

ENGLISH

**LK-1910, LK-1920
INSTRUCTION MANUAL**

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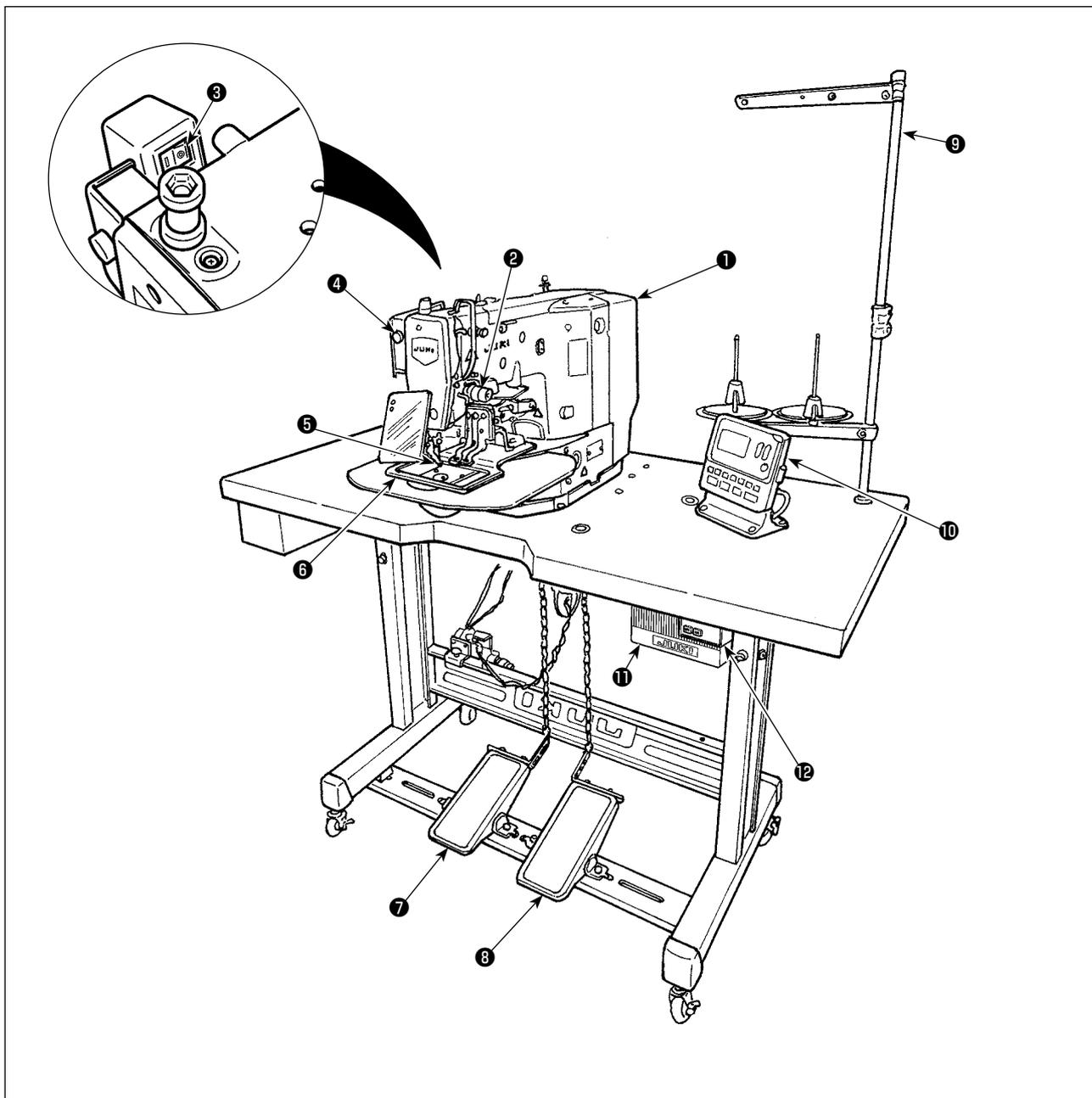
1. SPECIFICATIONS

1	Sewing area	X (lateral) direction 100 mm Y (longitudinal) direction 60 mm
2	Max. sewing speed	2500 sti/min* (When sewing pitches are less than 3 mm.)
3	Stitch length	0.1 to 10.0 mm (adjustable in 0.1 mm step)
4	Feed motion of work clamp foot	Intermittent feed (2-shaft drive by stepping motor)
5	Needle bar stroke	41.2 mm
6	Needle	DP × 5, DP × 17
7	Lift of work clamp foot	18 mm (standard) Max. 22 mm (Pneumatic type : max. 25 mm)
8	Hook	2-fold semi-rotary hook (oil wick lubrication)
9	Intermediate presser stroke	4 mm (standard) (Adjustable in the range of 0 and 4 to 10 mm) (LK-1920 only)
10	Lift of intermediate presser	18 mm (LK-1920 only)
11	Lubricating oil	New Defrix Oil No. 2 (supplied by oiler)
12	Data recording	Memory in MAIN PCB (80 Kbyte) EEP-ROM (32 Kbyte)
13	Enlarging / Reducing facility	20 % to 200 % (1% step) in X direction and Y direction respectively
14	Enlarging / Reducing method	Pattern enlargement / reduction can be done by increasing/decreasing the stitch length
15	Temporary stop function	Used to stop machine operation during a stitching cycle.
16	Thread breakage detection function	Used to detect needle thread breakage to automatically stop machine.
17	Max. sewing speed limitation	200 to 2,500 sti/min* (100 sti/min steps)
18	Pattern selection	Standard patterns : 51 User patterns : 1 to 200 Old user patterns : 1 to 99 Media patterns : 1 to 999
19	Bobbin thread counter	UP/DOWN type (0 to 9999)
20	Sewing machine motor	Servo motor
21	Dimensions	W : 1200 mm L : 700 mm H : 1160 mm (Use the standard table and stand.)
22	Mass (gross mass)	Machine head : 46 kg Control box : 5 kg
23	Power consumption	380 VA (Operation for 35 seconds at 2,500 sti/min; at rest for two seconds)
24	Operating temperature range	5 °C to 35 °C
25	Operating humidity range	35 % to 85 % (No dew condensation)
26	Line voltage	Rated voltage ±10% 50/60 Hz
27	Air pressure used	0.5 to 0.55 MPa (Only for the pneumatic type)
28	Air consumption	1.3 ℓ/min (Only for the pneumatic type)
29	Noise	- 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 for the sewing cycle, 1.0s ON (Pattern : No.1). - Sound power level (L_{WA}) ; A-weighted value of 77.5 dB; (Includes $K_{WA} = 2.5$ dB); according to ISO 10821- C.6.3 -ISO 3744 GR2 at 2,500 sti/min for the sewing cycle, 1.0s ON (Pattern : No.1).

* Reduce the max. sewing speed in accordance with the sewing conditions.

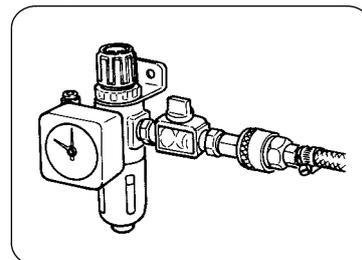
2. CONFIGURATION

2-1. Names of main unit

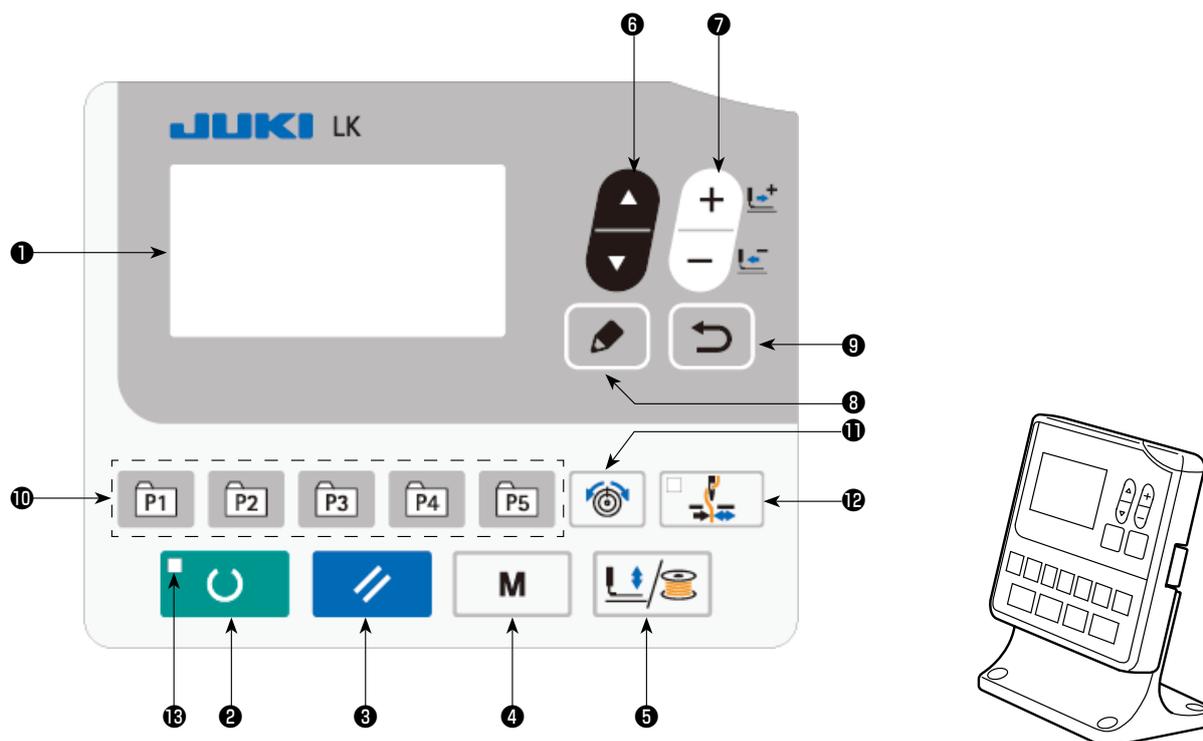


- ① Machine head
- ② Needle thread breakage detecting plate
- ③ Wiper switch
- ④ Temporary stop switch
- ⑤ Intermediate presser (LK-1920 only)
- ⑥ Work clamp feet
- ⑦ Manual pedal (Only for the pneumatic type)
- ⑧ Pedal switch (Shape of pneumatic type is different.)
1st step : Work clamp foot switch. 2nd step : Start switch
- ⑨ Thread stand
- ⑩ Operation panel
- ⑪ Electrical box
- ⑫ Power switch

Air regulator
(Only for the pneumatic type)



2-2. Names and explanation of switches on the operation panel



No.	NAME	FUNCTION
①	LCD display	Various data such as pattern No., shape, etc. are displayed.
②	READY key 	Press this key when starting sewing. Every time this key is pressed, change-over of sewing ready set state and data set state can be performed.
③	RESET key 	Press this key when releasing error, traveling the feed mechanism to its initial position, counter resetting, etc.
④	MODE key 	This key is used for displaying the mode screen.
⑤	PRESSER and WINDER key 	This key lifts or lowers the presser. When the presser goes up, the needle bar travels to the origin and when it comes down, the needle bar travels to the right. This key is pressed when performing bobbin winding.
⑥	ITEM SELECT key 	This key is used to select the data No. and other kinds of data.
⑦	DATA CHANGE key 	This key is used to change the pattern No. and other kinds of data. This key is used to move the feed forward on a stitch-by-stitch basis.

No.	NAME	FUNCTION
⑧	EDIT key 	This key is used to display the edit screen, to select the item or to display the detail screen.
⑨	RETURN key 	This key is used to return the screen to the previous one.
⑩	DIRECT PATTERN 	This key registers the pattern. When this key is pressed, the pattern registered here can sew immediately. X/Y scale, sewing position, etc. can be changed and registered.
⑪	THREAD TENSION key 	This key is not used for the LK-1910 and LK-1920.
⑫	THREAD CLAMP key 	This key is not used for the LK-1910 and LK-1920.
⑬	SET READY LED	The LED lights up under the sewing mode.

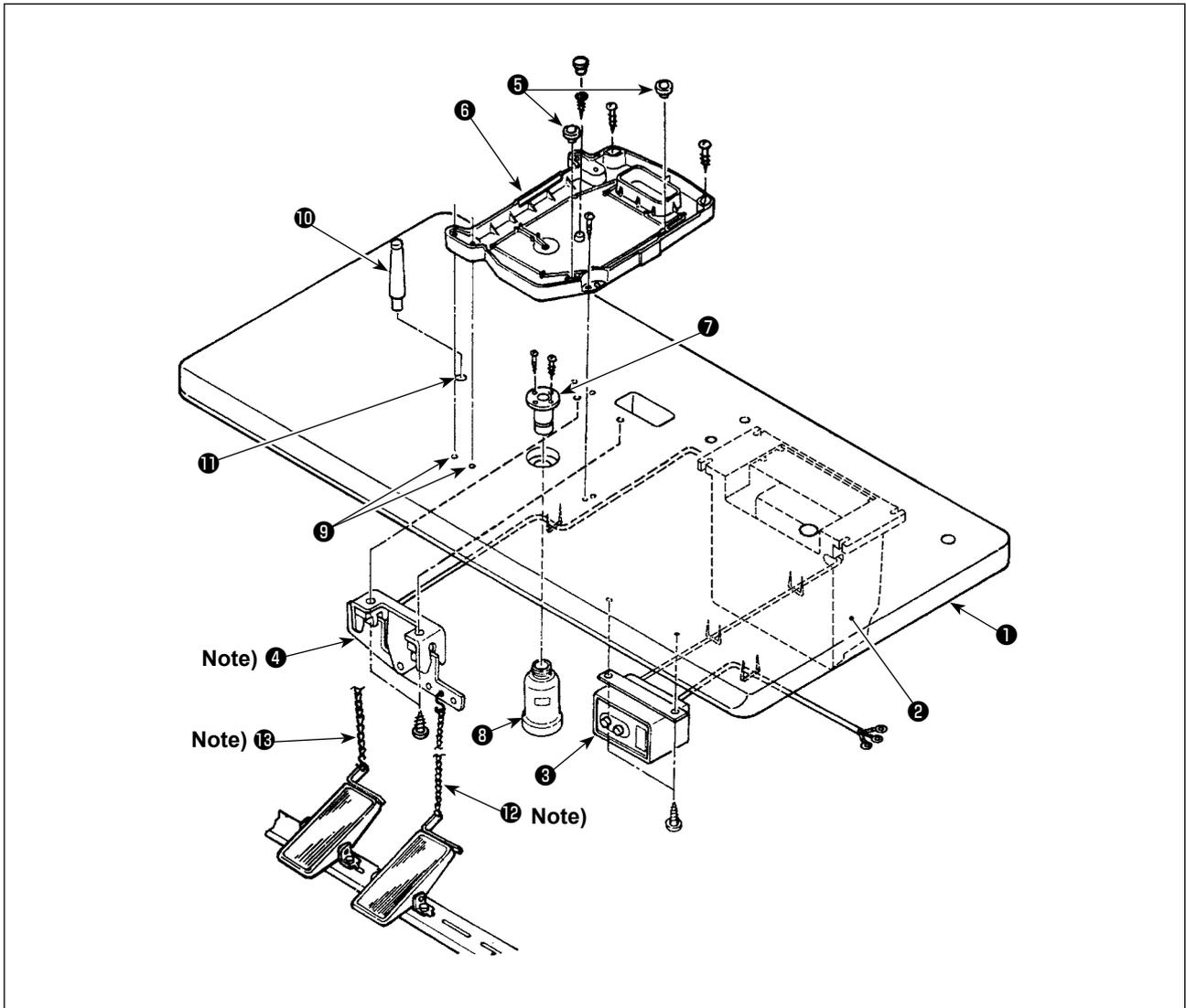
3. INSTALLATION



DANGER :

To prevent possible accidents caused by the fall of the sewing machine, perform the work by two persons or more when the machine is moved.

3-1. Installing the table

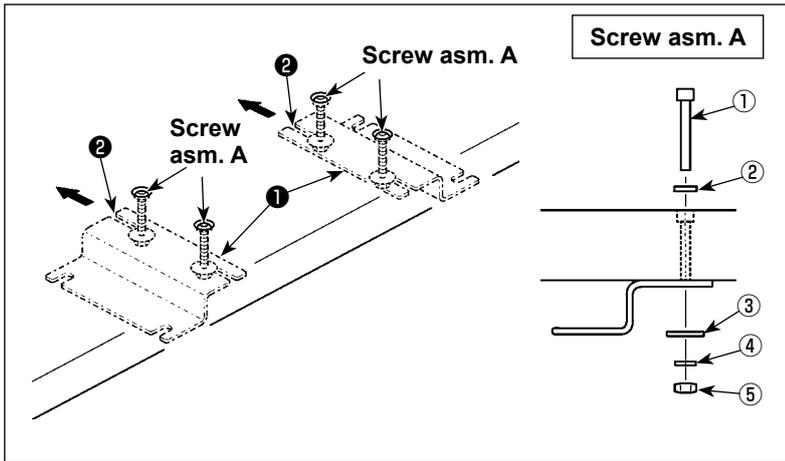


- 1) Securely install control box ② , power switch ③ and pedal switch ④ on table (14117501) ① . (Refer to "3-2. Installation procedure of the electrical box" p.5 for the electrical box.)
- 2) Connect the pedal with ④ the pedal switch using the chain ⑫ .
- 3) Securely fix the respective power cables with the staples.
- 4) Securely fix oil drain ⑦ on the table ① , and screw oil receiver ⑧ .
- 5) Set cushion rubber ⑤ on oil pan ⑥ , and fit oil pan ⑥ to the holes of the table hinges (4 places) ⑨ . Then fix oil pan ⑥ at 4 places with wood screws.
- 6) Close the center portion of oil pan ⑥ with the rubber plug after screwing it.
- 7) Strike head support bar ⑩ in the hole of table ⑪ .
- 8) Connect the pedal with manual pedal link A (machine head side) using chain ⑬ supplied with the machine.



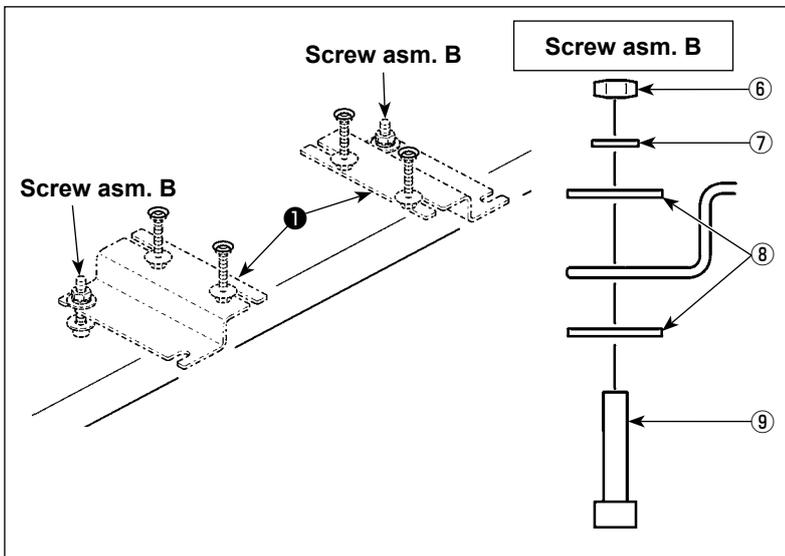
For pneumatic type, it is not necessary to install ④ , ⑫ and ⑬ .

3-2. Installation procedure of the electrical box



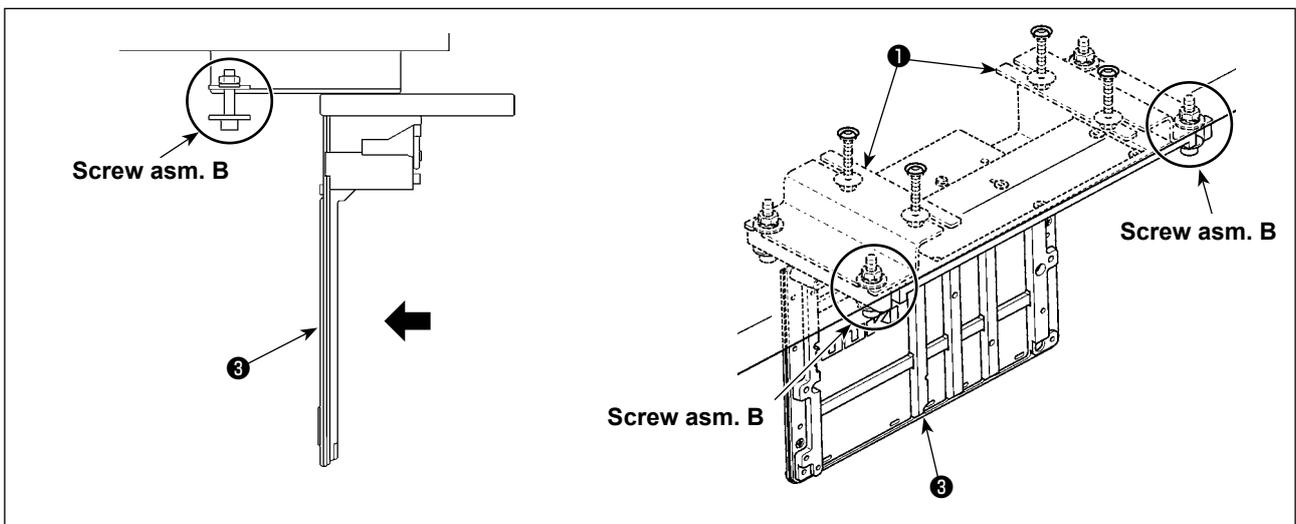
- Secure electrical box mounting plate ① on the table with screw asms. A (at four locations). Push electrical box mounting plate ① away from you until the screws are pressed against U groove ②. Then, secure the electrical box mounting plate.

	Part No.
①	SM3065052TN
②	WP0615001SC
③	WP0651646SC
④	WS0610002KN
⑤	NM6060001SC



- Temporarily put the nuts over screws of screw asms. B and place two screw asms. B at the far side of electrical box mounting plate ①.

	Part No.
⑥	NM6080003SC
⑦	WS0820002KR
⑧	WP0852086SC (Two pieces)
⑨	SM6083502TN



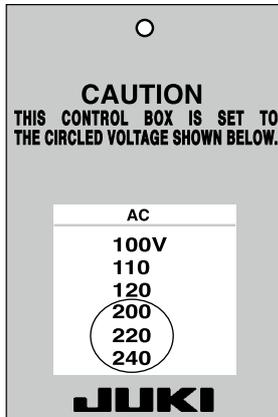
- Insert the electrical box while aligning U-groove in the aluminum frame of electrical box ③ with screw asms. B.

- Placing two remaining screw asms. B (two asms.) at this side of electrical box mounting plate ①, secure the electrical box ③.

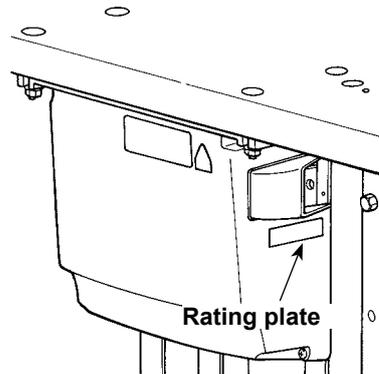
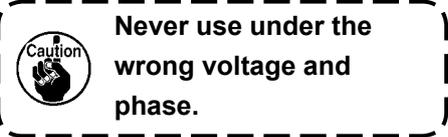
3-3. Connecting the power source cord

Voltage specifications at the time of delivery from the factory are indicated on the voltage indication seal. Connect the cord in accordance with the specifications.

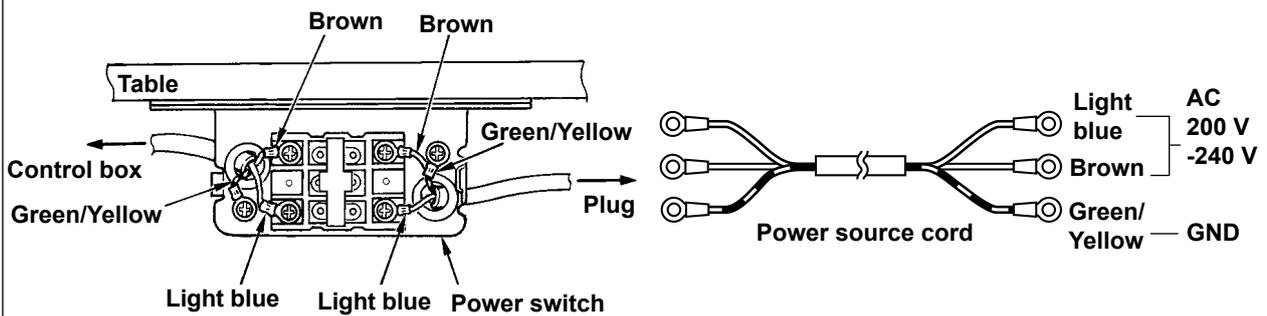
Power indication tag



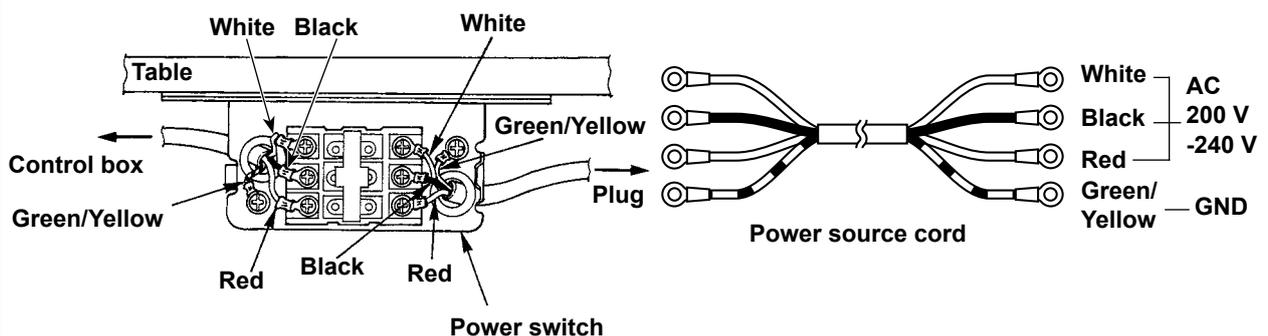
(For example: In the case of 200V)



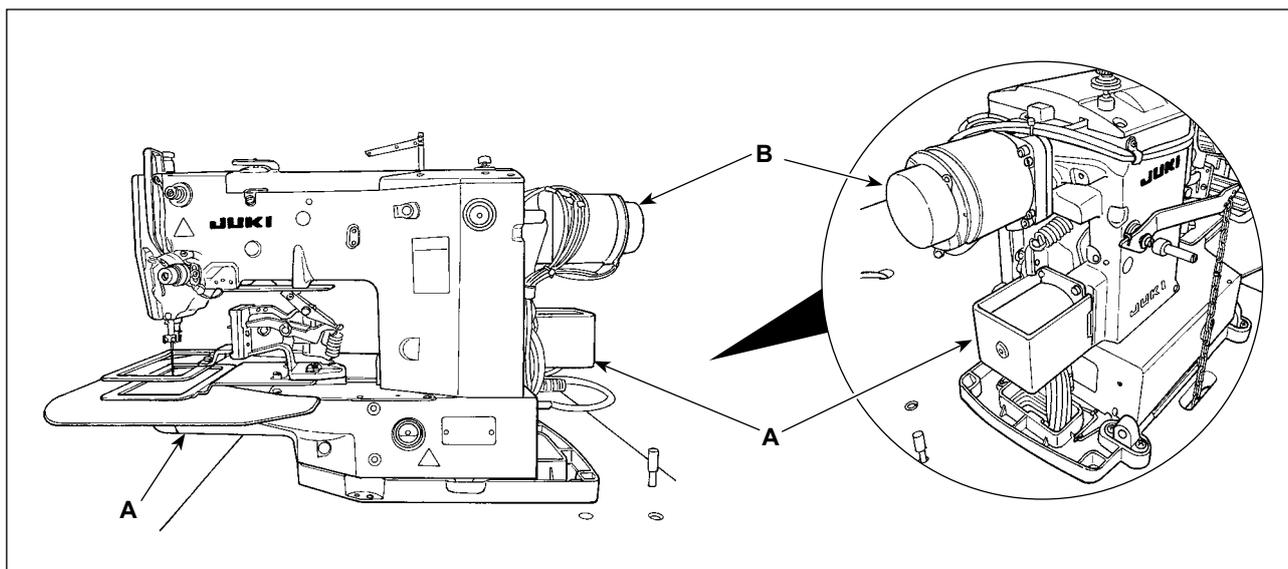
• Connecting single phase 200V, 220V, 230V and 240V



• Connecting three phase 200V, 220V, 230V and 240V



3-4. How to carry the sewing machine



Hold section **A** when moving the sewing machine. In addition, do not hold motor portion **B**.



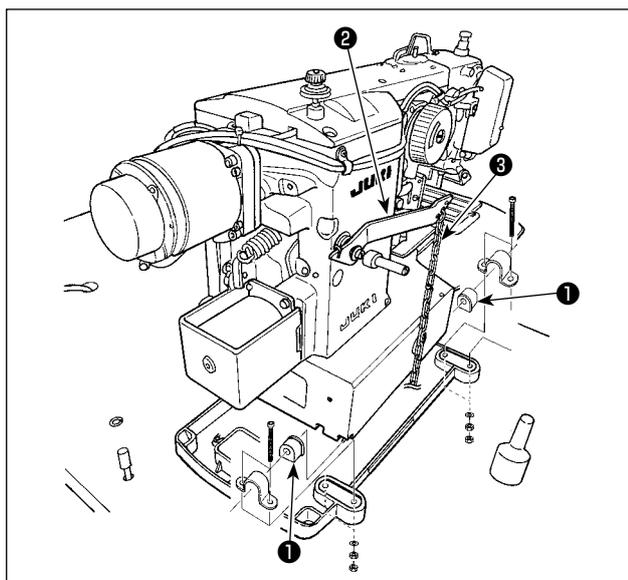
The sewing machine weighs over 46 kg. Be sure to carry the sewing machine with two or more people without exceptions.

3-5. Installation of the sewing machine head



WARNING :

To prevent possible accidents caused by the fall of the sewing machine, perform the work by two persons or more when the machine is moved.

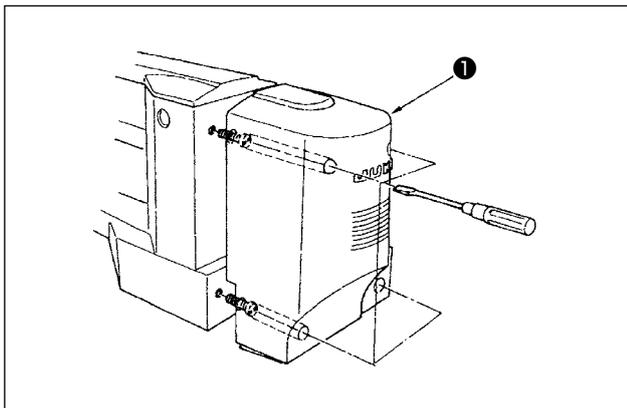


Fit hinge rubber **1** to the hinge shaft, and fix the sewing machine main unit.

Attaching the pedal chain (For solenoid type only)

Connect the manual pedal link **2** and manual pedal with chain **3**.

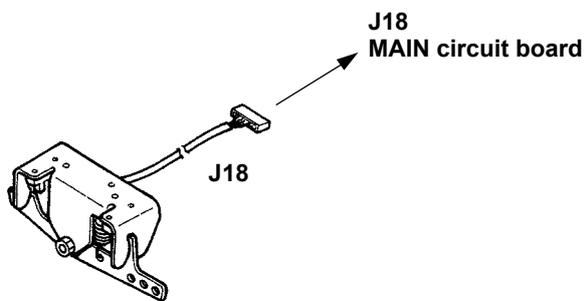
3-6. Installing the motor cover



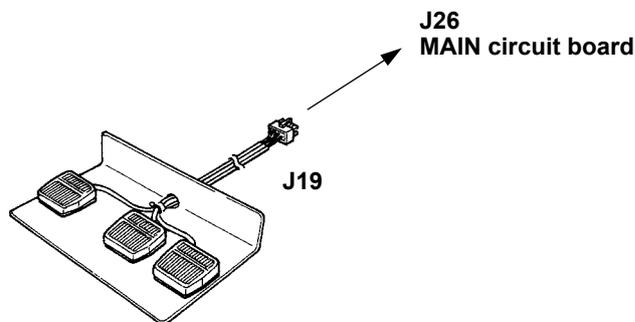
Install motor cover ❶ to the sewing machine main unit using the screws set in the cover.

3-7. Pedal switch

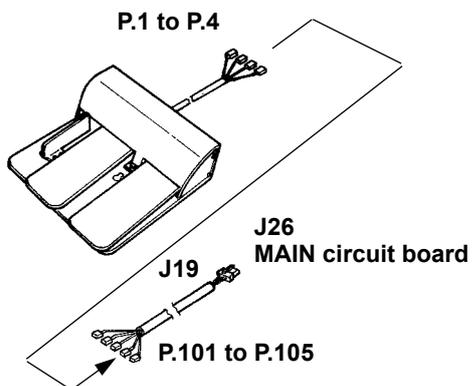
• 1 pedal for solenoid type



• 3-step pedal for pneumatic type (optional)



• 3-step PK pedal for pneumatic type (optional)



Connect PK-47 to the connection cord as described below.

PK-47	Connection cord	Signal name
P1	P101	Feeding frame 1
P2	P102	Feeding frame 2
P3	P103	Feeding frame 3
-	P104	Not used
P4	P105	Start



Either J18 or J26 of MAIN circuit board can be used for the pedal.

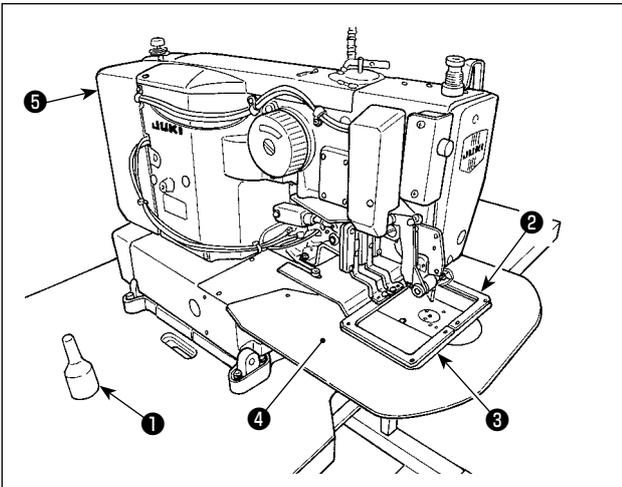
Remove the pedal which is not used since the machine may fail to work if both pedals are simultaneously connected.

3-8. Tilting the sewing machine head



WARNING :

Tilt/raise the sewing machine head with both hands taking care not to allow your fingers to be caught in the head. Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



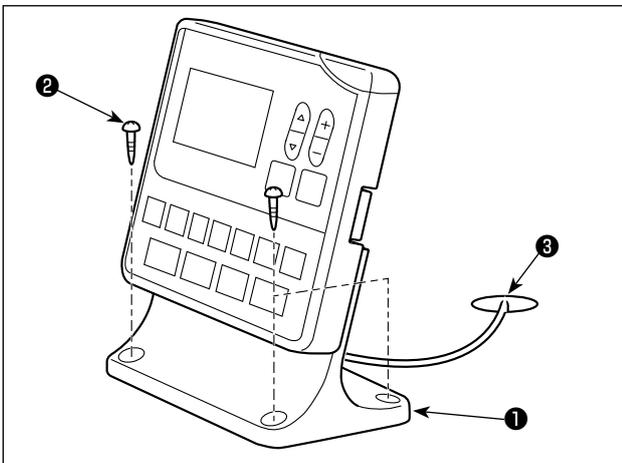
When tilting the sewing machine head, tilt the head gently until it comes in contact with head support rod ① .

1. Before tilting the sewing machine head, make sure that head support rod ① is attached to the machine table.
2. When the sewing machine head is tilted, feeding frame ② moves to the left side by itself and interferes with the intermediate presser or the like. As a result, it will be the cause of breakage. Remove the aforementioned component in advance, or fix feed plate ③ to throat plate support cover ④ with tape or the like, and tilt the sewing machine head.

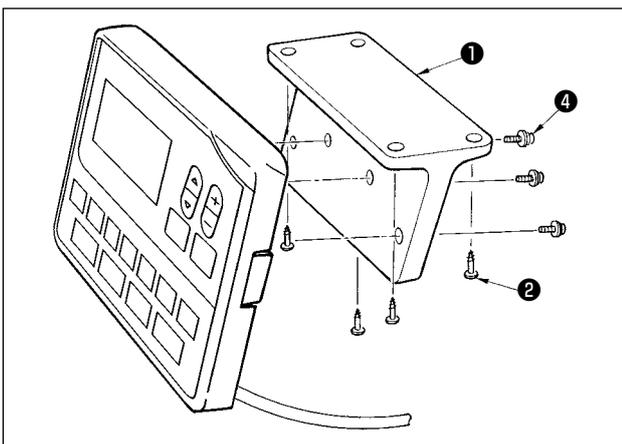


3. When tilting the sewing machine head while holding motor cover ⑤ and throat plate support cover ④ , the covers may be bent. Be sure to tilt the sewing machine head while holding the main unit of the sewing machine.
4. Be sure to tilt the sewing machine head on a flat place to prevent it from falling.

3-9. Installing the operation panel



Fix operation panel mounting plate ① on the table with four wood screws ② . Then, pass the cable through hole ③ in the table.



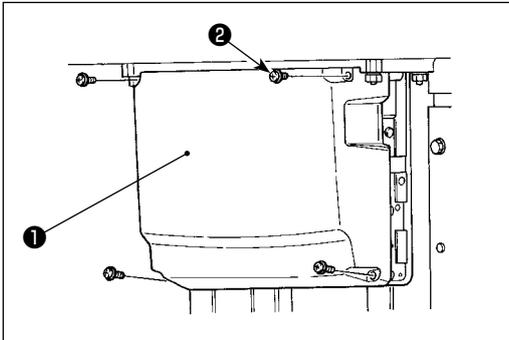
In the case of installing the operation panel on the underside of the table, install the operation panel on panel mounting plate ① by tightening screws ④ in four mounting holes. Then, fix the panel mounting plate at a desired position on the underside of the table with four wood screws ② .

3-10. Connecting the cords

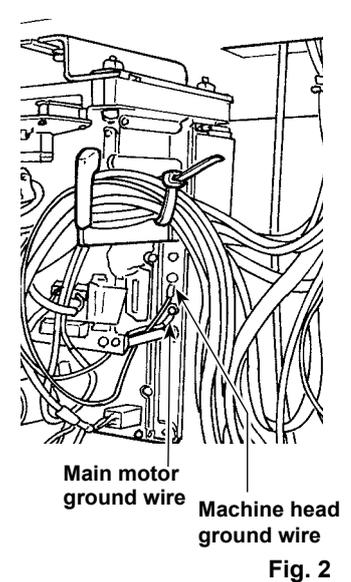
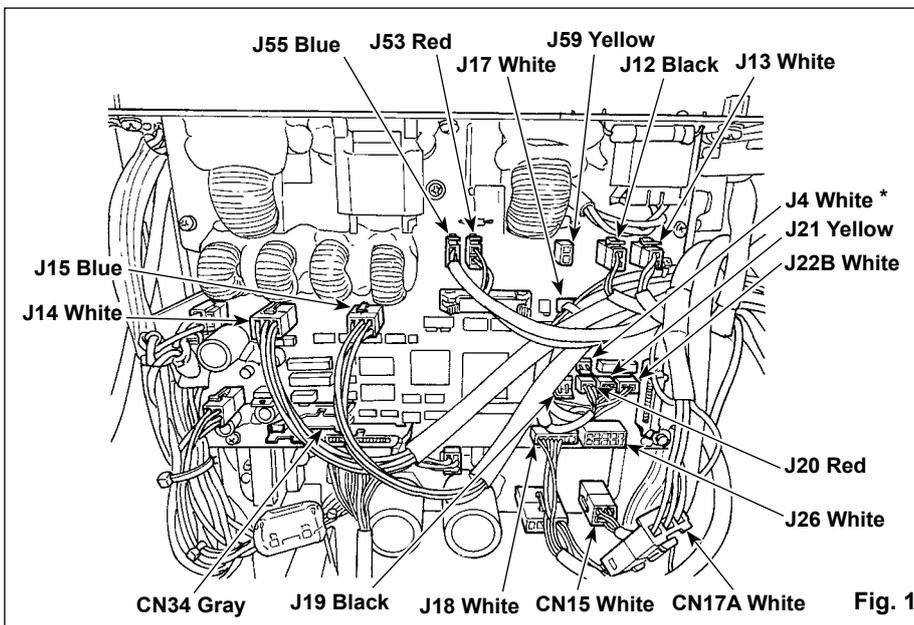
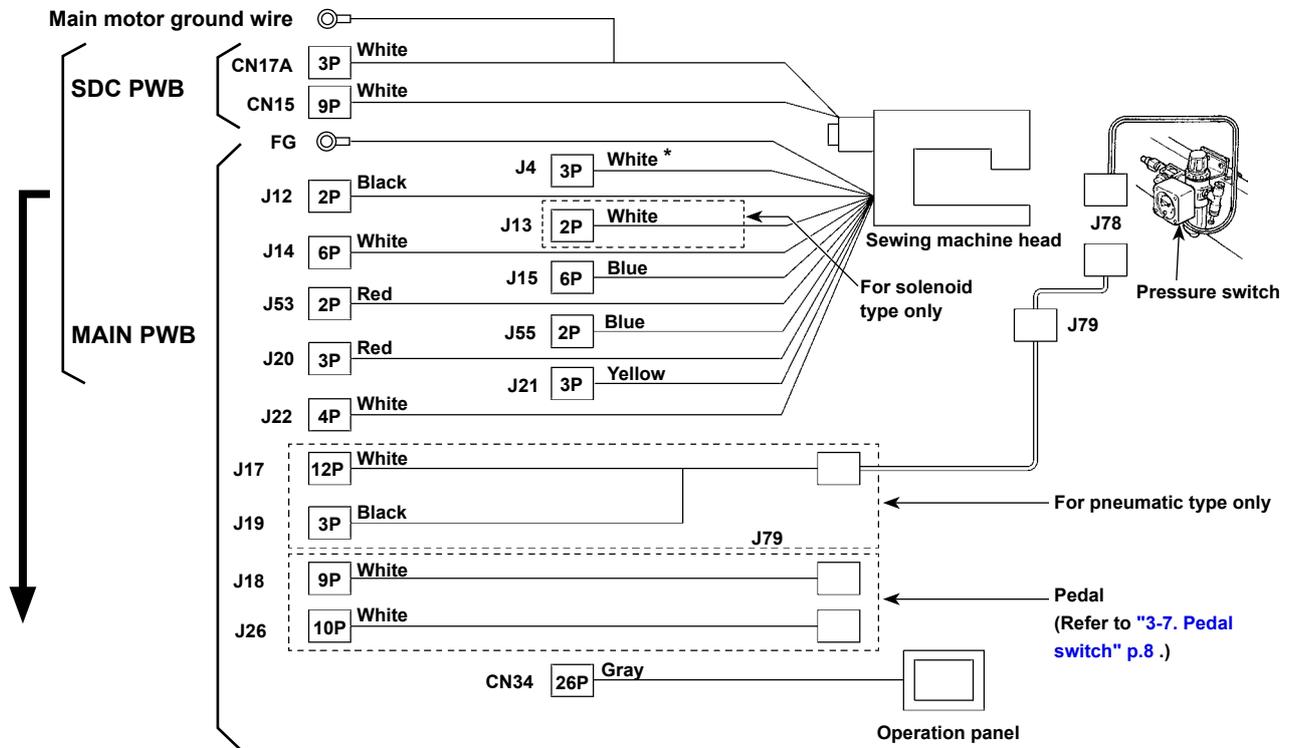


DANGER :

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.



- 1) Loosen four setscrews ② of control box cover ① . Remove control box cover ① .
 - 2) Connect the cords to the respective connectors on MAIN PWB, SDC PWB. (Fig. 1)
 - 3) Fix the machine-head ground wire and the main-motor ground wire at the location shown in Fig. 2 with screws.
- * [CN10 (J4)] is printed on the marker of the cable of the J4 white 3P connector. Connect the cable to the J4 on the MAIN PCB according to this marker.

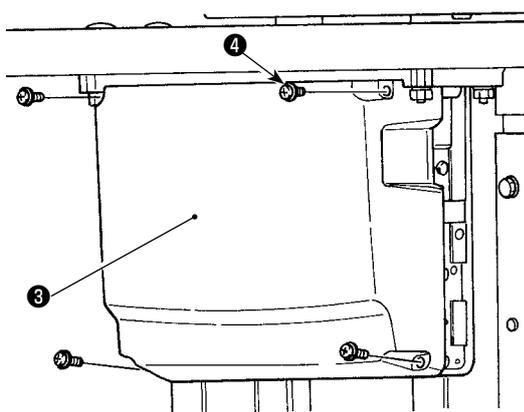
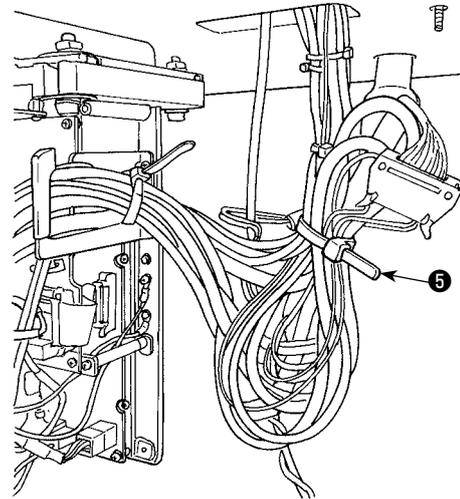
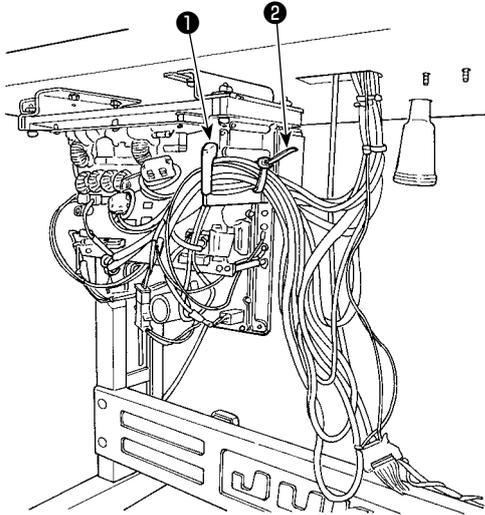


3-11. Handling the cords



DANGER :

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.



Pass the cords connected inside the electrical box through cord exit plate ① and fix with cable clip band ② . Bind the excess cord with cable clip band ⑤ as illustrated in the figure.



When binding the cord, tilt the sewing machine in prior.

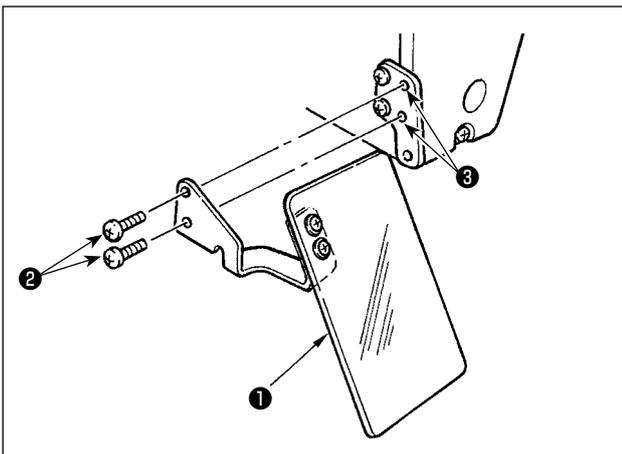
Install control box lid ③ with four setscrews ④ .

3-12. Installing the eye protection cover



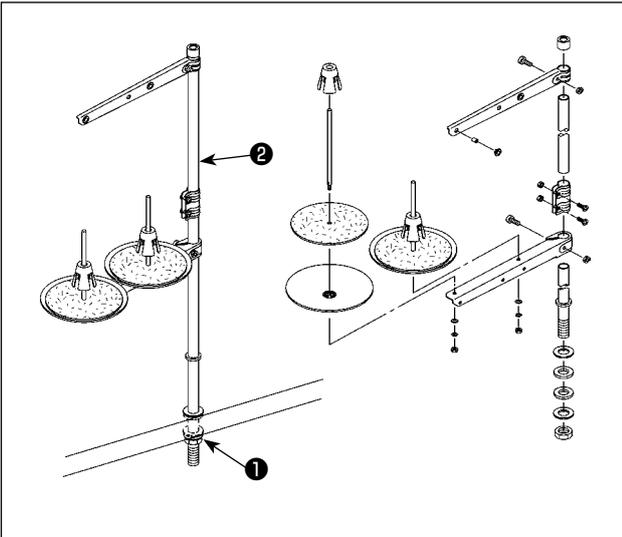
WARNING :

Be sure to attach this cover to protect the eyes from the disperse of needle breakage.



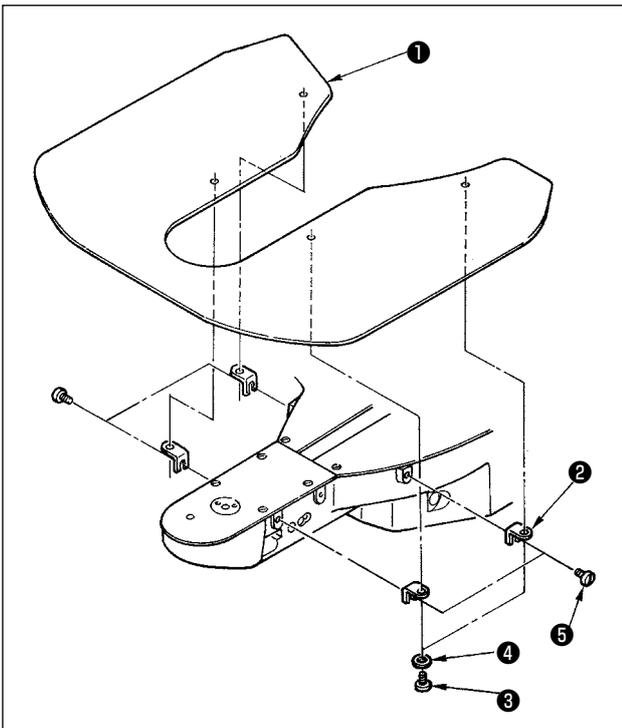
Be sure to use eye protection cover ① after installing it on installing section ③ with screws ② .

3-13. Installing the thread stand



- 1) Assemble the thread stand unit, and insert it in the hole in the machine table.
- 2) Tighten locknut **1** to fix the thread stand.
- 3) For ceiling wiring, pass the power cord through spool rest rod **2**.

3-14. Installing the auxiliary throat plate cover

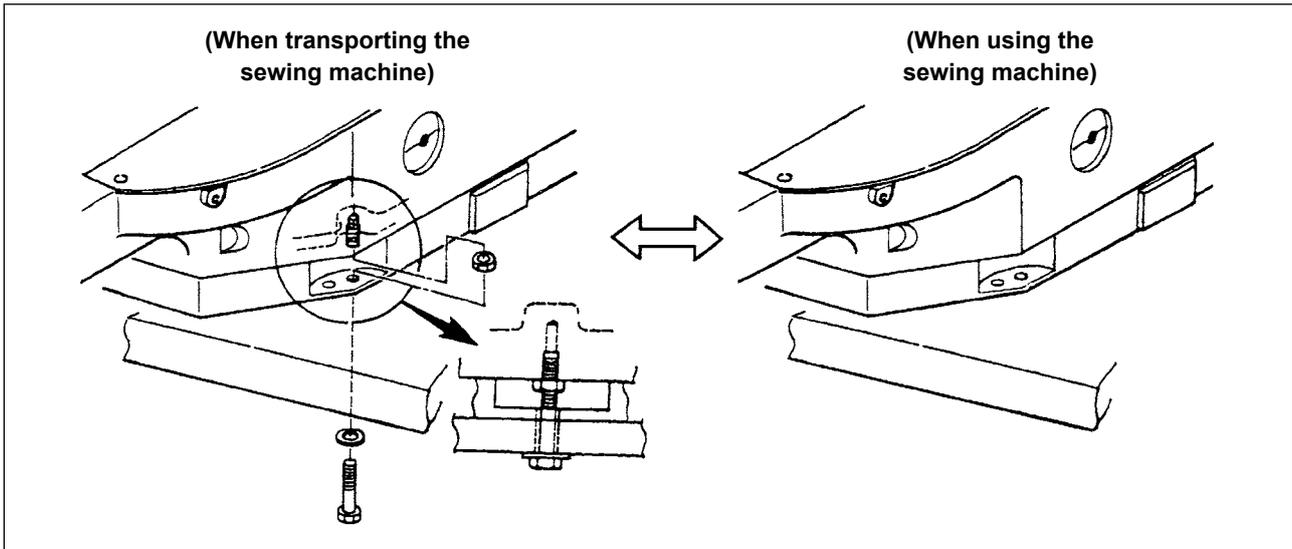


- 1) Install the auxiliary throat plate cover support **2** to auxiliary throat plate cover **1** using set-screw **3** (L = 6) and washer **4**.
- 2) Install the cover on the machine arm using attaching screw **5** (L = 8).



Adjust so that the auxiliary throat plate cover should be almost levelled with the throat plate. If there is a difference in height, the feed plate may be caught with the auxiliary throat plate cover.

3-15. Attaching and removing the bolt for transportation



When transporting the sewing machine, fix the sewing machine main unit and table with the bolt for transportation.

When operating the sewing machine, remove the bolt. If the machine is operated with the bolt fixed, vibration of the machine head is transmitted to the table. As a result, feed movement may be badly affected or the element inside the control box may be damaged.

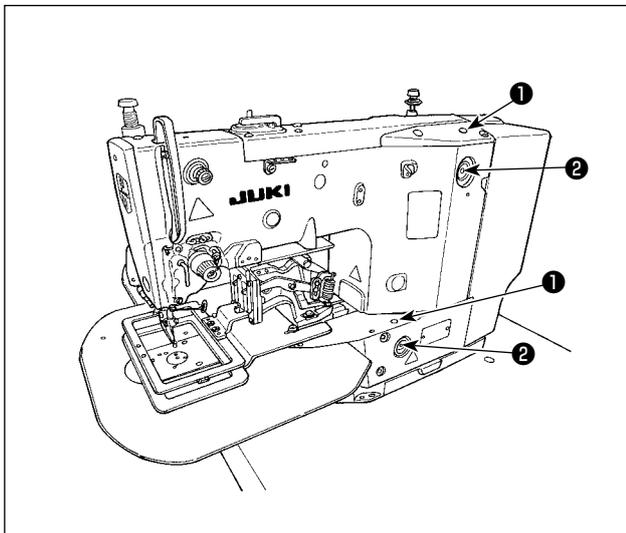
4. OPERATION OF THE SEWING MACHINE

4-1. Lubrication

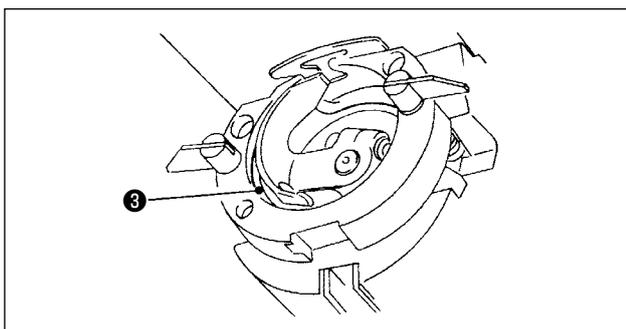


WARNING :

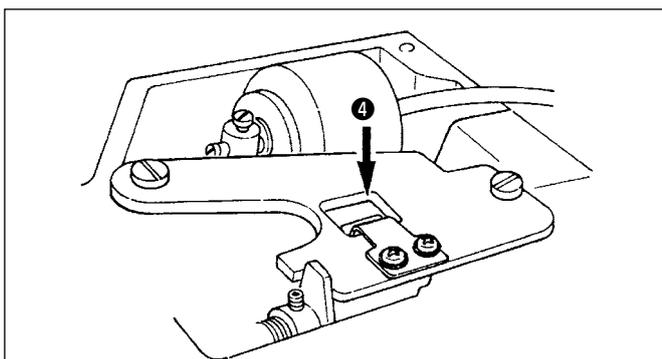
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Once a day, fill oil from oil hole ① on the machine head up to the red mark in the center of oil gauge ② .



- 2) Apply one drop of oil to hook race ③ part to spread on it.

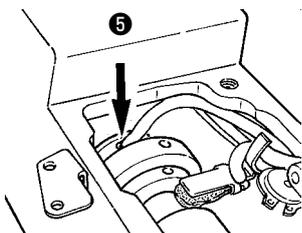


- 3) Remove the top cover, and apply oil to crank rod oil shield ④ , front bushing ⑤ and intermediate bushing ⑥ .

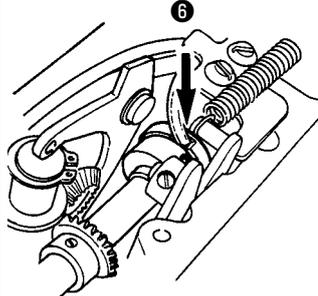


Be sure to perform the above 2) and 3) steps when the machine is first installed, or when it is run after a long period of disuse.

Font bushing



Intermediate bushing

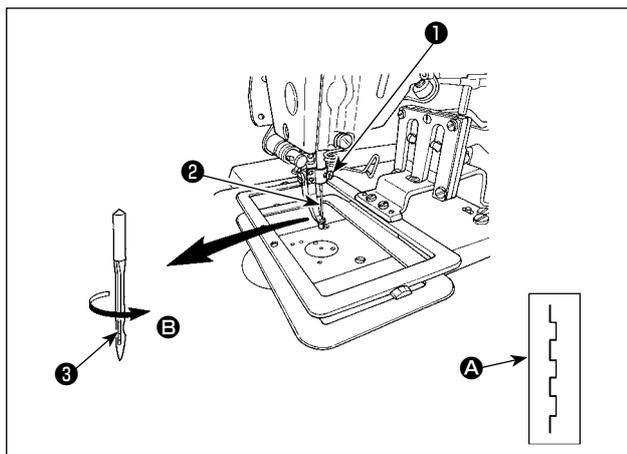


4-2. Attaching the needle



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Loosen setscrew ① and hold needle ② with the long groove ③ facing toward you. Then fully insert it into the hole in the needle bar, and tighten set-screw ① .



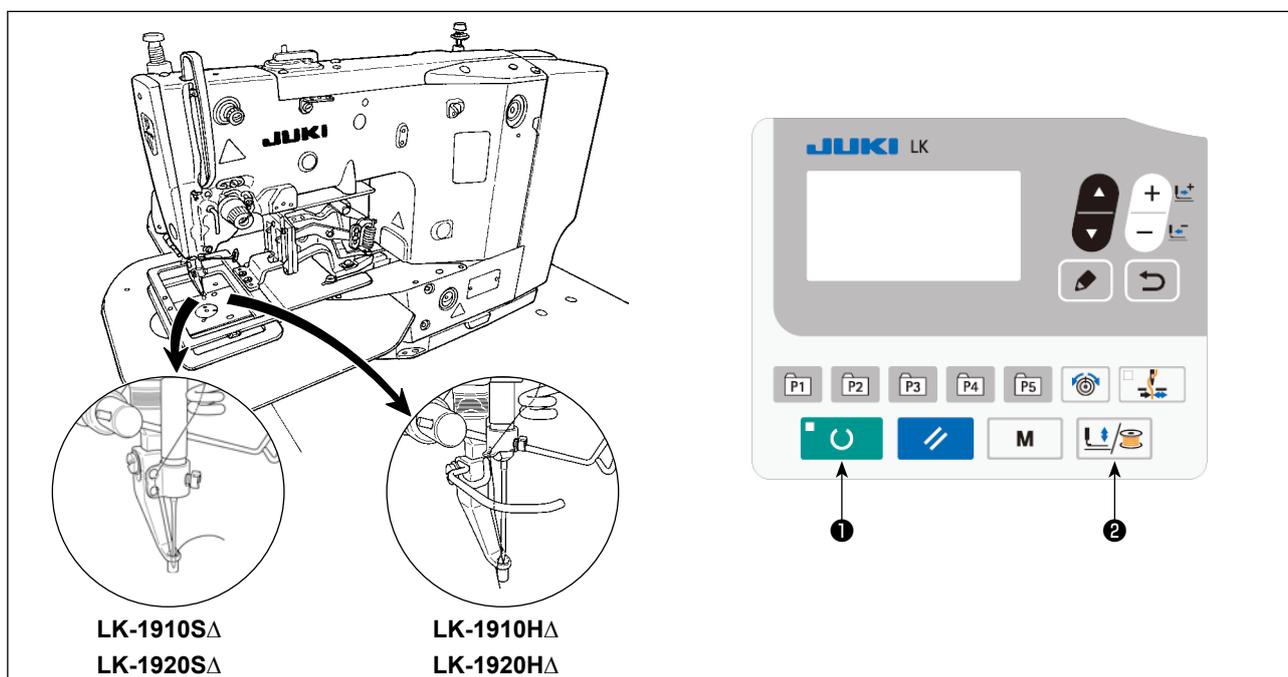
If the stitches are made as shown in A, attach the needle facing to the direction B to a small extent.

4-3. Threading the machine head



WARNING :

Placing your hands or fingers under the presser foot may invite the risk of injury due to pinching by the presser foot or puncture by the needle. Do not place your hands, etc. under the presser foot to protect from injury.



Pull out the thread by approximately 40 mm from the needle after threading through the needle.

When threading the needle, carry out the following steps of procedure to lower the intermediate presser and the feeding frame in prior. (* Only for the LK-1920)

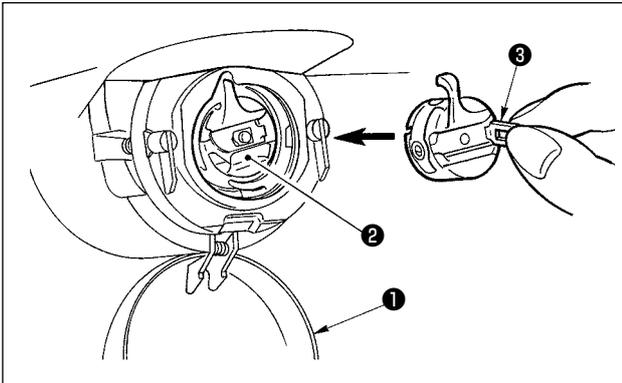
- 1) Press READY key ① on the operation panel.
- 2) Press PRESSER and WINDER key ② to lower the intermediate presser and the feeding frame.
- 3) After the completion of needle threading, press PRESSER and WINDER key ② again to return the intermediate presser and the feeding frame to their upper position.

4-4. Installing and removing the bobbin case



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Open hook cover ① .
- 2) Raise latch ③ of bobbin case ② , and remove the bobbin case.
- 3) When installing the bobbin case, fully insert it into the shuttle shaft, and close the latch.



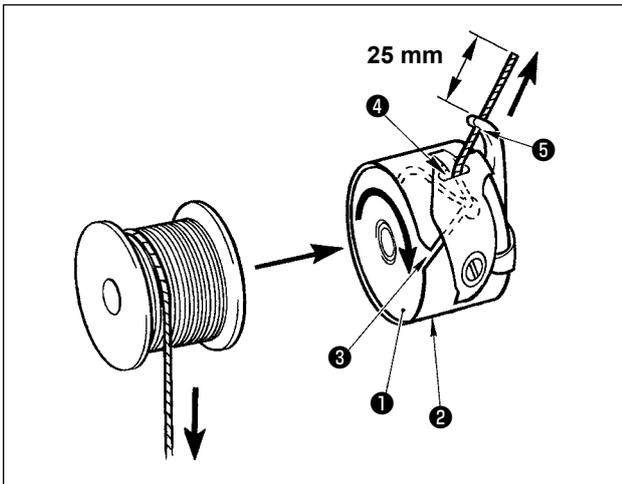
If it is not fully inserted, bobbin case ② may slip off during sewing.

4-5. Installing the bobbin



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

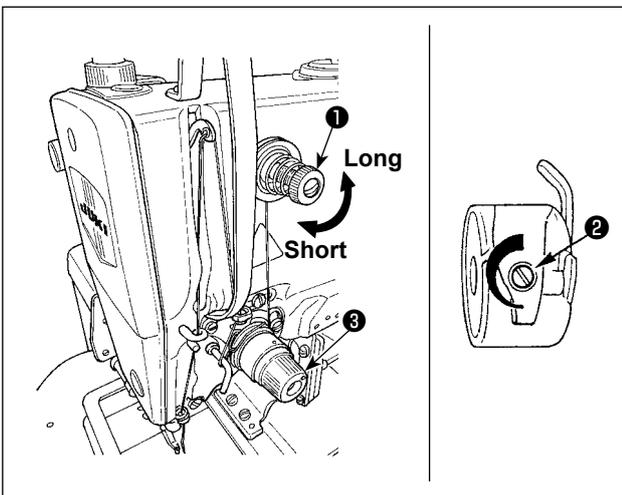


- 1) Set the bobbin ① into bobbin case ② in the direction shown in the figure.
- 2) Pass the thread through thread slit ③ of bobbin case ② , and pull the thread as it is. By so doing, the thread will pass under the tension spring and be pulled out from thread hole ④ .
- 3) Pass the thread through thread hole ⑤ of the horn section, and pull out the thread by 25 mm from the thread hole.



If the bobbin is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

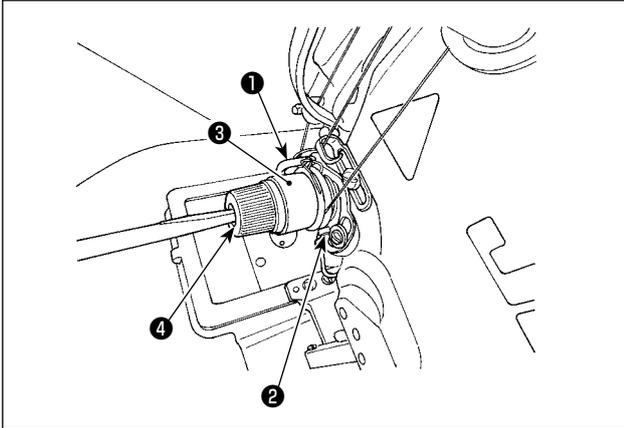
4-6. Adjusting the thread tension



If thread tension controller No. 1 ① is turned clockwise, the length of remaining thread on the needle after thread trimming will be shorter. If it is turned counterclockwise, the length will be longer. Shorten the length to an extent that the thread is not slipped off.

The needle thread tension is to be adjusted with thread tension combination ③ . The bobbin thread tension is to be adjusted with ② .

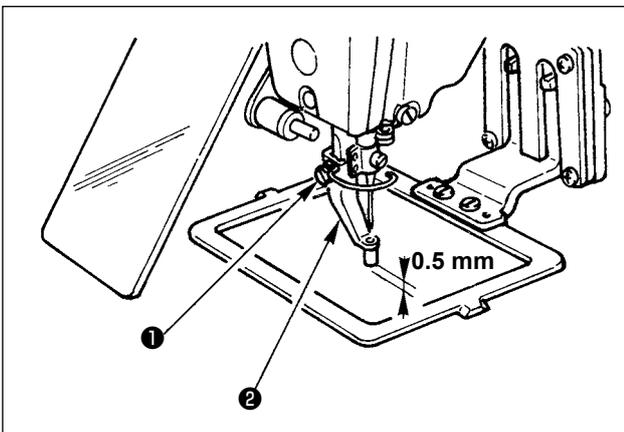
4-7. Adjusting the thread take-up spring



The standard stroke of thread take-up spring ❶ is 6 to 8 mm, and the pressure at the start is 0.3 to 0.5 N.

- 1) Adjusting the stroke
Loosen setscrew ❷, and turn thread tension asm. ❸.
- 2) Adjusting the pressure
Insert a screwdriver into the slit of thread tension rod ❹, and turn it.
- 3) If you have changed the stroke of the thread take-up spring, adjust the thread breakage detecting plate, referring to **"7-6. Thread breakage detector plate"** p.48.

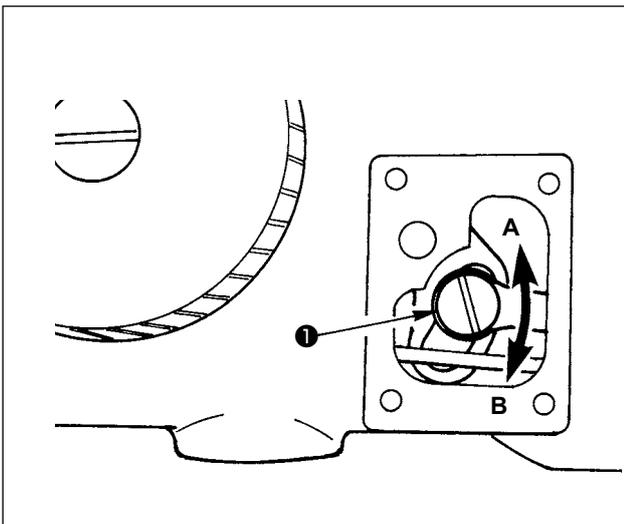
4-8. Adjusting the height of the intermediate presser (Only for the LK-1920)



- 1) Lower the intermediate presser ❷.
(Refer to **"4-3. Threading the machine head"** p.15.)
- 2) Turn the handwheel to lower the intermediate presser ❷ to its lowest position.
When the intermediate presser ❷ is in the lowest position of its stroke, adjust so that the clearance between the intermediate presser and the cloth is approximately 0.5 mm.
- 3) Loosen setscrew ❶ and adjust the height of intermediate presser ❷.

4-9. Adjusting the intermediate presser stroke (Only for the LK-1920)

(1) Adjusting the intermediate presser stroke to 4 to 10 mm

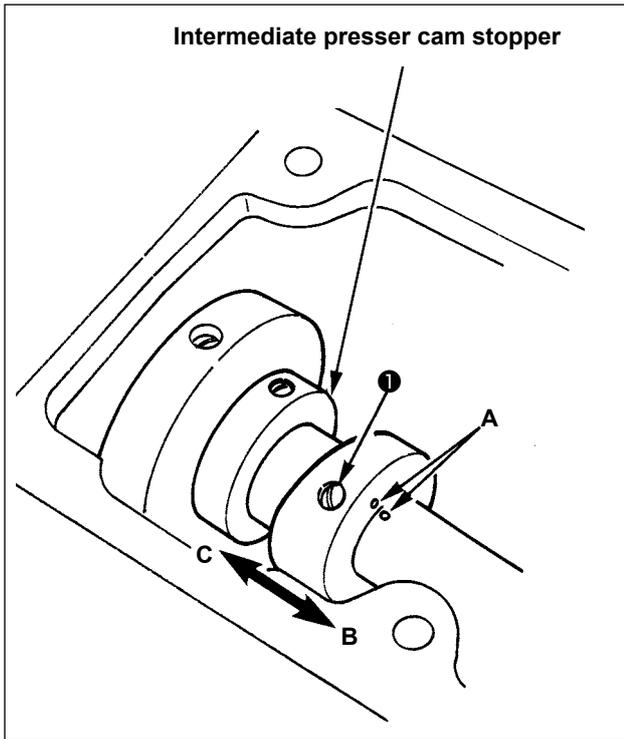


- 1) Remove the machine arm side cover.
- 2) Loosen setscrew ❶ and move it in the direction of arrow for adjustment.
- 3) If moving in the direction of **A**, the stroke will be decreased. (Min. 4 mm)
If moving in the direction of **B**, the stroke will be increased. (Max. 10 mm)



The nut may be removed if setscrew ❶ is excessively loosened. So, be careful. Loosen setscrew ❶ by a half turn to properly adjust the stroke.

(2) Adjusting the intermediate presser stroke to 0 mm

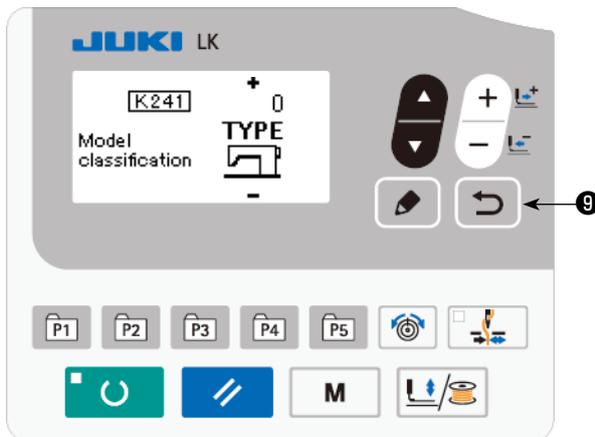


- 1) Remove the top cover.
- 2) Loosen two setscrews ❶ in the intermediate presser cam and slide the cam in the direction of **B** by 7 to 10 mm. Then, tighten setscrews ❶.
- 3) When returning the cam to its home position again, loosen setscrews ❶, slide the cam in the direction of **C**, strike the end face of the intermediate presser cam against the intermediate presser cam stopper, and align the engraved marker dots **A**. Then, tighten setscrews ❶.

5. OPERATION OF THE SEWING MACHINE (BASIC)

Set each item following the procedure described below.

5-1. Model selection



The model selection screen is displayed only when you turn ON the power to the sewing machine for the first time after replacing the old MAIN PCB with a new one due to a failure or any other problem of the old PCB.

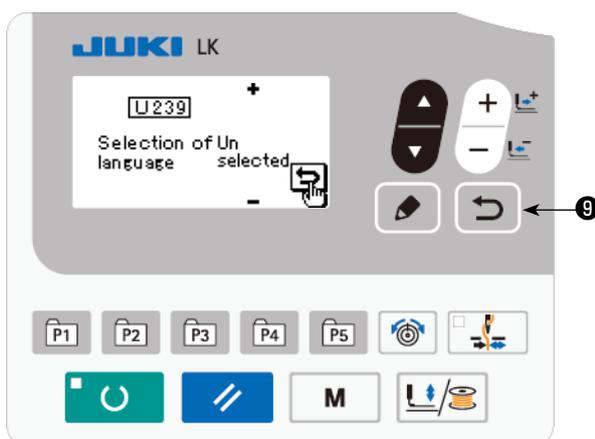
Select the model of your sewing machine, then press RETURN key  ⑨.

After you have selected the model of your sewing machine, the power OFF screen is displayed. In this state, turn off the power to the sewing machine once and re-turn it on.

0	Model unselected state
1	LK-1910S (Solenoid type, standard pedal)
2	LK-1910A (Pneumatic type, 3-pedal unit)
3	LK-1910S2 (Solenoid type, 2-pedal unit)
4	LK-1920S (Solenoid type, standard pedal)
5	LK-1920A (Pneumatic type, 3-pedal unit)
6	LK-1920S2 (Solenoid type, 2-pedal unit)

* In the case of the electrical box that is supplied with the normally-purchased sewing machine, the model selection screen is not displayed.

5-2. Selection of language



The language selection screen is displayed when you turn on the power to the sewing machine for the first time after the model selection. Select the language to be displayed, then press RETURN

key  ⑨.

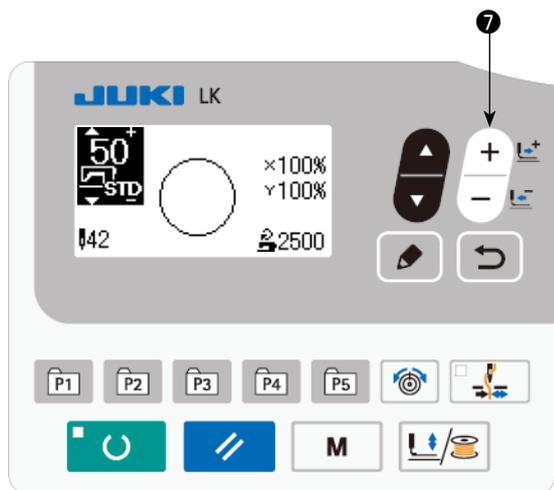
The language to be displayed on the screen can be changed by means of the memory switch U239 "Language selection". Refer to **"8. HOW TO USE THE MEMORY SWITCH" p.50** for the details of the memory switch.

If you terminate the language selection by pressing RETURN key 



⑨ without selecting the language, the language selection screen will be displayed every time you turn ON the power to the sewing machine.

5-3. Setting the pattern number



Turn ON the power switch.

Pattern number is displayed at the upper left portion of the screen. In addition, the pattern shape, XY scale and sewing speed of the pattern are displayed on the remaining portion of the screen.

When you press DATA CHANGE key  7, the pattern number can be changed.



Refer the pattern No. to the separate table.

5-4. Setting the item data

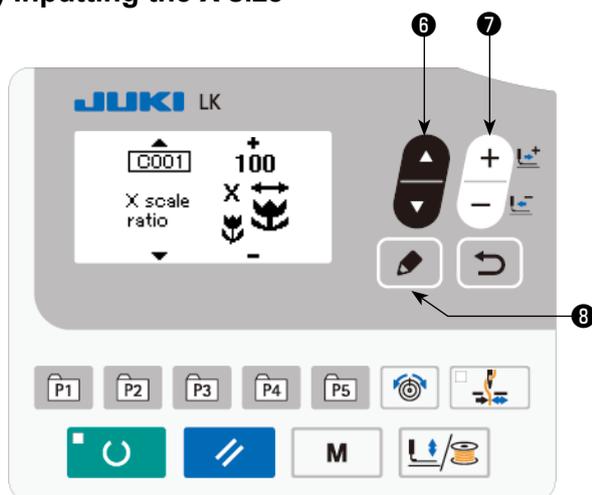
When you press EDIT key  8, the item data input screen is displayed.

The items that can be edited are displayed on the left section of the screen and the set contents are displayed on the right section of the screen.

Select an item with ITEM SELECT key  6. Then, change the set content with DATA CHANGE key



(1) Inputting the X size



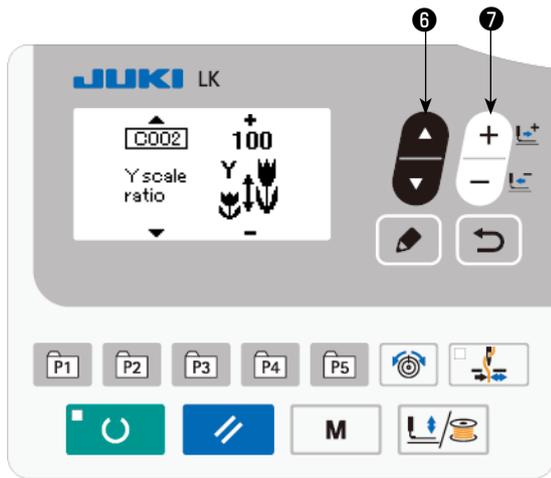
Press ITEM SELECT key  6 to display the C001 X size.

Press DATA CHANGE key  7 to display the value you desire.



The setting exceeding 100% is dangerous since needle and the cloth presser interferes with each other and needle breakage or the like will occur.

(2) Inputting the Y size



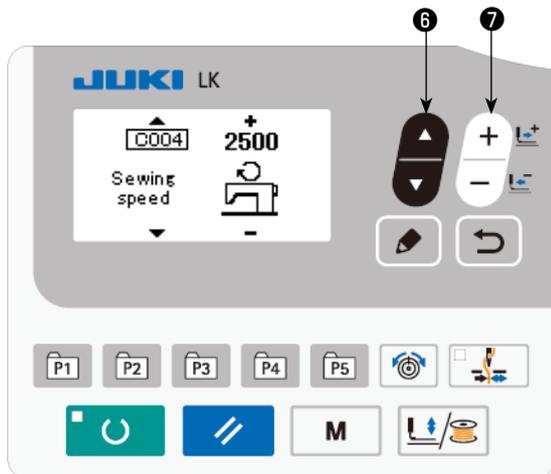
Press ITEM SELECT key  ⑥ to display the C002 Y size.

Press DATA CHANGE key  ⑦ to display the value you desire.



The setting exceeding 100% is dangerous since needle and the cloth presser interferes with each other and needle breakage or the like will occur.

(3) Inputting the sewing speed

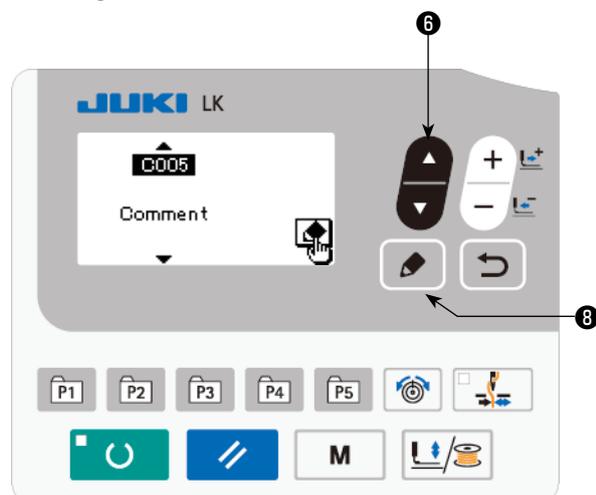


Press ITEM SELECT key  ⑥ to display the C004 sewing speed.

Press DATA CHANGE key  ⑦ to display the value you desire.

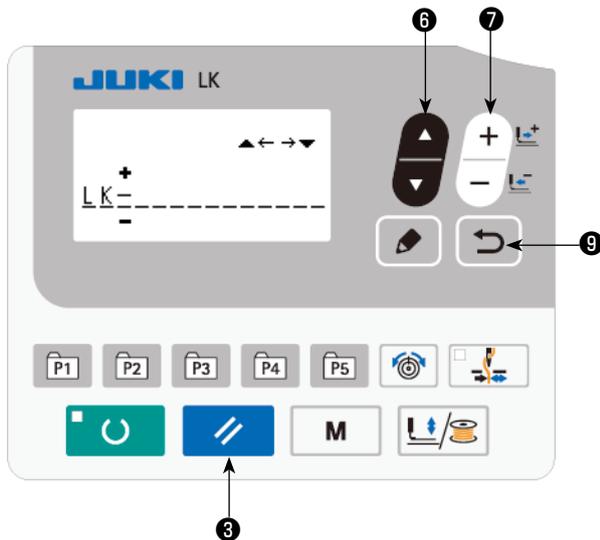
The maximum input range is the maximum sewing speed of the memory switch U001.

(4) Setting the comment



Press ITEM SELECT key  ⑥ to display the C005 comment.

Press EDIT key  ⑧ to display the comment input screen.



On the comment input screen, as many as 14 characters can be input

The characters that can be input are alphabets, numbers and symbols.

Press ITEM SELECT key  6 to specify the input position. Press DATA CHANGE key  7 to select the characters to be entered.

When you press RESET key  3, the character at the current input position is erased. When you keep RESET key  3 held pressed, all characters which have been input are erased.

After the completion of input of a comment, the screen is returned to the previous screen by pressing RETURN key  9.

(5) Completing the setting



Press READY key  2.

The work clamp moves. Then, SET READY LED  13 lights up after the work clamp has gone up to enable sewing.

Caution When the presser is raised, be careful that fingers are not caught in the presser since the presser moves after having lowered.

- * When READY key  2 is pressed, the set values of pattern No., X/Y scale, etc. are memorized.
- * When READY key  2 is pressed, SET READY LED  13 goes out. Setting of each item can be changed.
- * Check the pattern number before use. If you press READY key  2 with pattern number 0 displayed, error display E010 will be shown on the screen. At this time, re-set the pattern number.

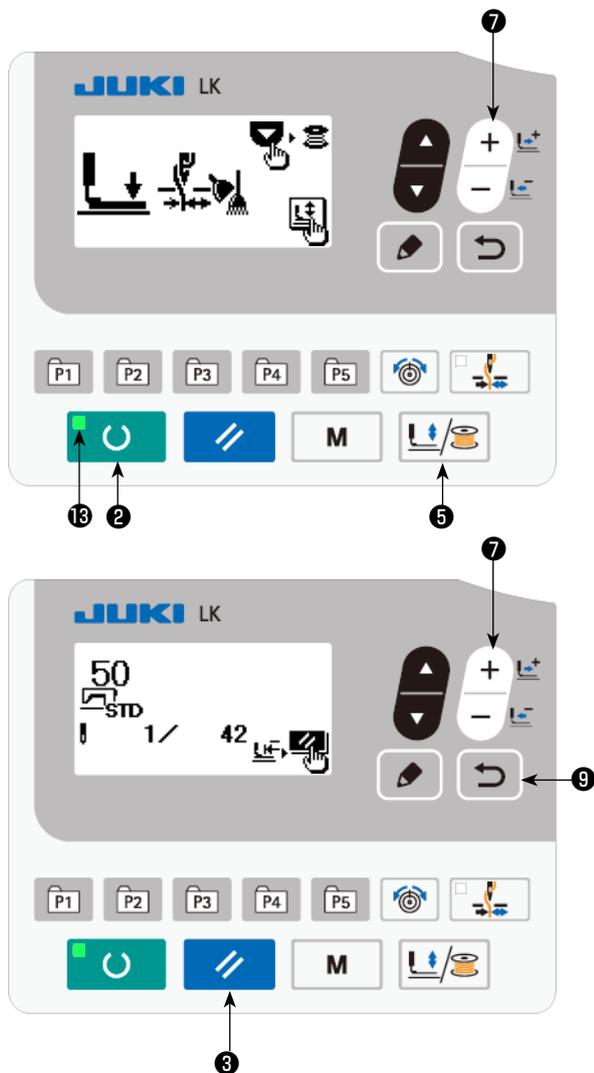
Important If you turn the power OFF without pressing READY key  2, settings for the pattern number, XY scale and the maximum sewing speed will not be saved.

5-5. Checking the contour of a sewing pattern

WARNING :



1. Make sure without fail of the contour of the sewing pattern after selection of the sewing pattern. If the sewing pattern extends outside the work clamp feet, the needle will interfere with the work clamp feet during sewing, causing dangerous troubles including needle breakage.
2. When making sure of the contour of the sewing pattern, press + / - key with the needle bar lowered, and the work clamp feet move after automatically making the needle bar return to the upper position.



- 1) Press READY key  ⑬ to light up the SET READY LED ⑬.
- 2) Press work PRESSER and WINDER key  ⑤ to display "work clamp lowering screen".
- 3) Display the shape check screen with + key  ⑦.

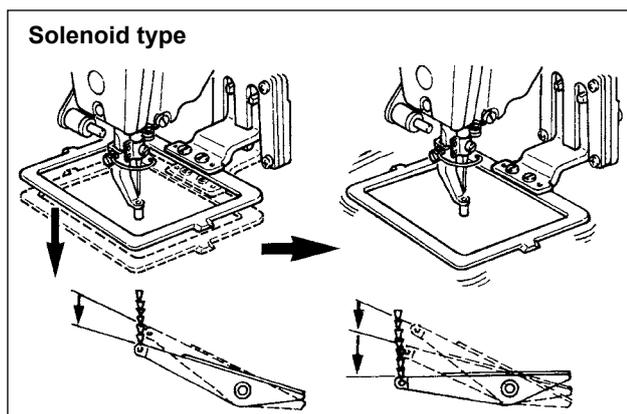
 Under this mode, the sewing machine will not start running even if you depress the pedal.

- 4) Check the shape with DATA CHANGE key  ⑦.
- 5) Press RESET key  ③ to return to the sewing starting position and lift the work clamp.

When you press RETURN key  ⑨, the sewing screen is displayed at the current position.

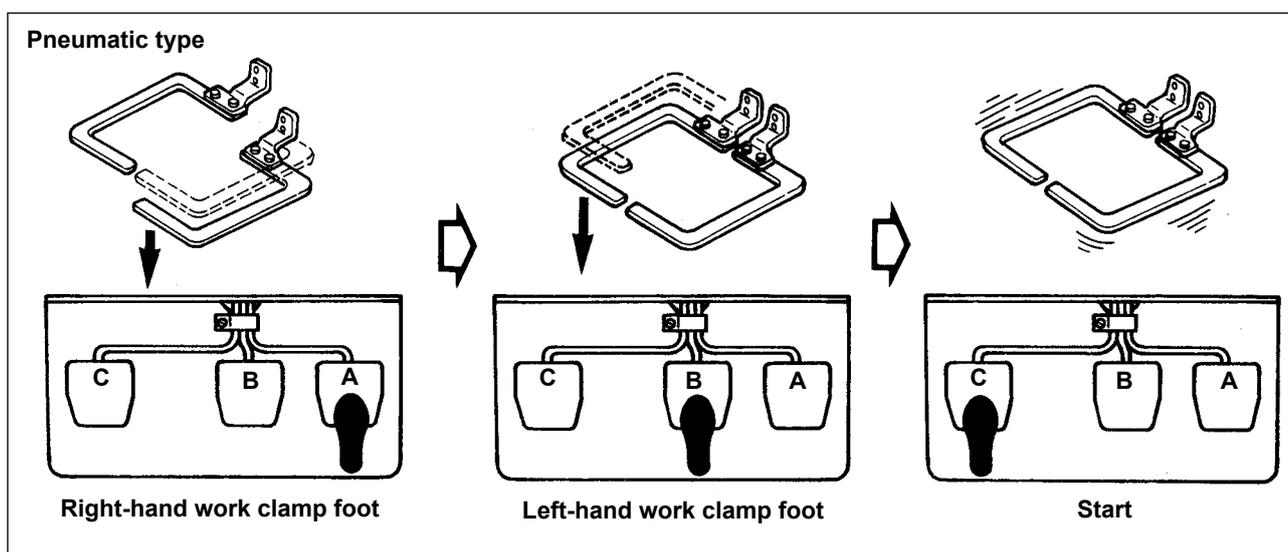
When you depress the pedal in the aforementioned state, the sewing machine starts sewing from the current position.

5-6. Sewing



Solenoid type

- 1) Set a workpiece on the work clamp foot section.
- 2) Depress the pedal switch to the first step, and the work clamp feet will come down. If you detach your foot from the pedal switch, the work clamp feet will go up.
- 3) Depress the pedal switch to the second step after descending the work clamp feet, and the sewing machine will start sewing.
- 4) After the sewing machine completes the sewing, the work clamp feet will return to the home place, and go up.



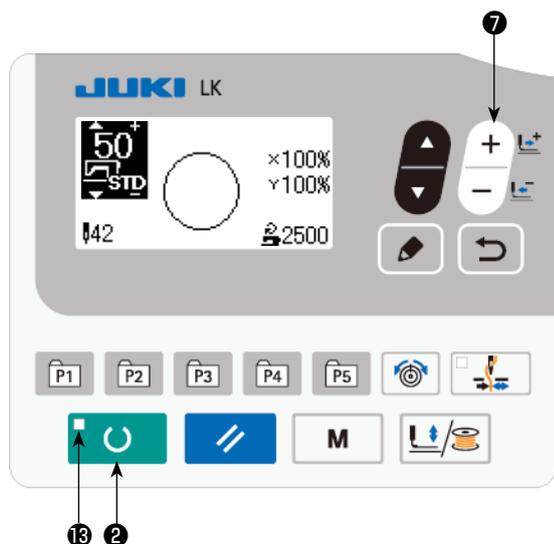
Pneumatic type (3-step pedal)

- 1) Set a workpiece on the work clamp foot section.
- 2) Depress the pedal **A**, and the right-hand work clamp foot will come down. If depressing the pedal again, the work clamp foot will go up.
- 3) Depress the pedal **B**, and the left-hand work clamp foot will come down. If depressing the pedal again, the work clamp foot will go up.
- 4) Depress the pedal **C**, and the sewing machine will start sewing.
- 5) After the sewing machine completes sewing, the work clamp feet will return to the home place, and go up.



When the 3-step PK pedal is used, start the start pedal shifting to the left direction.

5-7. Changing the pattern to a different one



Press READY key  ② to turn off SET READY LED ⑬.

Set a pattern number with DATA CHANGE key



Set the XY enlargement/reduction scale and speed as with "5-4. Setting the item data" p.20.

Press READY key  ② to light up SET READY LED ⑬ to enable sewing.

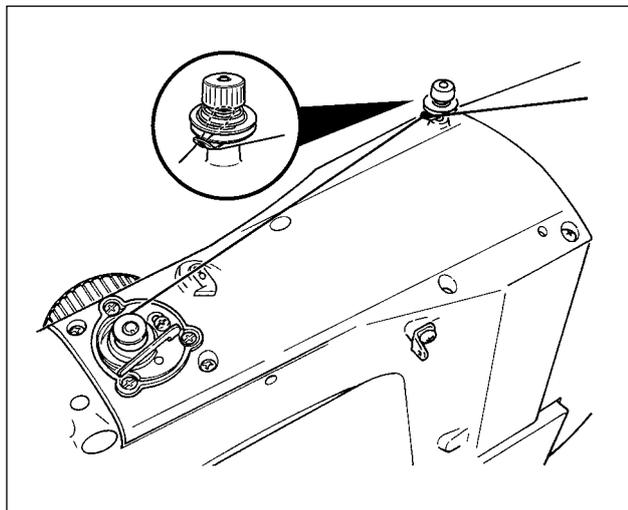
WARNING :



- Make sure without fail of the contour of the sewing pattern after selection of the sewing pattern.
- If the sewing pattern extends outside the work clamp feet, the needle will interfere with the work clamp feet during sewing, causing dangerous troubles including needle breakage.

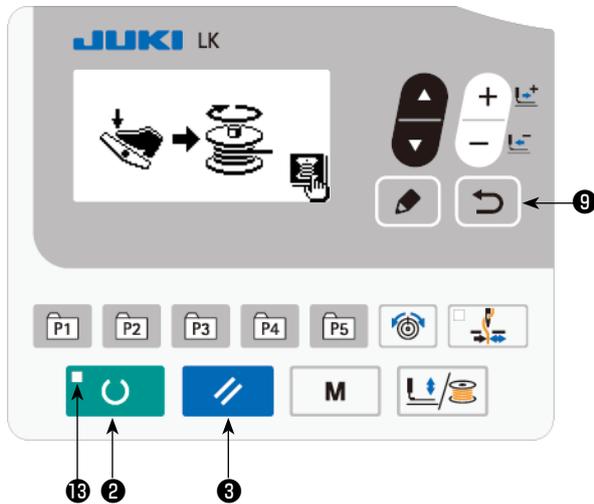
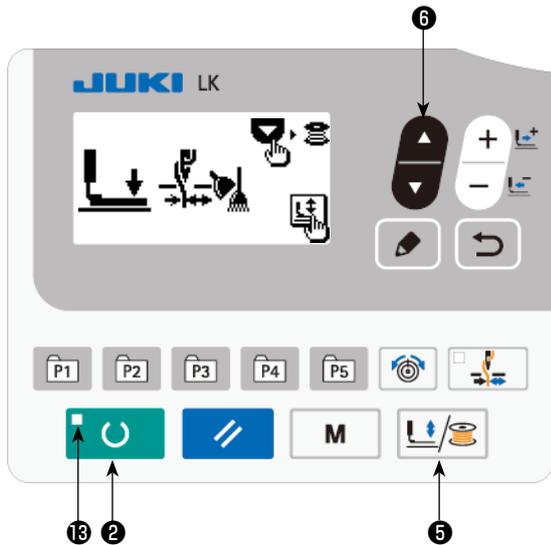
5-8. Winding a bobbin

(1) To wind a bobbin while the sewing machine is performing sewing



Thread the bobbin winder and wind the bobbin thread onto the bobbin as illustrated in the figure.

(2) For winding a bobbin only



- 1) Press READY key  ② to turn off SET READY LED ⑬.
- 2) Press work PRESSER and WINDER key  ⑤ and select lowering of the work clamp.

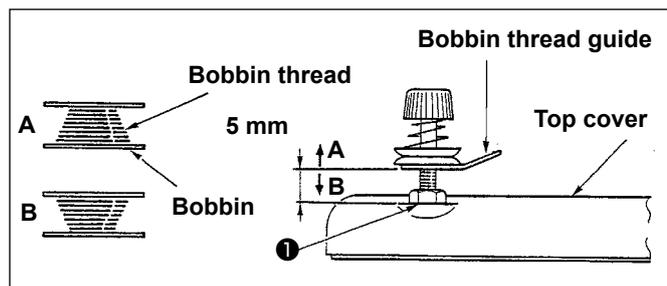
Caution Selection cannot be performed when the SET READY LED is lit up.

- 3) Press ▼ key  ⑥. The bobbin winding screen is displayed.
- 4) When you depress the pedal, the sewing machine starts rotating.
- 5) Depress the pedal switch again or press RESET key  ③ to stop the sewing machine.
- 6) Press READY key  ② and RETURN key  ⑨ to exit from the bobbin winding screen.

Caution Bobbin winder does not work immediately after turning ON the power. Perform the bobbin winding after setting pattern No. or the like once, pressing the READY key  ②, and making the SET READY LED ⑬ light up.

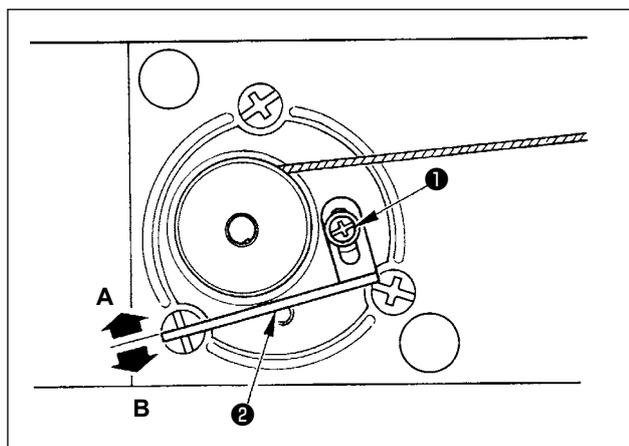
5-9. Adjustment of the bobbin thread winder components

(1) Adjusting the bobbin winder thread tension



- 1) Loosen nut ❶, and adjust the height so that the clearance between the bobbin thread guide and the top cover should be approximately 5 mm.
- 2) If the bobbin thread is wound like **A**, the height should be higher than 5 mm. If it is like **B**, the height should be lower than 5 mm.

(2) Adjusting the winding amount of the bobbin thread



- 1) If the winding amount of the bobbin thread is excessive, loosen setscrew ❶, and move bobbin thread winder lever ❷ in the direction **A**. Then fix it.
- 2) If the winding amount of the bobbin thread is small, loosen setscrew ❶, and move bobbin thread winder lever ❷ in the direction **B**. Then fix it.

6. OPERATION OF THE SEWING MACHINE (ADVANCED)

6-1. Performing sewing using the pattern keys

User patterns (Nos. 1 to 200) and old user patterns (Nos. 1 to 99), which have already been registered, can be registered to P1 to P50. It is possible to change and register the scale and max. speed limitation. Same as the patterns (Nos. 1 to 200), patterns are used by selection by scrolling the pattern Nos. It should be remembered that P1 to P25 can also be called through one-touch operation.

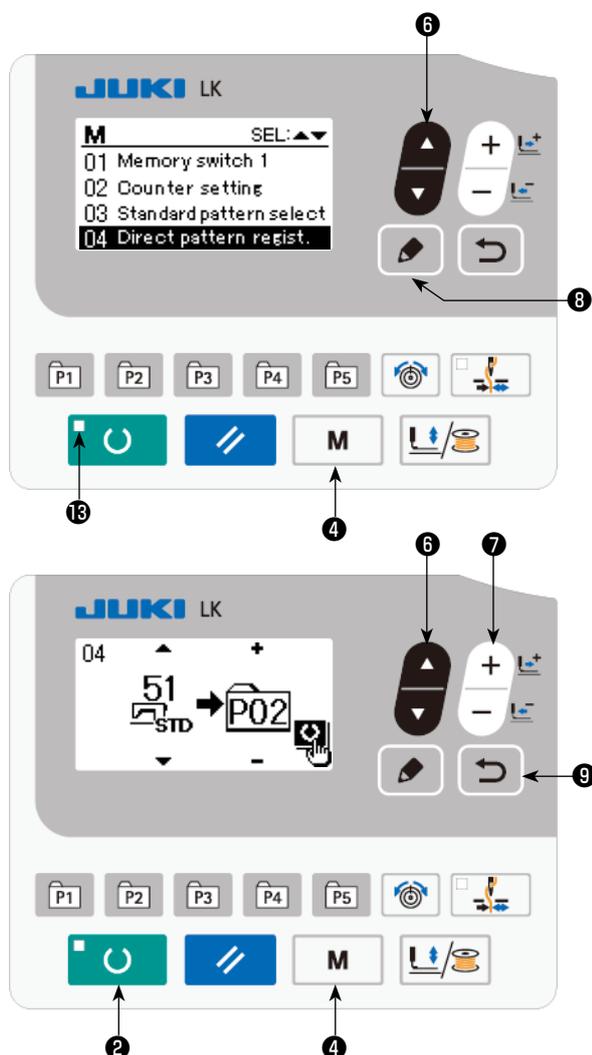
* When selecting P6 to P25, perform the selection by combination (simultaneous pressing) of

(    and ) keys as shown in the table below.

P-No.	Selection key						
P1	P1	P8	P1+P4	P15	P4+P5	P22	P2+P3+P4
P2	P2	P9	P1+P5	P16	P1+P2+P3	P23	P2+P3+P5
P3	P3	P10	P2+P3	P17	P1+P2+P4	P24	P2+P4+P5
P4	P4	P11	P2+P4	P18	P1+P2+P5	P25	P3+P4+P5
P5	P5	P12	P2+P5	P19	P1+P3+P4		
P6	P1+P2	P13	P3+P4	P20	P1+P3+P5		
P7	P1+P3	P14	P3+P5	P21	P1+P4+P5		

(1) Register to the pattern key

Setting example : Register pattern No. 51 to P2 while setting the X scale to 50 %, Y scale to 80 % and the max. speed limitation to 2,000 sti/min.



- 1) Turn ON the power switch and press MODE key  (4) to enter mode setting (memory switch setting). (SET READY LED  should be put out.)

Press ITEM SELECT key  (6) to select "04 Direct pattern regist".

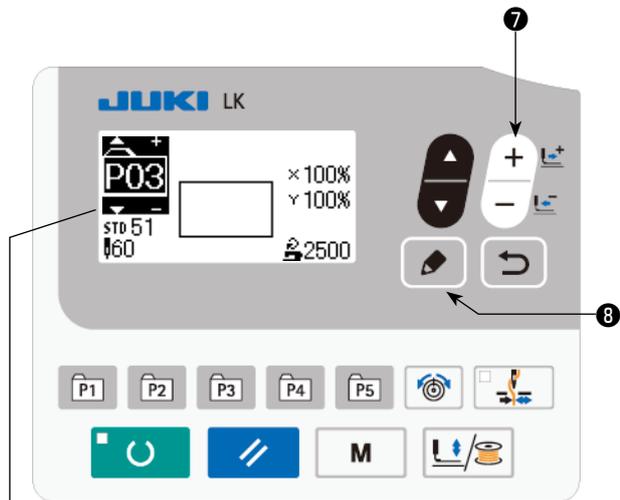
Press EDIT key  (8) to display the pattern registration mode.

- 2) Press ITEM SELECT key  (6) to set the standard pattern to No. 51. Press DATA CHANGE key  (7) to set P-No. to 2.

When you press the READY key  (2), P2 is registered and the mode screen is displayed.

Press MODE key  (4) or RETURN key  (9).

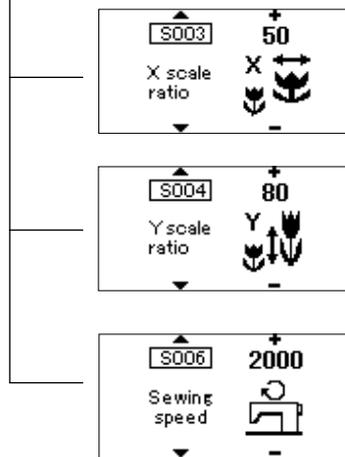
* When the select key is held pressed for one second in the state where the standard pattern or user pattern is selected on the data input screen, this screen can be displayed.



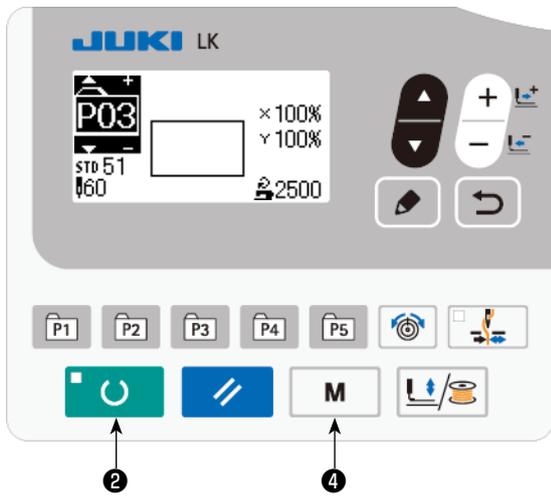
3) Press EDIT key  8 . Edit the item data

with DATA CHANGE key  7 .

The item data that can be edited are as described in **"6-1.(2) Listing of item data"** p.30 .



4) Set the X scale to "50" %, Y scale to "80" % and sewing speed to "2,000" sti/min respectively.



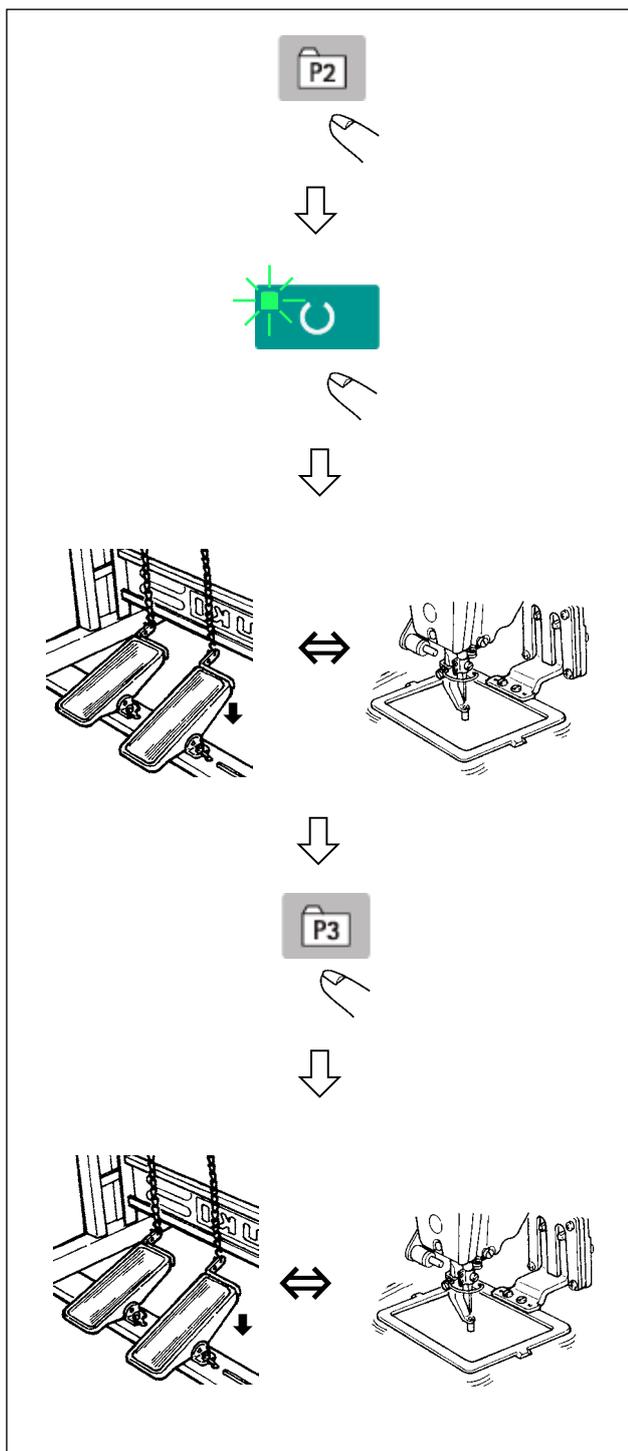
- 5) Press READY key  ② , key to finalize the setting.
- 6) Press MODE key  ④ .
Pattern register mode is finalized.
- 7) Press MODE key  ④ .
Mode setting is finalized and the mode returns to the normal mode.

(2) Listing of item data

No.	Item name	Pictograph	Input range	Remarks
S001	Type of pattern		Standard pattern / User pattern / Old user patterns	
S002	Pattern No.		Standard pattern : 1 to 51 User pattern : 1 to 200 Old user patterns : 1 to 99	
S003	X scale		When inputting in terms of percentage (%) : 20 to 200 %	
S004	Y scale		When inputting in terms of percentage (%) : 20 to 200 %	
S006	Sewing speed		200 to 2500	
S012	Comment		The number of characters that can be input : 14	

(3) Sewing operation

Operation example : After performing sewing with the contents of the registered P2, perform sewing with the contents of P3.



- 1) Turn ON the power switch.
- 2) Press direct pattern .
- 3) Press READY key to light up SET READY LED . Once the LED lights up, the work clamp goes up after traveling.
- 4) Check the contour of the sewing pattern. (Refer to the item "**5-5. Checking the contour of a sewing pattern**" p.23.)
- 5) If the contour of the sewing pattern is acceptable, the sewing can be made.
- 6) After the completion of sewing, press direct pattern . Then, the work clamp comes down, retrieves the origin, travels to the sewing starting point and goes up. Then, the origin is retrieved. After the origin retrieval, the work clamp travels to the sewing starting point and goes up. (The P keys can operate the pattern change by one-touch even when the SET READY LED is lighting up.)
- 7) Perform the above items 4) and 5).

* P1 to P25 can be specified by selecting the pattern. Display the target pattern using DATA

CHANGE key .

→ 0 to 200 ↔ P1 to P25 ←

P1 to P25 which have not been registered are not indicated.

Press P1 to P25 key while the SET READY LED lights up and the presser comes down. Be careful that your fingers are not caught in the presser.

Pattern register from P26 to P50 can be performed. Register can not be performed in to key. Designate the pattern by the pattern selection only. Indicate the pattern with key.

→ 0 to 200 ↔ P1 to P25 ↔ P26 to P50 ←

Pattern selection from P26 to P50 cannot be performed while the SET READY LED lights up.

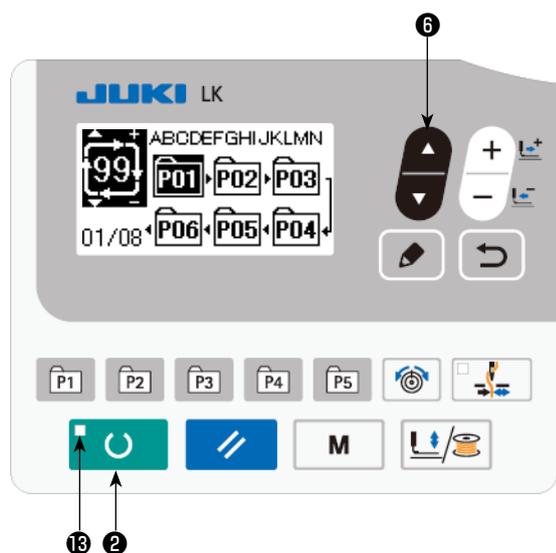
6-2. Sewing using the combination function (cycle sewing)

This sewing machine can perform sewing of plural sewing pattern data in one cycle in the order of the data.

As many as 99 patterns can be input. Use this function for sewing two or more different patterns on the sewing product. In addition, registration of as many as 99 cycles can be performed. Copy and use the data to fill the needs.

→ Refer to "6-5. Copying or deleting various kinds of pattern data" p.39.

(1) Selection of cycle data



1) Set the mode to the input mode

Under the input mode where SET READY LED **13** goes out, selection of the cycle data is enabled.

If the current mode is the sewing mode, press READY key **2** to change over the mode to the input mode.

Only under the input mode, selection of the cycle data is enabled.

2) Select cycle stitching data

Press ITEM SELECT key **6**, and

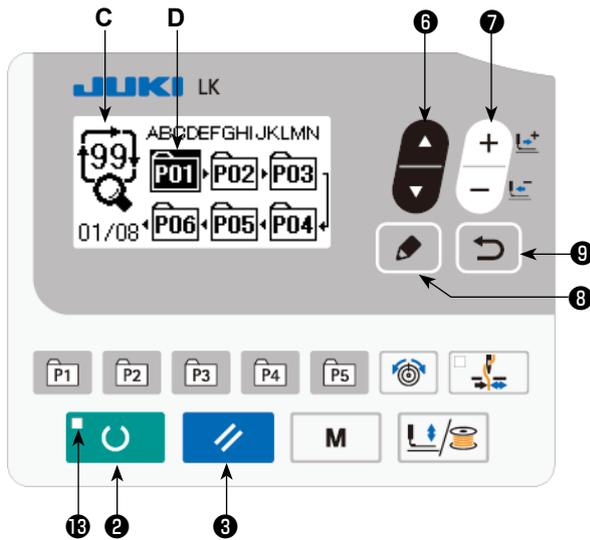
patterns which have been registered are changed over and displayed in order. Cycle data No. and continuous stitching data No. which have been registered after the last registered pattern No. are displayed. Here, select the cycle data No. which you desire to sew.

3) Perform sewing

When READY key **2** is pressed in the state where the cycle data is selected, SET READY LED **13** lights up to show that the sewing is enabled.

Cycle data No. 1 only has been registered at the time of your purchase. However, sewing status cannot be obtained since the sewing pattern has not been inputted. Perform inputting of sewing pattern referring to **(2) Method of editing cycle data** on the next page.

(2) Method of editing cycle data



1) Set the mode to input mode

Under the input mode where SET READY LED **13** goes out, entry of the cycle data is enabled.

If the current mode is the sewing mode, press READY key  **2** to change over the mode to the input mode.

2) Set cycle data to editing status

When EDIT key  **8** is pressed, the cycle data editing display **C** appears on the screen. The pattern No. **D** to be sewn is displayed in reverse video.

In this state, it is possible to edit the data.

3) Selecting the edit point

When you press ITEM SELECT key  **6**, the edit point is changed and the current point is displayed in reverse video. When you move the edit point forward until the last point is reached, additional indication pictograph  is displayed.

When you press EDIT key  **8** while selecting the edit point, the additional indication pictograph  is displayed at the selected position to enable insertion of pattern data.

4) Change data of selected editing point

Press DATA CHANGE key  **7** and data of editing point can be changed.

Pattern No. which has been registered is displayed and it is possible to select.

In addition, press RESET key  **3**, and the pattern data of editing point can be deleted.

When RESET key  **3** is held pressed for one second, all the registered pattern data can be deleted.

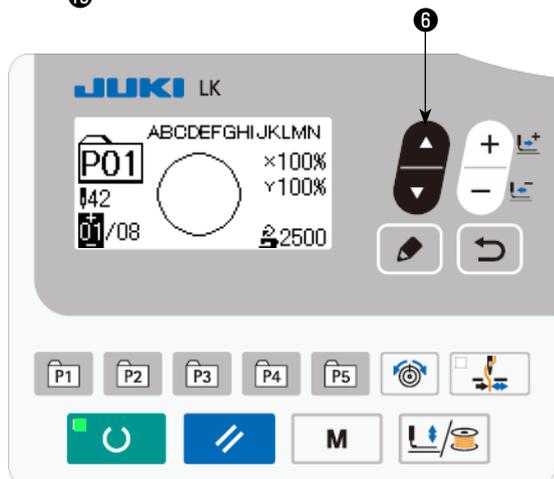
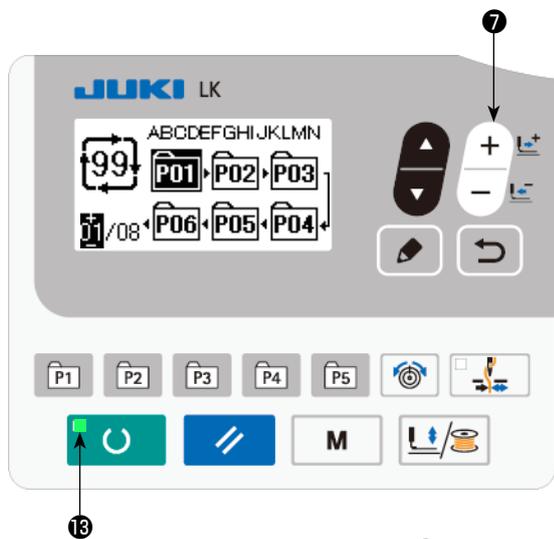
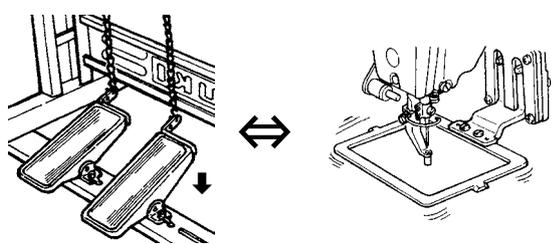
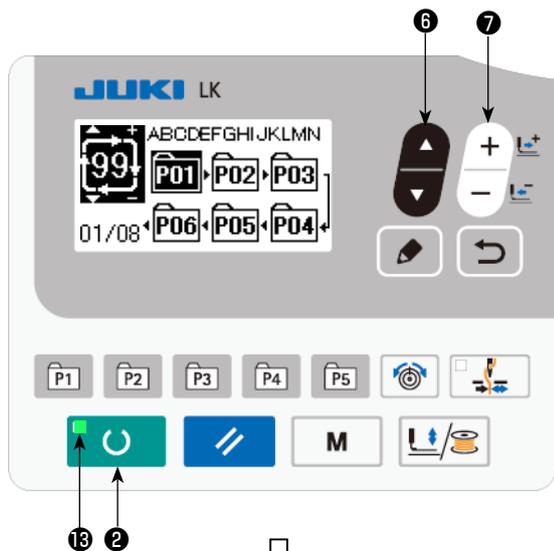
Repeat steps **3)** and **4)** to perform editing data.

5) Cancelling insertion of pattern data

Insertion of the pattern data is cancelled and the mode is changed over to the input mode by pressing

RETURN key  **9**.

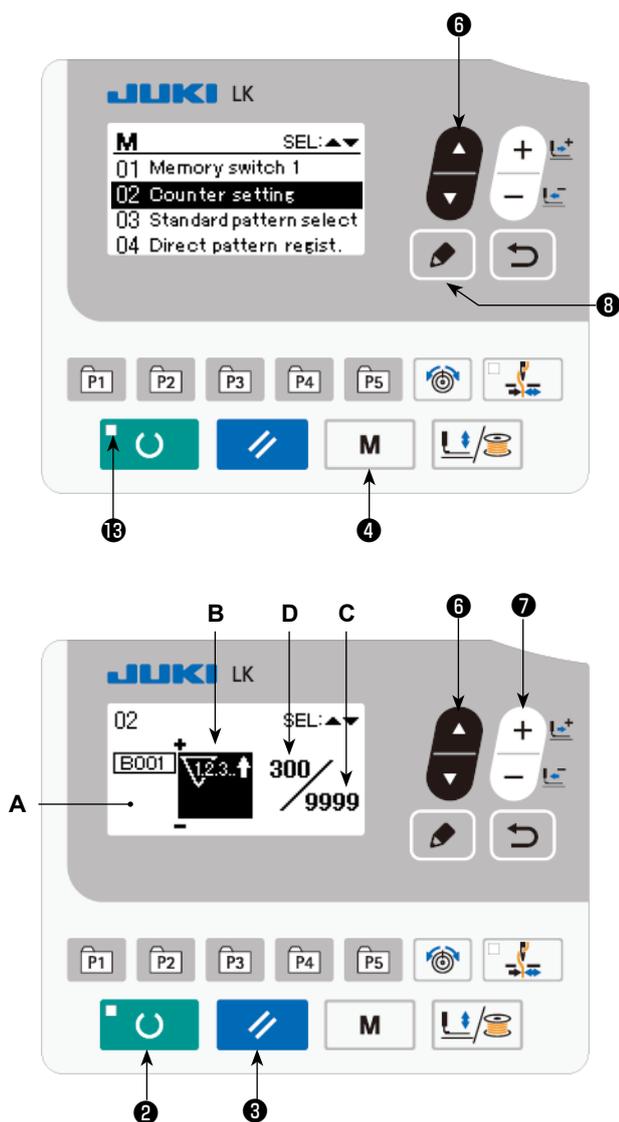
(3) Sewing operation



- 1) Turn the power ON.
 - 2) Select the cycle pattern using ITEM SELECT key  6 . Select the cycle pattern number with DATA CHANGE key  7 .
 - 3) Press READY key  2 to light up SET READY LED  13 . Then, the work clamp goes up after travelling.
 - 4) If the pattern shape is correct, start sewing.
 - 5) The step of pattern numbers combined on a sewing-by-sewing basis advances until one cycle is completed. After the completion of the cycle, the sewing machine returns to the first step of the cycle to permit sewing in repetition.
- * When you want to return to the previous pattern after the completion of sewing or to skip the next pattern, press DATA CHANGE key  7 while SET READY LED  13 lights up. The pattern display changes and the work clamp travels to the sewing starting point.
 - * Be aware that the contents of P1 to P50 used for C1 to C99 will be changed if you change the contents of P1 to P50 after the registration of C1 to C99.
 - * Check the pattern shape on a pattern-by-pattern basis. (Refer to **"5-5. Checking the contour of a sewing pattern"** p.23.)
 - * When you press ITEM SELECT key  6 on the sewing screen, the details of the pattern to be sewn can be displayed.

6-3. Sewing through the use of the counter

(1) Setting procedure of the counter value



1) Call counter setting screen

Press MODE key **M** **4**, in the state where SET READY LED **13** goes out, to display the mode screen.

Place "02 Counter setting" in the selected state with ITEM SELECT key



6. Press

EDIT key **8** to display the counter screen **A**.

Counter screen **A** is displayed to accept setting. The value for the counter can only be set under the input mode. In the case of the sewing mode, press READY key **2** to enter the input mode.

2) Selection of kinds of counters

Press ITEM SELECT key **6** to display the pictograph **B** which indicates the counter type in reverse video.

Press DATA CHANGE key **7**, and select the counter you desire from among the kinds of counters below.

3) Change of counter set value

Press ITEM SELECT key to display the set value **C** of the counter in reverse video. Press

DATA CHANGE key **7** and input the set value until count-up is reached.

4) Change of existing counter value

Press ITEM SELECT key **6** to display the current value **D** of the counter in reverse video.

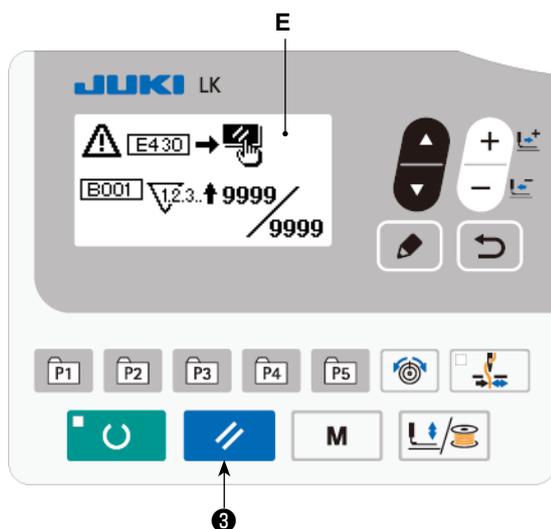
Press RESET key **3** and the value on the way of counting can be cleared. In addition, it is

possible to edit the numerical value with DATA CHANGE key **7**.

(2) Kind of counter

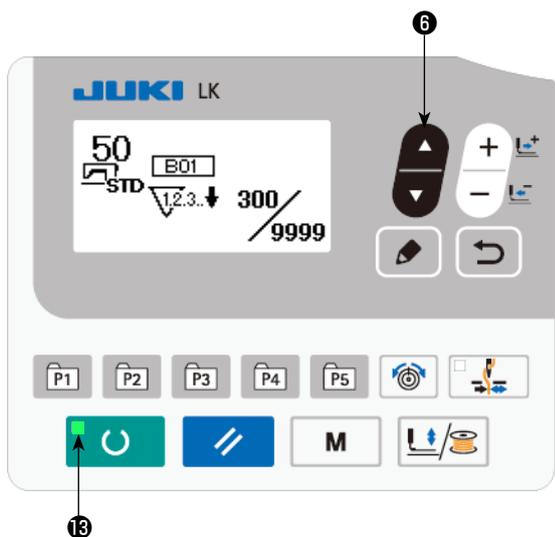
- ① **Sewing UP counter**
 Every time the sewing of one shape is performed, the existing value is counted up. When the existing value is equal to the set value, count-up screen is displayed.
- ② **Sewing DOWN counter**
 Every time the sewing of one shape is performed, the existing value is counted down. When the existing value is reached to "0", count-up screen is displayed.
- ③ **No. of pcs. UP counter**
 The current value shown on the counter is added by one every time the cycle sewing is carried out. When the existing value is equal to the set value, count-up screen is displayed.
- ④ **No. of pcs. DOWN counter**
 The current value shown on the counter is subtracted by one every time the cycle sewing is carried out. When the existing value is reached to "0", count-up screen is displayed.
- ⑤ **Bobbin thread count-up counter**
 The current value on the counter is increased by one every time 10 stitches are sewn. When the current value equals to the set value, the count-complete screen is displayed.
- ⑥ **Bobbin thread count-down counter**
 The current value on the counter is decreased by one every time 10 stitches are sewn. When the current value is decreased to zero (0), the count-complete screen is displayed.
- ⑦ **Counter not used**


(3) Count-up releasing procedure



When count-up condition is reached during sewing work, the whole count-up screen **E** flashes on and off. Press RESET key  **3** to reset the counter, and the mode returns to the sewing mode. Then the counter starts counting again.

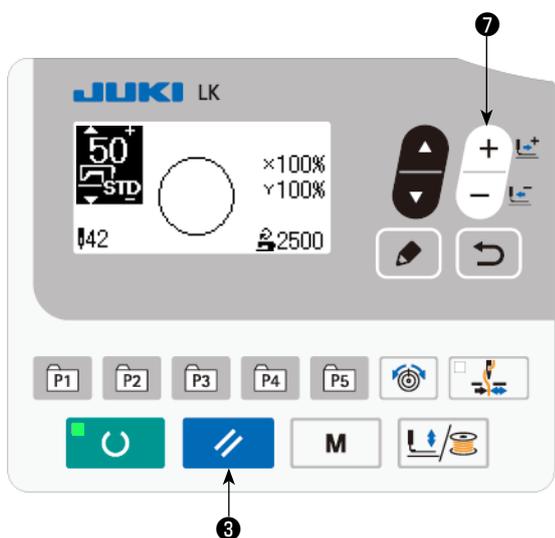
(4) How to check the counter in the ready state



- 1) Under the sewing mode where SET READY LED **13** lights up, press ITEM SELECT key



6 to display the counter screen.

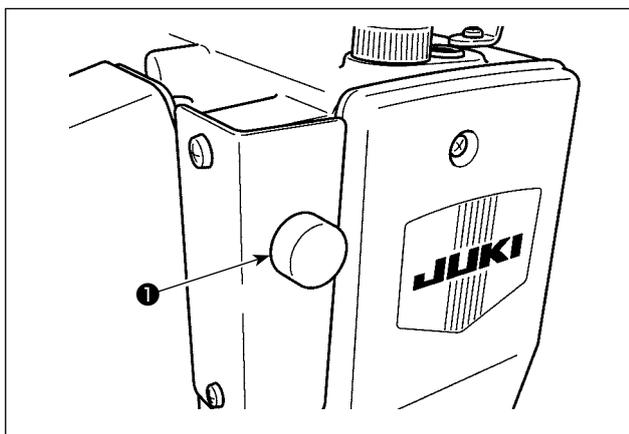


- 2) On the counter screen, the current value on the counter can be updated with DATA CHANGE key  **7**. The current value on the counter can be cleared with RESET key  **3**.

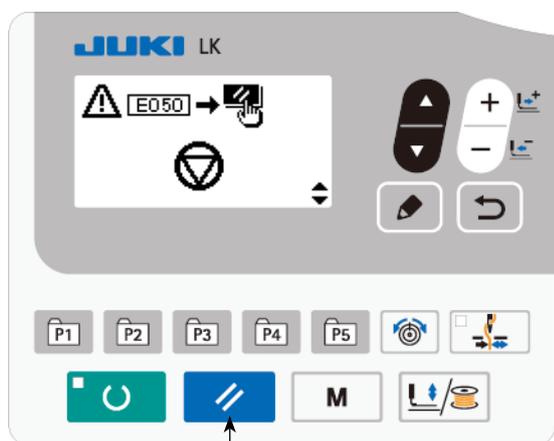
* In the case the panel reset key is so set, with the memory switch U031, as to function as the pause switch, the pause function is disabled on this screen.

6-4. How to use the temporary stop

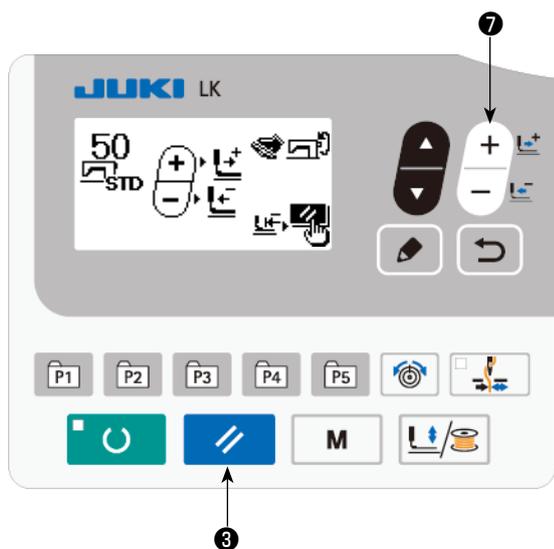
The sewing machine can be stopped while it is engaged in sewing.



- 1) The sewing machine is stopped by pressing pause switch ①. At this time, E050 is displayed on the screen.



- 2) The error is reset by pressing RESET key ③. Then, the feed forward/backward screen is displayed.



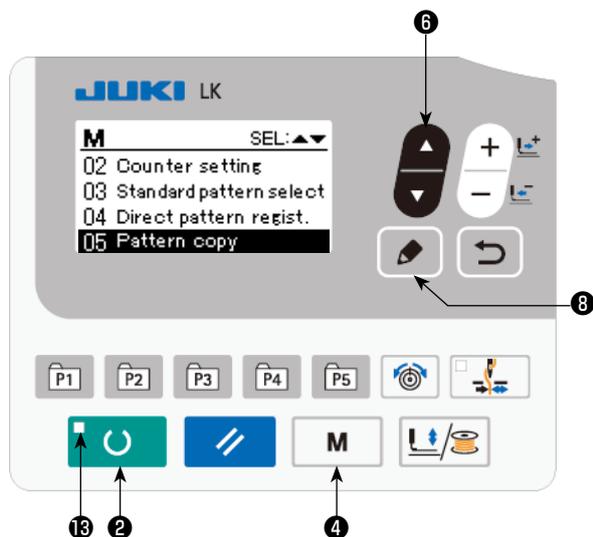
- 3) Three operations can be carried out after the error is reset.
 1. Re-starting of sewing with the start switch
 2. Thread trimming by pressing RESET key ③, position adjustment with DATA CHANGE key ⑦, then re-starting of sewing with the start switch.
 3. Thread trimming by pressing RESET key ③. Then, origin retrieval by re-pressing RESET key ③.

6-5. Copying or deleting various kinds of pattern data

Data of pattern No. which has been already registered can be copied to pattern No. which has not been used. Overwriting copy of the pattern is prohibited. When you desire to overwrite, perform it after erasing the pattern once.

The patterns that can be copied are the following three types.

1. Copying the standard pattern, user pattern and old user pattern to the user pattern
2. To copy the direct pattern
3. To copy the cycle pattern

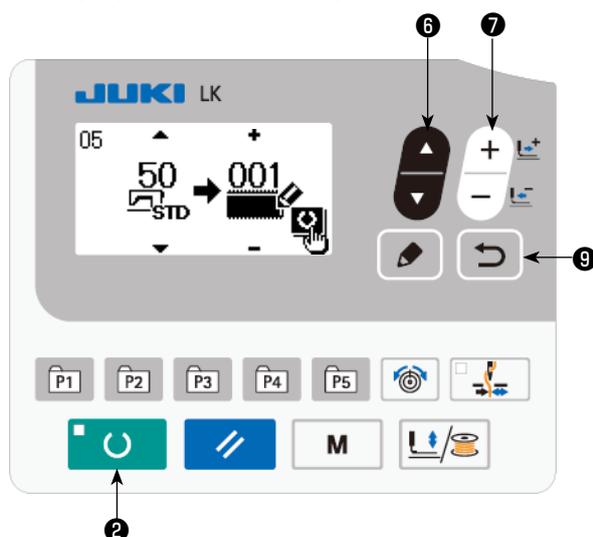


1) Set the mode to input mode

Under the input mode where SET READY LED **13** goes out, copy is enabled. If the current mode is the sewing mode, press READY key **2** to change over the mode to the input mode.

2) Displaying the mode screen

Press MODE key **M** **4** to display the mode screen. Put the pattern copy in the selected state with ITEM SELECT key **6**. Then, press EDIT key **8**.



3) Select pattern No. of copy source

Press ITEM SELECT key **6** to select the source pattern number for copying. Types of patterns that can be selected are standard patterns, user patterns and old user patterns. Only the pattern numbers which have been registered are displayed. When you press RETURN key **9**, the copy function is cancelled and the screen returns to the mode screen.

4) Select pattern No. of copy destination

Press DATA CHANGE key **7** to select the pattern number to be copied.

5) Start copying

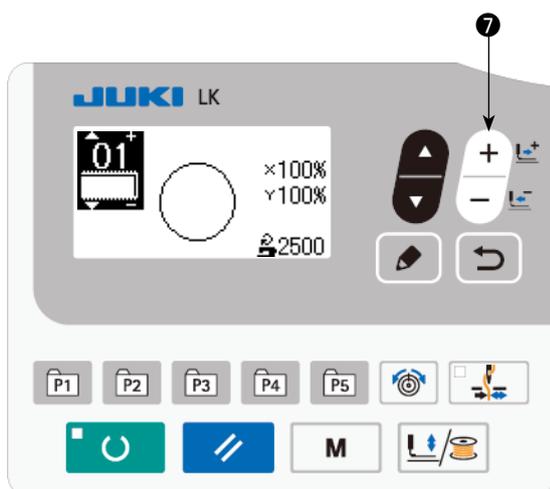
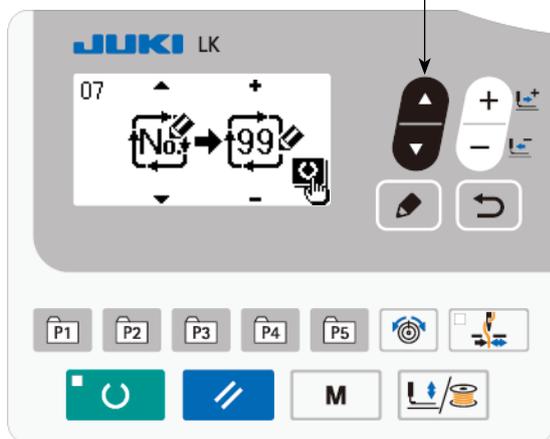
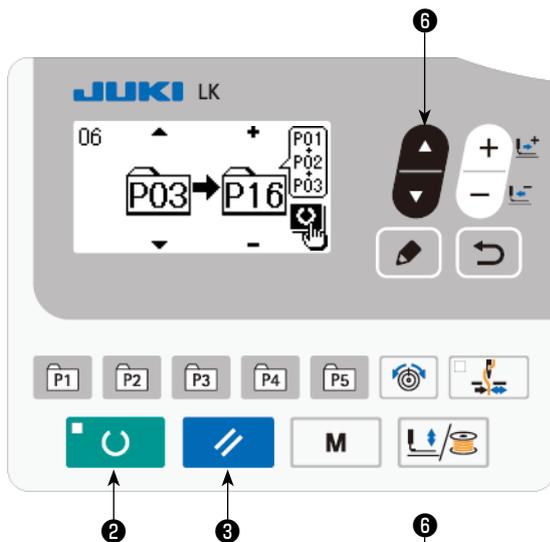
When READY key **2** is pressed, the copy starts. Then, the screen returns to the input screen on which the pattern No. which is created by copying is selected.

6) Erasing the pattern

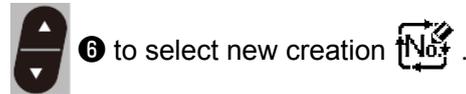
In the case of erasing the pattern, select ITEM SELECT key  ⑥ to select the pattern number you want to delete. Press DATA CHANGE key  ⑦ to select Trash . Then, press READY key  ②. The delete confirmation screen is displayed. The pattern is deleted by pressing RESET key  ③ on this screen.

* The standard pattern cannot be deleted.

- * In the case of copying the direct pattern, select "06 Direct pattern copy" on the mode screen. In the case of copying the cycle pattern, select "07 Cycle pattern copy" on the mode screen. Both the direct pattern and the cycle pattern can be copied in the similar procedure.



- * The pattern key and the cycle pattern can be copied in the similar procedure. To create a new cycle pattern, press ITEM SELECT key



- * To select a copied user pattern, press ITEM SELECT key  ⑥ to display  when the pattern number is displayed on the upper left section of the screen. Then, press DATA CHANGE key  ⑦ to select a pattern number.

6-6. Communication

(1) USB thumb drive

- ① Precautions to be taken when handling USB devices
 - Do not leave the USB device or USB cable connected to the USB port while the sewing machine is in operation. The machine vibration can damage the port section resulting in loss of data stored on the USB device or breakage of the USB device or sewing machine.
 - Do not insert/remove a USB device during reading/writing a program or sewing data. It may cause data breakage or malfunction.
 - When the storage space of a USB device is partitioned, only one partition is accessible.
 - Some type of the USB device may not be properly recognized by this sewing machine.
 - JUKI does not compensate for loss of data stored on the USB device caused by using it with this sewing machine.
 - When the panel displays the communication screen or pattern data list, the USB drive is not recognized even if you insert a medium into the slot.
 - For USB devices and media such as CF(TM) cards, only one device/medium should be basically connected/inserted to/into the sewing machine. When two or more devices/media are connected/inserted, the machine will only recognize one of them. Refer to the USB specifications.
 - Insert the USB connector into the USB terminal on the IP panel until it will go no further.
 - Do not turn the power OFF while the data on the USB flash drive is being accessed.

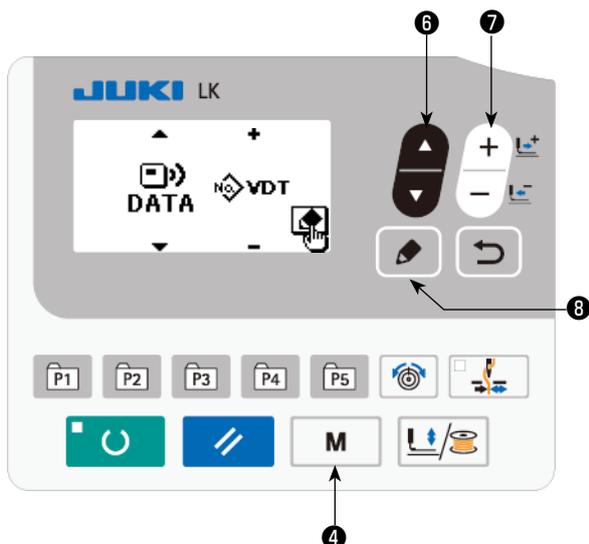
② USB specifications

- Conform to USB 1.1 standard
- Applicable devices *1 _____ Storage devices such as USB memory, USB hub, FDD and card reader
- Not-applicable devices _____ CD drive, DVD drive, MO drive, tape drive, etc.
- Format supported _____ FD (floppy disk) FAT 12
_____ Others (USB memory, etc.), FAT 12, FAT 16, FAT 32
- Applicable medium size _____ FD (floppy disk) 1.44MB, 720KB
_____ Others (USB memory, etc.), 4.1MB ~ (2TB)
- Recognition of drives _____ For external devices such as a USB device, the device which is recognized first is accessed. However, when a medium is connected to the built-in media slot, the access to that medium will be given the highest priority. (Example: If a medium is inserted into the media slot even when the USB memory has already been connected to the USB port, the medium will be accessed.)
- Restriction on connection _____ Max. 10 devices (When the number of storage devices connected to the sewing machine has exceeded the maximum number, the 11th storage device and beyond will not be recognized unless they are once disconnected and re-connected.)
- Consumption current _____ The rated consumption current of the applicable USB devices is 500 mA at the maximum.

*1: JUKI does not guarantee operation of all applicable devices. Some device may not operate due to a compatibility problem.

(2) How to use the communication function

This sewing machine is capable of inputting/outputting data by means of an USB thumb drive.



1) Entering the communication mode

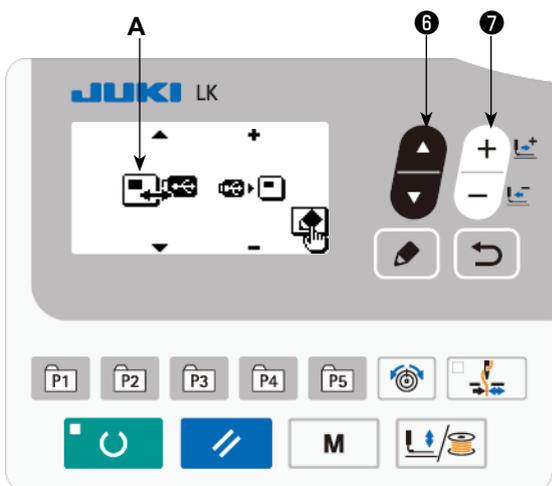
Press MODE key **M** ④ to display the mode screen. Put the pattern copy in the selected state with ITEM SELECT key  ⑥.

Then, press EDIT key  ⑧.

2) Selecting the type of communication

Press DATA CHANGE key  ⑦ to select the type of communication.

Name of data		Extension	Description of data
Vector form data		VD00 xxx .VDT (xxx:001 to 999)	Data on needle entry points created with the PM-1. The data form is commonly used among JUKI sewing machine.(User pattern)



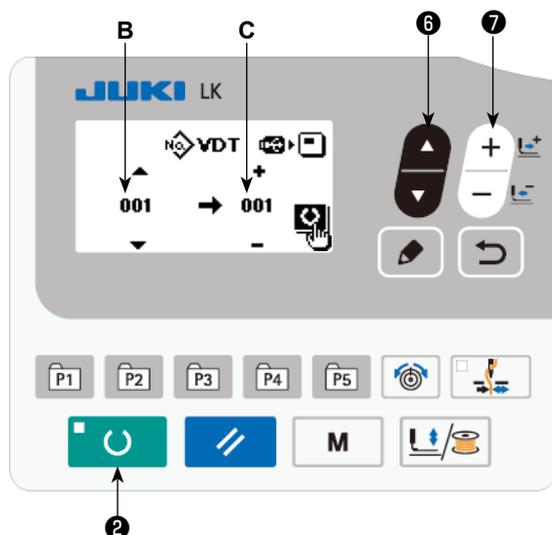
3) Selecting the communication direction

Press ITEM SELECT key  ⑥ to display pictograph **A** which shows the communication direction selection.

Press DATA CHANGE key  ⑦ to select the communication direction.

  : Data shown on the operation panel is written on the USB thumb drive.

  : Data stored on the USB thumb drive is read into the operation panel.

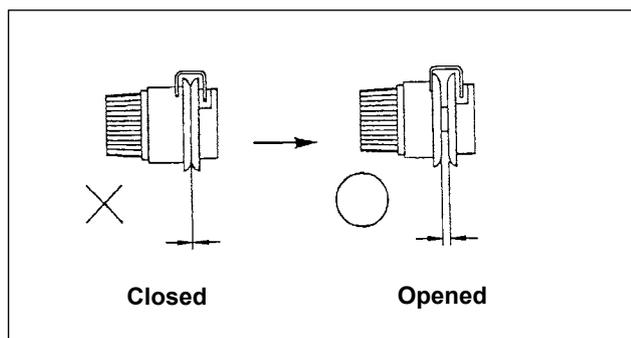


4) Selecting the number

Press ITEM SELECT key  ⑥ to select file No. **B** to be read.

Press DATA CHANGE key  ⑦ to select file No. **C** to be written. Press set READY key  ② to write the data in file No. **C**.

6-7. Cautions in operation



- (1) When threading and the sewing machine is switched ON, in case the thread tension disk is closed, sew the desired sewing pattern. After thread trimming, the thread tension disk will open.
- (2) When the error indicator lamp lights up, be sure to check the cause of trouble and take a proper corrective measure.
- (3) Do not draw, by hand, the material being sewn during sewing. Doing so will cause the needle shift from the correct position. If the needle moves from the correct position, press the  key two times. This will return the needle to the normal origin.

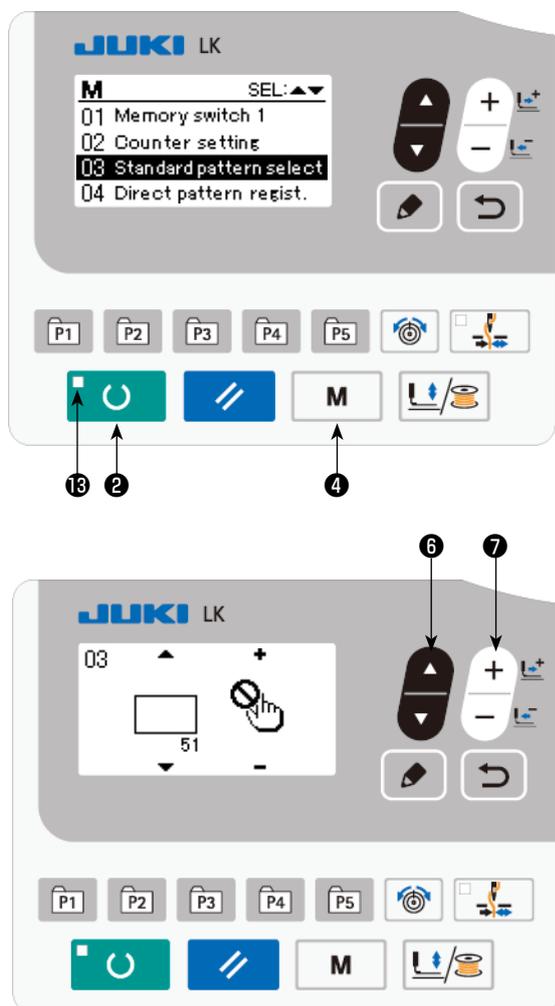
Reference for the sewing speed to be applied

	Sewing speed
Denim 8 pcs.	2,200 to 2,500 sti/min
Denim 12 pcs.	2,200 to 2,500 sti/min
Clothes	2,200 to 2,500 sti/min
Clothes (Synthetic thread used)	2,000 to 2,300 sti/min
Knit	1,800 to 2,000 sti/min
Foundation	1,800 to 2,000 sti/min

- * To prevent the thread breakage due to the needle heat, set the sewing speed referring to the above table in accordance with the sewing conditions.
- * For sewing the foundation or the like, lower the height of the needle bar to prevent the stitch skipping. (Refer to the item **"7-1. Adjusting the height of the needle bar"** p.45).

6-8. Setting enable/disable of standard pattern invoking

Invoking of a wrong pattern is prevented by disabling invoking of unnecessary patterns.
In addition, necessary patterns can be invoked and used.



Example of setting: Invoking of pattern No. 51 is disabled.

1) Putting the sewing machine in the input mode

Under the input mode where the SET READY LED ① goes out, setting of data is enabled. Under the sewing mode, press READY key ② to change over the mode to the input mode.

2) Press MODE key **M** ④ to display the mode screen. Set the standard pattern use/disuse selection in the "use" state with ITEM SELECT key ⑥. Then, press the select key.

3) Press ITEM SELECT key ⑥ to display pattern No. 51.

4) Press DATA CHANGE key ⑦ to select use/disuse of the pattern.

 Use

 Disuse

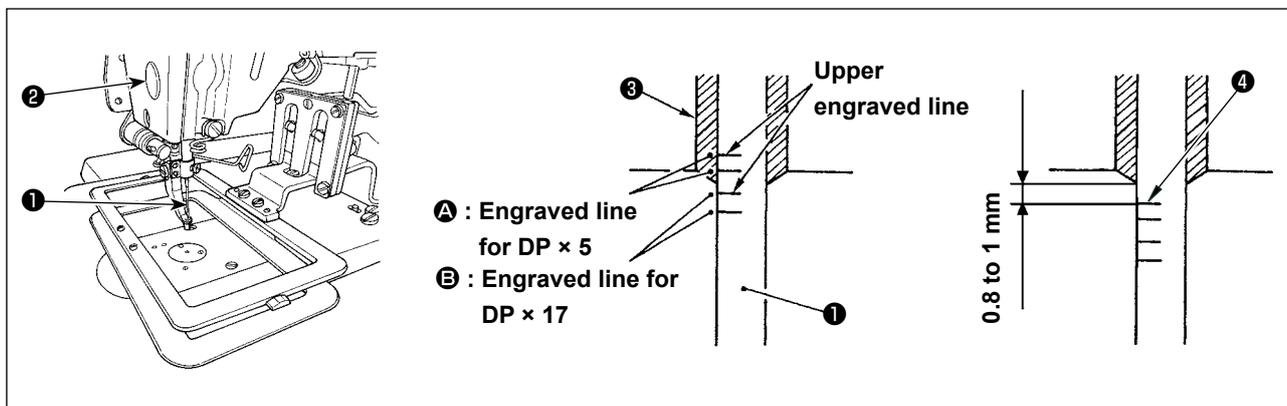
7. MAINTENANCE

7-1. Adjusting the height of the needle bar



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Bring needle bar ① to the lowest position of its stroke. Loosen needle bar connection screw ② and adjust so that upper marker line ④ engraved on the needle bar aligns with the bottom end of needle bar bushing, lower ③ .



After the adjustment, make sure that there is no uneven torque.

- * When stitch skipping occurs in accordance with the sewing conditions, adjust the height of the needle bar so as to lower it by 0.5 to 1 mm from the needle bar engraved line ④ .

7-2. Adjusting the needle-to-shuttle relation



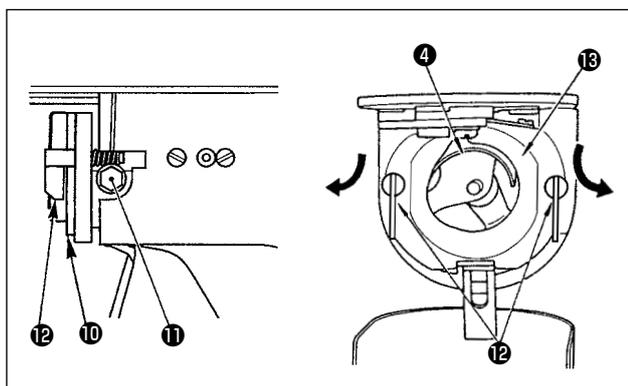
WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Relation between needle and engraved lines



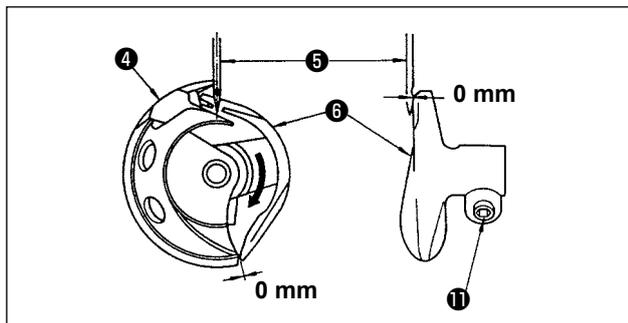
- 1) Turn the handwheel by hand. When needle bar ① has gone up, adjust so that lower marker line ② engraved on the needle bar aligns with the bottom end of the needle bar bushing ③, lower.



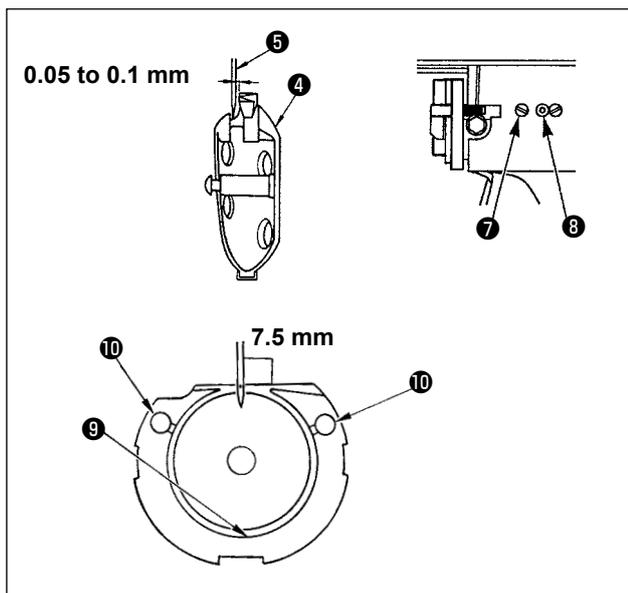
- 2) Loosen setscrew ① in the driver. Open inner hook pressers ⑫ to the right and left, and remove inner hook presser ⑬.



At this time, be careful not to let inner hook ④ come off and fall.



- 3) Adjust so that the blade point of inner hook ④ aligns with the center of needle ⑤, and that a clearance of 0 mm is provided between the front end of the driver and the needle as the front end face of driver ⑥ receives the needle to prevent the needle from being bent. Then tighten setscrew ⑪ of the driver.



- 4) Loosen setscrew ⑦ of the shuttle, and adjust the longitudinal position of the shuttle. To do this adjustment, turn shuttle race adjusting shaft ⑧ clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between needle ⑤ and the blade point of inner hook ④.
- 5) After adjusting the longitudinal position of the shuttle, further adjust to provide a 7.5 mm clearance between the needle and the shuttle by adjusting the rotating direction. Then tighten setscrew ⑦ of the shuttle.



If the sewing machine is left unused for a long time, or after clearing the area surrounding the hook section, apply a little quantity of oil to race section ⑨ and felt ⑩ before using the sewing machine.

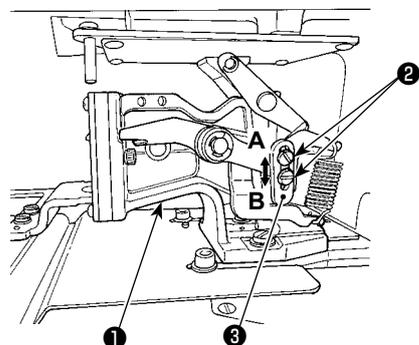
7-3. Adjusting the lift of the work clamp foot



WARNING :

As the work is performed while the power is ON, never touch the switches other than the necessary one so as to prevent accidents caused by the malfunction of switches.

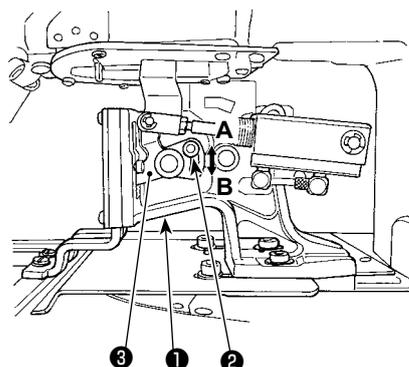
Solenoid type



Solenoid type

- 1) Loosen setscrews ② located on the right- and left-hand sides of feed bracket ① . Move cloth presser stopper ③ in the direction of B to increase the height.
- 2) After adjusting the height, securely tighten setscrews ② .

Pneumatic type



Pneumatic type

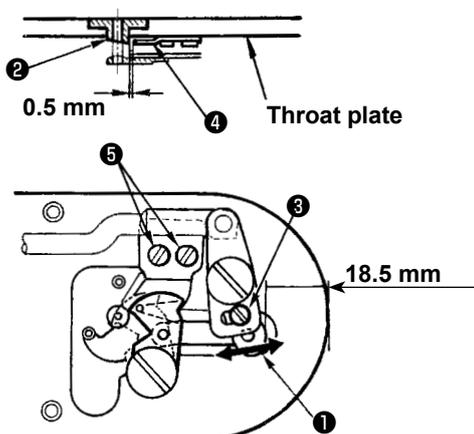
- 1) Loosen setscrew ② in feed bracket ① and move cloth presser hook ③ in the direction of B to increase the height.
- 2) After adjusting the height, securely tighten setscrew ② .

7-4. The moving knife and counter knife



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



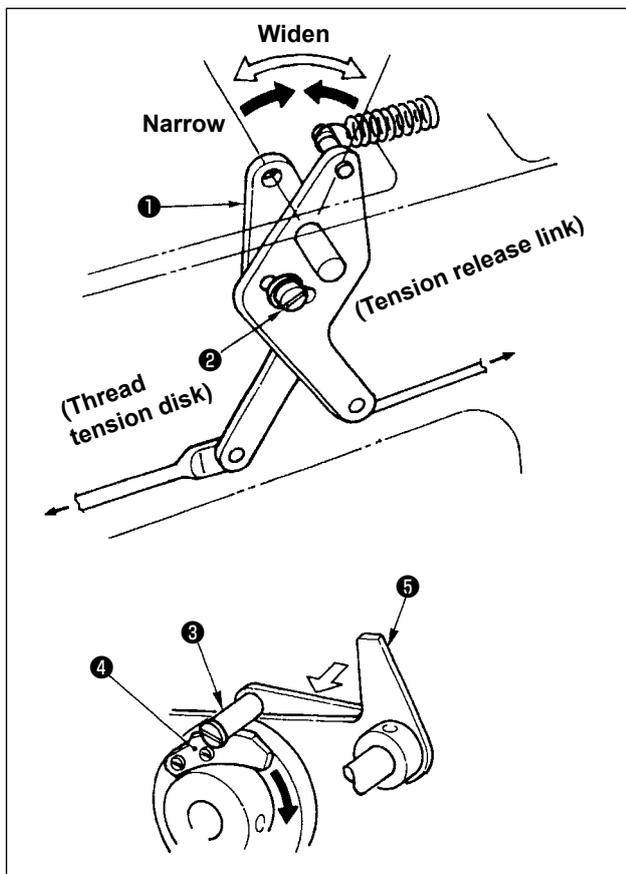
- 1) Loosen adjusting screw ③ so that a clearance of 18.5 mm is provided between the front end of the throat plate and the top end of thread trimmer lever, small ① . To adjust, move the moving knife in the direction of arrow.
- 2) Loosen setscrew ⑤ so that a clearance of 0.5 mm is provided between needle hole guide ② and counter knife ④ . To adjust, move the counter knife.

7-5. Adjusting the rising amount of the thread tension disk



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Remove the top cover. Make sure that tension release pin ③ rides on tension release notch ④ .
- 2) If the pin does not ride on the notch, push cam follower ⑤ by hand to the ⇨ direction, and rotate the main shaft in the correct direction to make a state as illustrated in the figure.
- 3) Under the state as illustrated in the figure, loosen setscrew ② in the tension release adjusting arm. By moving tension release adjusting arm ① to the left or right the rising amount of the thread tension disk will change.

S type : 0.6 to 0.8 mm

H type : 0.8 to 1.0 mm

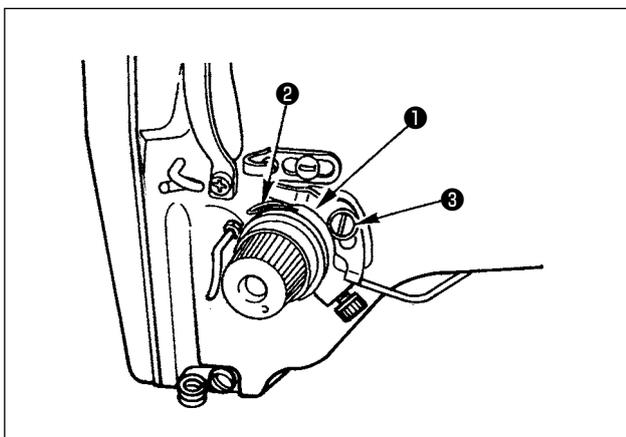
Caution
If the rising amount is insufficient, the length of the remaining thread after thread trimming will be not stable. If the rising amount is excessive, after releasing the rising of the thread tension disk, the disk closing will be defective.

7-6. Thread breakage detector plate



WARNING :

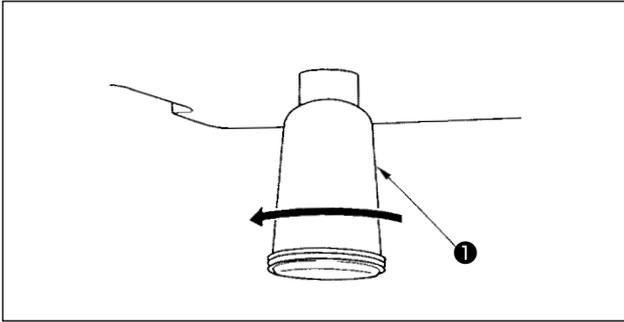
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Adjust so that thread breakage detector plate ① is always in contact with thread take-up spring ② in the absence of needle thread. (Slack : approx. 0.5 mm)
- 2) Whenever the stroke of thread take-up spring ② has been changed, be sure to readjust thread breakage detector plate ① . To make this adjustment, loosen screw ③ .

Caution
Adjust so that thread breakage detector plate ① does not touch any adjacent metallic parts other than thread take-up spring ② .

7-7. Draining waste oil



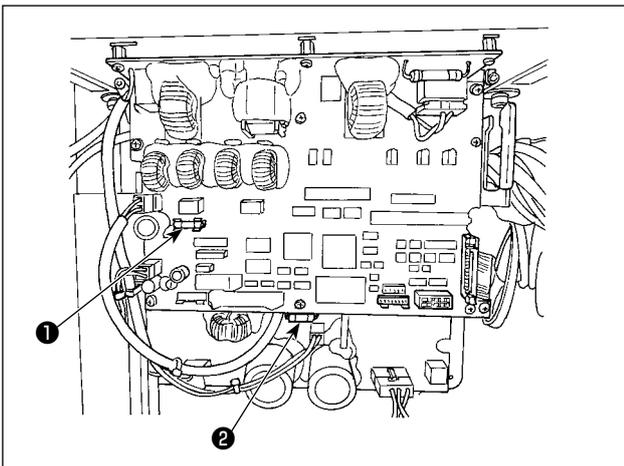
When polyethylene oiler ❶ becomes filled with oil, remove polyethylene oiler ❶ and drain the oil.

7-8. Replacing the fuse

DANGER :



1. To avoid electrical shock hazards, turn OFF the power and open the control box cover after about five minutes have passed.
2. Open the control box cover after turning OFF the power without fail. Then, replace with a new fuse with the specified capacity.



The machine uses the following two fuses :

MAIN PWB

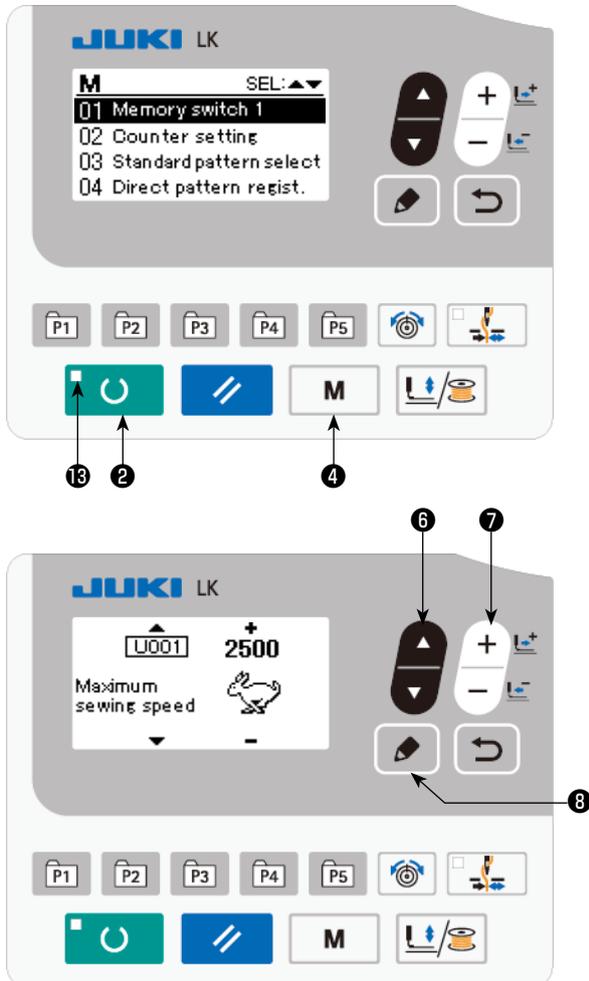
- ❶ For pulse motor power supply protection
5A (time-lag fuse)

SDC PWB

- ❷ For control power supply protection
2A (fast-blow type fuse)

8. HOW TO USE THE MEMORY SWITCH

8-1. Method of changing memory switch data



1) Set the mode to input mode

Under the input mode where SET READY LED ⑬ goes out, change to the memory switch data is enabled.

If the current mode is the sewing mode, press READY key  ② to change over the mode to the input mode.

2) Call memory switch data edit screen

When MODE key  ④ is pressed, the mode screen (operator level) is displayed. On this screen, select the memory switch data (level 1).

Press ITEM SELECT key  ⑥ to select

"01 Memory switch 1". When you press EDIT key  ⑧, the memory switch data screen appears.

3) Select memory switch data to change

Press ITEM SELECT key  ⑥ and select the data item which you desire to change.

4) Change data

There are one data item to change the numerical value and the other data item to select the pictograph in the memory switch data.

No. such as  is attached to the data item to change the numerical value. Set value can be changed by increasing/decreasing the value with DATA CHANGE key  ⑦.

No. such as  is attached to the data item to select the pictograph. Pictograph can be selected with DATA CHANGE key  ⑦.

→ For the details of memory switch data, refer to "8-2. List of the memory switch functions" p.51.

8-2. List of the memory switch functions

Various operations of the sewing machine can be set by programming the memory switch.
The initial setting values at the time of shipment differ with models.

No.	Function	Setting range	State when delivered	Remarks
U001	Max. sewing speed (Speed can be set in a unit of 100 sti/min.) 	200 to 2500	2500	
U002	Sewing speed of 1st stitch (Speed can be set in a unit of 100 sti/min.) 	200 to 900	200	
U003	Sewing speed of 2nd stitch (Speed can be set in a unit of 100 sti/min.) 	200 to 2500	600	
U004	Sewing speed of 3rd stitch (Speed can be set in a unit of 100 sti/min.) 	200 to 2500	1000	
U005	Sewing speed of 4th stitch (Speed can be set in a unit of 100 sti/min.) 	200 to 2500	2500	
U006	Sewing speed of 5th stitch (Speed can be set in a unit of 100 sti/min.) 	200 to 2500	2500	
U019	Selection of pedal  : Standard pedal  : AMS 2-pedal unit  : Pedal 1 for standing work (PK51)  : AMS 3-pedal unit (right pedal is given priority)  : AMS 3-pedal unit (left pedal is given priority)  : AMS 3-pedal unit (no priority)	-		
U024	Optional pedal 1 operation  : OFF when depressing pedal again  : OFF when detaching from pedal	-		
U025	Optional pedal 2 operation  : OFF when depressing pedal again  : OFF when detaching from pedal	-		
U030	Selection of base point of pattern enlargement/reduction  : Origin  : Sewing start point	-		The origin is fixed when using an inversion pattern.
U031	Sewing machine operation can be stopped with panel key (clear key)  : Ineffective  : Panel RESET key  : External switch	-		
U032	Buzzer sound can be prohibited  : Without buzzer sound  : Panel operation sound  : Panel operation sound + error sound	-		

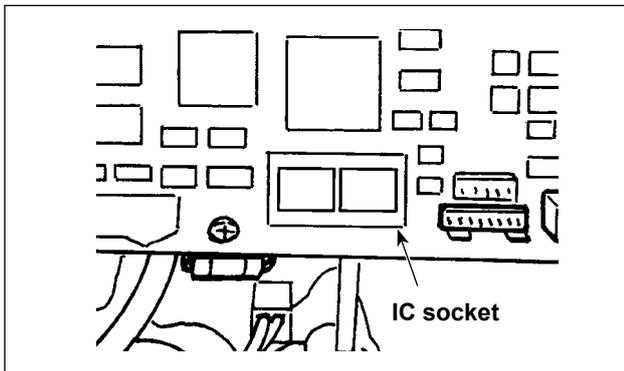
No.	Function	Setting range	State when delivered	Remarks
U036	Feed timing is selected When stitches are not well-tightened, set the value in "-" direction. 	-1 to 8	5	Setting on excessive "-" side may cause needle breakage. Be careful when sewing heavy-weight material.
U037	State of work clamp foot after completion of sewing can be selected  : Work clamp foot goes up after moving at the sewing start  : Work clamp foot goes up immediately after the end of sewing.  : Work clamp foot goes up by pedal operation after moving at the sewing start.	-		
U039	Execution of origin retrieval every time after completion of sewing can be performed. (Except cycle stitching)  : Without origin retrieval  : With origin retrieval	-		
U040	Setting of origin retrieval in cycle stitching can be set  : Without origin retrieval  : Every time 1 pattern is completed  : Every time 1 cycle is completed	-		
U041	State of work clamp foot when machine stopped by temporary stop command can be selected  : Work clamp foot goes up.  : Work clamp foot goes up with work clamp foot switch.  : Lift of work clamp foot is prohibited.	-		
U042	Needle bar stop position is set  : UP position  : Upper dead point	-		Needle bar rotates in the reverse direction after the UP position stop and stops when upper dead point stop is set.
U046	Thread trimming can be prohibited  : Normal  : Thread trimming prohibited	-		
U048	Route of origin return by means of clear key can be selected  : Straight line return  : Reverse return of pattern	-		This function is used when straight line return from the midway of pattern to the start of sewing is not possible.
U049	Bobbin winding speed can be set	800 to 2000	1600	Max. speed limitation has priority.

No.	Function	Setting range	State when delivered	Remarks
U051	Wiper control can be prohibited  : Wiper output prohibited  : Wiper output enabled	-		
U071	Thread breakage detection selection  : Prohibited  : Enabled	-		
U072	Number of invalid stitches at the start of sewing of thread breakage detection 	0 to 15	8	
U073	Number of invalid stitches during sewing of thread breakage detection 	0 to 15	3	
U074	The fan operation can be set  : Energy saving mode  : Constantly operates	-		
U075	With/without air pressure detection  : Without  : With	-		For the LK-1910A and LK-1920A, the air presser detection can be set to  .
U105	Intermediate presser : wiper sweeping position  : Upper wiping  : Lower wiping * Displayed only for the LK-1920	-		
U129	With/without needle cooler control  : Without  : With	-		
U132	Selection of the tension controller No. 3 mode  : Inversion shaft  : Tension controller No. 3	-		When the inversion pattern is used, the inversion-specific operation is prohibited by means of the inversion output.
U133	Selection of the return-to-origin route for the inversion pattern  : Reverse trace prohibited  : Reverse trace enabled	-		
U134	With/without disc floating device control  : Without  : With	-		

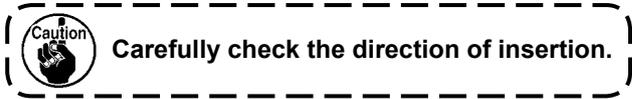
No.	Function	Setting range	State when delivered	Remarks
U180	Type of work clamp selection for AMS  ±0 : Standard  -12 : -12 mm offset (for the work clamp for AMS-206)	-	 ±0	
U185	Selection of basting stitch mode Operation mode under which the needle enters the material only at inflection points  : Without  : With * Enabled only for the old user patterns.	-		
U239	Choice of language With this switch, the language to be displayed on the panel is selected. * The number of selectable languages differs with the type of sewing machine shipped: English : Not yet selected (display in English) 日本語 : Japanese English : English 中文 简体字 : Chinese (simplified characters) 中文 繁體字 : Chinese (traditional Chinese) Español : Spanish Italiano : Italian Français : French Deutsch : German Português : Portuguese Türkçe : Turkish Tiếng Việt : Vietnamese 한국어 : Korean Indonesia : Indonesian Русский : Russian	-	Not yet selected (display in English)	

9. OTHERS

9-1. LK-1910/-1920 data ROM



The LK-1910/-1920 data ROM should be used by inserting it into the IC socket on the MAIN PCB.



ROMs that can be used

58C256 EEP-ROM

JUKI part number : HL011940000

9-2. Connection of the optional pedal

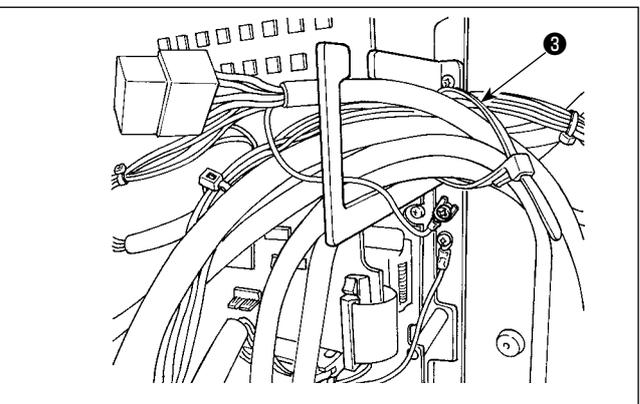
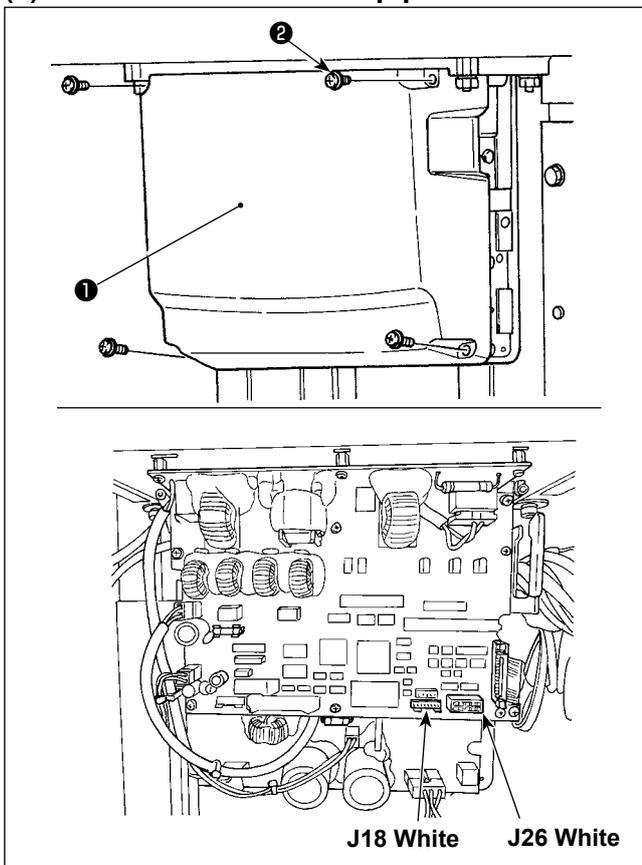


DANGER :

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.

In the case of using the optional pedal, refer to ["9-5. Table of the optional parts" p.63](#) for how to use the memory switch.

(1) Connection of the 2-step pedal



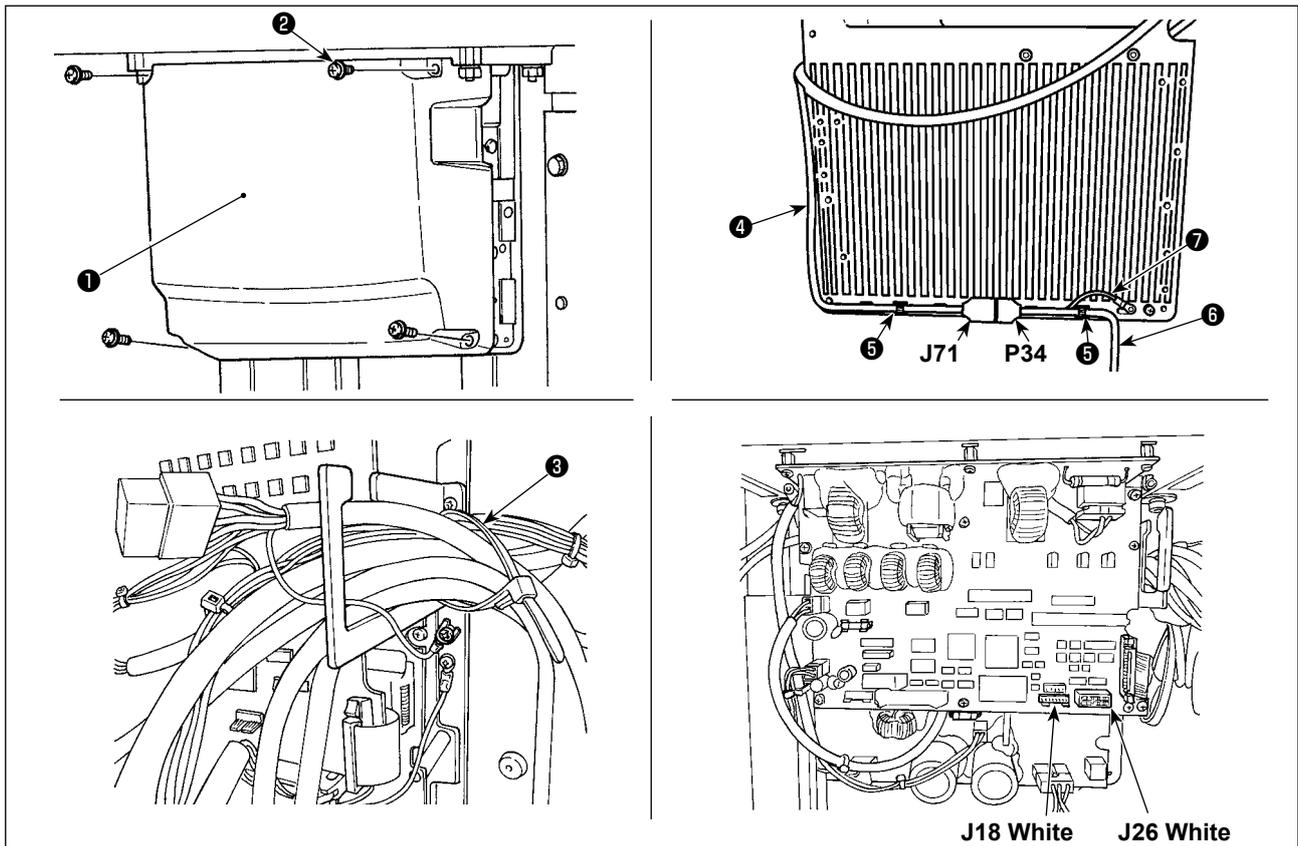
- 1) Loosen the four setscrews ② in the control box to remove cover ① .
- 2) Remove the standard pedal cords from J18 and J26 connectors on the MAIN circuit board.
- 3) Enter the 2-step pedal cord into the control box and connect it with J26 connector on the MAIN circuit board.
2-step pedal : Part number M85205800A0
- 4) Loosen cable clip band ③ . Bind and secure the foot pedal switch cable with the by clip band ③ , together with the other cables.



DANGER :

It is very important to carefully connect the cables to the correct connectors on the PWB. Wrong connection poses a great risk.

(2) Connection of PK-57



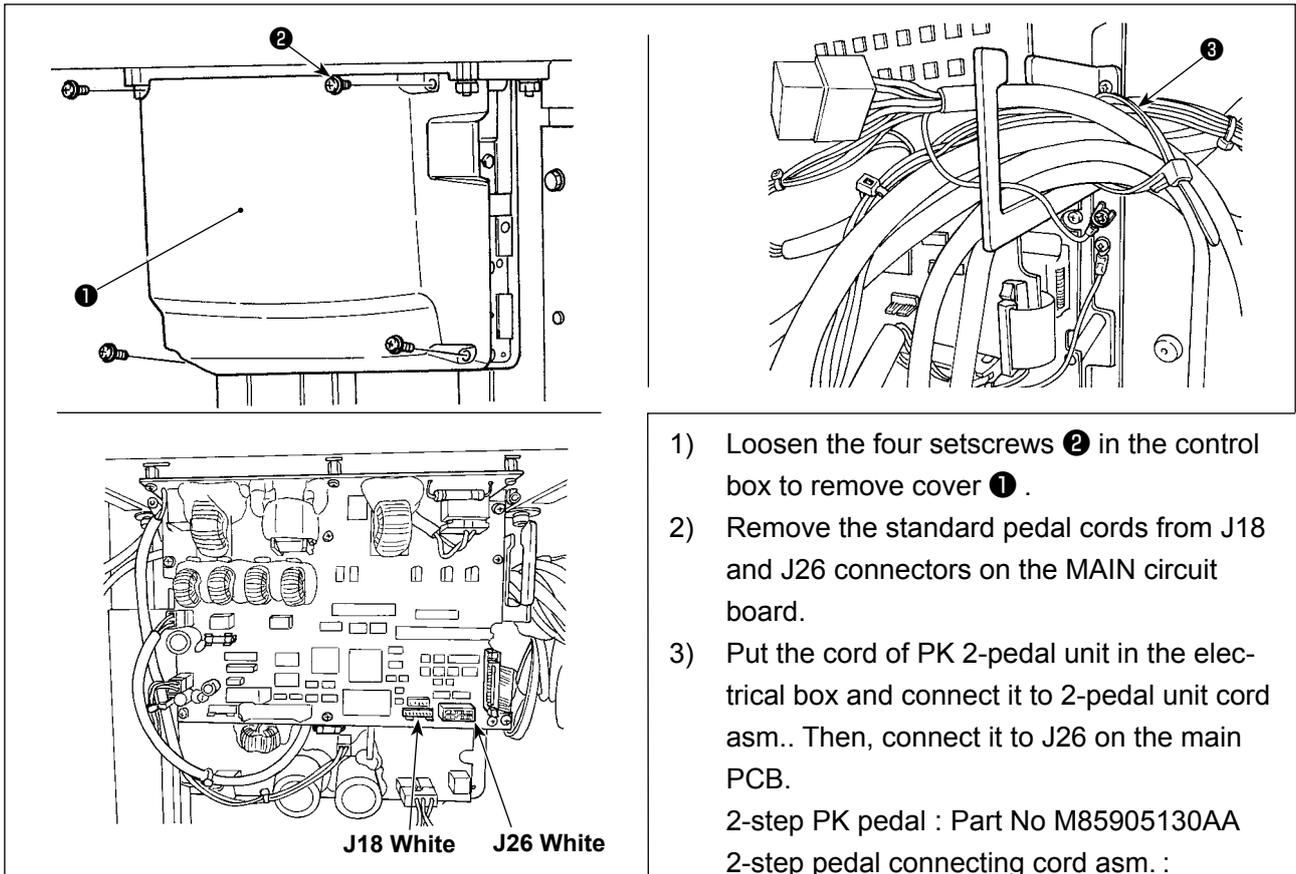
- 1) Loosen the four setscrews ② in the control box to remove cover ① .
- 2) Remove the standard pedal cord from J18 connector on the MAIN circuit board, and connect PK-57 change cable ④ .
- 3) Connect PK-57 cord ⑥ P34 and PK-57 conversion cable ④ J71 on the rear face of the electrical box. Then, secure them at two locations with adhesive clamp ⑤ .
In addition, secure ground wire ⑦ of PK-57 with a screw as illustrated in the figure.
PK-57 : Part No GPK570010B0
PK-57 change cable : Part No M90135900A0
Adhesive clamp : Part No E9607603000 (2 pcs.)
- 4) Loosen cable clip band ③ . Bind and secure the foot pedal switch cable with the by clip band ③ , together with the other cables.



DANGER :

It is very important to carefully connect the cables to the correct connectors on the PWB. Wrong connection poses a great risk.

(3) Connection of 2-step PK pedal



- 1) Loosen the four setscrews ② in the control box to remove cover ① .
- 2) Remove the standard pedal cords from J18 and J26 connectors on the MAIN circuit board.
- 3) Put the cord of PK 2-pedal unit in the electrical box and connect it to 2-pedal unit cord asm.. Then, connect it to J26 on the main PCB.

2-step PK pedal : Part No M85905130AA

2-step pedal connecting cord asm. :

Part No. M90315800A0

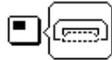
- 4) Loosen cable clip band ③ . Bind and secure the foot pedal switch cable with the by clip band ③ ,



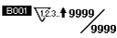
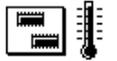
DANGER :

It is very important to carefully connect the cables to the correct connectors on the PWB. Wrong connection poses a great risk.

9-3. Error list

Error code	Indication	Description of error	Corrective measure	Remarks
E007		Machine lock error The main shaft of the sewing machine does not rotate due to some troubles.	Turn OFF the power switch and remove the cause of troubles.	
E010		Pattern No. error Back-uped pattern No. has not been registered in the data ROM, or it is set to readout inoperative. Pattern No. is set to "0".	Press the reset key and check the pattern No. Check the contents of memory switch No. 201.	
E011		External media not inserted USB thumb drive is not inserted.	Re-operation is enabled after resetting.	
E012		Read error Data cannot be read from the USB thumb drive.	Re-operation is enabled after resetting.	
E013		Write error Data cannot be written on the USB thumb drive.	Re-operation is enabled after resetting.	
E014		Write-protect USB thumb drive is write-protected.	Re-operation is enabled after resetting.	
E015		Format error USB thumb drive cannot be formatted.	Re-operation is enabled after resetting.	
E016		External media capacity over Memory capacity of the USB thumb drive to write pattern data is not sufficient.	Re-operation is enabled after resetting.	
E017		Machine memory capacity over Memory capacity of the sewing machine to write pattern data is not sufficient.	Re-operation is enabled after resetting.	
E019		File size over The pattern data to be read from the USB thumb drive is too large. (Max.: Approximately 20000 stitches)	Re-operation is enabled after resetting.	
E024		Pattern data size over The pattern data to be written on the sewing machine memory is too large. (Max.: Approximately 20000 stitches)	Re-operation is enabled after resetting.	
E030		Needle bar position error Needle bar is not in the specified position.	Turn the hand pulley to return the needle bar to its specified position.	
E031		Air pressure drop Air pressure is dropped.	Supply air and reset the sewing machine. Then, the operation is enabled again.	

Error code	Indication	Description of error	Corrective measure	Remarks
E040		Sewing area over The pattern size exceeds the sewing range.	Press the RESET key. Then, check the pattern and the X/Y scale.	This error is output when max. sewing area, 100 × 50 is over. Interference of the work clamp foot with needle is not protected.
E043		Enlargement error The sewing pitch is beyond 10 mm.	Press the reset key and check the pattern and X/Y scale rate.	
E045		Pattern data error The pattern data cannot be adopted.	Re-operation is enabled after resetting.	
E050		Temporary stop Temporary stop by operating the reset key while the sewing machine is running. (Refer to memory switch No. 31.)	Re-start or return-to-origin after thread trimming by means of the reset key (For the details, refer to the item " 6-4. How to use the temporary stop " p.38).	
E061		Memory switch data error Memory switch data is broken or revision is old.	Re-operation is enabled after resetting.	
E063	TYPE 	Machine head identification error The type of machine head and the type of control box do not match.	Turn the power OFF and contact JUKI or your distributor.	
E204		Connection alert for the USB thumb drive which is used for sewing Sewing has been carried out by 10 or more times with the USB thumb drive inserted in the USB port.	Re-operation is enabled after resetting.	
E220	100000000 	Grease replenishing time information Information as to the time of replenishing the designated places with grease.	Replenish the designated places with grease and set memory switch No. 245 to "0" with the RESET key. Error can be released with the RESET key when immediate replenishing with grease cannot be performed during sewing operation.	
E221	120000000 	Grease replenishing warning error Sewing machine has stopped since the time of replenishing the designated places with grease has come.	Immediately perform replenishing with grease and set memory switch No. 245 to "0" with the RESET key.	
E302		Head tilt error Head tilt detection switch is turned OFF.	The sewing machine cannot be operated with the head tilted. Return the sewing machine head to its proper position.	
E303		Z phase detection error Detection of the upper dead point of the sewing machine cannot be performed.	Turn OFF the power switch. Check whether the pin of the SDC board CN15 has come off or has loosened.	

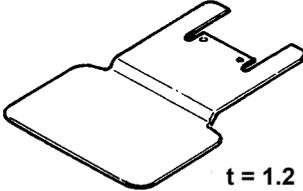
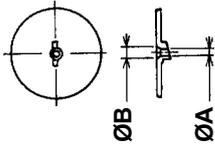
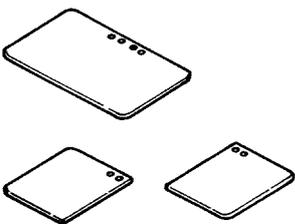
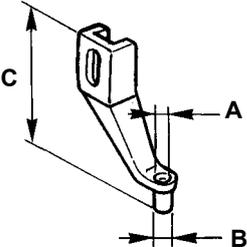
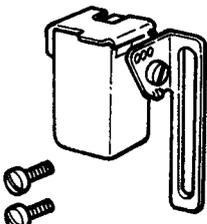
Error code	Indication	Description of error	Corrective measure	Remarks
E405		Prohibition of deletion of direct patterns The direct pattern is set in the cycle sewing data.	Re-operation is enabled after resetting.	
E430		Counter set-value is reached The set value of the counter is reached. * For the type of counter and the counter value displayed depends on the predetermined counter.	Re-operation is enabled after resetting.	
E730		Encoder trouble A Encoder A or B phase cannot be detected.	Turn OFF the power switch. Check whether the pin CN15 has come off or has loosened.	
E731		Encoder trouble B Encoder U, V or W phase cannot be detected.	Turn OFF the power switch. Check whether the pin CN15 has come off or has loosened.	
E733		Reverse rotation of motor The motor is reversing.	Turn OFF the power switch and check whether coupling of the main motor is loose.	
E811		Overvoltage error Power source voltage is beyond the specified value.	Check the power supply voltage.	
E813		Low voltage error Power source voltage is short.	Check the power supply voltage.	
E901		Motor driver trouble Error from the motor driver is detected.	Turn OFF the power switch and turn ON the power switch again after some time.	
E903		Stepping motor power supply trouble Power source of the stepping motor is not output.	Turn OFF the power switch and check F1 fuse of SDC board.	
E904		Solenoid power supply trouble Power source of the solenoid is not output.	Turn OFF the power switch and check F2 fuse of SDC board.	
E905		SDC board overheat Overheat of SDC board	Turn OFF the power switch and turn ON the power switch again after some time.	
E907		X origin retrieval error X origin sensor does not change.	Turn OFF the power switch. Check whether or not J20 on the MAIN PCB has slipped off or loosened.	
E908		Y origin retrieval error Y origin sensor does not change.	Turn OFF the power switch. Check whether or not J21 on the MAIN PCB has slipped off or loosened.	
E914		Feed trouble error Timing lag between feed and main shaft has occurred.	Turn OFF the power switch and check whether coupling of the main motor is loose.	

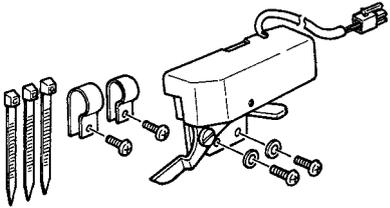
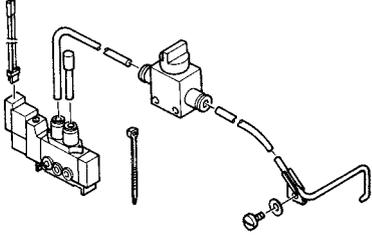
Error code	Indication	Description of error	Corrective measure	Remarks
E915		Communication error between panel and MAIN Communication between the panel and MAIN cannot be performed.	Turn OFF the power switch and check whether CN34 of MAIN board is disconnected or loose.	
E916		Communication error between MAIN and SDC Communication between MAIN and SDC cannot be performed.	Turn OFF the power switch and check whether CN32 of MAIN board or CN15 of SDC board is disconnected or loose.	
E918		MAIN board overheat Overheat of MAIN board	Turn OFF the power switch and turn ON the power switch again after some time.	
E946		INT memory write-in trouble Memory write-in of the head board cannot be performed.	Turn OFF the power switch. Check for the insertion of the ROM in U55 on the MAIN PCB.	
-		Power supply fault, connector disconnection The supply voltage specification is not correct. The connector has dropped off.	Turn OFF the power switch. Check the supply voltage, and check the CN3 of the FLT board and CN13 of the SDC board is disconnected or loose.	

9-4. Troubles and corrective measures

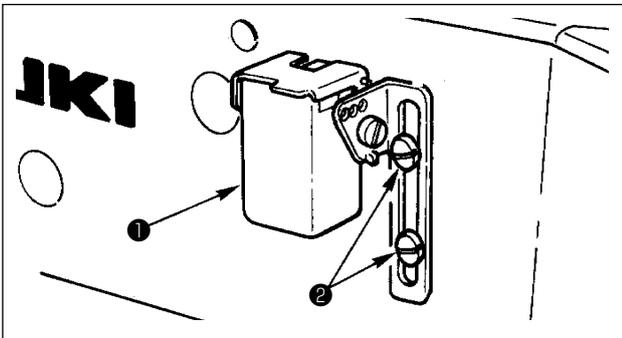
Trouble	Cause	Corrective measures	Page
1. The needle thread slips off at the start of bar-tacking.	① Stitches are slipped at the start.	○ Adjust the clearance between the needle and the shuttle to 0.05 to 0.1 mm.	46
	② The needle thread remaining on the needle after thread trimming is too short.	○ Set soft-start sewing at the start of bartacking. ○ Correct the thread tension release timing of the thread tension controller No. 2.	52 48
	③ The bobbin thread is too short.	○ Increase the tension of the thread take-up spring, or decrease the tension of the thread tension controller No. 1. ○ Decrease the tension of the bobbin thread. ○ Increase the clearance between the needle hole guide and the counter knife.	17, 18 17 47
2. Thread often breaks or synthetic fiber thread splits finely.	① The shuttle or the driver has scratches.	○ Take it out and remove the scratches using a fine whetstone or buff.	17 17 64
	② The needle strikes the work clamp foot.	○ Correct the position of the work clamp foot.	
	③ Fibrous dust is in the groove of the shuttle race.	○ Take out the shuttle and remove the fibrous dust from the shuttle race.	
	④ The needle thread tension is too high.	○ Reduce the needle thread tension.	
	⑤ The tension of the thread take-up spring is too high.	○ Reduce the tension.	
	⑥ The synthetic fiber thread melts due to heat generated on the needle.	○ Use silicone oil.	
3. The needle often breaks.	① The needle is bent.	○ Replace the bent needle.	15
	② The needle is too thin for the material.	○ Replace it with a thicker needle according to the material.	46
	③ The driver excessively bends the needle.	○ Correctly position the needle and the shuttle.	
	④ The feed timing is too late.	○ Advance the feed operation timing.	52
4. Threads are not trimmed.	① The counter knife is dull.	○ Replace the counter knife.	47
	② The difference in level between the needle hole guide and the counter knife is not enough.	○ Increase the bend of the counter knife.	
	③ The moving knife has been improperly positioned.	○ Correct the position of the moving knife.	46
	④ The last stitch is skipped.	○ Correct the timing between the needle and the shuttle.	46
5. Stitch skipping often occurs.	① The motions of the needle and shuttle are not properly synchronized.	○ Correct the positions of the needle and shuttle.	46
	② The clearance between the needle and shuttle is too large.	○ Correct the positions of the needle and shuttle.	46
	③ The needle is bent.	○ Replace the bent needle.	15
	④ The driver excessively bends the needle.	○ Correctly position the driver.	46
6. The needle thread comes out on the wrong side of the material.	① The needle thread tension is not high enough.	○ Increase the needle thread tension.	17
	② The needle thread after thread trimming is too long.	○ Retard the feed operation timing. ○ Increase the tension of the thread tension controller No. 1.	52 17
7. Threads break at time of thread trimming.	① The moving knife has been improperly positioned.	○ Correct the position of the moving knife.	47
8. When synthetic fiber thread is used, at the start or end of sewing, needle thread rises or remaining of needle thread is excessive.	① In case of synthetic fiber thread, the thread is harder than other threads and penetration resistance to material is small.	○ When making a pattern, set the sewing pitch at the start and end of sewing to 1 mm or less.	

9-5. Table of the optional parts

Name of Parts	Type	Part No.	Remarks
Feed plate blank 	Without knurl / without processing	14224109	
	With knurl / without processing	14224000	
Needle hole guide 	A=1.6 B=2.6 Without relief slit	D2426284M00	S type
	A=2.3 B=4.0 Without relief slit	14109607	H type
	A=1.6 B=2.0 Without relief slit	D2426284C00	For fashion and knit garments
	A=2.0 B=3.0 Without relief slit	14224307	
	A=2.5 B=3.5 Without relief slit	B242628000D	
	A=3.0 B=4.0 Without relief slit	D2426MMCK0C	
Feeding frame blank 	Solid type feeding frame / With knurl	B2553210D0A	
	Solid type feeding frame / Without knurl	2553210D0B	
	Separate type feeding frame / Without knurl	B2554210D0A	
	Separate type feeding frame (Right) / With knurl	B2554210D0B	
	Separate type feeding frame (Left) / With knurl	B2554210D0C	
Intermediate presser (for LK-1920 only) 	A=2.2 B=3.6 C=38.5	B1601210D00A	Standard
	A=2.7 B=4.1 C=38.5	B1601210D0BA	
	A=3.5 B=5.5 C=38.5	B1601210D0CA	
	A=1.6 B=2.6 C=37	B1601210D0E	
	A=2.2 B=3.6 C=41.5	B1601210D0FA	
Silicon oil tank 		B92118500A0	

Name of Parts	Type	Part No.	Remarks
Disk-raising device asm. 		14224760	
Needle cooler asm. 		14225056	

9-6. Silicon oil tank



When synthetic fiber thread is used, fix silicon tank ❶ (B92118500A0) with setscrew ❷ .

