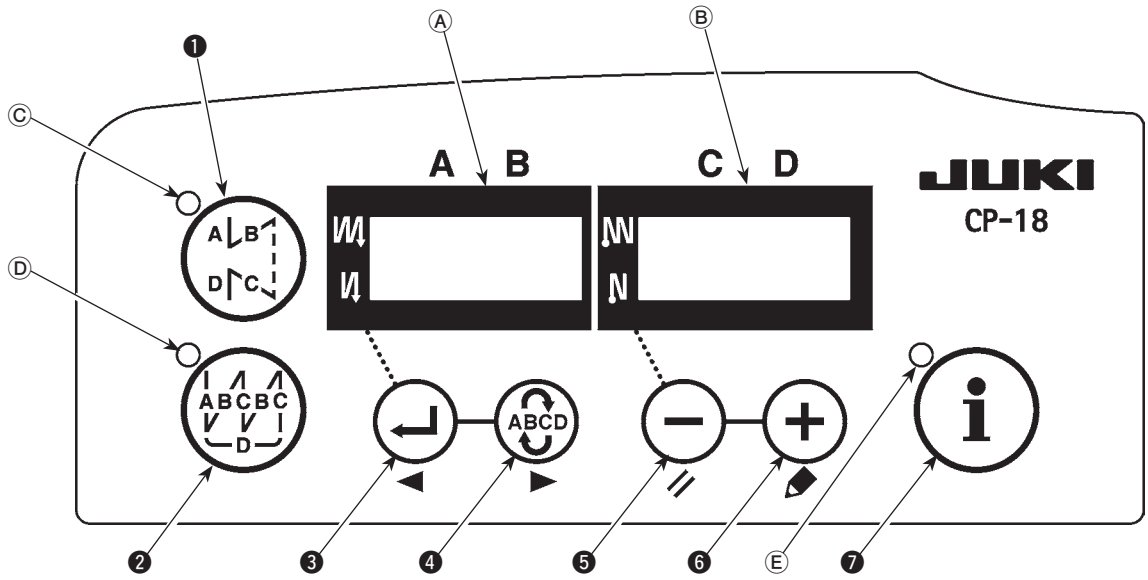
(3) Explanation of the operation panel (CP-18)



❶ switch : Used for changing over effective/ineffective of the reverse feed stitching pattern.

❷ switch : Used for changing over effective/ineffective of the overlapped stitching pattern.

❸ switch : Used for confirming the contents of setting and for changing over effective/ineffective of the reverse feed stitching at sewing start.

❹ switch : Used for selecting the process (A, B, C, D) the number of stitches for which is to be changed.
* The selected process flashes on and off.

❺ switch : Used for changing the content of the selected display (flashing section) and for changing over effective/ineffective of the reverse stitch at sewing end.

❻ switch : Used for changing the content of the selected display (flashing section).

❼ switch : Used for calling the production support function (by keeping the switch held pressed for two seconds).

Indicators Ⓐ and Ⓑ : Various pieces of information are displayed.

LED Ⓒ : Lights up when the reverse feed stitching pattern is effective.

LED Ⓓ : Lights up when the overlapped stitching pattern is effective.

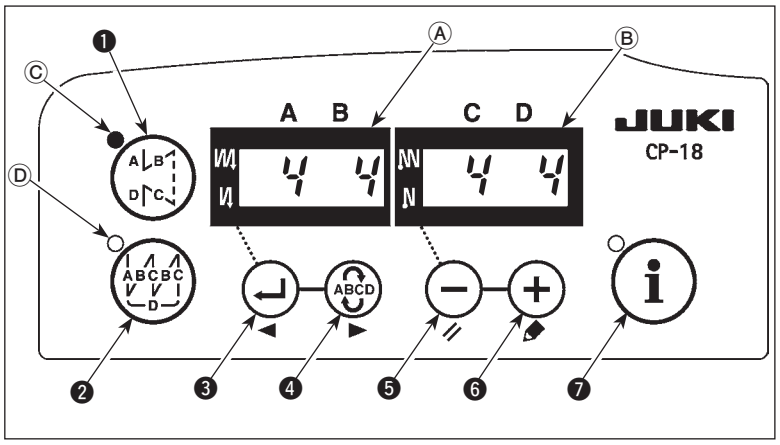
LED Ⓔ : Lights up when the production support function is displayed.

(4) Operating procedure of the sewing pattern

(Caution) For the operation panel other than CP-18, refer to the Instruction Manual for the operation panel to be used.

1) Reverse feed stitching pattern

Reverse feed stitching at sewing start and reverse feed stitching at sewing end can be separately programmed.



[Setting procedure of the reverse feed stitching]

1. Effective/ineffective of the reverse feed stitching pattern can be changed over by pressing switch ❶.
   When the reverse feed stitching pattern is rendered effective, LED Ⓒ lights up, the number of stitches of the reverse feed stitching at sewing start is displayed on Ⓐ, and the number of stitches of the reverse feed stitching at sewing end is displayed on indicator Ⓑ.

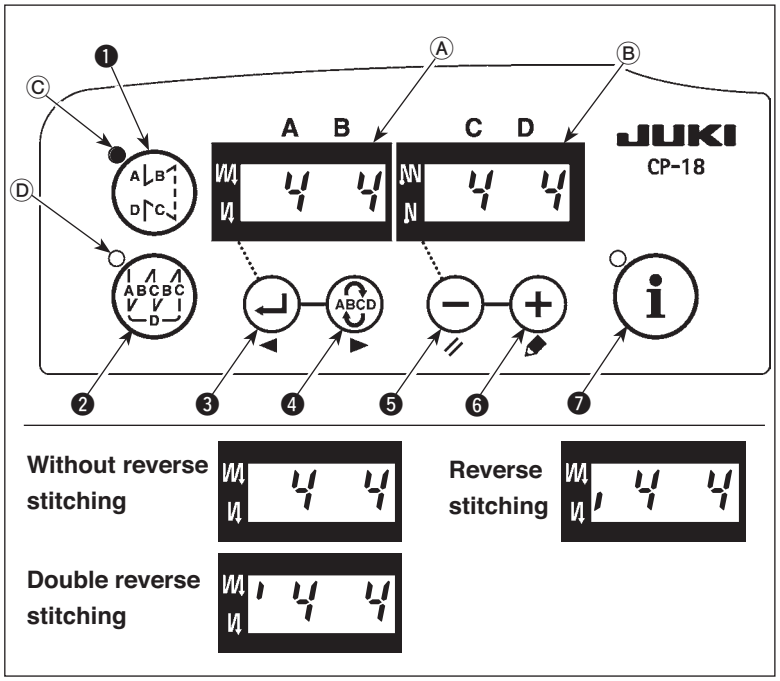
Select a process (A, B, C or D) the number of stitches for which is to be changed by using ABCD switch ❹.

The number which is flashing on and off represents the process which is being set.

Change the number of stitches for the selected process by using − switch ❺ and + switch ❻.

Press ↵ switch ❸ to confirm the change you have made. (The number of stitches that can be set is 0 to 15.)

(Caution) The sewing machine cannot perform sewing when the display of the number of stitches for a process is flashing on and off.

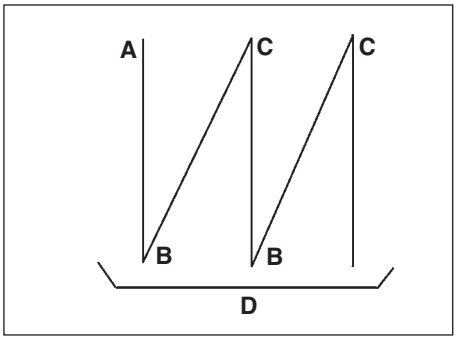


2. When the number of reverse feed stitches display is not flashing on and off, every press on ↵ switch ❸ changes over the reverse feed stitching mode from the "reverse feed stitching at sewing start," "double reverse feed stitching at sewing start" and "no reverse feed stitching at sewing start."
   In addition, every time − switch ❺ is pressed, the reverse feed stitching feature changes over from the reverse feed stitching at sewing end to the double reverse stitch at sewing end, then to no reverse feed stitching at sewing end, in turn.

(Caution) For some types of the machine head, reverse feed stitching patterns are not available.

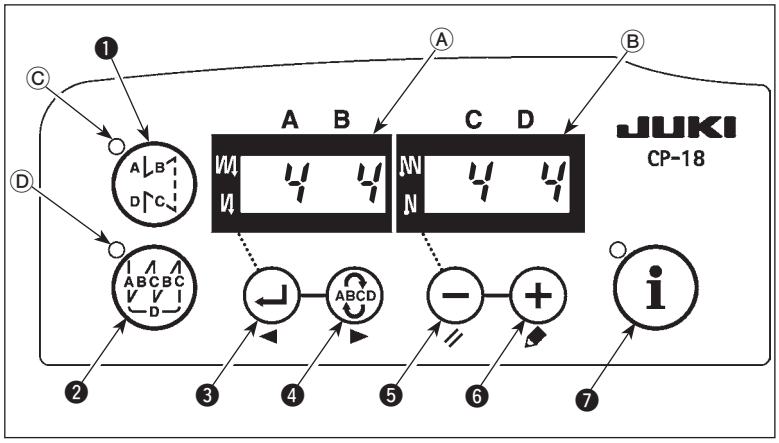
2) Overlapped stitching pattern

Overlapped stitching pattern can be programmed.



A : Number of stitches of normal stitching setting
0 to 15 stitches
B : Number of stitches of reverse stitching setting
0 to 15 stitches
C : Number of stitches of normal stitching setting
0 to 15 stitches
D : Number of times of repetition
0 to 9 times

(Caution) When process D is set to 5 times, the sewing is repeated as A → B → C → B → C.



[Setting procedure of the overlapped stitching]

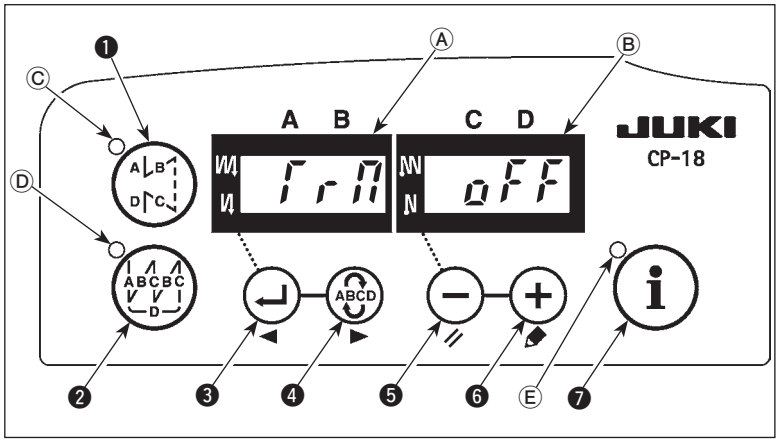
1. Effective/ineffective of the overlapped stitching pattern can be changed over by pressing switch ❷.
   When the overlapped stitching pattern is rendered effective, LED Ⓓ lights up.
2. Select a process (A, B, C or D) the number of stitches for which is to be changed by using switch ❹.
   The number which is flashing on and off represents the process which is being set.
3. Change the number of stitches for the selected process by using switch ❺ and switch ❻.
4. Press switch ❸ to confirm the change you have made.
   (The sewing machine does not run unless the setting has been confirmed by pressing switch ❸.)

(Caution) The overlapped stitching pattern is carried out under automatic operation mode. Once the pedal is depressed, the sewing machine will automatically perform sewing of the number of overlapped stitches.

(5) One-touch setting

A part of function setting items can be easily changed in the normal sewing state.

(Caution) For the setting of functions other than those covered in this part, refer to "5.-(6) Setting of functions of SC-920".



[One-touch setting procedure]

1. Keep (i) switch ❼ held pressed for one second to place the panel in the function setting mode.
2. Change over the item to be set by using (↵) switch ❸ or (ABCD) switch ❹. Then, the set value can be changed by using (−) switch ❺ and (+) switch ❻.
3. To return to the normal sewing state, press (i) switch ❼.

(Caution) The setting is confirmed by pressing (i) switch ❼.

① Thread trimming function (trM)

oFF : Thread trimming operation is not performed (solenoid output prohibition: Thread trimmer, wiper)

on : Thread trimming operation is effective.

② Wiper function (WiP)

oFF : Wiper does not operate after thread trimming on : Wiper operates after thread trimming

③ One-shot automatic stitching function (SHoT)

oFF : One-shot automatic stitching function is ineffective. on : One-shot automatic stitching is effective.

(Caution) This function is rendered effective when the material end sensor function is set. It is not possible to prohibit the one-shot operation during overlapped sewing operation. The number of revolution is the value which is set for setting No. 38.

④ Setting of the max. speed of stitch (SPd)

The highest speed of stitch of the machine head is set. The upper limit of the set value differs with the type of machine head to which the SC is connected.

Setting range : 150 - Max. value [sti/min]

⑤ Material end sensor function (Ed)

oFF : Material end sensor function is ineffective.

on : Once the material end is detected, the sewing machine stops running after having sewn the number of stitches set with ⑦ (EdSt).

* This function is rendered effective when the optional material end sensor is connected to the sewing machine.

⑥ Thread trimming function by material end sensor (EdTr)

This function is rendered effective when the optional material end sensor is connected to sewing machine.

oFF : Automatic thread trimming function after the detection of material end is ineffective.

on : Once the material end is detected, the sewing machine performs thread trimming after having sewn the number of stitches set with ⑦ (EdSt).

* This function is rendered effective when the optional material end sensor is connected to sewing machine.

⑦ Number of stitches for material end sensor (EdSt)

The number of stitches to be sewn from the detection of material end to the stop of the sewing machine

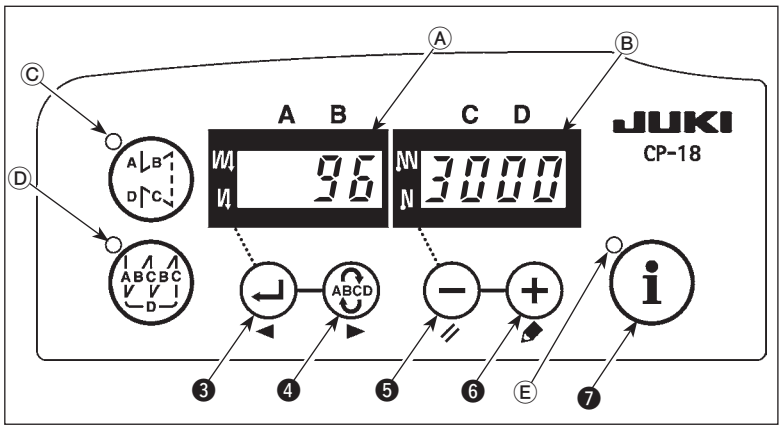
Number of stitches that can be set: 0 to 19 (stitches)

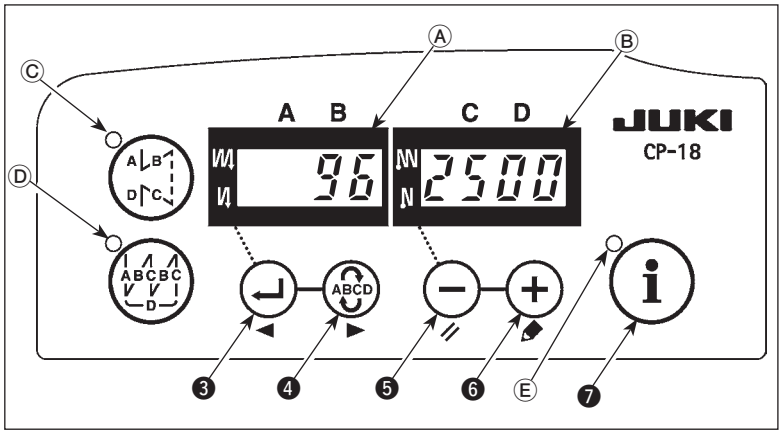
(Caution) If the number of stitches specified is inadequate, the sewing machine can fail to stop within the preset number of stitches depending on the number of revolutions of the sewing machine.

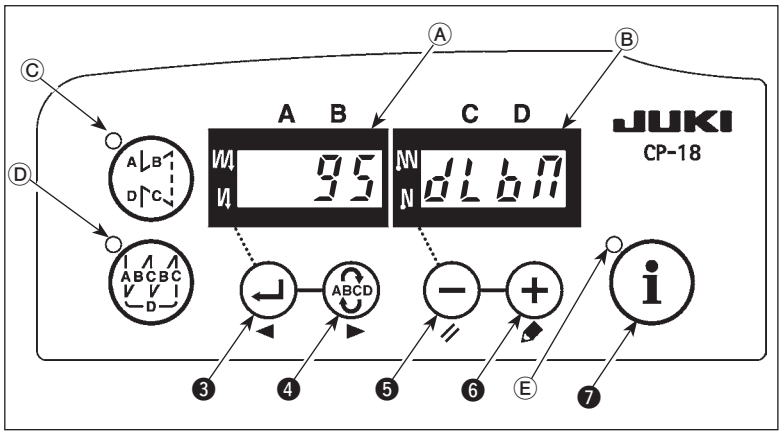
(6) Setting of functions

Functions can be selected and specified.

(Caution) For the function setting procedure of any operation panel other than CP-18, refer to the Instruction Manual for the operation panel to be used.







1. Turn ON the power with switch ❼ held pressed.
   (The item which has been changed during the previous work is displayed.)

* If the screen display does not change, re-carry out operation described in step 1).

(Caution) Be sure to re-turn ON the power switch when one or more seconds have passed after turning it OFF. If the power switch is re-turned ON immediately after turning it OFF, the sewing machine may fail to operate normally. In such a case, be sure to turn ON the power switch again properly.

2. To move the setting No. forward, press switch ❹. To move the setting No. backward, press switch ❸.

(Caution) If the setting No. is moved forward (or backward), the previous (or subsequent) content of the setting is confirmed. Be careful when the content of a setting is changed (when the ⊖ / ⊕ switch is touched).

Example) Changing the maximum number of revolutions (setting No. 96)

Press switch ❸ or switch ❹ to call setting No. "96."

The current set value is displayed on indicator Ⓑ.

Press ⊖ switch ❺ 10 times to change the set value to "2500."

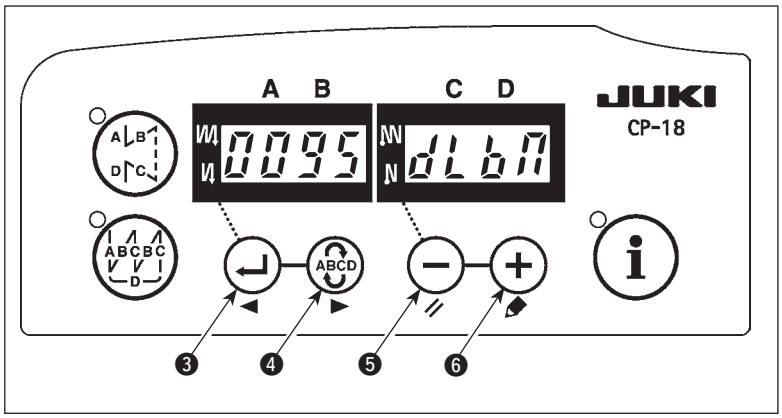
* The content of setting of the setting No. returns to the initial value by pressing ⊖ switch ❺ and ⊕ switch ❻ simultaneously.

3. After completion of the changing procedure, press switch ❸ or switch ❹ to confirm the updated value.

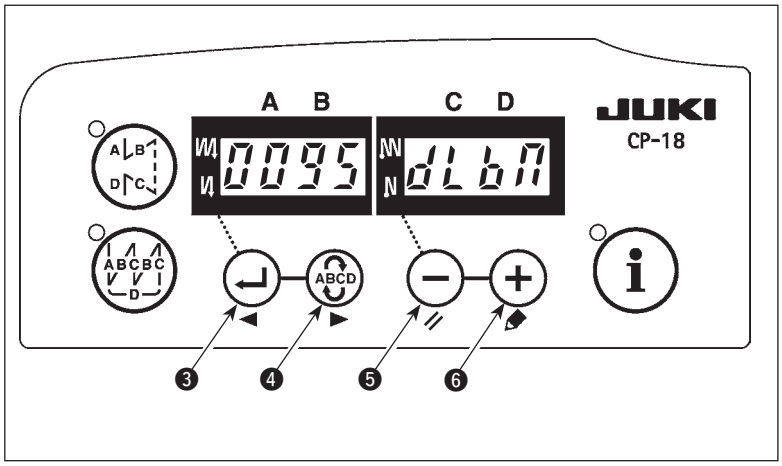
(Caution) If the power is turned OFF before carrying out this procedure, the changed content is not updated. When switch ❸ is pressed, the display on the panel changes to the previous setting No. When switch ❹ is pressed, the display on the panel changes to the subsequent setting No. After completion of the operation, the machine is returned to the normal sewing state by turning OFF the power and re-turning it ON.

(7) Setting procedure of the machine head

(Caution) For the operation panel other than CP-18, refer to the Instruction Manual for the operation panel to be used for the setting procedure of the machine head.

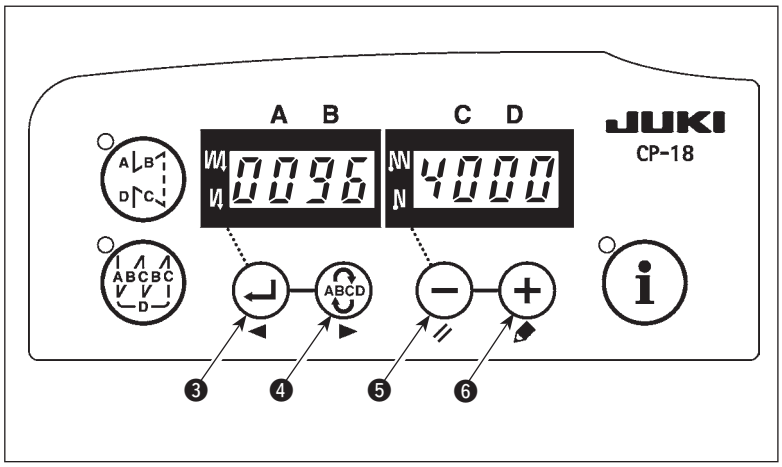


1. Refer to **"Ⅳ-(6) Setting for functions of SC-920 Instruction Manual"**, and call the function setting No. 95.



2. The type of machine head can be selected by pressing ⊖ switch ❺ (⊕ switch ❻).

* Refer to "CAUTIONS WHEN SETTING UP THE SEWING MACHINE" or "Machine head list" on the separate sheet for the types of machine heads.



3. After selecting the type of machine head, by pressing ↵ switch ❸ (ABCD switch ❹), the step proceeds to 96 or 94, and the display automatically changes to the contents of the setting corresponding with the type of machine head.

(8) Machine head list

	No.	Machine head	Type	Contents of display	Number of revolutions at the time of delivery (sti/min)	Max. number of revolutions (sti/min)
	1	DDL-9000B MA/MS/SS	dLbM		4000	5000
	2	DDL-9000B DS	dLbd		4000	4000
	3	DDL-9000B SH	dLbH		4000	4500
	4	DDL-9000A MA/MS/SS	dLAM		4000	5000
	5	DDL-9000A DS	dLAd		4000	4000
	6	DDL-9000A SH	dLAH		4000	4500
	7	LH-3528/68A	H35d		3000	3000
	8	DLN-9010	Ln9S		4000	5000
*	9	DDL-8700	dL87		4000	5000
	10	DDL-5600J	dL6J		4000	4000
	11	DDL-5600L,U,R	dL6L		3000	3000
	12	DDL-5550	dL50		4000	5000
	13	DLU-5490	LU90		4000	4500
	14	DLD-5430	Ld54		4000	4500
	15	DLN-5410	Ln54		4000	5000
	16	DLM-5400	LM54		4000	4500
	17	LZ-2280	Z280		4000	5000

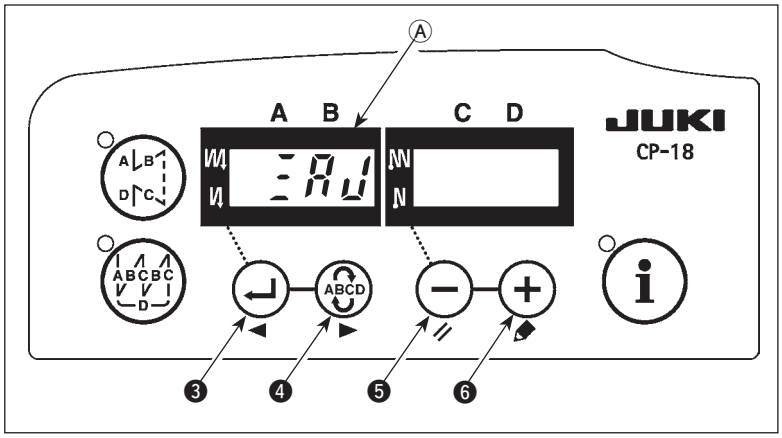
*Machine head set at the time of delivery

(Caution) 1. When the dry-type machine head is connected, any model other than dry-type one cannot be set.

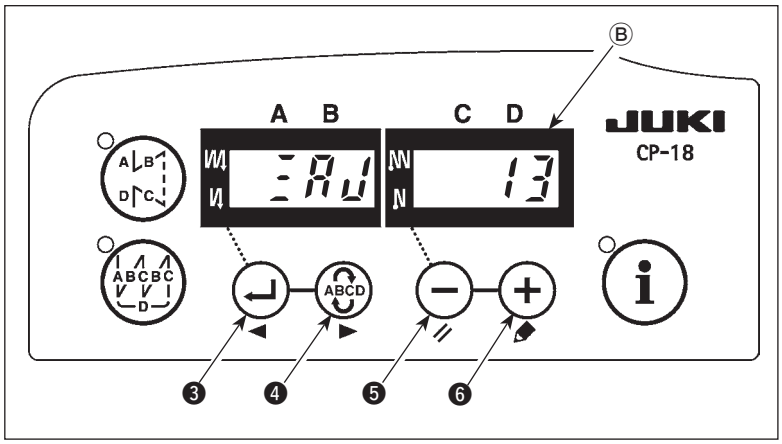
2. Refer to the machine head list (40088647) for the details of each machine head.

(9) Adjusting the machine head (direct-drive motor type sewing machine only)

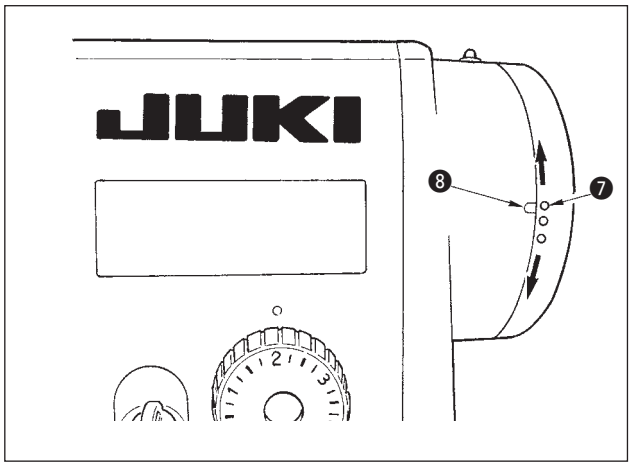
(Caution) When the slip between the white marker dot on the handwheel and the concave of the cover is excessive after thread trimming, adjust the angle of the machine head by the operation below.



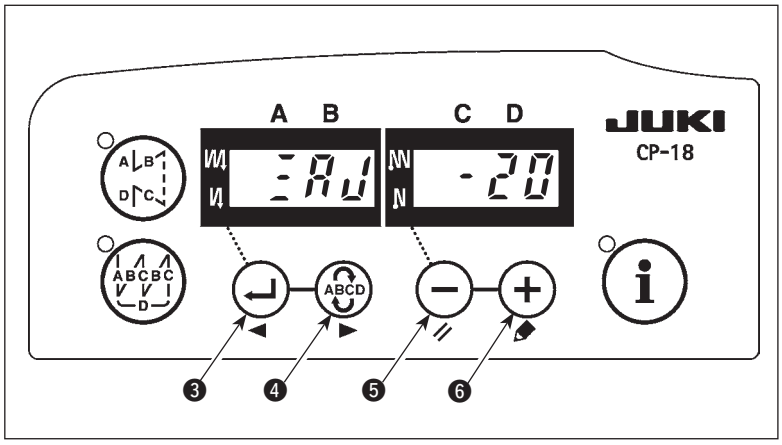
1. Simultaneously pressing (ABCD) switch ❹ and (−) switch ❺, turn ON the power switch.
2. "-AU" is displayed (Ⓐ) in the indicator and the mode is changed over to the adjustment mode.



3. Turn the pulley of the machine head by hand until the main-shaft reference signal is detected. At this time, the degree of an angle from the main-shaft reference signal is displayed on the indicator Ⓑ.
(The value is the reference value.)



4. In this state, align the white dot ❼ of the handwheel with the concave ❽ of the pulley cover as shown in the figure.



5. Press (+) switch ❻ to finish the adjustment work. (The value is the reference value.)

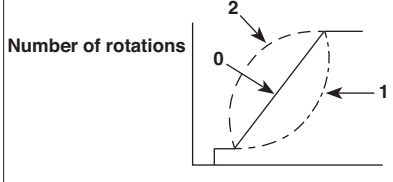
(10) Function setting list

	No	Item	Description	Setting range	Indication of function setting	Ref. page
	1	Soft start function	The number of stitches to be sewn at a low speed when the soft-start function is used at the start of sewing. 0 : The function is not selected. 1 to 9 : The number of stitches to be sewn under the soft-start mode.	0 to 9 (Stitches)	1 0	44
	2	Material end sensor function	Material end sensor function (to be used only with CP-18). 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	2 0	44
	3	Thread trimming function by material end sensor	Thread trimming function by material end sensor (to be used only with CP-18). 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	3 0	44
	4	Number of stitches for material end sensor	Number of stitches for material end sensor (to be used only with CP-18). Number of stitches from detection of material end to stop of the sewing machine.	0 to 19 (Stitches)	4 5	44
	5	Flicker reducing function	Flicker reducing function 0 : Flicker reducing function is not operative. 1 : Flicker reducing function is effective	0/1	5 0	44
	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	6 1	44,48
*	7	Unit of bobbin thread counting down	Unit of bobbin thread counting down 0 : 1 Count/10 stitches 1 : 1 Count/15 stitches 2 : 1 Count/20 stitches 3 : 1 Count/thread trimming	0 to 3	7 0	
*	8	Number of rotation of reverse feed stitching	Sewing speed of reverse feed stitching	150 to 3,000 (sti/min)	8 1 9 0 0	
	9	Thread trimming prohibiting function	Thread trimming prohibiting function (to be used only with CP-18). 0 : Thread trimming prohibiting function is not operative. 1 : Thread trimming is prohibited. (Output of solenoid is prohibited. : Thread trimmer and wiper)	0/1	9 0	44
	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 0 0	44
	11	Operation confirmation sound for operation panel	Operation confirmation sound for operation panel 0 : Operation confirmation sound is not generated 1 : Operation confirmation sound is generated.	0/1	1 1 1	44
	12	Optinal switch function selection	Switching of function of optional switch. Refer to **"5.-(11) Detailed explanation of selection of functions"**		1 2 o P T _	45
*	13	Function of prohibiting start of the sewing machine by bobbin thread counter	Function of prohibiting start of the sewing machine by bobbin thread counting 0 : When counting is out (-1 or less) Function of prohibiting start of the sewing machine is not operative. 1 : When counting is out (-1 or less) Function of prohibiting start of the sewing machine after thread trimming is operative. 2 : When counting is out (-1 or less), the sewing machine stops once. Function of prohibiting start of the sewing machine after thread trimming is operative.	0 to 2	1 3 0	
	14	Sewing counter	Counting function of sewing (number of completion of process) 0 : Sewing counter function is not operative. 1 : Sewing counter function is operative. (Every time thread trimming is performed) 2 : With the sewing counting switch input function	0 to 2	1 4 1	48
	15	Thread wiping function after thread trimming	Thread wiping operation after thread trimming is specified. 0 : Thread wiping is not carried out after thread trimming 1 : Thread wiping is carried out after thread trimming	0/1	1 5 1	
	21	Function of neutral presser lifting	Function of lifting presser foot when the pedal is in neutral position. 0 : Function of neutral automatic presser lifting is not operative. 1 : Selection of function of neutral presser lifting.	0/1	2 1 0	48

*** Do not change the set values with asterisk (*) mark as they are functions for maintenance. If the standard set value set at the time of delivery is changed, it is in danger of causing the machine to be broken or the performance to be deteriorated.**

	No	Item	Description	Setting range	Indication of function setting	Ref. page
	22	Needle up/down correction switch changeover function	Function of the needle up/down correction switch is changed over. 0 : Needle up/down compensation 1 : One stitch compensation	0/1	22 0	48
	25	Thread trimming operation after turning the handwheel by han	Thread trimming operation after moving the needle away from its upper or lower position by turning the handwheel by hand is specified. 0 : Thread trimming operation is carried out after turning the handwheel by hand 1 : Thread trimming operation is not carried out after turning the handwheel by hand	0/1	25 1	
	29	Initial motion time of back-tack	This function sets the suction time of initial motion of back-tack solenoid. 50 ms to 500 ms	50 to 500 (ms)	29 70	48
	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. 1 : Function of reverse feed stitching on the way is operative.	0/1	30 0	49
	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)	31 4	49
	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	32 0	49
	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	33 0	49
*	35	Number of rotation at a low speed	Lowest speed by pedal (The MAX value differs by machine head.)	150 to MAX (sti/min)	35 200	
*	36	Number of rotation of thread trimming	Thread trimming speed (The MAX value differs by machine head.)	100 to MAX (sti/min)	36 420	
	37	Number of rotation of soft-start	Sewing speed at the start of sewing (soft-start) (The MAX value differs by machine head.)	100 to MAX (sti/min)	37 800	44
	38	One-shot speed	One-shot speed (The max. value depends on the number of rotation of the sewing machine head.)	150 to MAX (sti/min)	38 2500	49
*	39	Pedal stroke at the start of rotation	Position where the sewing machine starts rotating from pedal neutral position (Pedal stroke)	10 to 50 (0.1 mm)	39 30	
*	40	Low speed section of pedal	Position where the sewing machine starts accelerating from pedal neutral position (Pedal stroke)	10 to 100 (0.1 mm)	40 60	
*	41	Starting position of lifting presser foot by pedal	Position where the cloth presser starts lifting from pedal neutral position (Pedal stroke)	– 60 to –10 (0.1mm)	41 –21	
*	42	Starting position of lowering presser foot	Starting position of lowering presser foot Stroke from the neutral position	8 to 50 (0.1 mm)	42 10	
*	43	Pedal stroke 2 for starting thread trimming	Position 2 where the thread trimming starts from pedal neutral position (When the function of lifting presser foot by pedal is provided.) (Pedal stroke)	– 60 to –10 (0.1 mm)	43 –51	
*	44	Pedal stroke for reaching the maximum number of rotation	Position where the sewing machine reaches its highest sewing speed from pedal neutral position (Pedal stroke)	10 to 150 (0.1 mm)	44 150	
*	45	Compensation of neutral point of the pedal	Compensation value of the pedal sensor	–15 to 15	45 0	
	47	Auto-lifter selecting function	Limitation time of waiting for lifting solenoid type auto-lifter device	10 to 600 (second)	47 60	50
*	48	Pedal stroke 1 for starting thread trimming	Position where thread trimming starts from pedal neutral position (Standard pedal) (Pedal stroke)	– 60 to – 10 (0.1 mm)	48 –35	
	49	Lowering time of presser foot	Lowering time of presser foot after the pedal has been depressed. (Start of rotation of the sewing machine is delayed during this time.)	0 to 250 (10 ms)	49 140	52
	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°)	51 –8	50

*** Do not change the set values with asterisk (*) mark as they are functions for maintenance. If the standard set value set at the time of delivery is changed, it is in danger of causing the machine to be broken or the performance to be deteriorated.**

No	Item	Description	Setting range	Indication of function setting	Ref. page
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 (10°)	52 10	50
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°)	53 15	50
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 1 : Provided with the function of lifting presser foot automatically after thread trimming	0/1	55 1	51
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 1 : Provided with the function of reverse revolution to lift the needle after thread trimming	0/1	56 0	51
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 1 : Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is weak.) 2 : Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is medium.) 3 : Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is strong.)	0 to 3	58 0	51
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	59 1	51
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 1 : 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	60 0	51
64	Change-over speed of condensation stitch or EBT (end back tack)	Initial speed when starting condensation stitch or EBT	0 to 250 (sti/min)	64 180	
70	Function of soft-down of presser foot	Presser foot is slowly lowered. 0 : Presser foot is rapidly lowered. 1 : Presser foot is slowly lowered.	0/1	70 0	52
71	Double reverse feed stitching function	Effective/ineffective of double reverse feed stitching is changed over. (to be used only with CP-18) 0 : Ineffective 1 : Effective	0/1	71 1	
72	Sewing machine startup selecting function	Current limit at the startup of sewing machine is specified. 0 : Normal (Current limit is applied during startup) 1 : Rapid (Current limit is not applied during startup)	0/1	72 0	
73	Retry function	This function is used when needle cannot pierce materials . 0 : Normal 1 : Retry function is provided.	0/1	73 1	52
76	One-shot function	One-shot operation up to the material end is specified. (to be used only with CP-18) 0 : One-shot operation is not performed. 1 : One-shot operation is performed.	0/1	76 0	44
* 84	Initial motion suction time of presser foot lifting solenoid	Suction motion time of presser foot lifting solenoid	50 to 500 (ms)	84 140	52
87	Function of pedal curve selection	Pedal curve is selected. (Improving pedal inching operation) 	0/1/2	87 0	52
90	Initial motion up stop function	Automatic UP stop function is set immediately after turning ON the power. 0 : off 1 : on	0/1	90 1	53

*** Do not change the set values with asterisk (*) mark as they are functions for maintenance. If the standard set value set at the time of delivery is changed, it is in danger of causing the machine to be broken or the performance to be deteriorated.**

No	Item	Description	Setting range	Indication of function setting	Ref. page
91	Function of prohibiting compensation operation after turning handwheel by hand	It is effective in combination with the machine head provided with tension release function. 0 : Tension release function is ineffective. 1 : Tension release function is effective.	0/1	91 ... 1	
92	Function of reducing speed of reverse feed stitching at the start of sewing	Function to reduce speed at the time of completion of reverse feed stitching at the start of sewing. 0 : Speed is not reduced. 1 : Speed is reduced.	0/1	92 ... 0	53
93	Function added to needle up/down compensating switch	Operation of needle up/down compensating switch is changed after turning ON the power or thread trimming. 0 : Normal (needle up/down compensating stitching only) 1 : One stitch compensating stitching is performed only when aforementioned changeover is made. (Upper stop → upper stop)	0/1	93 ... 0	53
94	Continuous + One-shot nonstop function	The function that does not stop the sewing machine by combining continuous stitching with one-shot stitching using the program sewing function which is available in the IP operation panel. 0 : Normal (The sewing machine stops when a step is completed.) 1 : The sewing machine does not stop when a step is completed and proceeds to next step.	0/1	94 ... 0	53
95	Head selection function	Machine head to be used is selected. (When the machine head is changed, each setting item is changed to the initial value of the machine head.)		95 ... dLbM	
96	Max. number of rotation setting	Max. number of rotation of the sewing machine head can be set. (The MAX value differs by machine head.)	150 to MAX (sti/min)	96 ... 4000	53
103	Needle cooler output OFF delay time	Delay time from the stop of sewing machine to the output OFF is specified using the needle cooler output function.	100 to 2000 ms	103 ... 500	
120	Main shaft reference angle compensation	Main shaft reference angle is compensated.	–50 to 50	120 ... –23	53
121	Up position starting angle compensation	Angle to detect UP position starting is compensated.	–15 to 15	121 ... 5	53
122	DOWN position starting angle compensation	Angle to detect DOWN position starting is compensated.	–15 to 15	122 ... 0	53
124	Setting of energy-saving function during standby	Setting to reduce the power consumption while the sewing machine is in standby state 0: Energy-saving mode is ineffective 1: Energy-saving mode is effective	0/1	124 ... 0	53

*** Do not change the set values with asterisk (*) mark as they are functions for maintenance. If the standard set value at the time of delivery is changed, it is in danger of causing the machine to be broken or the performance to be deteriorated.**

(11) Detailed explanation of selection of functions

① Selection of the soft-start function (Function setting No. 1)

The needle thread may fail to interlace with the bobbin thread at the start of sewing when the stitching pitch (stitch length) is small or a thick needle is used. To solve such problem, this function (called “soft-start”) is used to limit the sewing speed, thereby assuring successful formation of the starting stitches.

□□□1□□□0

0 : The function is not selected.
1 to 9 : The number of stitches to be sewn under the soft-start mode.

The sewing speed limited by the soft-start function can be changed. (Function setting No. 37)

□□37□800

Data setting range
100 to MAX sti/min <10 sti/min> (The MAX value differs by machine head.)

② Material end sensor (ED : optional) function (Function setting No. 2 to 4, 76)

This function is possible when the material end sensor (ED) is attached.
As for the details, refer to the instruction manual for the material end sensor.

(Caution) This function is rendered effective only with the CP-18.

③ Flicker reducing function (Function setting No. 5)

The function reduces flickering of the hand lamp at the start of sewing.

□□□5□□□0

0 : Flicker reducing function is ineffective
1 : Flicker reducing function is effective

(Caution) When the flicker reducing function is set at the "Flicker reducing function is effective," the startup speed of the sewing machine decreases.

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

When the control panel is used, the function subtracts from the predetermined value and indicates the used amount of bobbin thread.
For the details, refer to the instruction manual for the control panel.

□□□6□□□1

0 : Bobbin thread counting function is not operative.
1 : Bobbin thread counting function is operative.

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

⑤ Thread trimming prohibiting function (Function setting No. 9)

This function turns OFF thread trimming solenoid output and wiper solenoid output when thread trimming is actuated.

(Caution) This function is rendered effective only with the CP-18.

By this function, separate sewing material can be spliced and sewn without trimming thread.

□□□9□□□0

0 : off Thread trimming is operative. (thread can be trimmed).
1 : on Thread trimming is inoperative. (thread can not be trimmed).

⑥ 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.

□□10□□□0

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

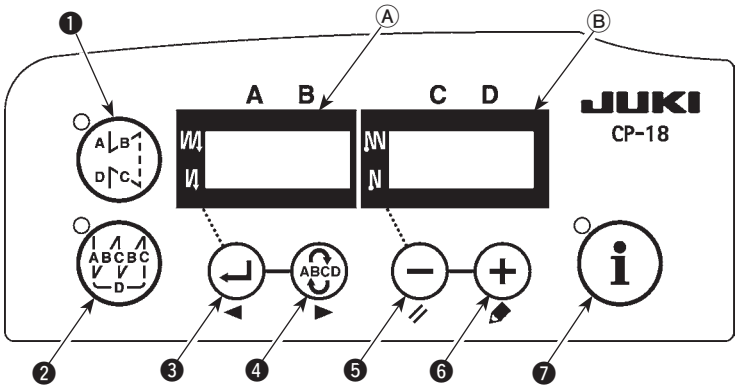
⑦ Panel operating sound (Function setting No. 11)

Whether the panel operation generates sound or not can be selected.

□□11□□□1

0 : off Operation confirmation sound is not generated
1 : on Operation confirmation sound is generated.

⑧ Selection of the optional input/output function (Function setting No. 12)



□□12oPT_ Select function setting No. 12 with the operating procedure of function setting procedures 1) through 3).

□900_End Select the items of "End", "in" and "ouT" with keys ❺ and ❻.

□in__
□ouT_

[When "in" is selected]
The port number is displayed on indicator Ⓐ. Specify the input port with key ❸ or ❹. Or, specify the function of input port using key ❺ or ❻.

□901□***
↕ * Name of option is displayed.
□912

Function code and abbreviation are displayed alternately on indicator Ⓑ.
(For the relation between signal input No. and connector pin array, refer to the separate list.)

[When "ouT" is selected]
The port number is displayed on indicator Ⓐ. Specify the output port with key ❸ or ❹. Or, specify the function of output port using key ❺ or ❻.

□951□***
↕ * Name of option is displayed.
□953

Function code and abbreviation are displayed alternately on indicator Ⓑ.
(Refer to the separate table for the relation between the signal output numbers and the connector pin configuration.)

*** Example) Setting the thread trimming function to the optional input port 1**

□□12oPT_ 1. Select function setting No. 12 with the operating procedure of function setting procedures 1) through 3).

□900in__ 2. Select the item of "in" with keys ❺ and ❻.

□901□noP 3. Select the port of 901 with key ❹.

□901□TSW 4. Select the thread trimming function, "TSW" with keys ❺ and ❻.
↕ Lighting alternately
L□□4 5. Determine the thread trimming function, "TSW" with key ❹.

□901L□□4 6. Set ACTIVE of the signal with keys ❺ and ❻.
↕
H□□4
Set the display to "L" when the signal is "Low" and performing thread trimming, and set the display to "H" when the signal is "High" and performing thread trimming.

□902□noP 7. Determine the aforementioned function with key ❹.
⋮
□900□□in 8. Finish the optional input with key ❹.

□End 9. Select the item of "End" with keys ❺ and ❻ to return to the function setting mode.

Input function list

Function code	Abbreviation	Function item	Remarks
0	noP	No function	(Standard setting)
1	HS	Needle up / down compensating stitching	Every time the switch is pressed, normal feed stitching by half stitch is performed. (Same operation as that of up / down compensating stitching switch on the panel.)
2	bHS	Back compensating stitching	Reverse feed stitching is performed at low speed while the switch is held pressing. (It is effective only when a constant-dimension sewing is selected.)
3	EbT	Function of canceling once reverse feed stitching at the end of sewing	By depressing the back part of the pedal after pressing the switch, operation of reverse feed stitching is canceled once.
4	TSW	Thread trimming function	This function is actuated as the thread trimming switch.
5	FL	Presser foot lifting function	This function is actuated as the foot lifter switch.
6	oHS	One stitch compensating stitching	Every time the switch is pressed, one stitch stitching operation is executed.
7	SEbT	Function of cancel of reverse feed stitching at start/end	By operating the optional switch, ineffective/effective can be alternately changed over.
8	PnFL	Presser lifting function when pedal is neutral	Every time the switch is pressed, the function whether automatically lifting the presser foot when the pedal is neutral or not can be selected.
9	Ed	Material edge sensor input	This function works as the input signal of material edge sensor.
10	LinH	Function of prohibiting depressing front part of pedal	Rotation by pedal is prohibited.
11	TinH	Function of prohibiting thread trimming output	Output of thread trimming is prohibited.
12	LSSW	Low speed command input	This function works as low speed switch for standing sewing machine.
13	HSSW	High speed command input	This function works as high speed switch for standing sewing machine.
14	USW	Needle lifting function	UP stop motion is performed when switch is pressed during DOWN stop.
15	bT	Reverse feed stitching switch input	Reverse feed stitching is output as long as the switch is held pressed.
16	SoFT	Soft start switch input	The speed of stitch is limited to the predetermined soft-start speed as long as the switch is held pressed.
17	oSSW	One-shot speed command switch input	This function works as one-shot speed command as long as the switch is pressed.
18	bKoS	Backward one-shot speed command switch input	Reverse feed stitching is performed in accordance with the one-shot speed command as long as the switch is held pressed.
19	SFSW	Safety switch input	Rotation is prohibited.
20	MES	Thread trimming safety switch input	It operates as an input signal of the thread trimmer safety switch.
21	AUbT	Automatic reverse feed stitching cancellation/addition switch	Every time the switch is pressed, reverse feed stitching at sewing start or reverse feed stitching at sewing end is cancelled or added.
22	CUnT	Sewing counter input	Every time the switch is pressed, the sewing counter value is increased.

Output function list

Function code	Abbreviation	Function item	Remarks
0	noP	No function	(Standard setting)
1	TrM	Thread trimming output	Output of thread trimming signal
2	WiP	Thread wiper output	Output of thread wiper signal
3	TL	Thread release output	Output of thread release signal
4	FL	Presser lifter output	Output of presser lifting signal
5	bT	Reverse feed stitching output	Output of reverse feed stitching signal
6	EbT	EBT cancel monitor output	State of one time cancel of reverse feed stitching at end function is output.
7	SEbT	Reverse feed stitching at start/end cancel monitor output	State of cancel of reverse feed stitching at start/end is output.
8	AUbT	Sewing start/end cancellation/addition monitor output	State of cancel or addition of automatic reverse feed stitching is output.
9	SSTA	Sewing machine stop state output	Sewing machine stop state is output.
10	CooL	Needle cooler output	Output for needle cooler
11	bUZ	Buzzer output	It is output when the bobbin counter set value has been exceeded, an error has occurred or the bobbin thread remaining amount is detected.
12	LSWo	Revolution command output	Revolution demanding command state is output.

Input function setting connectors

Connector No.	Pin No.	Display No.	Initial value of function setting
CN48	1	901	noP (No function setting)
	2	902	SFSW (Safety switch input)
CN50	12	903	SoFT (Soft-start speed limit input)
CN36	5	904	bT (Reverse feed stitching switch input)
CN50	11	905	LinH (Input of prohibition of depress on front part of pedal)
CN39	7	906	TSW (Thread trimming switch input)
	11	907	LSSW (Low-speed revolution switch input)
	9	908	HSSW (High-speed revolution switch input)
	5	909	FL (Presser foot lifting switch input)
CN57	1	910	CUnT (Sewing counter input)
CN42	2	911	MES (Thread trimming safety switch input)
CN54	3	912	noP (No function setting)

Output function setting connector

Connector No.	Pin No.	Display No.	Initial value of function setting
CN50	7	951	bT (Reverse feed stitching output)
	8	952	TrM (Thread trimming output)
	9	953	LSWo (Revolution request input)

⑨ **Sewing counting function (Function setting No. 14)**

The function counts up every time thread trimming is completed and counts the number of completion of the sewing process.

		1	**4**				**1**

0 : off Sewing counting function is inoperative.
1 : on Sewing counting function is operative. (Every time thread trimming is performed)
2 : on External sewing counter switch input.

(Caution) The sewing counter can only be operative when the CP-180 is used with the sewing machine.

The counter indication changes as shown below according to the combination of setting No. 6 and setting No. 14.

Setting No. 6	Setting No. 14	Counter
1	1	Bobbin counter
1	0	Bobbin counter
0	1	Sewing counter (only with CP-180)
0	0	Counter function is ineffective.

⑩ **Neutral automatic presser lifting function (with AK device only) (Functionsetting No. 21)**

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

Automatic lifting time of the pedal depends on the automatic lifting time after thread trimming and when the presser foot is automatically lowered, it is automatically lifted at the second neutral position after it has come off the neutral position once.

		2	**1**				**0**

0 : off Function of neutral automatic presser lifting is not operative.
1 : on Selection of function of neutral automatic presser lifting

⑪ **Needle up/down switch function changeover function (Function setting No. 22)**

The needle up/down switch function can be changed over between the needle up/down compensation and one stitch compensation.

		2	**2**				**0**

0 : Needle up / down compensating stitching
1 : One stitch compensating stitching

⑫ **Setting of the suction time of the back-tack solenoid (Function setting No. 29)**

This function can change the suction time of the back-tack solenoid.

It is effective to decrease the value when the heat is high.

(Caution) When the value is excessively decreased, failure of motion or defective pitch will follow.
Be careful when changing the value.

		2	**9**			**7**	**0**

Setting range : 50 to 500 ms <10 / ms>

⑬ Function of reverse feed stitching on the way (Function setting Nos. 30 to 33)

Functions of the limit of number of stitches and thread trimming command can be added to the touch back switch on the sewing machine head.

Function setting No. 30

		3	0				0

Function of reverse feed stitching on the way is selected.
0 : off Normal back-tack function
1 : on Function of reverse feed stitching on the way

Function setting No. 31

		3	1				4

Number of stitches performing reverse feed stitching is set.
Setting range
0 to 19 stitches

Function setting No. 32

		3	2				0

Effective condition of reverse feed stitching on the way
0 : off Inoperative when the sewing machine stops. (Reverse feed stitching on the way functions only when the sewing machine is running.)
1 : on Operative when the sewing machine stops.
(Reverse feed stitching on the way functions both when the sewing machine is running and stops.)

(Caution) Either condition is operative when the sewing machine is running.

Function setting No. 33

		3	3				0

Thread trimming is performed when reverse feed stitching on the way is completed.
0 : off Without thread trimming
1 : on Thread trimming is executed.

Application	Function setting			Output function
	No.30	No.32	No.33	
❶	0	0 or 1	0 or 1	It works as normal touch-back switch.
❷	1	0	0	When operating touch-back switch at the time of depressing front part of the pedal, reverse feed stitching as many as the number of stitches specified by the function setting No. 31 can be performed.
❸	1	1	0	When operating touch-back switch at the time of either stop of the sewing machine or depressing front part of the pedal, reverse feed stitching as many as the number of stitches specified by the function setting No. 31 can be performed.
❹	1	0	1	When operating touch-back switch at the time of depressing front part of the pedal, automatic thread trimming is performed after reverse feed stitching as many as the number of stitches specified by the function setting No. 31 has been performed.
❺	1	1	1	When operating touch-back switch at the time of either stop of the sewing machine or depressing front part of the pedal, automatic thread trimming is performed after reverse feed stitching as many as the number of stitches specified by the function setting No. 31 has been performed.

Actions under each setting state

❶ Used as the normal reverse feed stitching touch-back switch.
❷ Used for reinforcing seam (press sewing) of the pleats. (It works only when the sewing machine is running.)
❸ Used for reinforcing seam (press sewing) of the pleats.
(It works either when the sewing machine stops or when the sewing machine is running.)
❹ Used as starting switch for reverse feed stitching at the sewing end.
(Used as the substitute for thread trimming by depressing back part of the pedal. It works only when the sewing machine is running. It is especially effective when the sewing machine is used as the standing-work machine.)
❺ Used as starting switch for reverse feed stitching at the sewing end.
(Used as the substitute for thread trimming by depressing back part of the pedal. It works either when the sewing machine stops or when the sewing machine is running. It is especially effective when the sewing machine is used as the standing-work machine.)

⑭ Number of rotation 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.

		3	8	2	5	0	0

Setting range
150 to MAX. sti/min. <50 / sti/min>

(Caution) The max. number of rotation of one-shot stitching is limited by the model of the sewing machine head.

⑮ Holding time of lifting presser foot (Function setting No. 47)

Solenoid type presser foot lifter can adjust the holding time control of lifting presser foot.
This function automatically lowers the presser foot when the time set with the setting No. 47 has passed after lifting the presser foot.
When the pneumatic type presser foot lifter is selected, the holding time control of lifting presser foot is limitless regardless of the set value.

□□47□□60 Setting range
10 to 600 sec <10 / sec>

⑯ Compensation of timing of the solenoid for reverse feed stitching (Function setting No. 51 to 53)

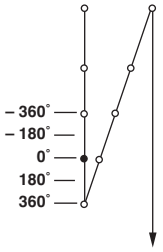
When the normal and reverse feed stitches are not uniform under the automatic reverse feed stitching action, this function can change the ON / OFF timing of the solenoid for back tack and compensate the timing.

❶ 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 the unit of angle.

□□51□□–8 Adjusting range
– 36 to 36 <1 / 10˚>

Set value	Compensation angle	Number of stitches of compensation
− 36	− 360 ˚	− 1
− 18	− 180 ˚	− 0.5
0	0 ˚	0
18	180 ˚	0.5
36	360 ˚	1



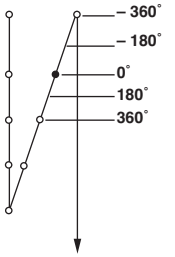
*** When the point before 1 stitch is regarded as 0˚, compensation is possible by 360˚ (1 stitch) in front and in the rear.**

❷ 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 the unit of angle.

□□52□□10 Adjusting range
– 36 to 36 <1 / 10˚>

Set value	Compensation angle	Number of stitches of compensation
− 36	− 360 ˚	− 1
− 18	− 180 ˚	− 0.5
0	0 ˚	0
18	180 ˚	0.5
36	360 ˚	1

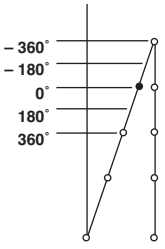


❸ Compensation of off-timing of solenoid for reverse feed stitching at the end of sewing (Function setting No. 53)

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

□□53□□15 Adjusting range
– 36 to 36 <1 / 10˚>

Set value	Compensation angle	Number of stitches of compensation
− 36	− 360 ˚	− 1
− 18	− 180 ˚	− 0.5
0	0 ˚	0
18	180 ˚	0.5
36	360 ˚	1



⑰ **Foot lift function after thread trimming (Function setting No. 55)**

This function can automatically lift the presser foot after thread trimming. This function is effective only when it is used in combination with the AK device.

□□**5**|**5**□□□|**1**

0 : off Function of automatically lifting the presser foot is not provided.
(Presser foot does not automatically go up after thread trimming.)

1 : on Function of automatically lifting the presser foot is provided.
(Presser foot automatically goes up after thread trimming.)

⑱ **Reverse revolution to lift the needle after thread trimming (Function setting No. 56)**

This function is used to make the sewing machine rotate in the reverse direction after thread trimming to lift the needle bar almost to highest position. Use this function when the needle appears under the presser foot and it is likely to make scratches on the sewing products of heavy-weight material or the like.

□□**5**|**6**□□□|**0**

0 : off Function of making the sewing machine rotate in the reverse direction to lift the needle after thread trimming is not provided.

1 : on Function of making the sewing machine rotate in the reverse direction to lift the needle after thread trimming is provided.

(Caution) The needle bar is raised, by rotating the machine in the reverse direction, almost to the highest dead point. This may result in slip-off of the needle thread. It is therefore necessary to adjust the length of thread remaining after thread trimming properly.

⑲ **Function of holding predetermined upper / lower position of the needle bar (Function setting No. 58)**

When the needle bar is in the upper position or in the lower position, this function holds the needle bar by applying a brake slightly.

□□**5**|**8**□□□|**0**

0 : off Not provided with the function of holding predetermined upper/lower position of the needle bar

1 : on Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is weak.)

2 : on Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is medium.)

3 : on Provided with the function of holding predetermined upper/lower position of the needle bar (holding force is strong.)

⑳ **Change-over function of AUTO / Pedal for sewing speed of the reverse feed stitching at the start of sewing (Function setting No. 59)**

This function selects whether the reverse feed stitching at the start of sewing is performed without a break at the speed set by the function setting No. 8 or the stitching is performed at the speed by the pedal operation.

□□**5**|**9**□□□|**1**

0 : Manual The speed is indicated by the pedal operation.

1 : Auto Automatic stitching at the specified speed

(Caution) 1. The max. sewing speed of the reverse feed stitching at the start of sewing is limited to the speed set by the function setting No. 8 regardless of the pedal.

2. When "0" is selected, stitches of reverse feed stitching may not match those of normal feed stitching.

㉑ **Function of stop immediately after the reverse feed stitching at the start of sewing (Function setting No. 60)**

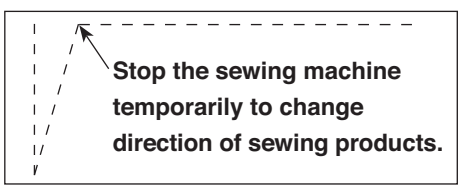
This function temporarily stops the sewing machine even when keeping depressing the front part of the pedal at the time of completion of process of reverse feed stitching at the start of sewing.

It is used when sewing a short length by reverse feed stitching at the start of sewing.

□□**6**|**0**□□□|**0**

0 : Not provided with the function of temporary stop of the sewing machine immediately after the reverse feed stitching at the start of sewing

1 : Provided with the function of temporary stop of the sewing machine immediately after the reverse feed stitching at the start of sewing



㉒ Function of soft-down of presser foot (with AK device only) (Function setting Nos. 70 and 49)

This function can softly lower the presser foot.

This function can be used when it is necessary to decrease contact noise, cloth defect, or slippage of cloth at the time of lowering the presser foot.

Note : Change the time of function setting No. 49 together at the time of selecting the function of soft-down since the sufficient effect cannot be obtained unless the time of function setting No. 49 is set longer when lowering the presser foot by depressing the pedal.

		4	9		1	4	0

0 to 250 ms
10 ms/Step

		7	0				0

0 : Function of soft-down of presser foot is not operative. (Presser foot is rapidly lowered.)
1 : Selection of function of soft-down of presser foot

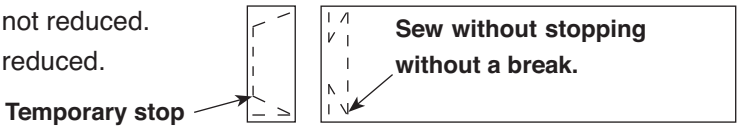
㉓ Function of reducing speed of reverse feed stitching at the start of sewing (Function setting No. 92)

Function to reduce speed at the time of completion of reverse feed stitching at the start of sewing : Normal use depending on the pedal condition (Speed is accelerated to the highest without a break.)

This function is used when temporary stop is used properly. (Cuff and cuff attaching)

		9	2				0

0 : Speed is not reduced.
1 : Speed is reduced.



㉔ Retry function (Function setting No. 73)

When the retry function is used, if the sewing material is thick and not pierced with needle, this function makes the needle pierce in the material with ease.

		7	3				1

0 : Normal
1 : Retry function is provided.

㉕ Presser foot lifting solenoid suction time setting (Function setting No. 84)

Suction time of presser foot lifting solenoid can be changed. When heating is great, it is effective to lessen the value.

(Caution) When the value is excessively small, malfunction will be caused. So, be careful when changing the value.

		8	4		1	4	0

Setting range : 50 to 500ms <10/ms>

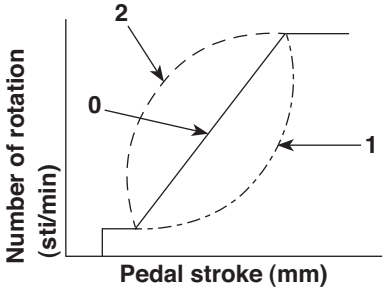
㉖ Function of pedal curve selection (Function setting No. 87)

This function can perform the selection of the curve of number of rotation of the sewing machine against the depressing amount of the pedal.

Change to this function when you feel that inching operation is hard or that pedal response is slow.

		8	7				0

0 : Number of rotation of the sewing machine in terms of the depressing amount of the pedal increases linearly.
1 : Reaction to intermediate speed in terms of the depressing amount of the pedal is delayed.
2 : Reaction to intermediate speed in terms of the depressing amount of the pedal is advanced.



㉗ Initial motion UP stop position move function (Function setting No. 90)

Effective/ineffective of automatic return to UP stop position immediately after turning ON the power can be set.

		9	0				1

0 : Ineffective
1 : Effective

㉘ Function added to the needle up / down compensating switch (Function setting No. 93)

One stitch operation can be performed only when the needle up / down compensating switch is pressed at the time of upper stop immediately after turning ON the power switch or upper stop immediately after thread trimming.

		9	3				0

0 : Normal (Only needle up / down compensating stitching operation)
1 : One stitch compensating stitching operation (upper stop → upper stop) is performed only when aforementioned changeover is made.

㉙ Continuous stitching + one shot stitching nonstop function (Function setting No. 94)

This function is used to proceed a step to the next one without stopping the sewing machine at the end of the step when performing sewing with the continuous sewing and one-shot sewing combined using the programming function of the operation panel IP.

		9	4				0

0 : Normal (Stop when a step has completed.)
1 : The sewing machine proceeds to next step without stopping after a step has completed.

㉚ Setting of max. number of rotation of the sewing machine head (Function setting No. 96)

This function can set the max. number of rotation of the sewing machine head you desire to use.
Upper limit of the set value varies in accordance with the sewing machine head to be connected.

		9	6	4	0	0	0

150 to Max. [sti/min] <50 / sti/min>

㉛ Main shaft reference angle compensation (Function setting No. 120)

Main shaft reference angle is compensated

	1	2	0		–	2	3

Setting range
– 50 to 50˚ <1 / ˚>

㉜ UP position starting angle compensation (Function setting No. 121)

Angle to detect UP position starting is compensated.

	1	2	1				5

Setting range
– 15 to 15˚ <1 / ˚>

㉝ DOWN position starting angle compensation (Function setting No. 122)

Angle to detect DOWN position starting is compensated.

	1	2	2				0

Setting range
– 15 to 15˚ <1 / ˚>

㉞ Setting of energy saving function during standby (Function setting No. 124)

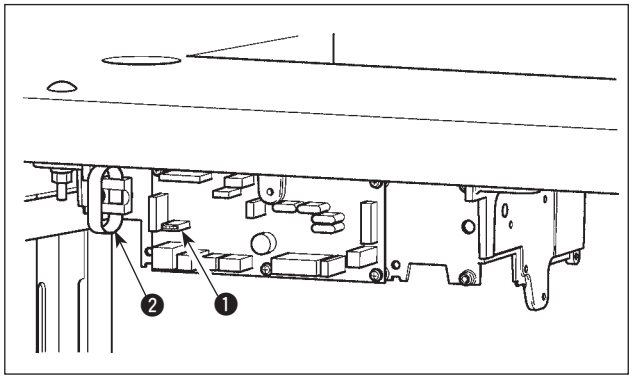
It is possible to reduce power consumption while the sewing machine is in standby state. It should be noted that the startup of the sewing machine may delay for a moment if this function is set.

	1	2	4				0

0 : Energy-saving mode is ineffective.
1 : Energy-saving mode is effective.

6. CONNECTING PROCEDURE OF JUKI OPTIONAL DEVICE

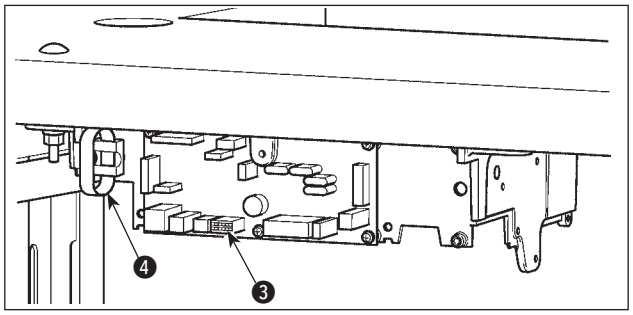
(1) Connection of the material end sensor (ED)



1. Connect the connector of material end sensor (ED) to connector ❶ (CN54 : 4P) of SC-920.
2. Tighten the cord of the material end sensor together with other cords with cable clip band ❷ attached to the side of the box after passing it through the cable clamp.

(Caution) 1. Be sure to turn OFF the power before connecting the connector.
2. For the use of the material end sensor, refer to the Instruction Manual attached to the material end sensor.

(2) Connection of the pedal of standing-work machine (PK)

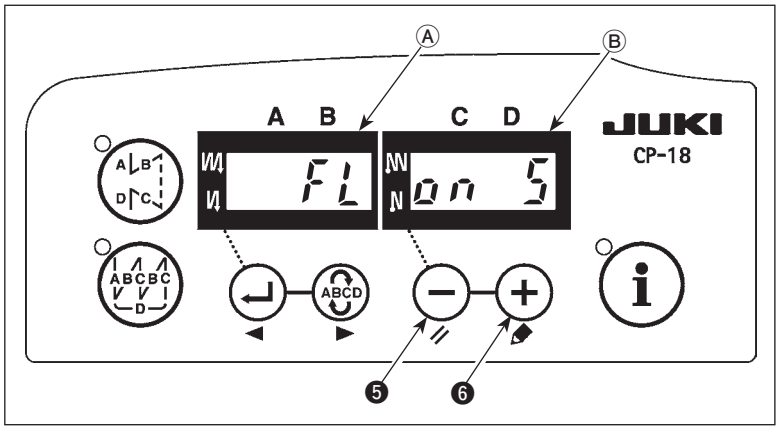


1. Connect the connector of PK70 to connector ❸ (CN39 : 12P) of SC-920.
2. Tighten the cord of PK70 together with other cords with cable clip band ❹ attached to the side of the box after passing it through the cable clamp.

(Caution) Be sure to turn OFF the power before connecting the connector.

(3) Setting of the auto lifter function

When the auto-lifter device (AK) is attached, this function makes the function of auto-lifter work.



1. Turn ON the power switch with ⊖ switch ❺ held pressed.
2. "FL ON" is displayed on indicators Ⓐ and Ⓑ with a blip to make the auto lifter function effective.
3. Turn OFF the power switch, and turn ON the power switch again to return to the normal mode.
4. Repeat the operation 1) to 3), and LED display is turned to (FL OFF). Then, the function of auto-lifter does not work.

Solenoid drive display (+33V)

Air drive display (+24V)

FL ON : Auto-lifter device becomes effective. Selection of the auto-lifter device of solenoid drive (+33V) or of air drive (+24V) can be performed with ⊕ switch ❻.
(Changeover is performed to drive power +33V or +24V of CN37.)

FL OFF : Auto-lifter function does not work. (Similarly, the presser foot is not automatically lifted when programmed stitching is completed.)

WARNING :
When the solenoid is used with the air drive setting, the solenoid may be burned out. So, do not mistake the setting.

(Caution) 1. To perform re-turning ON of the power, be sure to perform after the time of one second or more has passed.
(If ON / OFF operation of the power is performed quickly, setting may be not changed over well.)
2. Auto-lifter is not actuated unless this function is properly selected.
3. When "FL ON" is selected without installing the auto-lifter device, starting is momentarily delayed at the start of sewing. In addition, be sure to select "FL OFF" when the auto-lifter is not installed since the touch-back switch may not work.

7. EXTERNAL INPUT / OUTPUT CONNECTOR

External input/output connector (CN50) ❶ which can take out the following signals that are convenient when installing counter or the like outside is prepared.

(Caution) When using the connector, note that the engineer who has the electrical knowledge has to work.

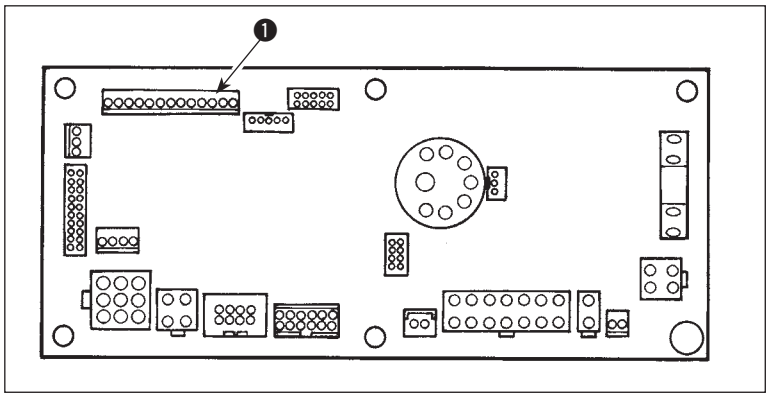


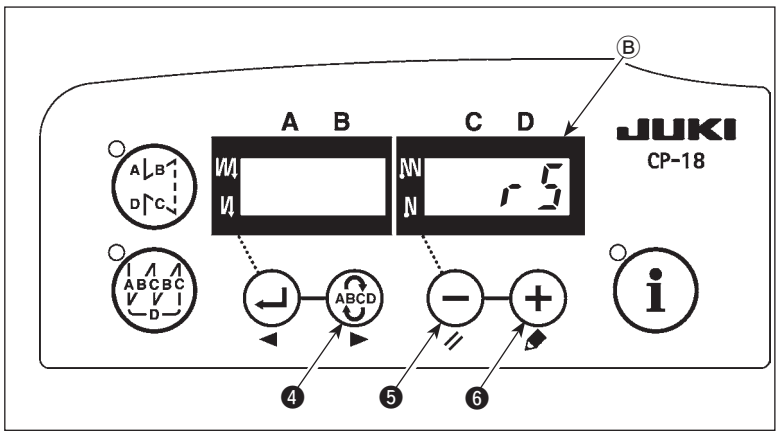
Table of assignment of connector and signal

CN50	Signal name	Input / output	Description	Electric spec.
1	+5V	-	Power source	
2	MA	Output	Rotation signal 360 pulses/rotation	DC5V
3	MB	Output	–	DC5V
4	UDET(N)	Output	"L" is output when needle bar is at LOW position.	DC5V
5	DDET(N)	Output	"L" is output when needle bar is at UP position.	DC5V
6	HS(N)	Output	Rotation signal 45 pulses/rotation	DC5V
7	BTD(N)	Output	"L" is output when the back-tack solenoid works.	DC5V
8	TRMD(N)	Output	"L" is output when the thread trimmer solenoid works.	DC5V
9	LSWO(P)	Output	Rotation request (pedal or the like) monitor signal	DC5V
10	S.STATE(N)	Output	"L" is output when the sewing machine is in the stop state.	DC5V
11	LSWINH(N)	Input	Rotation by pedal is prohibited while "L" signal is being inputted.	DC5V, –5mA
12	SOFT	Input	Rotation speed is limited to the soft-speed while "L" signal is being inputted.	DC5V, –5mA
13	SGND	-	0V	

JUKI genuine part No. Connector : Part No. HK016510130
Pin contact : Part No. HK016540000

8. INITIALIZATION OF THE SETTING DATA

All contents of function setting of SC-920 can be returned to the standard set values.



1. Turn ON the POWER switch with all of switch ABCD ❹, switch ⊖ ❺ and ⊕ switch ❻ held pressed.
2. "rS" is displayed on indicator Ⓑ with a blip to start initialization.
3. The buzzer sounds after approximately one second (single sound three times, “peep”, “peep”, and “peep”), and the setting data returns to the standard setting value.

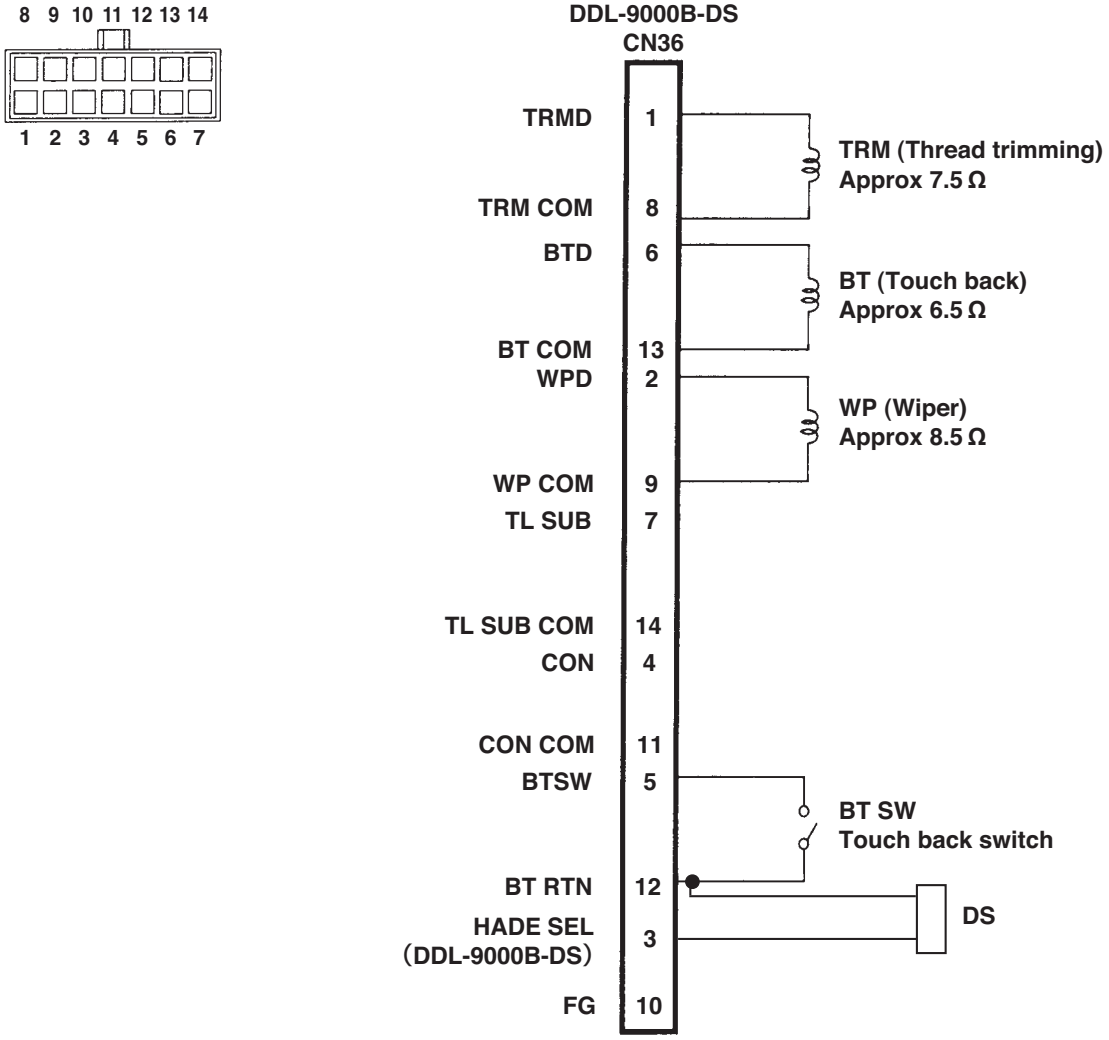
(Caution) Do not turn OFF the power on the way of initializing operation. Program of the main unit may be broken.

4. Turn OFF the power switch and turn ON the power switch after closing the front cover. The machine returns to the normal motion.

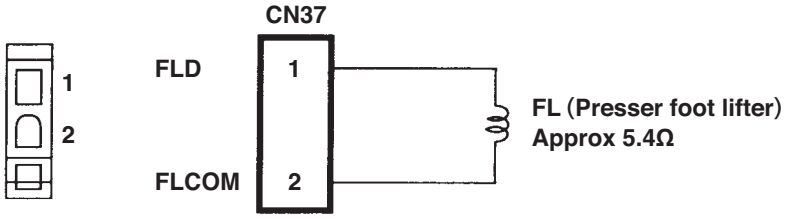
(Caution)
1. **When you carry out the aforementioned operation, the neutral position correction value for the pedal sensor is also initialized. It is therefore necessary to carry out automatic correction of the pedal sensor neutral position before using the sewing machine. (Refer “Instruction Manual Automatic compensation of neutral point of the pedal sensor”)**
2. **When you carry out the aforementioned operation, the machine-head adjustment values are also initialized. It is therefore necessary to carry out adjustment of the machine head before using the sewing machine. (Refer “5.-(9) Adjusting the machine head”)**
3. **Even when this operation is performed, the sewing data set by the operation panel cannot be initialized.**

9. CONNECTOR CONNECTION DIAGRAM

(1) Solenoid for machine head

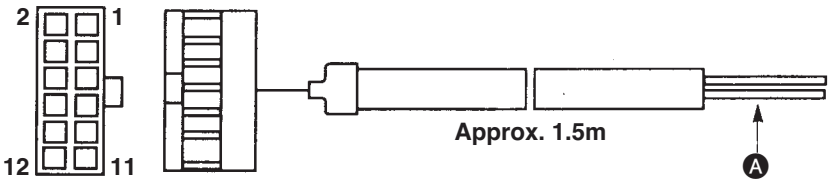


(2) Solenoid for lifting presser foot

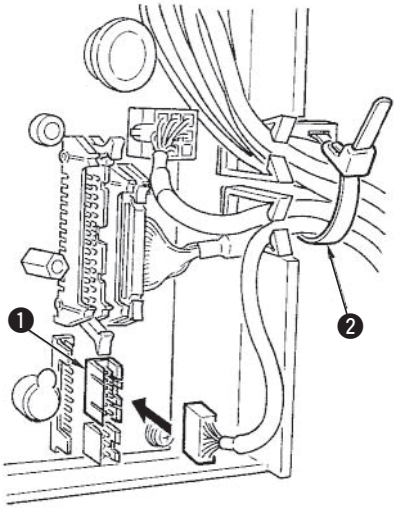


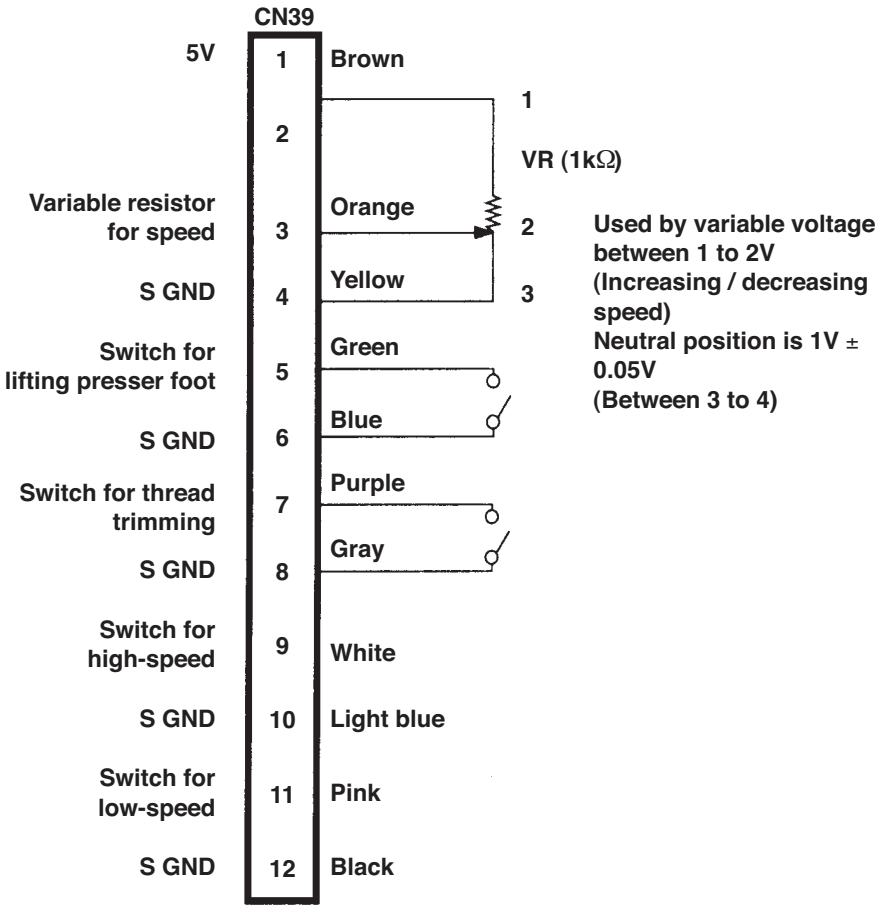
10. OPTIONAL CORD

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



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

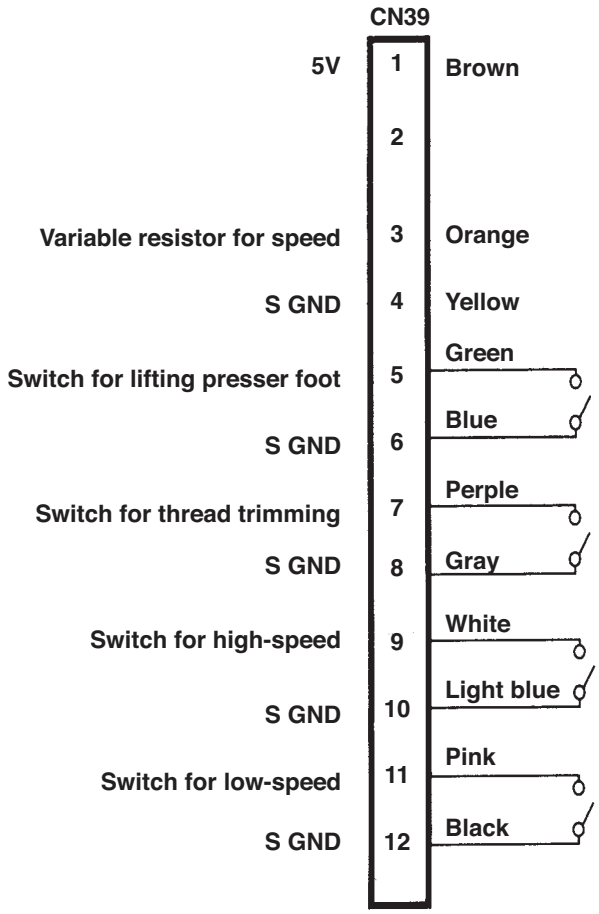




- o Power section Ⓐ which is separated by respective signals with different colors comes out from the relay cord A asm. for the standing sewing machine. Connect switches and variable resistor for speed in accordance with the wiring diagram.
- o Insert to the connector ❶ (CN39 : 12P) of standing sewing machine pedal in the PSC box and use it.
- o Tighten the cord of the PK70 together with other cords with cable clip band ❷ attached to the side of the box after passing it through the cable clamp.

(Caution) Be sure to turn OFF the power before connecting the connector.

2) Wiring diagram of fixing max. speed



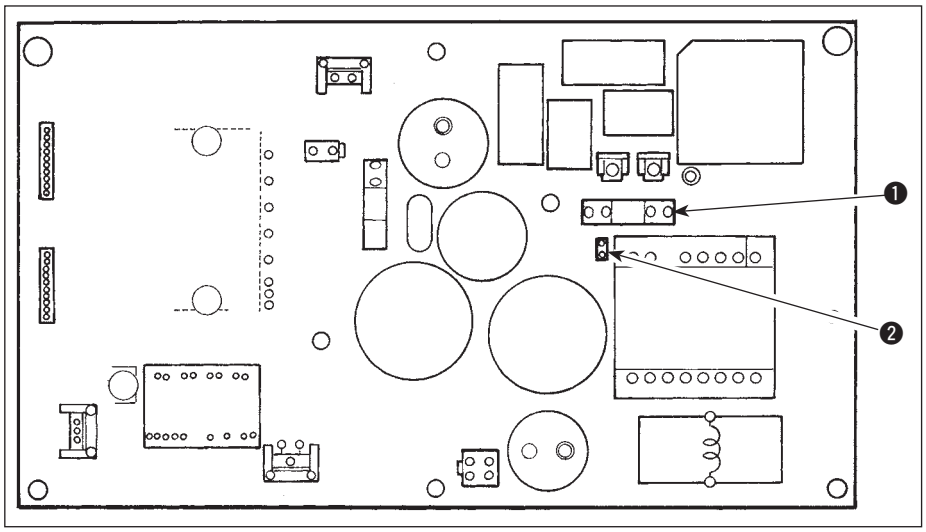
o Insert to the connector (connector ❶ CN39) of standing sewing machine pedal in the PSC box and use it.

(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.

11. MAINTENANCE

(1) Replacing the fuse

(Caution) The illustration below shows the PWR-T PCB. The type of PCB differs by destination.



1. Remove all the cables which are connected to the control box.
2. Remove the connecting rod.
3. Remove the control box from the table stand.
4. Holding the glass section of fuse ❶, remove the fuse.

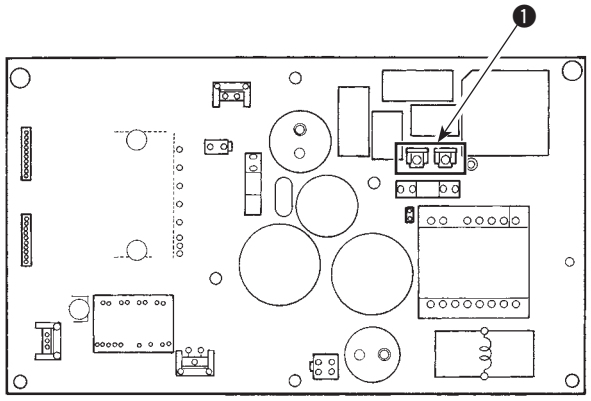
(Caution) There is a risk of electrical shock when removing the fuse. Be sure to remove the fuse after LED ❷ has totally gone out.

5. Be sure to use a fuse with the designated capacity.
   ❶ : 3.15 A/250 V Time-lag fuse
   (Power circuit protective fuse)
   Part number: KF000000080
6. Install the control box on the table stand. (Refer to **"Ⅱ-1. Installing to the table"**.)
7. Connect all the cables to the control box. (Refer to **"5.-(1) Connecting the cords"**.)
8. Fit the connecting rod back in place. (Refer to **"Ⅱ-3. Attaching the connecting rod"**.)

(2) Method of voltage changeover

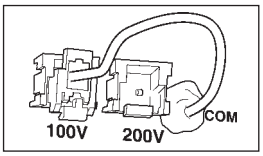
[Changing over the voltage between 100 V and 200 V]

WARNING :
To prevent personal injuries caused by electric shock hazards or abrupt start of the sewing machine, carry out the work after turning OFF the power switch and a lapse of 5 minutes or more. To prevent accidents caused by unaccustomed work or electric shock, request the electric expert or engineer of our dealers when adjusting the electrical components.

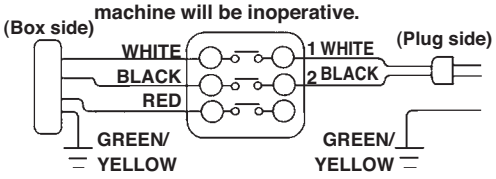


*** The illustration below shows the PWR-T PCB.**
The type of PCB differs by destination.

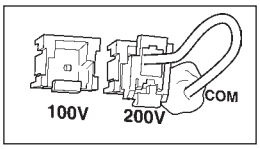
A



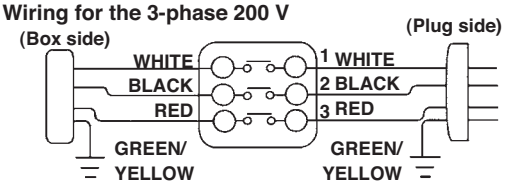
Wiring for the single-phase 100 V
Be sure to connect the wire between 1 and 2.
If it is connected between 1-3 or 2-3, the sewing machine will be inoperative.



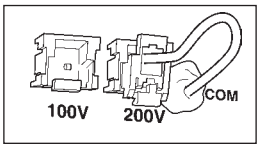
B



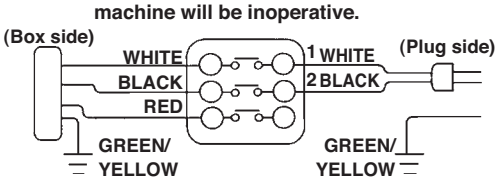
Wiring for the 3-phase 200 V



C



Wiring for the single-phase 200 V
Be sure to connect the wire between 1 and 2.
If it is connected between 1-3 or 2-3, the sewing machine will be inoperative.



The supply voltage can be changed over from the single-phase 100 - 120 V to the single-phase 200 - 240 V or to the 3-phase 200 - 240 V through the following two steps:

① Replacement of the power cords
② Changing-round of connector ❶ on the PWR PCB

1) Turn OFF the power with the power switch after checking that the sewing machine has stopped.
2) Draw out the power cord from the power receptacle after checking that the power switch has been turned OFF. Then wait for 5 minutes or more.
3) Loosen the screws which are used to secure the rear cover of the control box. Carefully open the rear cover.
4) Changing procedure of the power voltage

(Caution) If the supply power changing is carried out in a wrong manner, the control box can break. Be extremely careful when taking the supply voltage changing procedure.

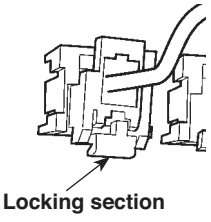
A. To change over the supply voltage from 200 - 240 V to 100 - 120 V

- Change the power cord with the JUKI genuine cord with the part number (M90355800A0). Change the earth cord with the one with the part number (M90345800A0).
- Change over supply voltage changeover connector ❶ mounted on the PWR PCB with the connector for 100 V.
- Connect the crimp style terminal of AC input cord to the power plug as shown in the figure A.

B,C. To change over the supply voltage from 100 - 120 V to 200 - 240 V

- Change the power cord with the JUKI genuine cord with the part number (M90175800A0).
- Change over supply voltage changeover connector ❶ mounted on the PWR PCB with the connector for 200 V.
- Connect the crimp contact of the AC input cord to the power plug as illustrated in Fig. B for the 3-phase power supply or as illustrated in Fig. C for the single-phase one.

5) Be sure to ascertain again that the relevant parts have been correctly changed before closing the rear cover.
6) Close the rear cover while pressing it, taking care not to allow the wiring to be caught between the rear cover and the main body of the control box. Then, secure the rear cover with the screws.



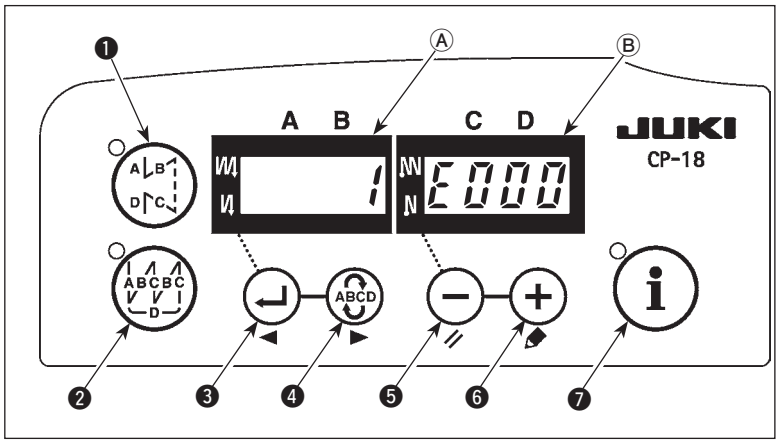
(Caution) Be sure to remove the connector while holding its locking section with your fingers. Be extremely careful not to pull the connector forcibly.

12. REGARDING ERROR DISPLAY (SC-920)

In case of the following, check again before you judge the case as trouble.

No.	Phenomenon	Cause	Corrective measure
1	When tilting the sewing machine, the buzzer beeps and the sewing machine cannot be operated. Solenoids for thread trimming	When tilting the sewing machine without turning OFF the power switch, Action given on the left side is taken for safety sake.	Tilt the sewing machine after turning OFF the power.
2	Solenoids for thread trimming, reverse feed, wiper, etc. fail to work. Hand lamp does not light up.	When the fuse for solenoid power protection has blown out	Check the fuse for solenoid power protection.
3	Even when depressing the pedal immediately after turning ON the power, the sewing machine does not run. When depressing the pedal after depressing the back part of pedal once, the sewing machine runs.	Neutral position of the pedal has varied. (Neutral position may be shifted when changing spring pressure of the pedal or the like.)	Execute the automatic neutral correction function of the pedal sensor.
4	The sewing machine does not stop even when the pedal is returned to its neutral position.		
5	Stop position of the sewing machine varies (irregular).	When tightening the screw in the handwheel is forgotten at the time of adjustment of needle stop position.	Securely tighten the screw in the handwheel.
6	Presser foot does not go up even when auto-lifter device is attached.	Auto-lifter function is OFF.	Select “FL ON” by auto-lifter function selection.
		Pedal system is set to KFL system.	Change the jumper to PFL setting to lift the presser foot by depressing the back part of the pedal.
		Cord of auto-lifter device is not connected to connector (CN37).	Connect the cord properly.
7	Touch-back switch fails to work.	Presser foot is going up by auto-liter device.	Operate the switch after the presser foot lowered.
		Auto-lifter device is not attached. However, auto-lifter function is ON.	Select “FL OFF” when auto-lifter device is not attached.
8	UP position move fails to work when all lamps on the panel light up.	The mode is in the function setting mode. The switch on the CTL p.c.b. is pressed by the bound cords and the aforementioned mode resulted.	Remove the under cover. Bundle the cables by routing them according to the normal routing method as described in the Instruction Manual.
9	Sewing machine fails to run.	Motor output cord (4P) is disconnected.	Connect the cord properly.
		Connector (CN30) of motor signal cord is disconnected.	Connect the cord properly.

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



[Checking procedure of the error code]

1) Turn ON the power switch with switch ❸ held pressed.
2) The latest error number is displayed on indicator Ⓑ with a blip.
3) Contents of previous errors can be checked by pressing switch ❸ or switch ❹.
   (When the confirmation of the contents of previous error advanced to the last, the warning sound peeps in single tone two times.)

(Caution) When switch ❸ is pressed, the previous error code of the currently displayed one is displayed. When switch ❹ is pressed, the next error code of the currently displayed one is displayed.

(1) Error code list (SC-920)

No.	Description of error detected	Cause of occurrence expected	Items to be checked
E000	Execution of data initialization (This is not the error.)	• When the machine head is changed. • When the initialization operation is executed	
E003	Disconnection of synchronizer connector	• When position detection signal is not input from the sewing machine head synchronizer.	• Check the synchronizer connector (CN33) for loose connection and disconnection.
E004	Synchronizer lower position sensor failure	• When the synchronizer has broken.	• Check whether the synchronizer cord has broken since the cord is caught in the machine head.
E005	Synchronizer upper position sensor failure	• Belt is loose. • Machine head is not proper. • Motor pulley is not proper.	• Check the belt tension. • Check the setting of the machine head. • Check the setting of the motor pulley.
E007	Overload of motor	• When the machine head is locked. • When sewing extra-heavy material beyond the guarantee of the machine head. • When the motor does not run. • Motor or driver is broken.	• Check whether the thread has been entangled in the motor pulley. • Check the motor output connector (4P) for loose connection and disconnection. • Check whether there is any holdup when turning the motor by hand.
E070	Slip of belt	• When the machine head is locked. • Belt is loose.	• Check whether there is any holdup when turning the motor by hand. • Check the belt tension.
E071	Disconnection of motor output connector	• Disconnection of motor connector	• Check the motor output connector for loose connection and disconnection.
E072	Overload of motor at the time of thread trimming motion	• Same as E007	• Same as E007
E220	Grease-up warning	• When the predetermined number of stitches has been reached.	• Replenish the specified places with grease and reset. (For the details, refer to the data of the machine head.)
E221	Grease-up error	• When the predetermined number of stitches has been reached and the sewing is not possible.	• Replenish the specified places with grease and reset. (For the details, refer to the data of the machine head.)

No.	Description of error detected	Cause of occurrence expected	Items to be checked
E302	Fall detection switch failure (When the safety switch works)	• When fall detection switch is input in the state that the power is turned ON.	• Check whether the machine head is tilted without turning OFF the power switch (sewing machine operation is prohibited for safety sake). • Check whether the fall detection switch cord is caught in the sewing machine or the like. • Check whether the fall detection switch lever is caught in something. • Check whether the contact of the tilt detection switch lever with the machine table is inadequate. (The table has a dent or the mounting location of the bed strut is too far)
E303	Semicircular plate sensor error	• Semicircular plate sensor signal cannot be detected.	• Check whether the machine head corresponds with the machine type setting. • Check whether the motor encoder connector is disconnected.
E730	Encoder failure	• When the motor signal is not properly inputted.	• Check the motor signal connector (CN30) for loose connection and disconnection. • Check whether the motor signal cord has broken since the cord is caught in the machine head. • Check whether the inserting direction of the motor encoder connector is wrong.
E731	Motor hole sensor failure		
E733	Inverse rotation of motor	• This error occurs when the motor is running at 500 sti/min or more in the opposite direction of that of rotation indication during motor is running.	• Connection of the encoder of main shaft motor is wrong. • Connection for the electric power of main shaft motor is wrong.
E808	Solenoid short circuit	• Solenoid power does not become normal voltage.	• Check whether the machine head cord is caught in the pulley cover or the like.
E809	Holding motion failure	• Solenoid is not changed over to holding motion.	• Check whether the solenoid is abnormally heated. (CTL circuit board asm. Circuit is broken.
E810	Solenoid current abnormality	• Solenoid rare short-circuit.	• Solenoid resistance
E811	Abnormal voltage	• When voltage higher than guaranteed one is inputted. • 200V has been inputted to SC-920 of 100V specifications. • JUS : 220V is applied to 120V box. • CE : 400V is applied to 230V box. • When voltage lower than guaranteed one is inputted. • 100V has been inputted to SC-920 of 200V specifications. • JUS : 120V is applied to 220V box • Inner circuit is broken by the applied overvoltage	• Check whether the applied power voltage is higher than the rated voltage + (plus) 10% or more. • Check whether 100V/200V changeover connector is improperly set. In the aforementioned cases, POWER p.c.b is broken. • Check whether the voltage is lower than the rated voltage - (minus) 10% or less. • Check whether 100V/200V changeover connector is improperly set. • Check whether fuse or regenerative resistance is broken.
E906	Operation panel transmission failure	• Disconnection of operation panel cord • Operation panel has broken.	• Check the operation panel connector (CN38) for loose connection and disconnection. • Check whether the operation panel cord has broken since the cord is caught in the machine head.
E924	Motor driver failure	• Motor driver has broken.	
E942	Faulty EEPROM	• Data cannot be written on the EEPROM.	• Turn the power OFF.