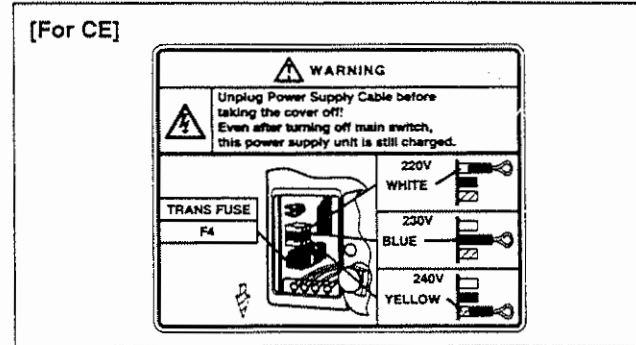


[For general export and CE]

Change over connector ❶ (blue) for changing over the input voltage of transformer according to the input supply voltage, and use it.

(Caution)

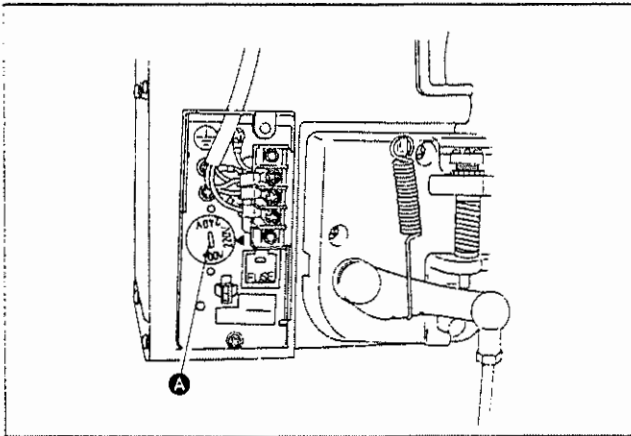
1. When changing over the input voltage of transformer, be sure to turn OFF the power to the unit.
2. It is impossible to operate the unit with this connector ❶ removed.



[For CE]

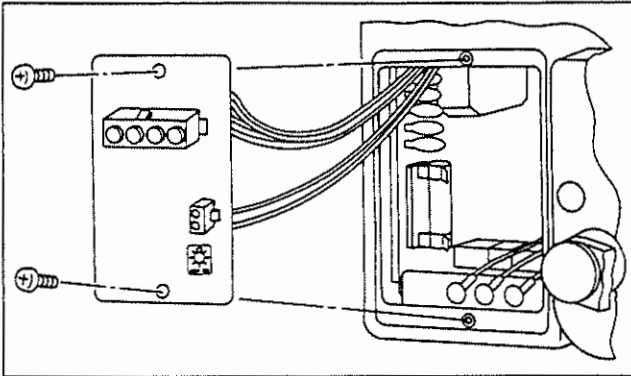
[For JUS]

1. Remove the terminal base cover.
2. Insert a slit screwdriver into section A, and set the input voltage to the ▲ mark.



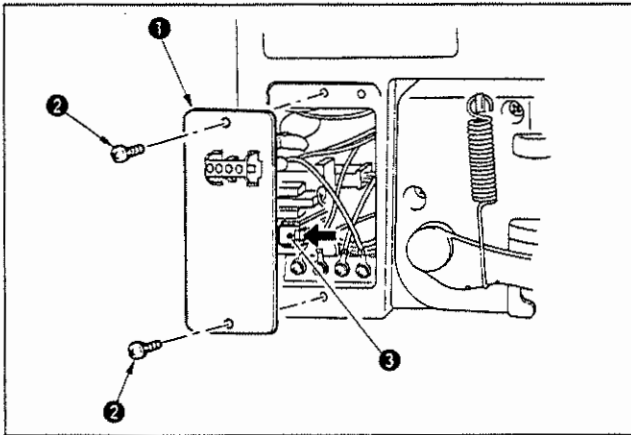
9. MAINTENANCE

(1) REPLACING THE FUSE



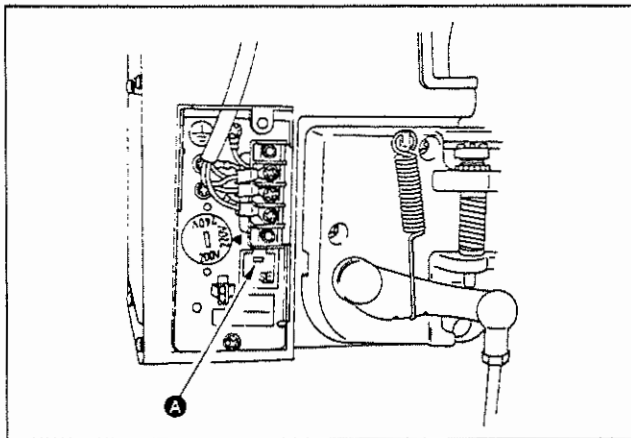
[For general export]

- 1) Loosen two screws and remove the connector panel located on the side face of the box (rear part of the pedal sensor).
- 2) Grasp the glass part of the fuse located on this side and remove it.
- 3) Use the fuse of which capacity is specified.



[For CE]

1. Loosen two screws ②, and remove connector installing plate ① located in the side face of the control box (rear part of the pedal sensor).
2. Press the protruding section of fuse holder ③ in the direction of arrow, and the fuse comes out from the inside of fuse holder ③.
3. Use the fuse of which capacity is specified.

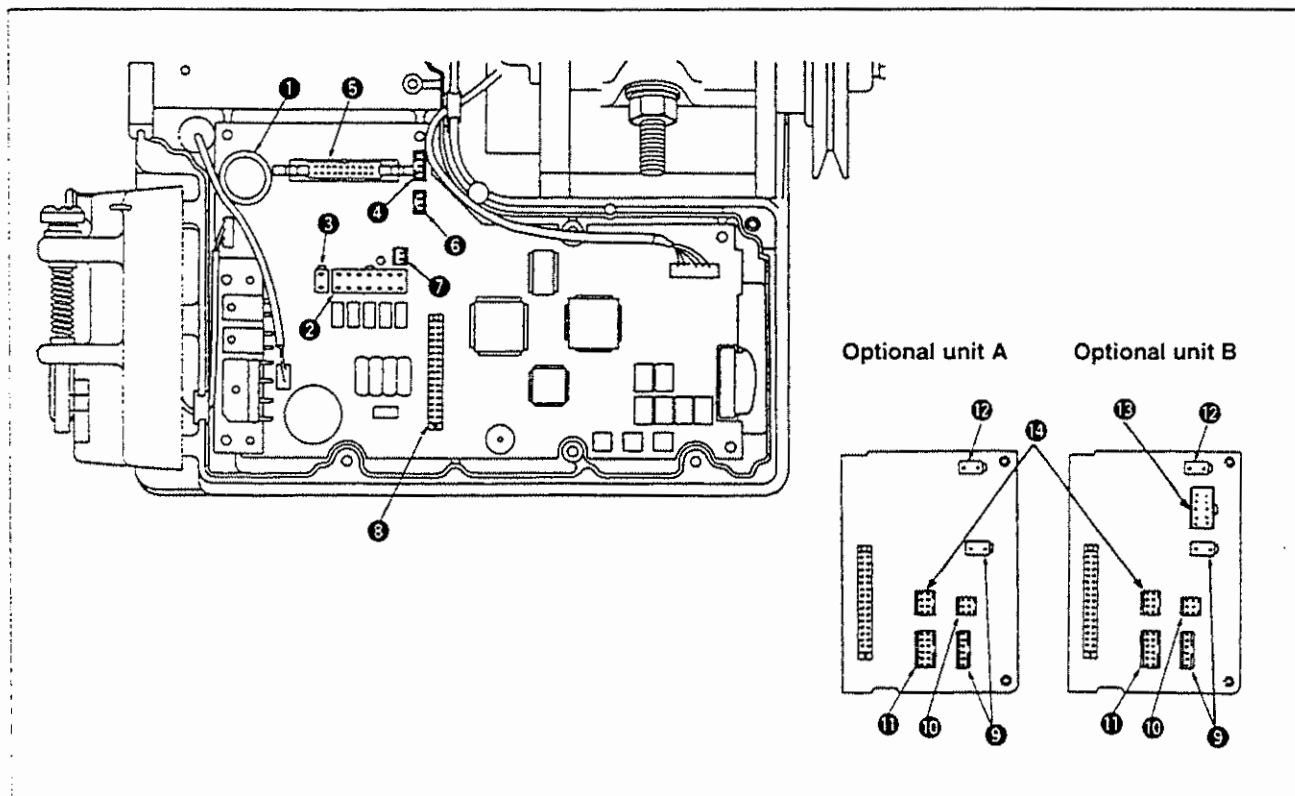


[For JUS]

1. Remove the terminal base cover.
2. Insert a slit screwdriver into section A, raise it and the fuse holder comes forward.
3. Use the fuse of which capacity is specified.

10. CONNECTOR CONNECTION DIAGRAM

Following connectors are prepared in front of the SC-800. Connect them to the corresponding positions of connectors of the machine head in accordance with the device to be mounted on the machine head.

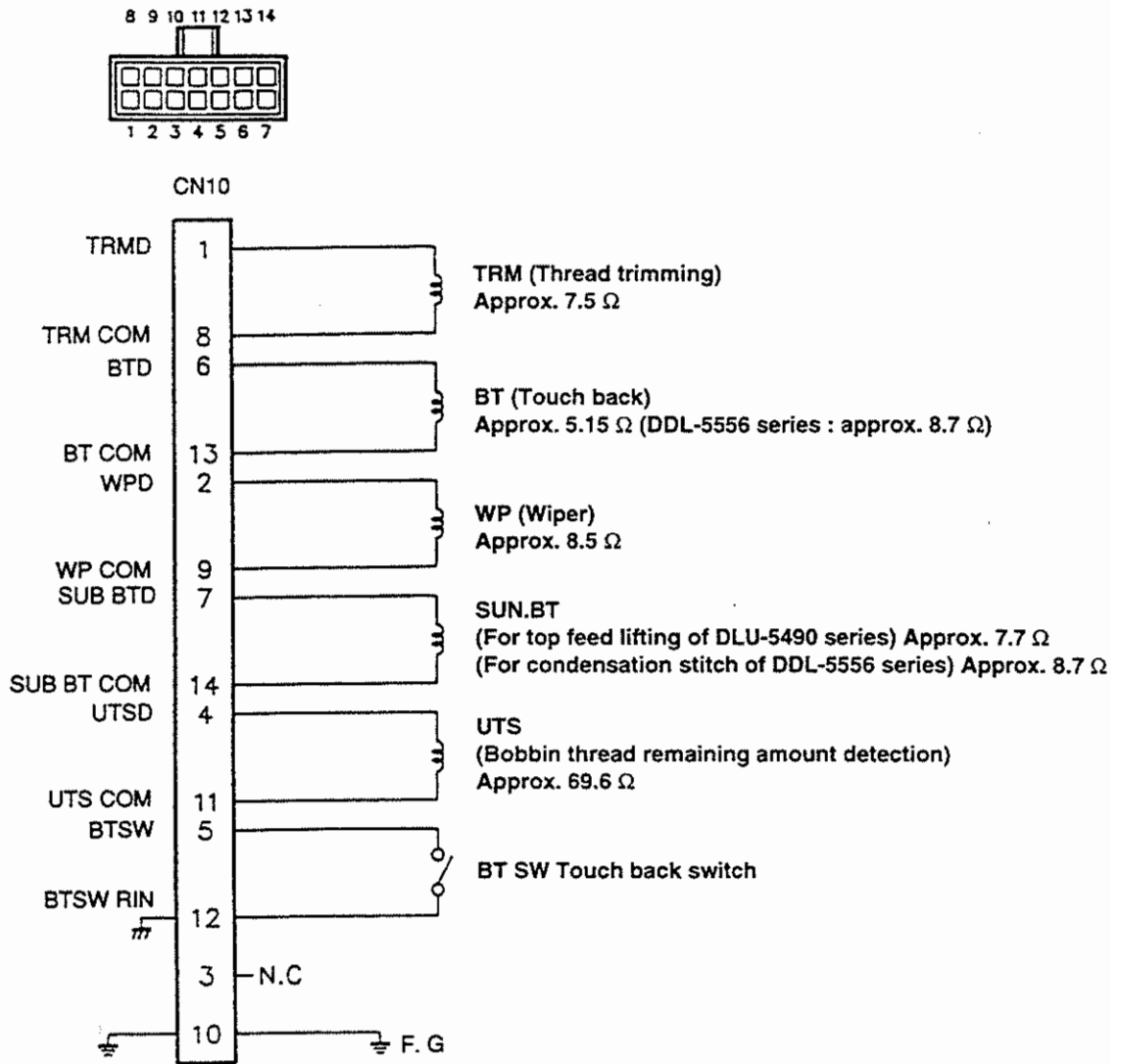


- ❶ 7P Synchronizer (CN2)
- ❷ 14P Solenoid for machine head (CN10)
- ❸ 2P Solenoid for lifting presser foot (CN9)
- ❹ 5P CP-60 control panel (CN4)
- ❺ 20P CP-160 / 360 control panel (CN3)
- ❻ 4P Connector for machine head (CN7)
- ❼ 2P Knee lifter switch connector (CN8)
- ❽ 30P Optional circuit board connecting connector (CN15)

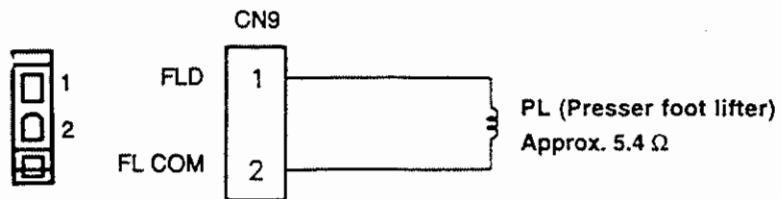
* By adding optional circuit board, following JUKI standard optional units can be connected.

- ❾ Bobbin thread remaining amount detection device AE-4, etc. (CN53, CN57)
Be sure to read the Instruction Manual when using it.
- ❿ Material end detection sensor ED-2, etc. (CN55)
- ⓫ Pedal for standing sewing machine PK-70, etc. (CN56)
- ⓬ +24V outer power cord (CN51)
- ⓭ Connector for bird's nest and air clampless (CN52)
- ⓮ Not used. (CN54)

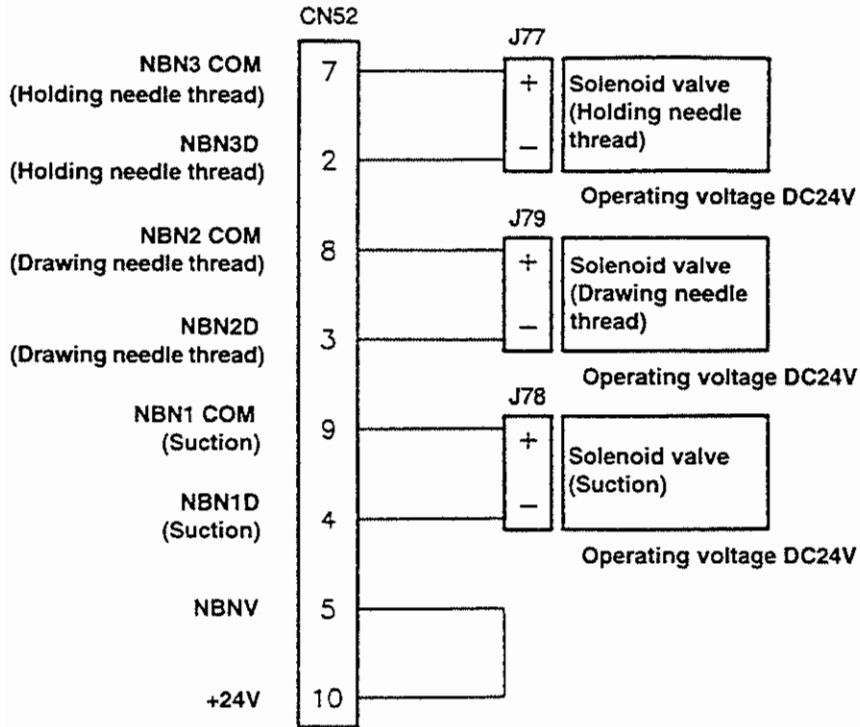
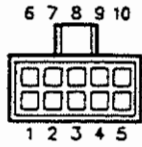
Solenoid for machine head



Solenoid for lifting presser foot

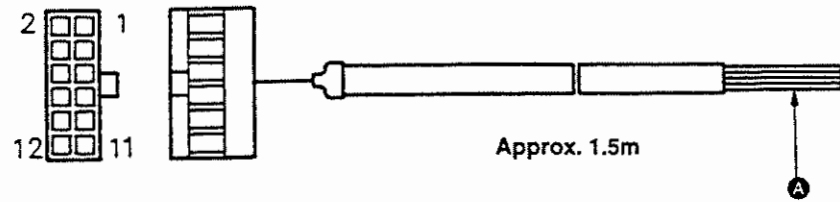


Solenoid valve for air clampless of DDL-5556 and LH

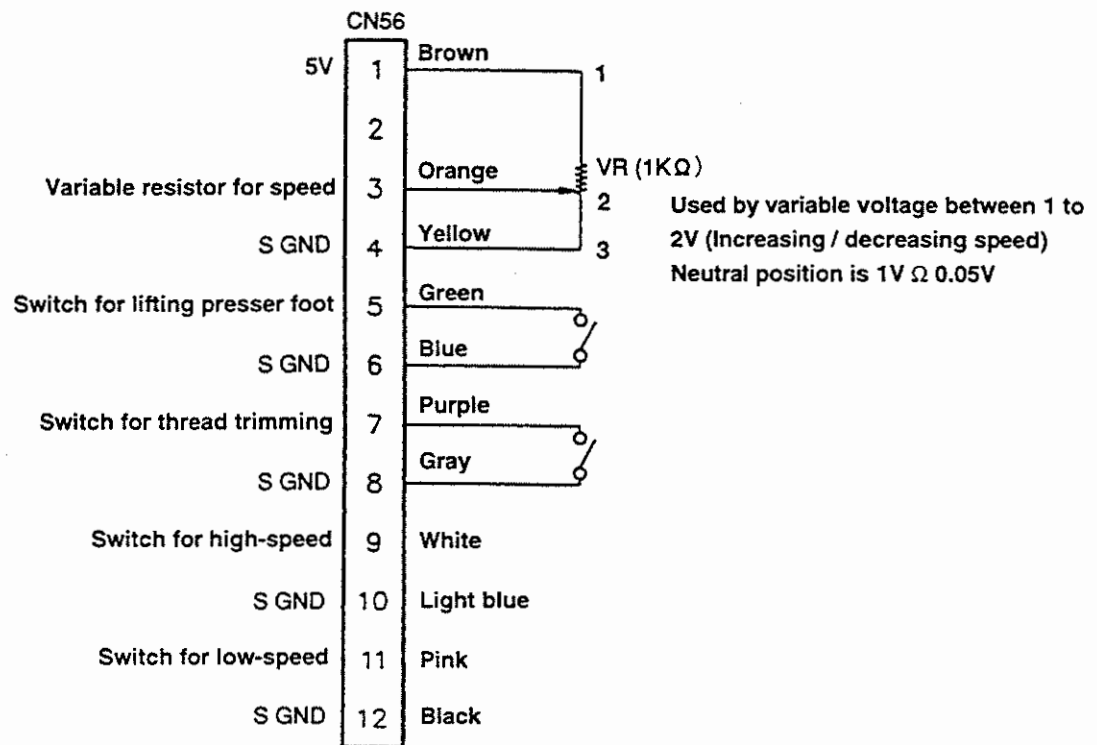


11. OPTIONAL CORD

(1) Relay cord A asm. for the standing sewing machine (Part No. M9701351AA0)

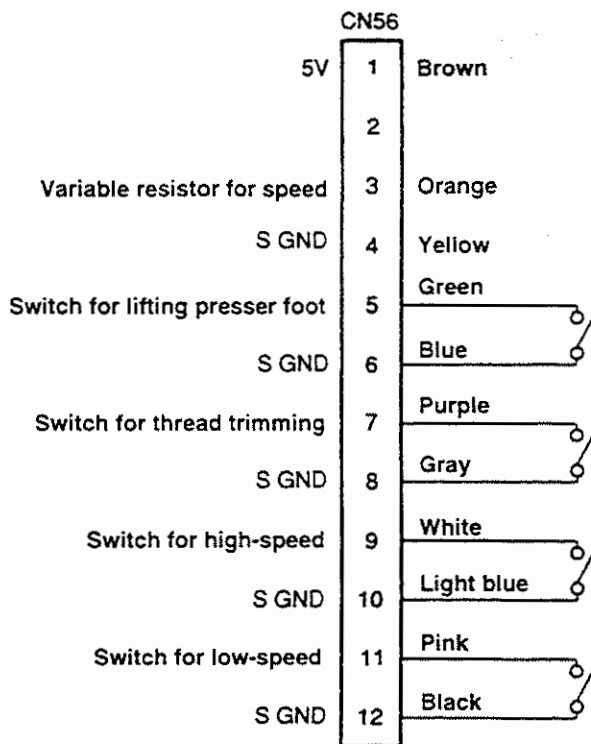


1) Wiring diagram of variable pedal PK-70 and -71



- Power section **A** which is separated by respective signals with different colors comes out from the relay cord A asm. for the standing sewing machine. Connect switches and variable resistor for speed in accordance with the wiring diagram.
- Insert to the connector (10. **1** CN56 of connector connection diagram) of standing sewing machine pedal in the PSC box and use it.

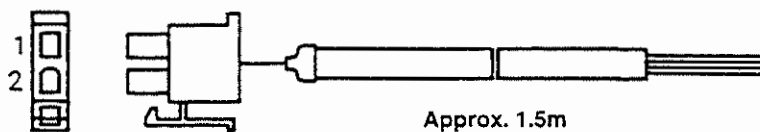
2) Wiring diagram of fixing max. speed



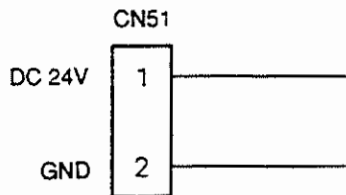
○ Insert to the connector (10. CN56 ⑩ of connector connection diagram) of standing sewing machine pedal in the PSC box and use it.

(Caution) In case of decreasing the speed of switch for high-speed, use the variable resistor for max. speed limit mounted on the control panel.

(2) Relay cord A asm. for DC24V (Part No. M9703351AA0)



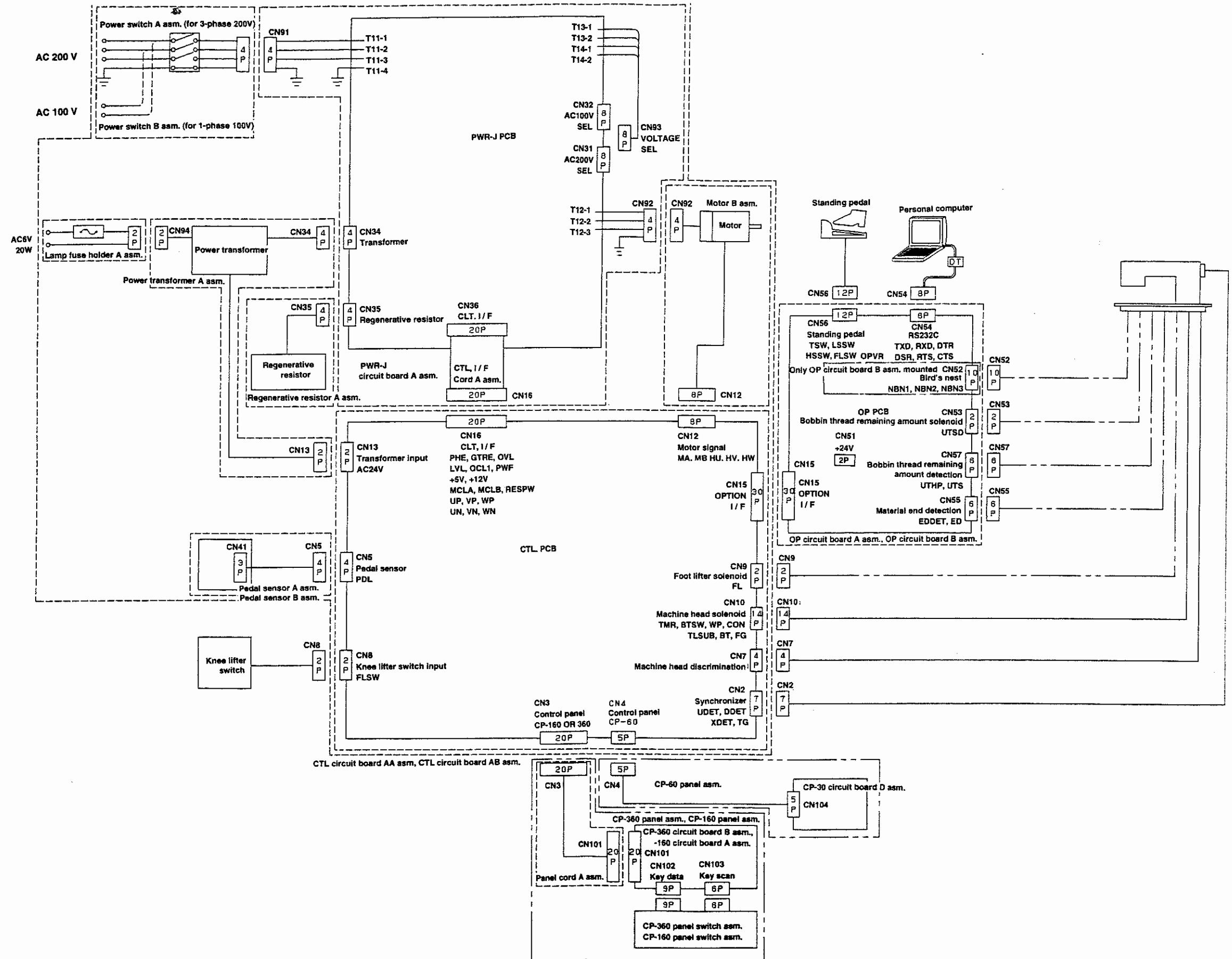
Wiring diagram



* Reference for use is approximately one piece of solenoid valve.
(Up to 100mA)

○ Insert to the yellow connector (10. CN51 ⑫ of connector connection diagram) of DC24V in the PSC box and use it.

12. BLOCK DIAGRAM





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