

ENGLISH

**LS-2342, 2342-7
INSTRUCTION MANUAL**

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1. SPECIFICATIONS

No.	Item	Application	
1	Model	LS-2342S	LS-2342S-7
2	Model name	Cylinder-bed, 1-needle, unison-feed, lockstitch machine (Standard type)	Cylinder-bed, 1-needle, unison-feed, lockstitch machine with automatic thread trimmer (Standard type)
3	Application	Medium- to heavy-weight materials, car seat, furniture	
4	Sewing speed	Max. 2,500 sti/min (See "6. SEWING SPEED TABLE" p.27.) *1	
5	Needle	SCHMETZ 134-35 (Nm 100 to Nm 180, Standard : Nm 140)	
6	Applicable thread size for sewing	#40 to #5 (US : #33 to #138, Europe : 90/3 to 20/3)	#30 to #5 (US : #46 to #138, Europe : 60/3 to 20/3)
7	Applicable thread size to be cut		#30 to #5 (US : #46 to #138, Europe : 60/3 to 20/3)
8	Stitch length	Max. 9 mm (forward/reverse feed)	
9	Stitch length dial	1-pitch dial	2-pitch dial
10	Presser foot lift	Hand lifter : 10 mm, Automatic presser foot lifter : 20 mm	
11	Stitch length adjusting mechanism	By dial	
12	Reverse stitch adjusting method	By lever	Air cylinder type (with touch-back switch)
13	Thread take-up	Link type	
14	Needle bar stroke	40 mm	
15	Amount of the alternate vertical movement	1 mm to 9 mm (Alternate vertical dial adjustment type)	
16	Hook	Full-rotary vertical-axis 1.6-fold hook (Latch type)	
17	Feed mechanism	Elliptical feed	
18	Top and bottom feed actuation mechanism	Timing belt	
19	Thread trimming method		Cam-driven scissors type
20	Lubrication	Concentrated tank type oil wick lubrication (partially by manual)	
21	Lubricating oil	JUKI New Defrix Oil No. 2 (equivalent to ISO standard VG32)	
22	Tube diameter	72 mm	
23	Space under the arm	347 mm × 127 mm	
24	Hand wheel size	Outer diameter : ϕ 123 mm	
25	Motor/Control box	SC-922B	
26	Machine head weight	61 kg	63 kg
27	Rated power consumption	310VA	
28	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes $K_{pA} = 2.5$ dB); according to ISO 10821-C.6.3 - ISO 11204 GR2 at 2,500 sti/min. - Sound power level (L_{WA}); A-weighted value of 89.5 dB; (Includes $K_{WA} = 2.5$ dB); according to ISO 10821-C.6.3 - ISO 3745 GR2 at 2,500 sti/min.	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 77.5 dB; (Includes $K_{pA} = 2.5$ dB); according to ISO 10821-C.6.3 - ISO 11204 GR2 at 2,500 sti/min.

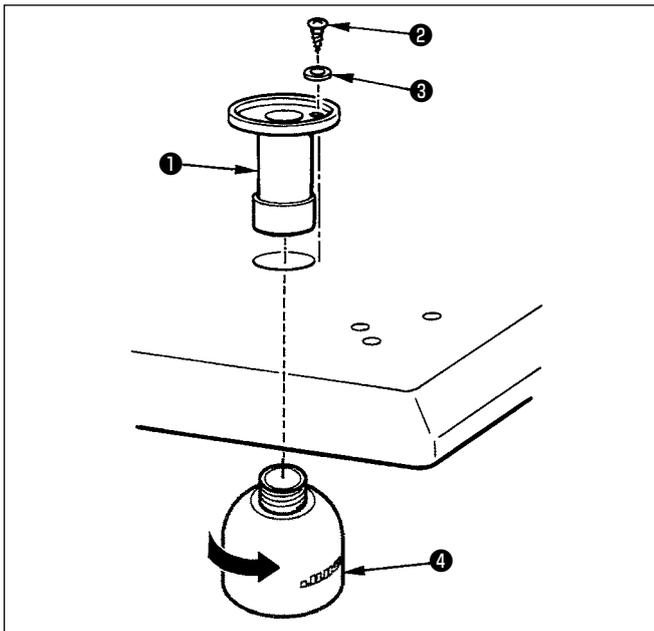
*1 The speed setting according to the amount of the alternating vertical movement of the walking foot and presser foot is automatically carried out.

No.	Item	Application		
1	Model	LS-2342H	LS-2342H-7	
2	Model name	Cylinder-bed, 1-needle, unison-feed, lockstitch machine (Thick-thread type)	Cylinder-bed, 1-needle, unison-feed, lockstitch machine with automatic thread trimmer (Thick-thread type)	
3	Application	Medium- to heavy-weight materials, car seat, furniture		
4	Sewing speed	Max. 2,000 sti/min (See "6. SEWING SPEED TABLE" p.27.) *1		
5	Needle	SCHMETZ 134-35 (Nm 100 to Nm 180, Standard : Nm 180)		
6	Applicable thread size for sewing	#20 to #0 (US : #69 to #266, Europe : 40/3 to 10/3)		
7	Applicable thread size to be cut		#20 to #0 (US : #69 to #266, Europe : 40/3 to 10/3)	
8	Stitch length	Max. 9 mm (forward/reverse feed)		
9	Stitch length dial	1-pitch dial	2-pitch dial	
10	Presser foot lift	Hand lifter : 10 mm, Automatic presser foot lifter : 20 mm		
11	Stitch length adjusting mechanism	By dial		
12	Reverse stitch adjusting method	By lever	Air cylinder type (with touch-back switch)	
13	Thread take-up	Link type		
14	Needle bar stroke	40 mm		
15	Amount of the alternate vertical movement	1 mm to 9 mm (Alternate vertical dial adjustment type)		
16	Hook	Full-rotary vertical-axis 1.6-fold hook (Latch type)		
17	Feed mechanism	Box feed		
18	Top and bottom feed actuation mechanism	Timing belt		
19	Thread trimming method		Cam-driven scissors type	
20	Lubrication	Concentrated tank type oil wick lubrication (partially by manual)		
21	Lubricating oil	JUKI New Defrix Oil No. 2 (equivalent to ISO standard VG32)		
22	Tube diameter	72 mm		
23	Space under the arm	347 mm × 127 mm		
24	Hand wheel size	Outer diameter : ø123 mm		
25	Motor/Control box	SC-922B		
26	Machine head weight	61 kg	63 kg	
27	Rated power consumption	310VA		
28	Noise	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 83.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821-C.6.3 - ISO 11204 GR2 at 2,000 sti/min. - Sound power level (L _{WA}); A-weighted value of 91.0 dB; (Includes K _{WA} = 2.5 dB); according to ISO 10821-C.6.3 - ISO 3745 GR2 at 2,000 sti/min.	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 78.0 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821-C.6.3 - ISO 11204 GR2 at 2,000 sti/min.	

*1 The speed setting according to the amount of the alternating vertical movement of the walking foot and presser foot is automatically carried out.

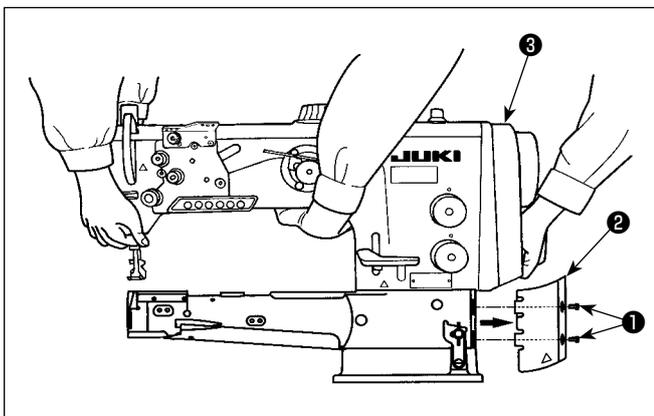
2. INSTALLATION

2-1. Attaching the drain container



- 1) Attach oil extractor ① onto the top surface of the machine table, and fix it with setscrew ② and washer ③.
- 2) After fixing oil extractor ①, screw drain container ④ in the oil extractor.

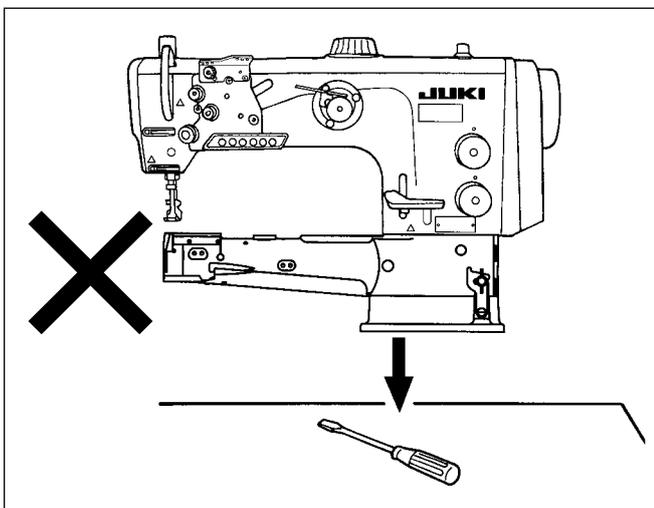
2-2. Installation of the sewing machine



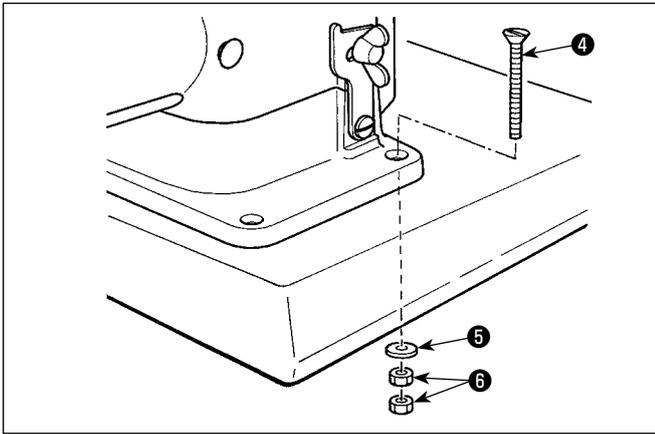
- 1) To prevent possible accidents caused by the full of the sewing machine, perform the work by two persons or more when the machine is moved. Loosen bed cover mounting screws ① (three locations) to remove them. Remove bed cover ②. Then, carry the sewing machine by holding pulley cover ③.



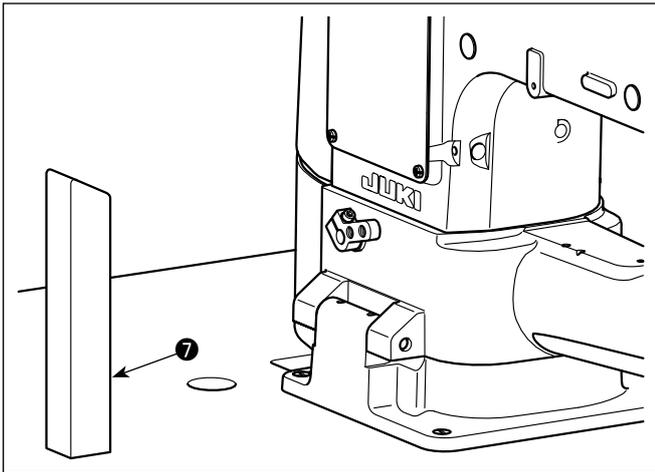
Do not hold the handwheel and the reverse feed lever.



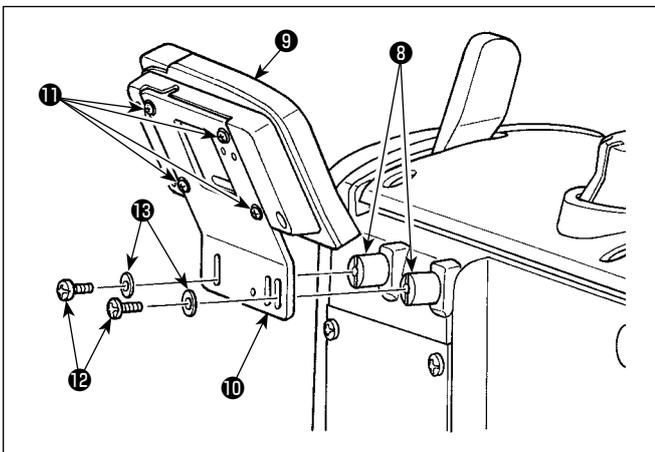
- 2) Do not put protruding articles such as the screwdriver and the like at the location where the sewing machine is placed.



3) Fix the sewing machine in the four places of the machine table with countersunk screws 4 , washers 5 and nuts 6 supplied with the sewing machine.



4) Securely attach head support rod 7 to the table until it goes no further.



5) Mount spacers 8 supplied with the machine head on the frame.

6) Install bracket 10 on CP panel 9 with screws 11 supplied with the panel.

7) Install bracket 10 on spacer 8 with screws 12 supplied with the machine head and washers 13 supplied with the panel.

Caution
Do not use the screws supplied the panel instead of screws 12 supplied with the machine head.

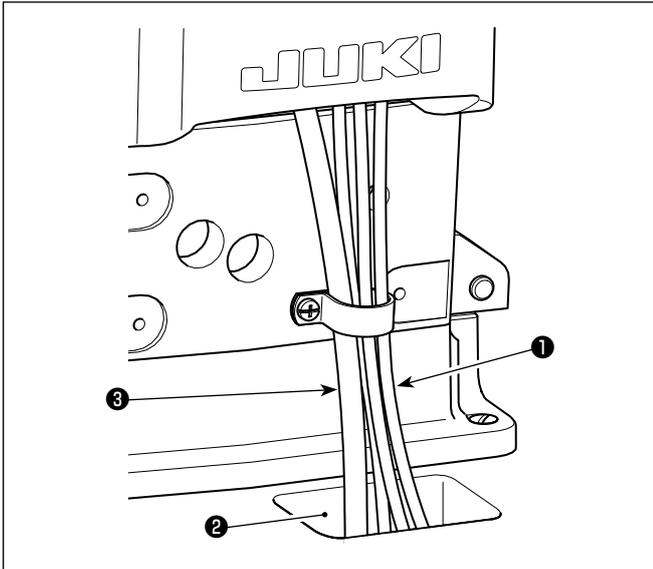
* Accessory screw 12 supplied with the machine head :
Thread diameter M5; Length 8 mm

2-3. Pneumatic components



WARNING :

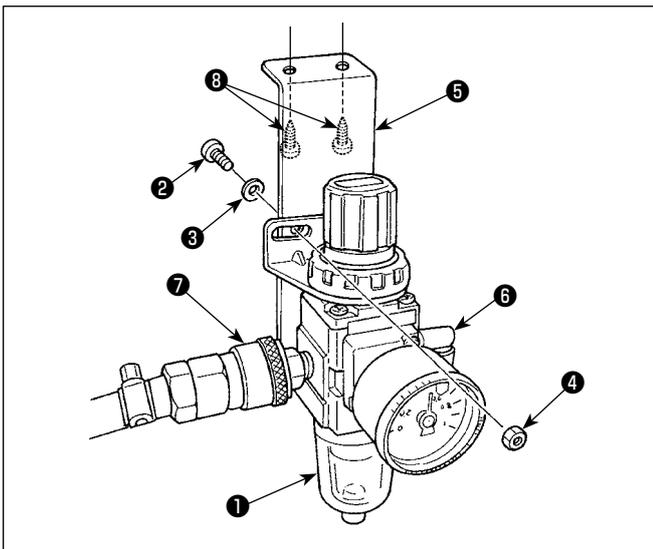
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(1) Routing the air tube and cables

Pass the air tube and cables ① through hole ② in the table down to the undersurface.

If humidity is high, water may leak from $\varnothing 8$ air tube ③ for exhaust coming from the sewing machine.



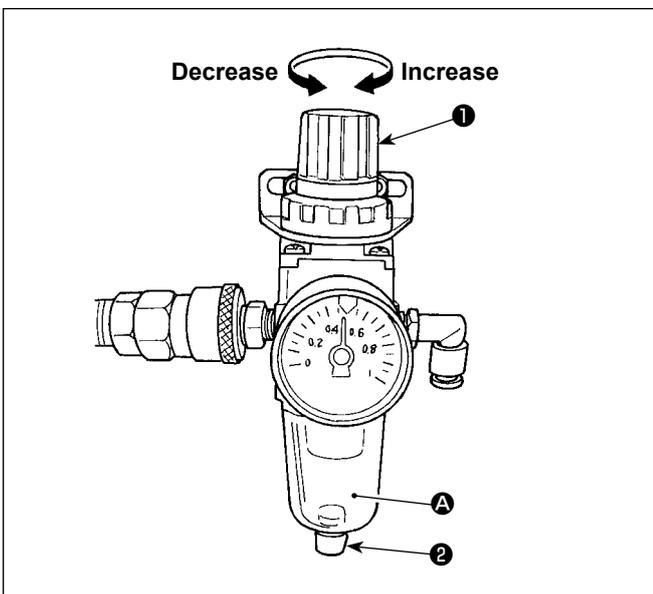
(2) Installing the regulator

1) Install regulator (asm.) ① on mounting plate ⑤ with screw ② , spring washer ③ and nut ④ which are supplied with the unit.

2) Install couplings ⑥ and ⑦ on regulator ① .

3) Attach mounting plate ⑤ on the undersurface of the table with accessory screws ⑧ supplied with the plate.

4) Connect $\varnothing 6$ air tube coming from the sewing machine to coupling ⑥ .



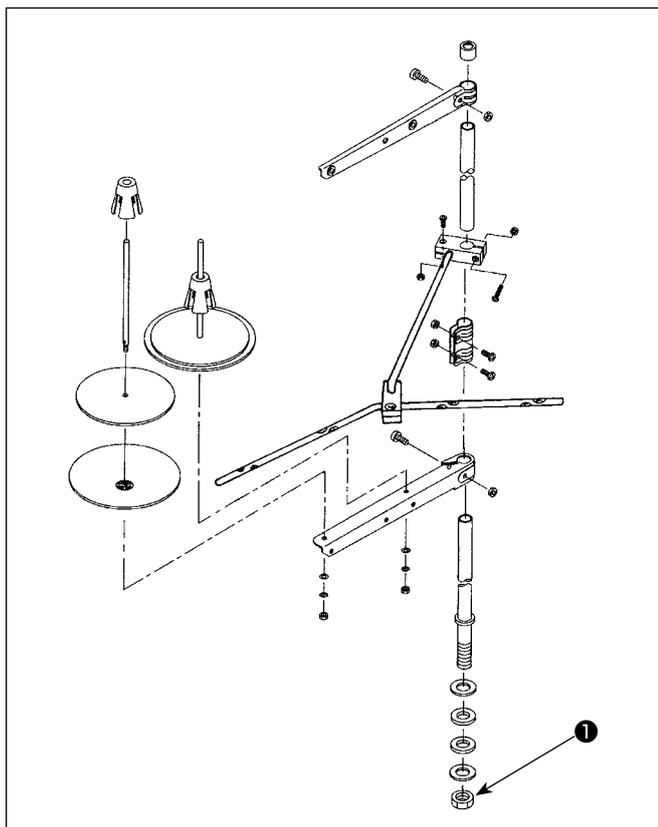
(3) Adjusting the air pressure

1) The operating air pressure is 0.5 to 0.55 MPa.

Adjust the air pressure using air pressure regulating knob ① of the filter regulator.

2) In the case fluid accumulation is observed in A section of the filter regulator, turn drain cock ② to drain the fluid.

2-4. Installing the thread stand



Assemble the thread stand, set it up on the machine table using the installation hole in the table and tighten nut ❶ gently.

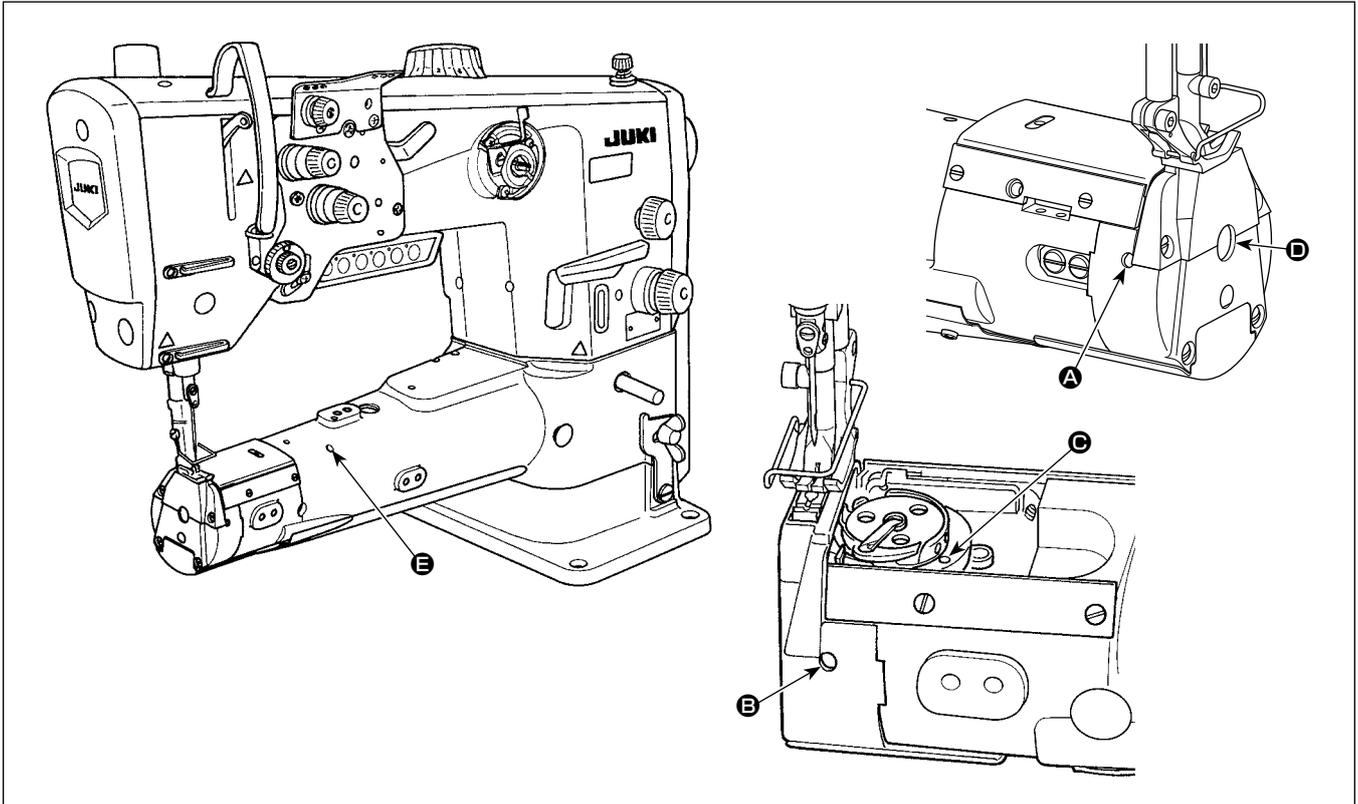
3. PREPARATION OF THE SEWING MACHINE

3-1. Lubrication

WARNING :



1. Do not connect the power plug until the lubrication has been completed so as to prevent accidents due to abrupt start of the sewing machine.
2. To prevent the occurrence of an inflammation or rash, immediately wash the related portions if oil adheres to your eyes or other parts of your body.
3. If oil is mistakenly swallowed, diarrhea or vomiting may occur. Put oil in a place where children cannot reach.



- 1) Be sure to lubricate the section indicated with arrows **A** to **D** with an adequate amount of oil once a day before starting the operation.
- 2) **E** is oil tank. Be sure to add oil to the oil tank approximately once a week.
- 3) Apply appropriate amount of oil to the arrowed sections when you operate the sewing machine for the first time after the purchase or after the machine has been left unused for an extended period of time.



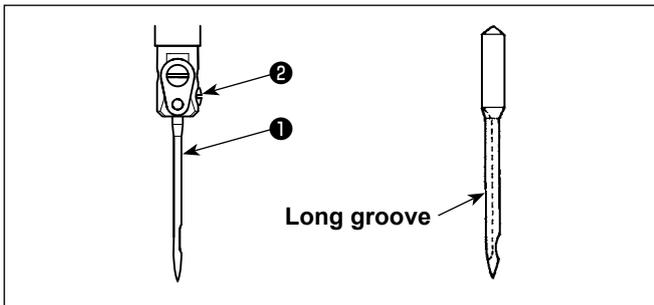
If oil is excessively applied to **A**, **B**, **C** and **D**, oil may drop from the throat plate base cover. Periodically wipe out oil on the throat plate base cover.

3-2. Attaching the needle



WARNING :

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



Use 134-35 needles.

- 1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
- 2) Loosen needle clamp screw ② . Hold the needle so that the long groove on needle ① faces directly to the right.
- 3) Push needle ① deep into the needle clamp hole until it will go no further.
- 4) Tighten needle clamp screw ② firmly.



When replacing the needle, check the clearance provided between the needle and the blade point of hook. (Refer to "4-5. Needle-to-hook relation" p.17 and "4-6. Adjusting the hook needle guard" p.18.)

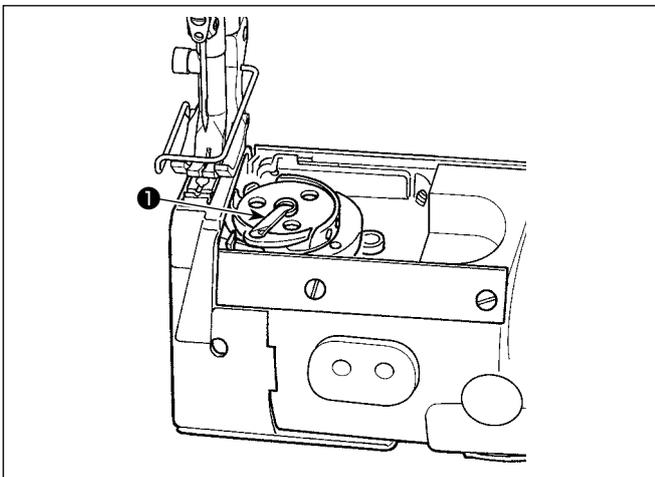
If there is no clearance, the needle and the hook will be damaged.

3-3. Attaching and removing the bobbin



WARNING :

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



- 1) Lift latch ① of hook, and take out the bobbin.
- 2) Put the bobbin into the shaft in the hook correctly and release the latch ① .



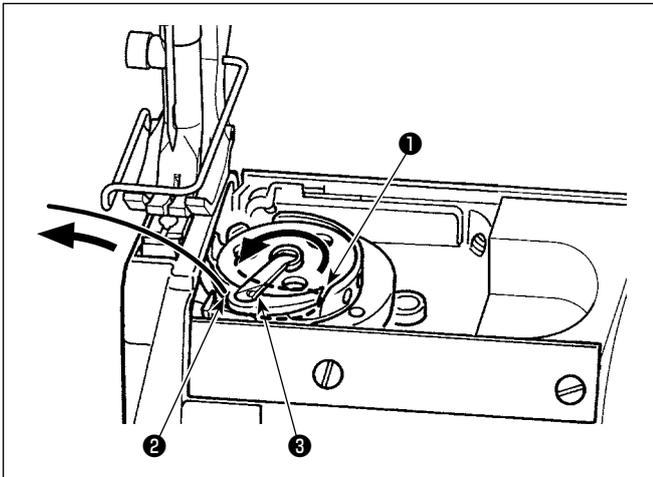
Do not make the machine run idle with the bobbin (bobbin thread). The bobbin thread is caught in the hook. As a result, the hook may be damaged.

3-4. Threading the hook



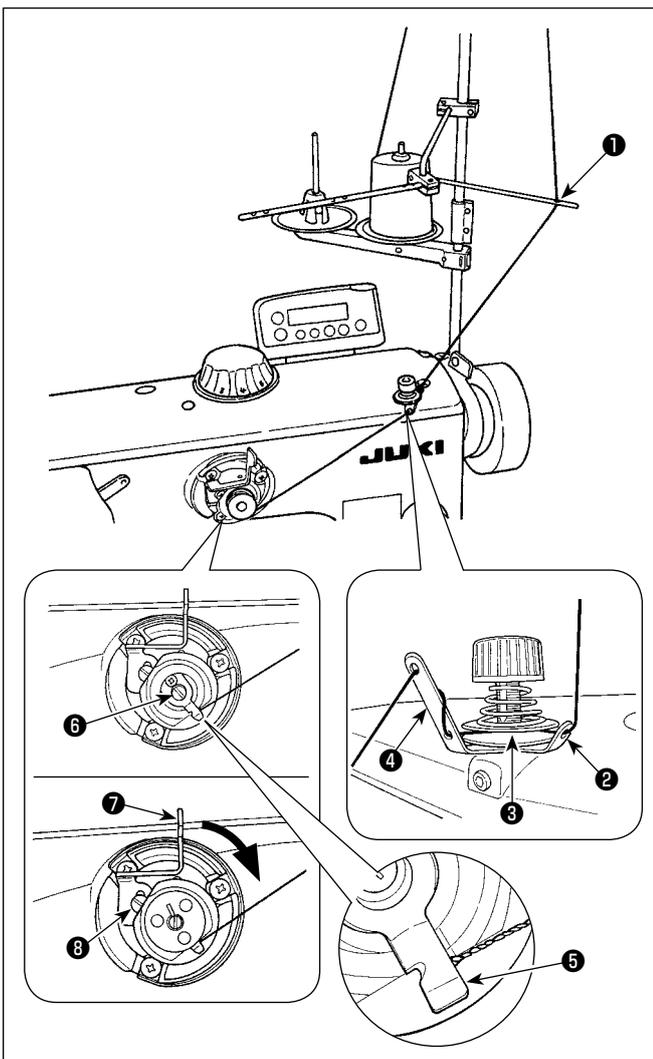
WARNING :

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



- 1) Pass the bobbin thread through threading groove ❶ in the inner hook and through space ❷ provided between the bobbin case opener and the inner hook. Then, slowly draw the thread. Now, the bobbin thread passes under the tension spring. Then, for the sewing machine with a thread trimmer, pass the thread through thread hole ❸ in the lever section and pull it out upward.
- 2) Make sure that the bobbin revolves in the direction of the arrow when you draw the thread.

3-5. Winding a bobbin



- 1) Pass the thread through sections ❶ to ❹ in the numerical order.
- 2) Put the thread until the root of bobbin thread clamp ❺ is reached. Then, trim the thread. (The thread end is retained under the looper thread clamp.)
- 3) Load a bobbin on bobbin winder shaft ❻ .
- 4) Press bobbin winder lever ❼ in the direction of the arrow.
- 5) When you start the sewing machine, the bobbin rotates to automatically wind the thread on itself.
- 6) When the bobbin is filled up, the bobbin winder lever ❼ automatically releases the bobbin and the bobbin winder stops running.

1. The bobbin thread winding amount is adjusted by loosening setscrew ❸ . The bobbin thread winding amount is increased by moving bobbin winder lever ❼ upward.

2. If the thread comes off the thread tension controller, wind the thread on the intermediate thread guide by one turn.

1. This is the one-touch type bobbin winder. When the bobbin is fully wound with thread, bobbin thread clamp ❺ automatically returns to the initial position.

2. To terminate bobbin winding before the bobbin is fully wound with thread, turn the handwheel, while slightly lifting bobbin winder lever ❼ , to bring bobbin thread clamp ❺ back to its initial position.

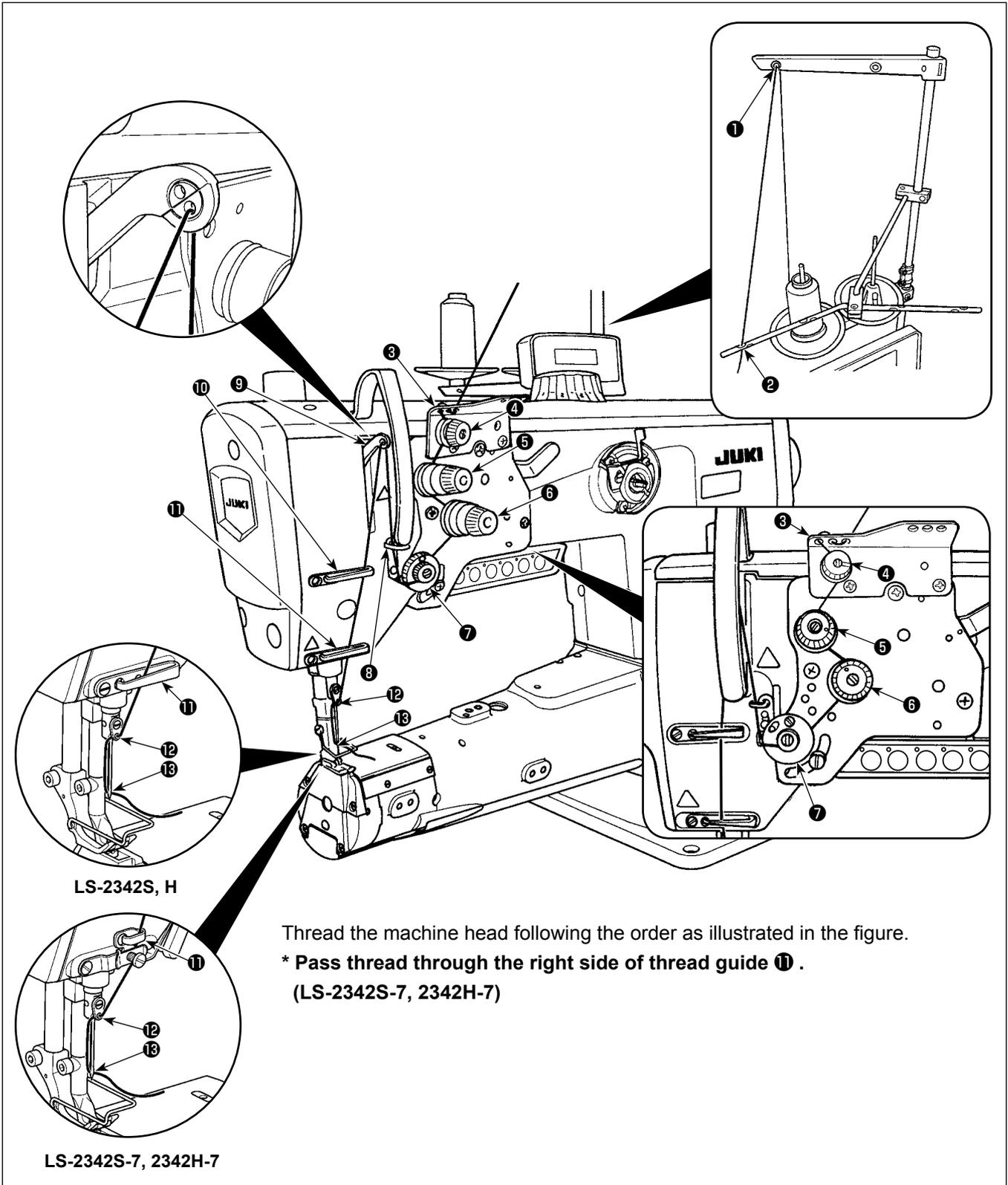
3. If the thread is not brought to the root of the bobbin thread clamp ❺ , the thread slips off the bobbin at the beginning of bobbin winding.

3-6. Threading the machine head



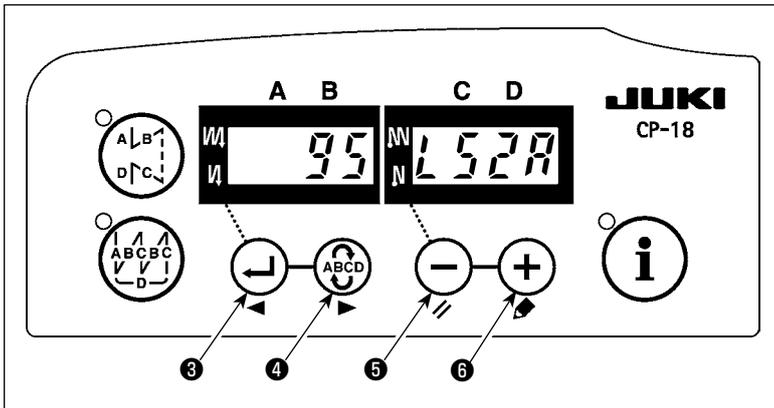
WARNING :

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



3-7. How to set the model of the machine head

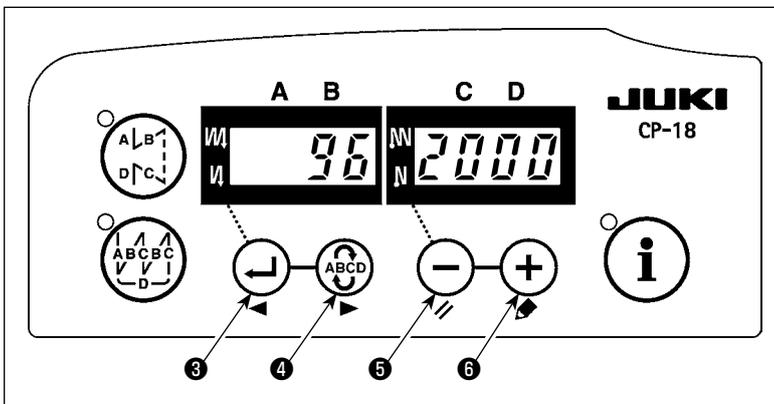
• CP-18



- 1) Call Function Setting No. 95 in reference to "III-6. Function Setting of SC-922" in the Instruction Manual for the SC-922.
- 2) The type of machine head can be selected by pressing \ominus switch ⑤ (\oplus switch ⑥).

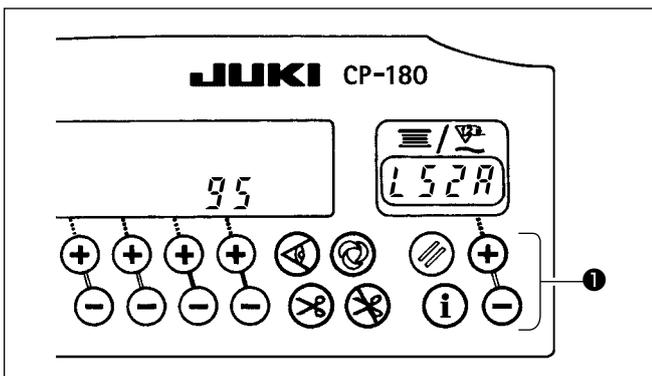
Select the model of the machine head according to the table shown below.

Model	Indication
LS-2342S-7	LS2A
LS-2342H-7	LS2B
LS-2342S	LS2C
LS-2342H	LS2D



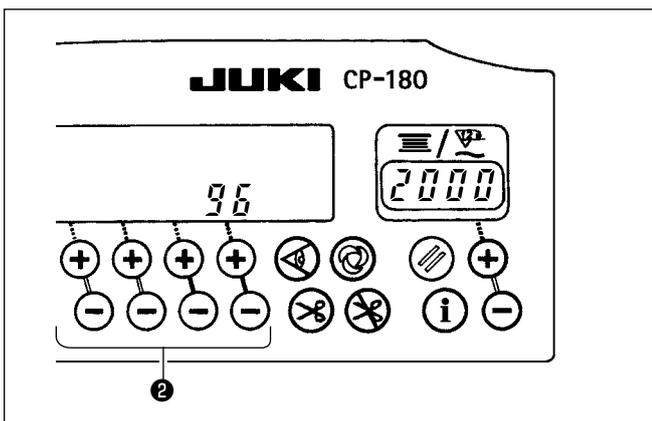
- 3) After selecting the type of machine head, by pressing \leftarrow switch ③ (ABCD switch ④), the step proceeds to 94 or 96, and the display automatically changes to the contents of the setting corresponding with the type of machine head.
- 4) Turn the power OFF.

• CP-180



- 1) Refer to "18. FUNCTION SETTING SWITCH" in the Instruction Manual for the CP-180, and call the function setting No. 95.
- 2) The type of machine head can be selected by pressing switch ①. Select the model of the machine head according to the table shown below.

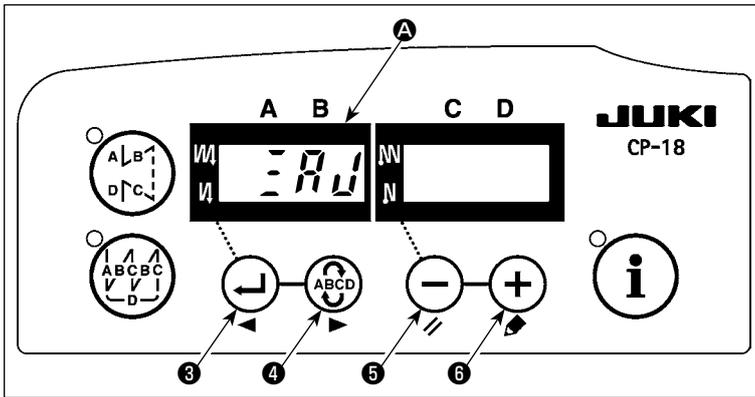
Model	Indication
LS-2342S-7	LS2A
LS-2342H-7	LS2B
LS-2342S	LS2C
LS-2342H	LS2D



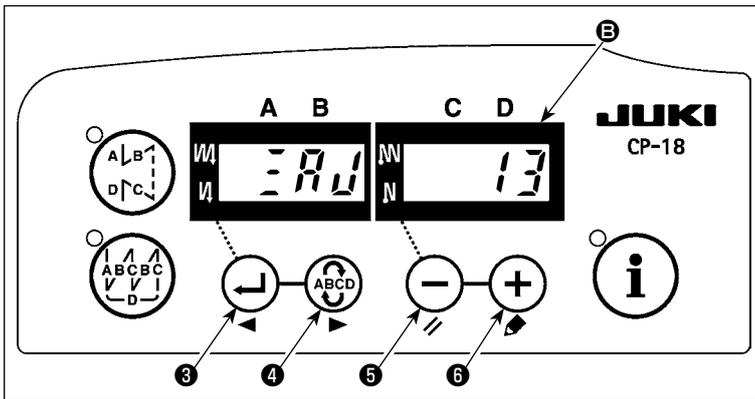
- 3) After selecting the type of machine head, by pressing switch ②, the step proceeds to 96 or 94, and the display automatically initializes to the contents of the setting corresponding with the type of machine head.
- 4) Turn the power OFF.

3-8. Adjusting the machine head

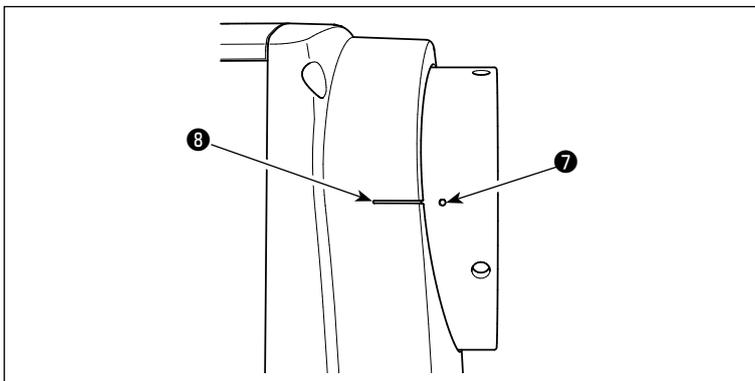
• CP-18



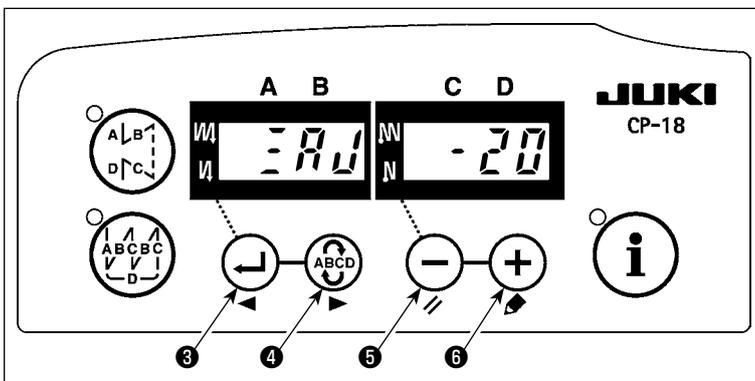
- 1) Simultaneously pressing switch ④ and switch ⑤, turn ON the power switch.
- 2) is displayed ① in the indicator and the mode is changed over to the adjustment mode.



- 3) Turn the handwheel 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 ②. (The value is the reference value.)



- 4) In this state, align one of the marker dots ⑦ on the handwheel with marker line ⑧ on the pulley cover as shown in the figure.



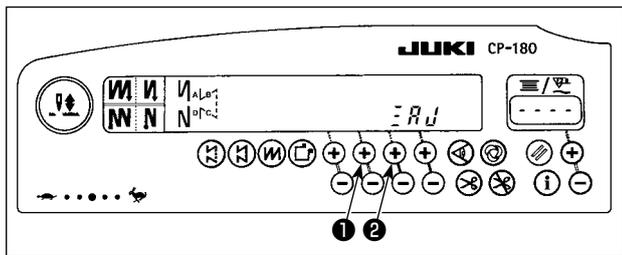
- 5) Press switch ⑥ to finish the adjustment work. (The value is the reference value.)
- 6) Turn the power OFF.

When checking the adjustment result, set "Function setting No. 90; Initial sewing machine movement function" at "1: Initial operation - Sewing machine stops with its needle up". Then, check whether or not marker dot ⑦ is aligned with marker line ⑧. If they are not aligned, carry out the adjustment again.

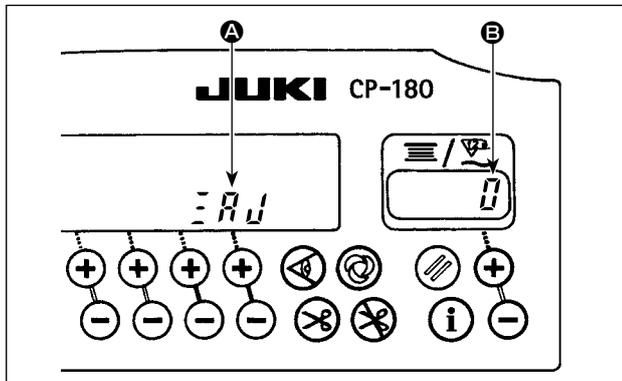


After checking the adjustment result, return the setting of No. 90 to the previous setting. (Initial value is "2: Initial operation: Sewing machine turns in the reverse direction and stop with its needle up".) For the function setting procedure, refer to "III-6. How to set the functions of the SC-922" in the Instruction Manual for the SC-922.

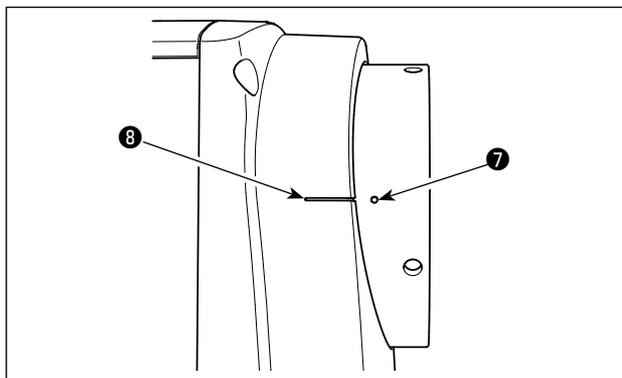
• CP-180



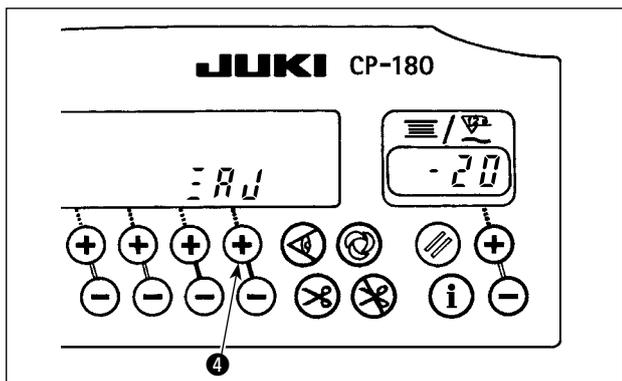
- 1) Simultaneously pressing switch ① and switch ②, turn ON the power switch.



- 2) 'RU' is displayed ① in the indicator and the mode is changed over to the adjustment mode.
- 3) Turn the handwheel 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 ②. (The value is the reference value.)



- 4) In this state, align one of the marker dots ⑦ on the handwheel with marker line ⑧ on the pulley cover as shown in the figure.



- 5) Press switch ④ to finish the adjustment work. (The value is the reference value.)
- 6) Turn the power OFF.

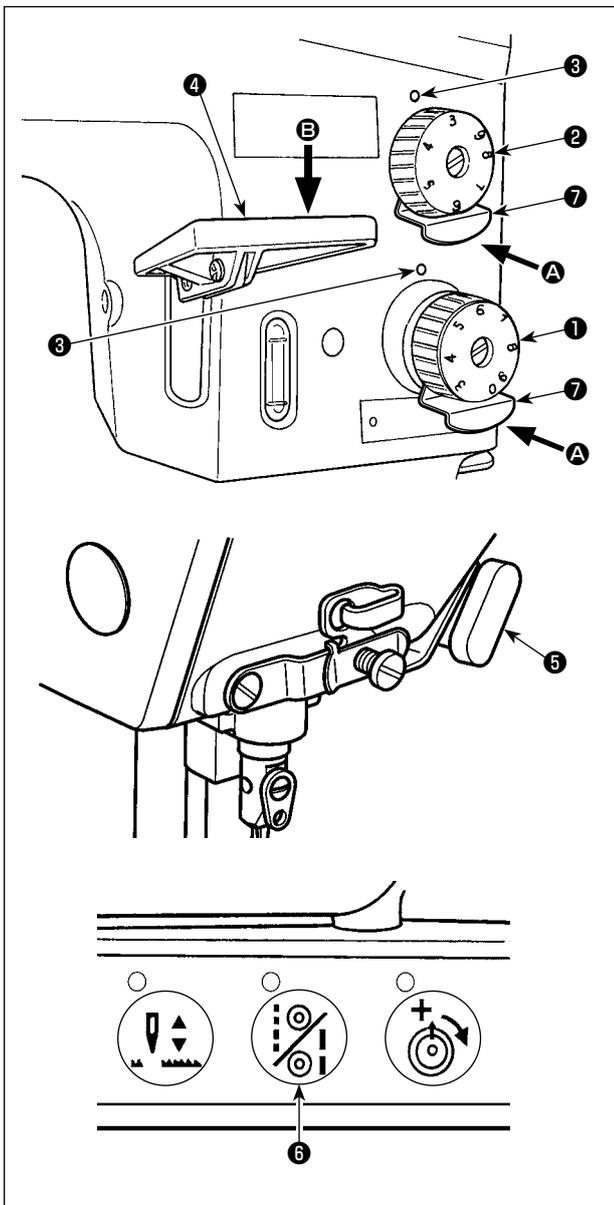
When checking the adjustment result, set "Function setting No. 90; Initial sewing machine movement function" at "1: Initial operation - Sewing machine stops with its needle up". Then, check whether or not marker dot ⑦ is aligned with marker line ⑧. If they are not aligned, carry out the adjustment again.

Caution After checking the adjustment result, return the setting of No. 90 to the previous setting. (Initial value is "2. Initial operation: Sewing machine turns in the reverse direction and stop with its needle up".)

For the function setting procedure, refer to "18. How to set the functions" in the Instruction Manual for the CP-180.

4. ADJUSTING THE SEWING MACHINE

4-1. Adjusting the stitch length



* The scale markings on the stitch dial are shown in mm. [LS-2342S, H]

Turn standard feed adjusting dial ① to align the desired number with marker dot ③ on the machine dial.

[LS-2342S-7, 2342H-7]

Turn standard feed adjusting dial ① and 2P feed adjusting dial ② while pressing stopper ⑦ in the direction of arrow ④ (toward the back of the arm) to align the desired number with marker dot ③ on the machine dial.

Release stopper ⑦ to fix standard feed adjusting dial ① and 2P feed adjusting dial ②.

To change the scale marking on the standard stitch dial ① to a smaller one, turn standard stitch dial ① while pushing feed lever ④ in the direction of arrow ⑤ (downward) and stopper ⑦ in direction of arrow ④ (toward the far side of arm).

(1) Reverse feed stitching

- 1) Press down reverse feed control lever ④.
- 2) Reverse feed stitches are made as long as you keep pressing the lever down.
- 3) Release the lever, and the machine will run in the normal feed direction.

(2) Manual one-touch reverse feed stitching (LS-2342S-7, 2342H-7)

- 1) Press touch-back switch ⑤.
- 2) Reverse feed stitches are made as long as you keep pressing the lever down.
- 3) Release the switch, and the machine will run in the normal feed direction.

(3) Changing over the stitching pitch (LS-2342S-7, 2342H-7)

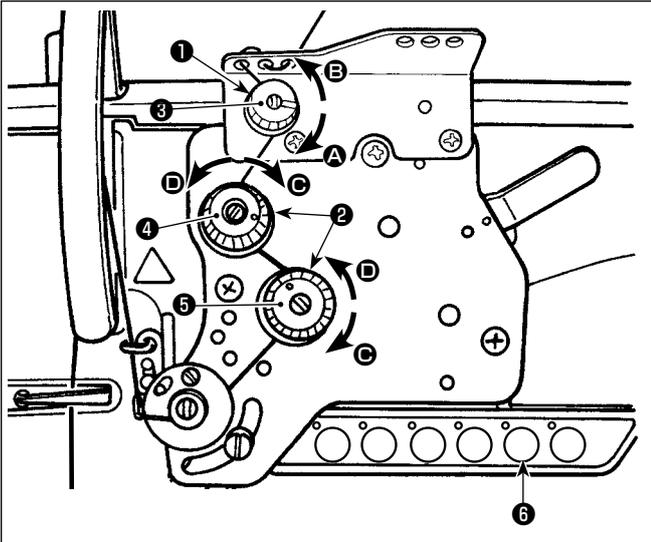
- 1) Press stitching pitch changeover switch ⑥ to change over the stitch length to the one corresponding to the scale mark on the 2P feed adjusting dial. (The LED on the switch lights up.)

1. Set 2P feed adjusting dial ② at a value smaller than the value set by standard feed adjusting dial ①.
2. Adjust the 2P feed adjusting dial when the stitching pitch changeover switch is placed in OFF.
3. Scale mark on the 2P feed adjusting dial smaller than 3 (at which the dial is stopped by the dial stopper) is used for the 0 (zero) alignment of the 2P dial. Scale marks smaller than 3 cannot be used.



Refer to "5-5. Operation switches" p.22 for the details of the 2P device.

4-2. Thread tension



(1) Adjusting the needle thread tension

1) [LS-2342S, H]

Adjust thread tension No. 1 ① so that it tenses the needle thread extending from it to thread tension No. 2 ② does not flap.

[LS-2342S-7, 2342H-7]

Turn thread tension nut No. 1 ③ clockwise ④ to shorten the length of thread remaining on the top of needle after thread trimming. Turn the nut counter-clockwise ⑤ to lengthen it.

2) To use the single-tension

Turn 2nd thread tension nut ⑥ clockwise ⑦ to increase the needle thread tension, or counterclockwise ⑧ to decrease it.

3) To use the double-tension

Turn 2nd thread tension nuts ④ and ⑤ clockwise ⑦ to increase the needle thread tension, or counterclockwise ⑧ to decrease it.



Apply the same tension to both of the thread tension No. 2 ②.



In the case, the length of thread remaining at the needle tip cannot be increased, replace the spring of tension controller No. 1 with 22945505 which is separately available.

(2) Changing over the needle thread tension

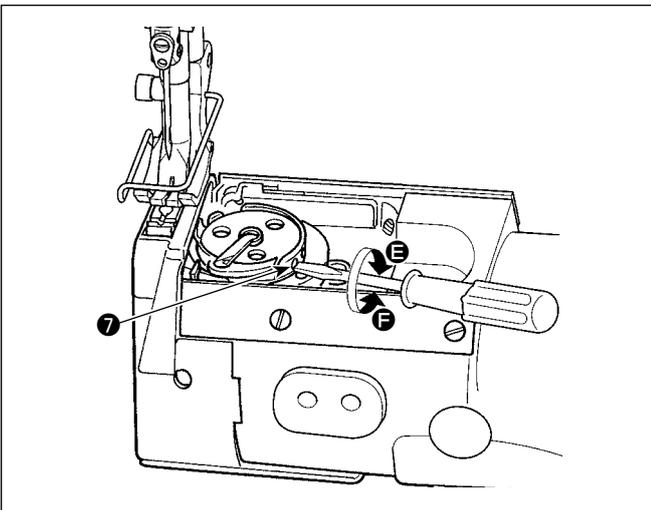
Press needle thread tension changeover switch ⑥ to change over the needle thread tension from the single-tension to the double-tension.

(The LED of the switch lights up.)



WARNING :

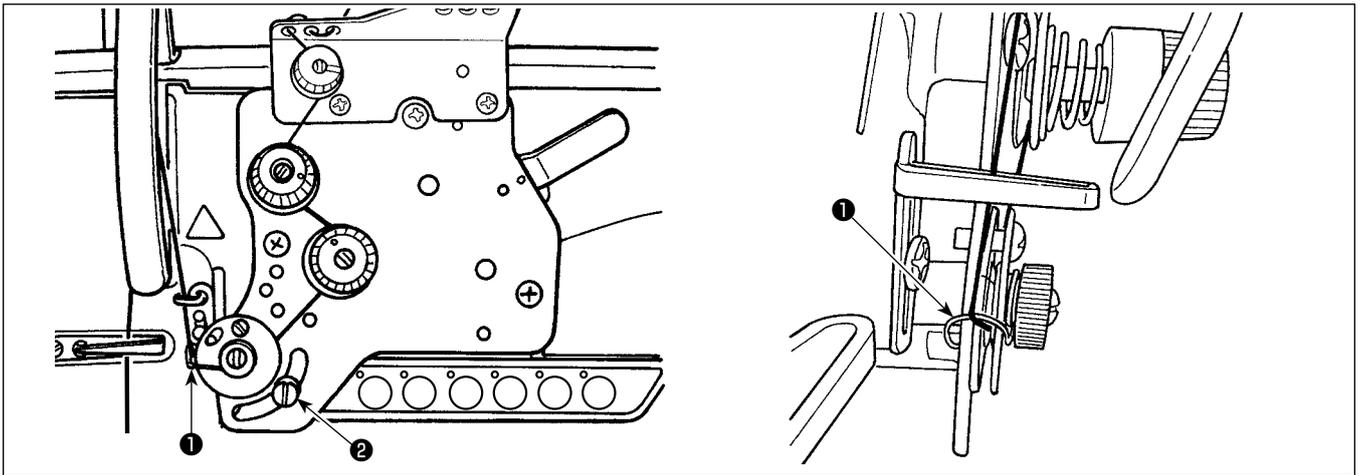
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(3) Adjusting the bobbin thread tension

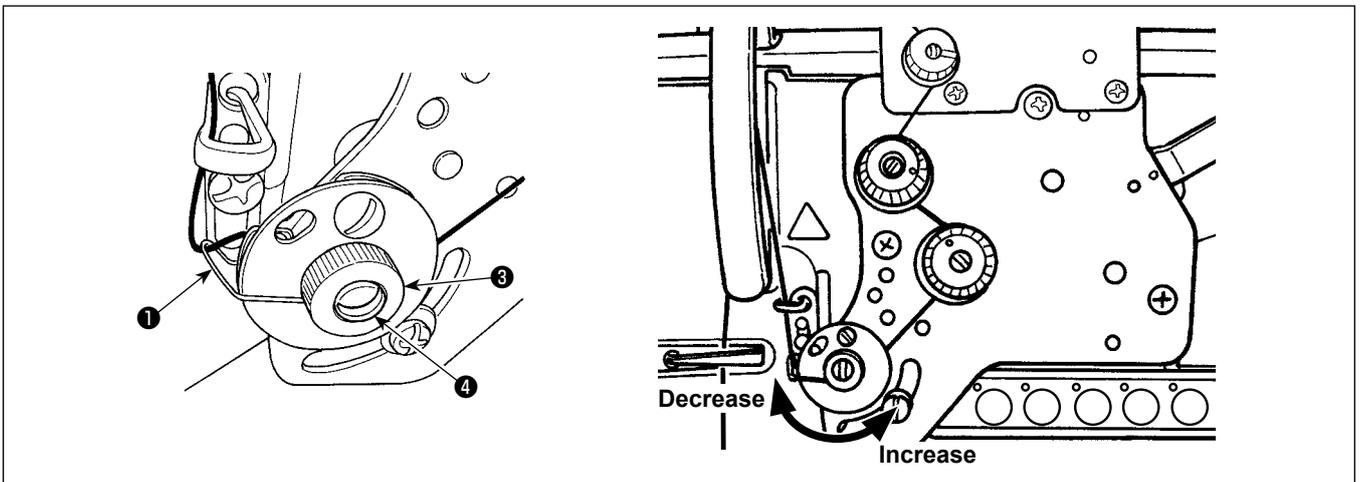
Turn tension adjustment screw ⑦ clockwise ⑧ to increase the bobbin thread tension, or counterclockwise ⑨ to decrease it.

4-3. Thread take-up spring



(1) When you want to change the stroke of the thread take-up spring

Loosen screw ② . Adjust thread take-up spring ① by moving it in the slot.

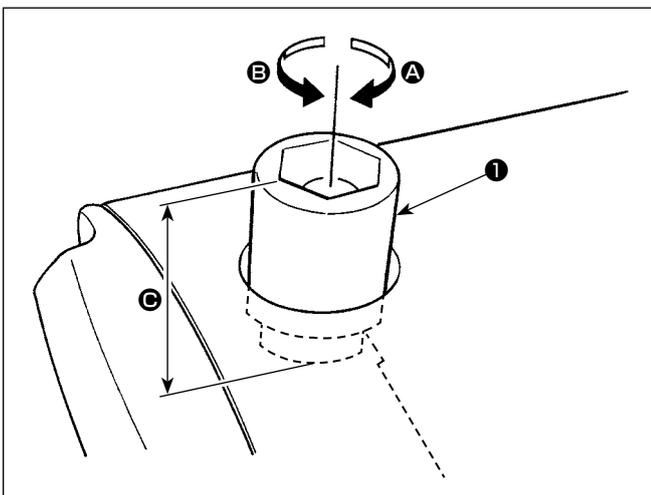


(2) When you want to change the tension of the thread take-up spring

To adjust the tension of thread take-up spring ① , loosen nut ③ first. Turn spring shaft ④ counterclockwise to increase the tension or clockwise to decrease it.

After the adjustment, fix the stud by tightening nut ③ .

4-4. Adjusting the pressure of the presser foot



Turn presser spring regulating dial ① clockwise **A** to increase the pressure of the presser foot, or counterclockwise **B** to decrease it.

Caution
Be sure to operate the sewing machine with the pressure of the presser foot minimized as long as the presser foot securely holds the material.

The adjustable range extends from 38 mm to 60 mm which represents the distance from the upper surface **C** of the arm to presser spring regulating dial ① .

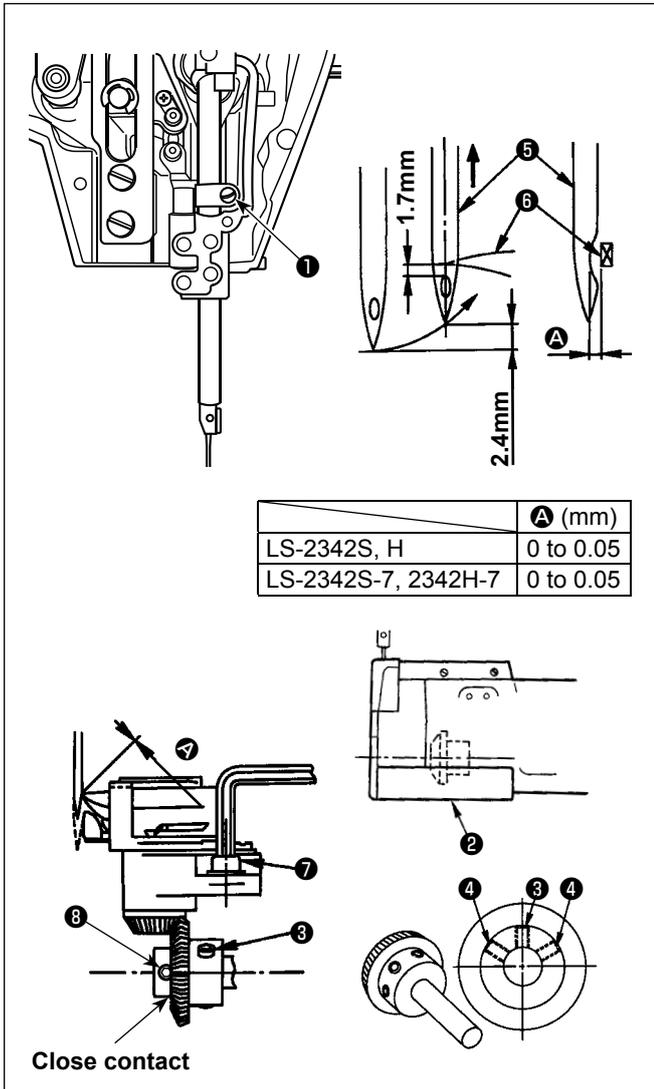
The standard value at the time of shipment is 47 mm.

4-5. Needle-to-hook relation



WARNING :

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



Adjust the timing between the needle and the hook following the procedure described below.

- 1) Set the feed regulating dial to "0".
- 2) Turn the handwheel to bring the needle bar to the lowest position of its stroke, and loosen needle bar connection screw ①.

* Determine the height of the needle bar.

- 3) The standard height of the needle bar is obtained when a distance of 1.7 mm is provided between the top end of the needle eyelet and blade point ⑥ of the hook when the needle bar ascends 2.4 mm from the lowest position of its stroke.

* Determine the position of the hook.

- 4) Remove throat plate base cover ②. Loosen lower bevel gear setscrews ③ and ④ and thrust support setscrew ⑧.
- 5) In the state described in 3), loosen setscrew ⑦ in the hook driving shaft saddle and move the hook driving shaft saddle to the right or left until a clearance of dimension A is provided between the blade point of the hook and needle ⑤. After the adjustment, securely tighten the screw.
- 6) Then, align the blade point of the hook with the center of the needle, and tighten setscrew ③ in the lower shaft bevel gear.
- 7) Turn the handwheel clockwise and alternately tighten setscrews ④ little by little. (Never tighten either screw only.)
- 8) Bringing the thrust support into close contact with the lower bevel gear, tighten thrust support setscrew ⑧.



The operation panel could come in contact with the thread stand when tilting the machine head. To protect the relevant parts from contact, shift the thread stand to a position at which the thread stand does not interfere with the control panel.



To check the needle bar position as described in the aforementioned 3) [i.e., "...the needle bar ascend by 2.4 mm from the lowest position of its stroke"], you may use the display of the main shaft rotation angle under the "machine head adjustment mode" of the SC-922.

Increase the numerical value displayed when the needle bar is in its lowest position of its stroke under the "machine head adjustment mode" by 25 degrees of an angle, the needle bar goes up by 2.4 mm. (When the needle bar ascends by 2.4 mm from its lowest position of its stroke, the main shaft rotation angle is 25 degrees of an angle.)

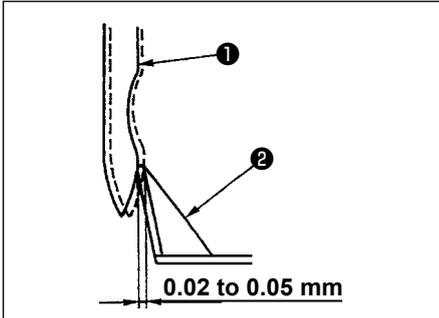
* In the case of adjusting the needle-to-hook relation under the "machine head adjustment mode", do not press (+) switch. Refer to "II-10. Adjustment of the machine head" in the Instruction Manual for the SC-922 for the machine head adjustment mode.

4-6. Adjusting the hook needle guard



WARNING :

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



When a hook has been replaced, be sure to check the position of the hook needle guard.

As the standard position of the hook needle guard, hook needle guard ② must push the side face of needle ① to lean the needle by 0.02 to 0.05 mm away from its straight position.

If not, adjust the hook needle guard by bending it.

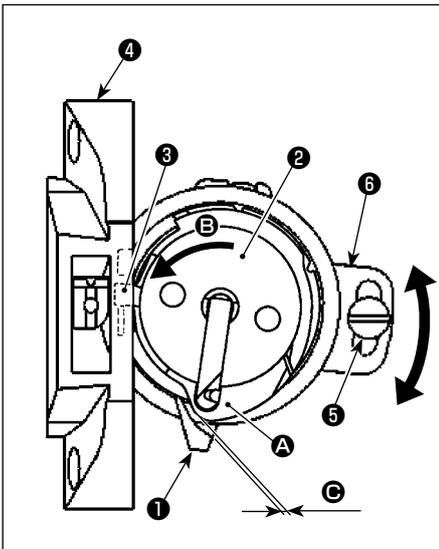
- 1) To bend the hook needle guard inward, apply a screwdriver to the outside of the hook needle guard.
- 2) To bend the hook needle guard outward, apply a screwdriver to the inside of the hook needle guard.

4-7. Adjusting the bobbin case opener



WARNING :

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



- 1) Turn the handwheel in the normal direction of rotation to bring bobbin case opener ① to its backward travel end.
- 2) Turn inner hook ② in the direction of arrow B to allow stopper ③ to come in contact with the slits in throat plate ④ .
- 3) Loosen bobbin case opener adjusting plate setscrew ⑤ . Move bobbin case opener adjusting plate ⑥ in the direction of the arrow to adjust the clearance between the bobbin case opener and protruding section A of inner hook to dimension C.

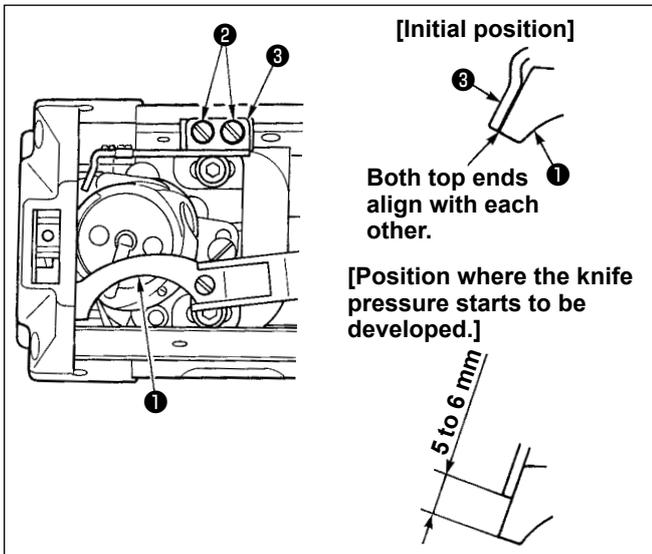
	C (mm)
LS-2342S LS-2342S-7	0.1 to 0.3
LS-2342H LS-2342H-7	0.2 to 0.4

4-8. Position of the counter knife and adjustment of the knife pressure (LS-2342S-7, 2342H-7)



WARNING :

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



- 1) Move the moving knife ① by hand to its forward travel end.
- 2) Loosen setscrews ② in the counter knife and move the counter knife ③ to the right or left to adjust the position.
- 3) To adjust the knife pressure, move the counter knife ③ and adjust so that the knife pressure is developed from the position where the top end of the moving knife is spaced 5 to 6 mm from the top end of the counter knife.

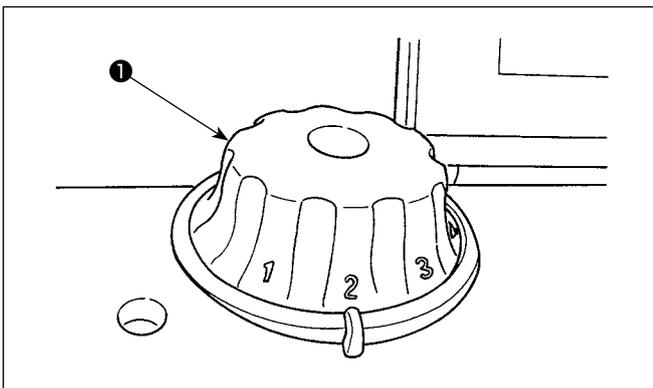


When the moving knife moves to its backward travel end, the top end of the moving knife aligns with the top end of the counter knife. At this time, the moving knife produces a play of 0.5 to 1 mm in the moving direction.



Make the knife pressure as low as possible to such an extent that both needle and bobbin threads can be trimmed.

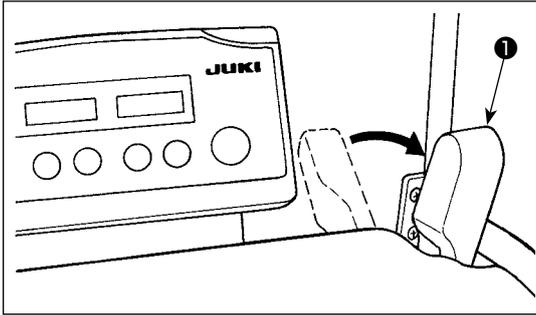
4-9. Adjusting the amount of the alternating vertical movement of the walking foot and the presser foot



* The scale markings on the stitch dial are shown in mm. Adjust the amount of the alternating vertical movement of the walking foot and the presser foot using dial ①. Turn the dial clockwise to increase the amount of the alternating vertical movement of the walking foot and the presser foot, or counterclockwise to decrease it.

5. OPERATION OF THE SEWING MACHINE

5-1. Hand lifter



To lift the presser foot manually, pull hand lifter ❶ in the direction of the arrow.

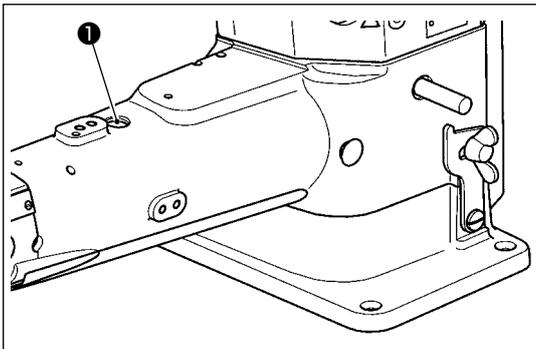
This makes the presser foot rise 10 mm and stay at that position.

5-2. Resetting the safety clutch



WARNING :

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



The safety clutch functions when an excessive load is applied to the hook or the other components during sewing. At this time, the hook will never rotate even if turning the handwheel. When the safety clutch has functioned, remove the cause and reset the safety clutch as given in the following procedure.

- 1) Pressing push button ❶ located on the top surface of the machine bed, strongly turn the handwheel in the reverse direction of rotation.
- 2) The resetting procedure completes when the handwheel clicks.



Turn the handwheel by hand, and confirm that push button ❶ has returned.

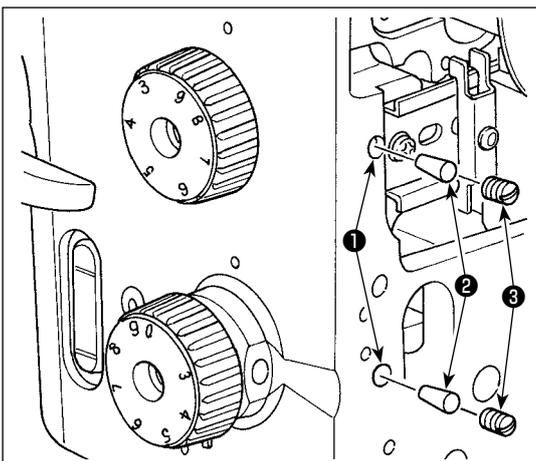
- 3) At the final step of procedure, check the needle-to-hook relation. (Refer to "4-5. Needle-to-hook relation" p.17.)

5-3. Fixing the feed adjusting dial



WARNING :

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



To prohibit the adjustment of the feed adjusting dial:

- 1) Remove the pulley cover.
- 2) Insert stopper pin ❷ and screw ❸ in tapped hole ❶ and tighten it.

Insert stopper pin ❷ into the tapped hole from its thinner end as illustrated in the figure.



Stopper pin ❷ and screw ❸ are separately available.

Part number of stopper pin : TA0440401MO

Part number of screw : SM8060612TP

5-4. Normal-/reverse-feed stitch needle entry points alignment at the time of automatic reverse feed stitching (LS-2342S-7, 2342H-7)

When the sewing speed or stitch pitch is changed, the normal- and reverse-feed stitch needle entry points may not be aligned at the time of automatic reverse feed stitching.

In such a case, correct the alignment of needle entry points by changing the ON/OFF timing of the automatic reverse feed cylinder.

In the case the stitch pitch is large and correction of the timing is difficult, it is recommended to decrease the reverse feed sewing speed or use the temporary stop function at each corner section of the sewing pattern.

Refer to **"III-8. Detailed explanation of selection of functions ⑩ Compensation of timing of the solenoid for reverse feed stitching"** in the Instruction Manual for the SC-922 for detail.

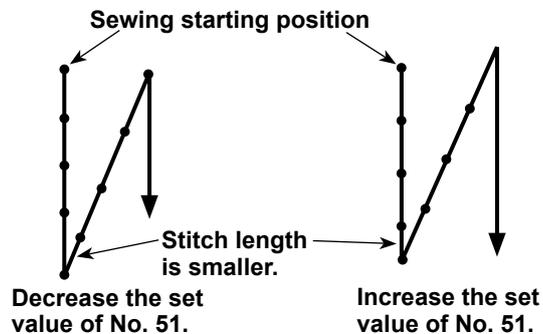
Normal- and reverse-feed stitches may need to be adjusted according to the stitch pitch to be used. Refer to the Engineer's Manual for how to adjust the stitches.

1) How to align needle entry points of the reverse feed stitching with those of the normal feed stitching

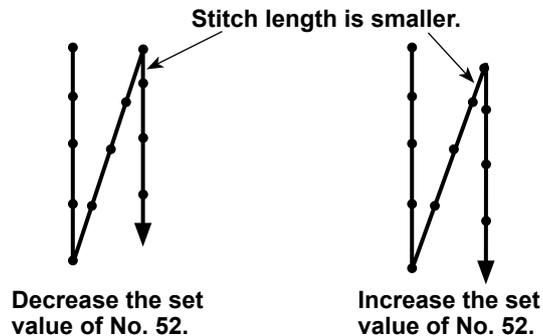
Carry out "correction of the timing of the reverse feed stitching" according to the difference between the needle entry points of the reverse feed stitching and those of the normal feed stitching.

Refer to **"III-6. Setting the SC-922 functions"** in the Instruction Manual for the SC-922 for how to carry out the "correction of the timing of the reverse feed stitching".

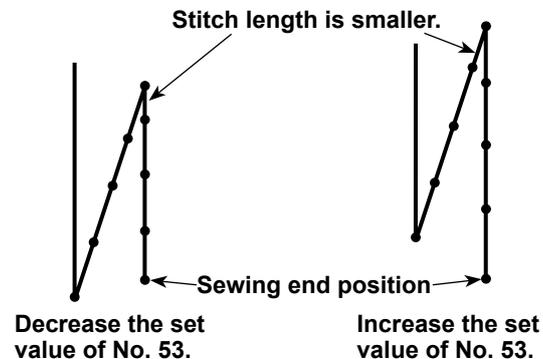
- ① ON-timing of the reverse feed stitching at the beginning of sewing (Function setting No. 51)



- ② Correction of the OFF-timing of the reverse feed stitching at the beginning of sewing (Function setting No. 52)



- ③ Correction of the OFF-timing of the reverse feed stitching at the end of sewing (Function setting No. 53)



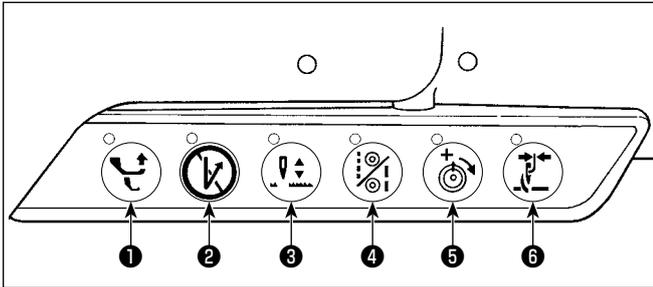
2) Stitch-by-stitch reverse feed stitching speed (Function setting No. 8)

	Default value	Recommended value	Recommended value
Stitch pitch (mm)	3 to 6	7 to 8	9
Reverse feed stitching speed (sti/min)	600	500	400

5-5. Operation switches



When raising the machine head which has been tilted, do not hold the operation switch to raise it.



① Alternating vertical movement amount change-over switch (LS-2342S-7, 2342H-7)

If this switch is pressed the amount of the alternating vertical movement of the walking foot and the presser foot will be maximized. (Lamp above the switch lights up)

Use this switch when a multilayered portion of the sewing product is not smoothly fed.

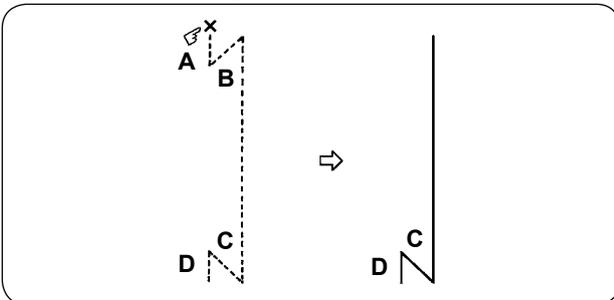
To change over the amount of the alternating vertical movement of the walking foot and the presser foot by means of the knee switch, assemble the accessory knee switch supplied with the unit and fix it on the table with wood screw.

For the wiring, refer to "5-6. Knee switch (LS-2342S-7, 2342H-7)" p.24.

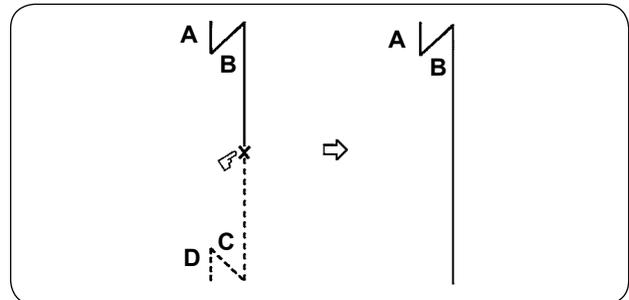
② Automatic reverse feed stitching cancellation/addition switch (LS-2342S-7, 2342H-7)

- If this switch is pressed when the following automatic reverse feed stitching has been specified, the reverse stitching will not take place (for once immediately after it is pressed). (Example 1)
- If this switch is pressed when no automatic reverse feed stitching has been specified, the reverse stitching will take place (once immediately after it is pressed). (Example 2)

(Example 1) In the case where both automatic reverse feed stitching for start and that for end have been specified :

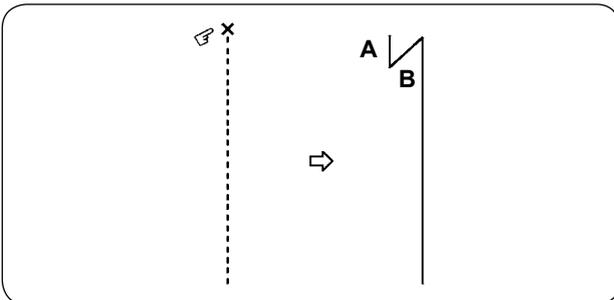


If the  switch is pressed before starting sewing, the automatic reverse feed stitching for start (between A and B) will not be carried out.

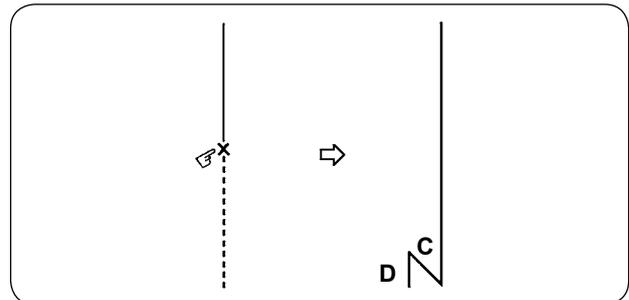


If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between C and D) will not be carried out.

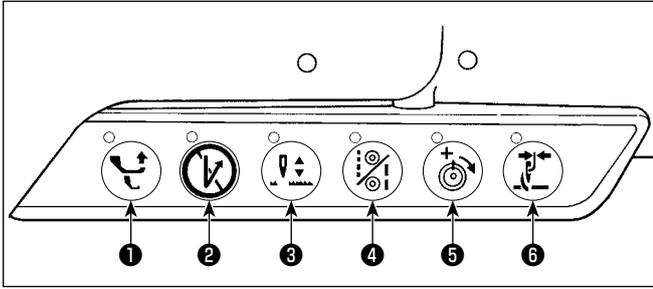
(Example 2) In the case where neither automatic reverse feed stitching for start nor that for end have been specified :



If the  switch is pressed before starting sewing, the automatic reverse feed stitching for start (between A and B) will be carried out.



If the  switch is pressed during sewing, the automatic reverse feed stitching for end (between C and D) will be carried out.

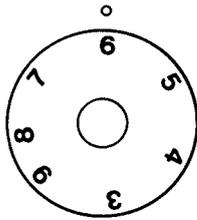


③ Needle lifting switch

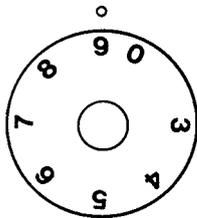
When the switch is pressed, the needle moves from its lower-end stop position to its upper-end stop position.

Example

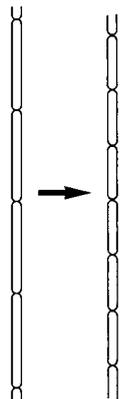
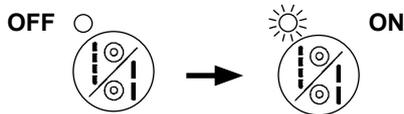
• 2P feed adjusting dial scale : 6



• Standard feed adjusting dial scale : 9



• When this switch is pressed, the stitch length is changed over from 9 to 6 and the lamp lights up.



• When this switch pressed again, the stitch length returns from 6 to 9 and the lamp goes out.

④ 2P switch (LS-2342S-7, 2342H-7)

If this switch is pressed, the stitch length is changed over to that of the scale on the 2P feed adjusting dial. (Lamp in the button is lit up.)

 **Be sure to make the number of 2P feed adjusting dial less than that of the standard feed adjusting dial.**

⑤ Needle thread tension changeover switch

When the switch is pressed, the double tension function is selected to increase the needle thread tension. (The lamp above the switch is lit up.)

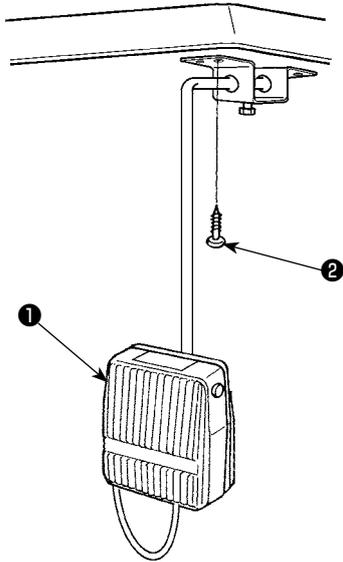
⑥ This is not used.

5-6. Knee switch (LS-2342S-7, 2342H-7)



WARNING :

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



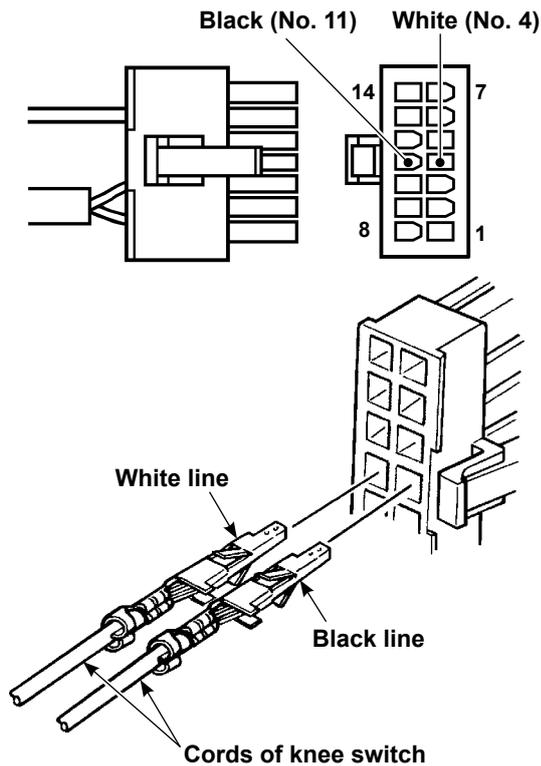
(1) Installation of the knee switch

- 1) Assemble the knee switch ❶. Then, fix it on the undersurface of the table with a wood screw ❷.
- 2) Connect the knee switch ❶ to No. 4 and No. 11 pins of the machine connector 14P which is connected to CN36 of the machine controller.

(2) Functions of the knee switch

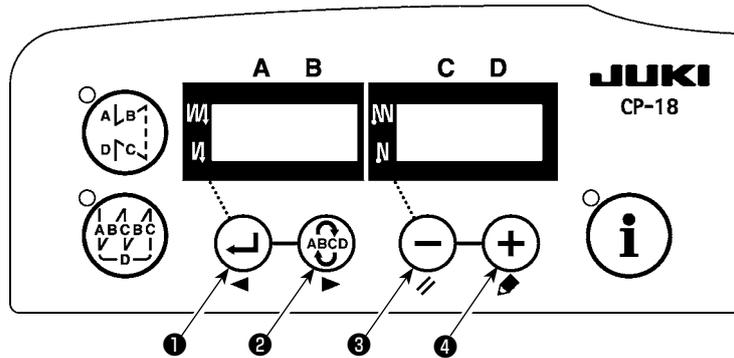
If knee switch ❶ is pressed, the amount of the alternating vertical movement of the walking foot and the presser foot will be maximized. (Same with the performance carried out by pressing the alternating vertical movement amount change-over switch “” on the machine head.)

The knee lifter switch can also be used as the presser bar lifting lever through the relevant function setting. (When the switch is used as the presser lifting switch, the function as the alternating vertical movement amount changeover switch is lost.)



(3) Function setting of the knee switch

• CP-18



1) Enter the function setting mode referring to "6. Setting of functions of SC-922, 1)" in the Instruction Manual for the SC-922.

□ □ 1 2 o P T _ _

2) Press switch ① or switch ② to call out function setting No.12 (option input/output function selection).

□ o P T i n _ _

3) Press switch ③ or switch ④ and select the item for "in".

□ i 3 1 v E r T

4) Press switch ② and select display No.i31.

The lamps will be on alternately.

L □ 2 4

5) Press switch ③ or switch ④ to select the knee switch function. Refer to list 1 for the details of the functions.

□ i 3 1 L □ 2 4

6) Press switch ② and fix the function.

□ o P T □ □ i n

7) Press switch ② and end the option input.

□ E n d

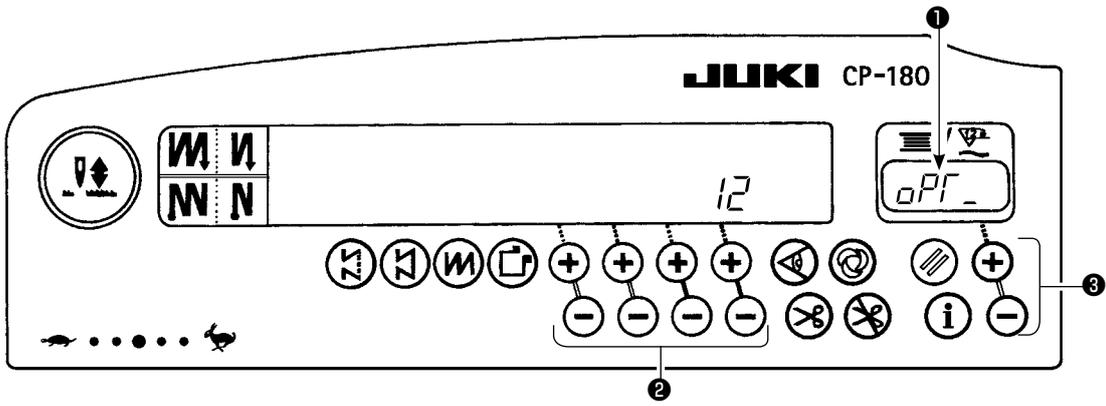
8) Select "End" item using switch ③ or switch ④ .

□ □ 1 2 o P T _ _

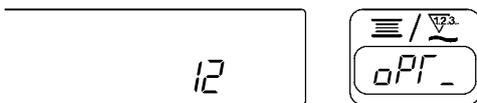
9) Press switch ① or switch ② and return to the function setting mode.

List 1

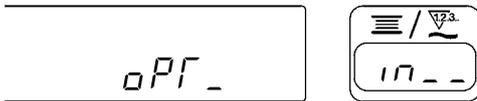
Function code	Abbreviation	Functional item	Remarks
5	FL	Presser lifter switch function	Presser output will be ON while the switch is being pressed.
31	ALFL	Presser lifter alternate switch function	Presser output will be ON or OFF each time the switch is pressed.
24	vErT	Alternate vertical movement amount conversion alternate switch function	Alternate vertical movement amount output will be ON or OFF each time the switch is pressed.
25	vSW	Alternate vertical movement amount conversion switch function	Alternate vertical movement amount output will be ON while the switch is being pressed.



1) Enter the function setting mode referring to "18. FUNCTION SETTING SWITCH, 1)" in the Instruction Manual for the CP-180.



2) Select function number 12 according to the function setting method.



3) Select the item of "in" by switch 3 .



4) Select the displayed number "131" by means of switch 2 .

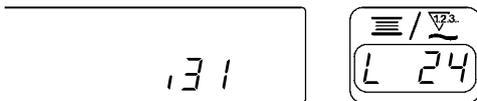


5) Select the knee switch function by switch 3 . Refer to list 1 for the details of the functions.

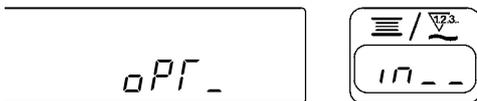
The lamps will be on alternately. ↑ ↓



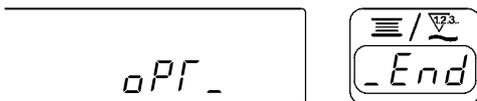
6) Fix the knee switch function by switch 2 .



7) The above function is fixed by switch 2 .



8) The option input is ended by switch 2 .



9) Select the item of "End" by switch 3 , and return to the function setting mode.

6. SEWING SPEED TABLE

Operate the sewing machine at a speed equal to or lower than the maximum sewing speed selected from those shown in the table below according to the sewing conditions.

The sewing speed is automatically set according to the amount of the alternating vertical movement of the walking foot and the presser foot.

[LS-2342S, LS-2342S-7]

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 7 mm or less	Stitch length : More than 7 mm to 9 mm or less
3 or less	2,500 sti/min	2,000 sti/min
More than 3 or 4 or less	2,200 sti/min	2,000 sti/min
More than 4 or 5 or less	2,000 sti/min	2,000 sti/min
More than 5 or 9 or less	1,800 sti/min	1,800 sti/min

* In the case the stitch length exceeds 7 mm, change the maximum sewing speed referring to "6. Function setting of SC-922" in the Instruction Manual for the SC-922.

[LS-2342H, LS-2342H-7]

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 9 mm or less
3 or less	2,000 sti/min
More than 3 or 4 or less	1,600 sti/min
More than 4 or 5 or less	1,400 sti/min
More than 5 or 9 or less	1,400 sti/min

7. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Troubles	Causes	Corrective measures
<p>1. Thread breakage (Thread frays or is worn out.)</p> <p>(Needle thread trails 2 to 3 cm from the wrong side of the fabric.)</p>	<ul style="list-style-type: none"> ① Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs. ② Needle thread tension is too high. ③ Bobbin case opener provides too much clearance at the bobbin. ④ Needle comes in contact with the blade point of hook. ⑤ Amount of oil in the hook is too small. ⑥ Needle thread tension is too low. ⑦ Thread take-up spring works excessively or the stroke of the spring is too small. ⑧ Timing between the needle and the hook is excessively advanced or retarded. 	<ul style="list-style-type: none"> ○ Remove the sharp edges or burrs on the blade point of hook using a fine emery paper. Buff up the bobbin case resting groove on the throat plate. ○ Decrease the needle thread tension. ○ Decrease the clearance provided between the bobbin case opener and the bobbin. Refer to "4-7. Adjusting the bobbin case opener" p.18. ○ Refer to "4-5. Needle-to-hook relation" p.17. ○ Adjust the amount of oil in the hook properly. Refer to "3-1. Lubrication" p.7. ○ Increase the needle thread tension. ○ Decrease the tension of the spring and increase the stroke of the spring. ○ Refer to "4-5. Needle-to-hook relation" p.17.
<p>2. Stitch skipping</p>	<ul style="list-style-type: none"> ① Timing between the needle and the hook is excessively advanced or retarded. ② Pressure of the presser foot is too low. ③ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct. ④ Hook needle guard is not functional. ⑤ Improper type of needle is used. 	<ul style="list-style-type: none"> ○ Refer to "4-5. Needle-to-hook relation" p.17. ○ Tighten the presser spring regulator. ○ Refer to "4-5. Needle-to-hook relation" p.17. ○ Refer to "4-6. Adjusting the hook needle guard" p.18. ○ Replace the needle with one which is thicker than the current needle by one count.
<p>3. Loose stitches</p>	<ul style="list-style-type: none"> ① Bobbin thread does not pass through the tension spring of the inner hook. ② The hook, feed dog or the thread path of thread guide, etc. has worn out or has flaws. ③ Bobbin fails to move smoothly. ④ Bobbin case opener provides too much clearance at the bobbin. ⑤ Bobbin thread tension is too low. ⑥ Bobbin has been wound too tightly. 	<ul style="list-style-type: none"> ○ Thread the bobbin thread correctly. ○ Remove rough parts with a fine emery paper or buff it up. ○ Replace the bobbin or hook with a new one. ○ Refer to "4-7. Adjusting the bobbin case opener" p.18. ○ Increase the bobbin thread tension. ○ Decrease the tension applied to the bobbin winder.
<p>4. Thread slips off the needle eyelet simultaneously with thread trimming.</p>	<ul style="list-style-type: none"> ① Thread tension given by the tension controller No. 1 is too high. 	<ul style="list-style-type: none"> ○ Decrease the thread tension given by the tension controller No. 1.
<p>5. Thread slips off the needle eyelet at the start of sewing.</p>	<ul style="list-style-type: none"> ① Thread tension given by the tension controller No. 1 is too high. ② Clamp spring has improper shape. ③ Bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Decrease the thread tension given by the tension controller No. 1. ○ Replace the clamp spring with a new one or correct the current one. ○ Increase the bobbin thread tension.

Troubles	Causes	Corrective measures
6. Thread is not cut sharply.	<ul style="list-style-type: none"> ① The blades of moving knife and counter knife have been improperly adjusted. ② The knives have blunt blades. ③ Bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Refer to "4-8. Position of the counter knife and adjustment of the knife pressure (LS-2342S-7, 2342H-7)" p.19. ○ Replace the moving knife and counter knife with new ones, or correct the current ones. ○ Increase the bobbin thread tension.
7. Thread remains uncut after thread trimming. (Bobbin thread trimming failure when stitch length is comparatively short.)	<ul style="list-style-type: none"> ① Initial position of the moving knife has been improperly adjusted. ② Bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Refer to "4-8. Position of the counter knife and adjustment of the knife pressure (LS-2342S-7, 2342H-7)" p.19. ○ Increase the bobbin thread tension.
8. Thread breaks at the start of sewing after thread trimming.	<ul style="list-style-type: none"> ① The needle thread is caught in the hook. 	<ul style="list-style-type: none"> ○ Shorten the length of thread remaining on the needle after thread trimming. Refer to "4-2. Thread tension" p.15.
9. When a heavy-weight material is sewn, the material warps.	<ul style="list-style-type: none"> ① The feed amount of the top feed is inadequate. 	<ul style="list-style-type: none"> ○ Decrease the feed dog height and reduce the feed amount of the bottom feed. (Refer to the Engineer's Manual for the adjustment procedure.)
10. One or two stitches skip at the beginning of sewing (in the case of starting sewing from the material edge)	<ul style="list-style-type: none"> ① Needle thread and bobbin thread fail to intertwine with each other. ② Thread tension given by the tension controller No. 1 is too high. ③ Clamp spring pressure is excessively weak. ④ The position of counter knife improper. 	<ul style="list-style-type: none"> ○ Refer to "3-6. Threading the machine head" p.10. ○ Retain the needle thread on the material. ○ Remove the needle thread from the thread guide (asm.). (Part ① on p.10) ○ Increase the number of soft-start stitches. (Refer to the Instruction Manual for the SC-922.) ○ Decrease the thread tension given by the tension controller No. 1. ○ Increase the clamp spring pressure. ○ Adjust the position of counter knife appropriately.
11. Three or more stitches skip at the beginning of sewing (in the case of starting sewing from the material edge)	<ul style="list-style-type: none"> ① Thread tension given by the tension controller No. 1 is too high. ② Clamp spring pressure is excessively strong. 	<ul style="list-style-type: none"> ○ Decrease the thread tension given by the tension controller No. 1. ○ Decrease the clamp spring pressure.
12. When using thick thread, thread is inadequately tensed.	<ul style="list-style-type: none"> ① The clearance in the bobbin case opener is too small. ② The bobbin thread tension is too low. 	<ul style="list-style-type: none"> ○ Refer to "4-7. Adjusting the bobbin case opener" p.18. ○ Increase the bobbin thread tension.