ENGLISH

PS-700
INSTRUCTION MANUAL

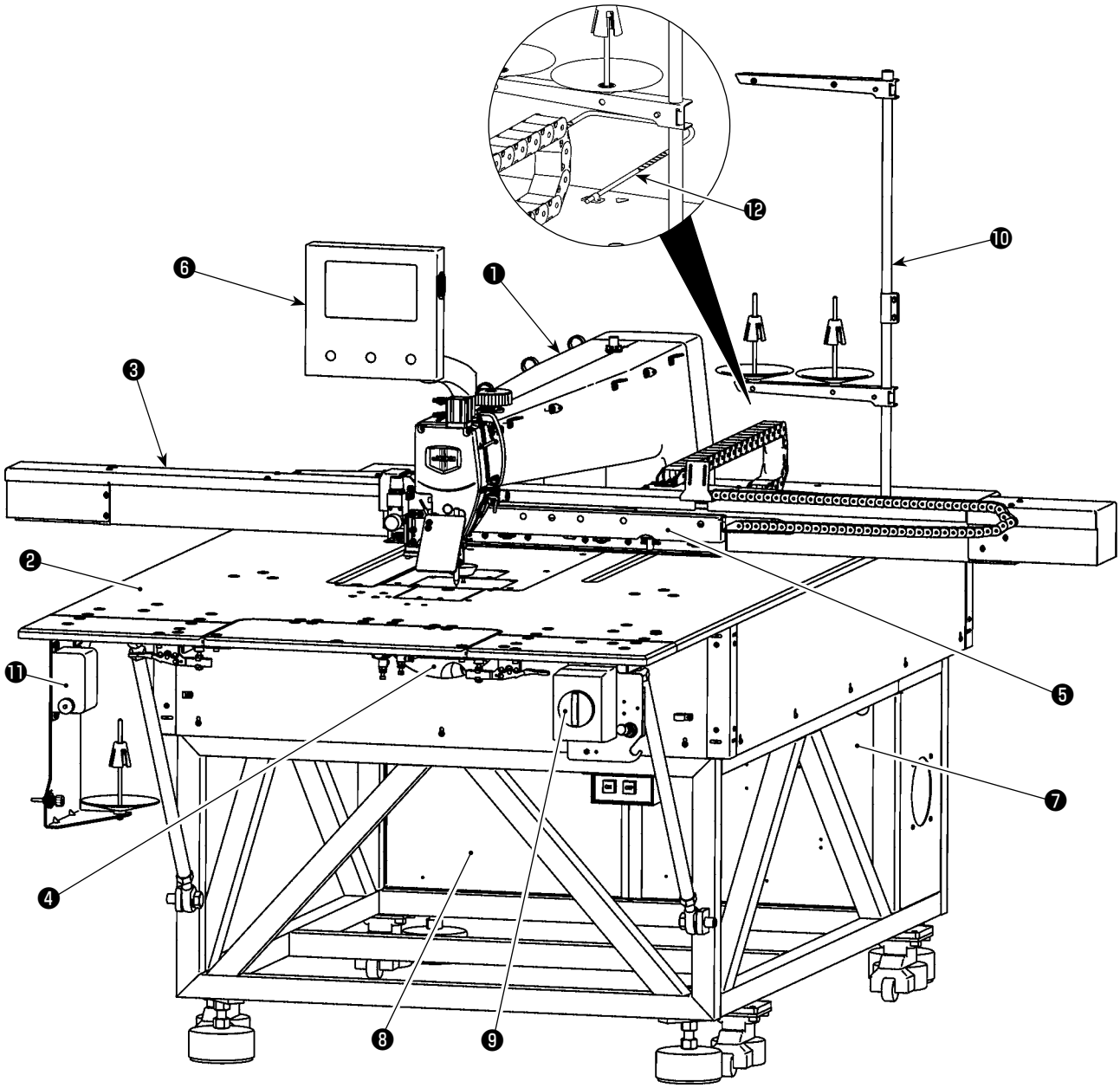
CONTENTS

I. MECHANICAL SECTION

1. SPECIFICATIONS

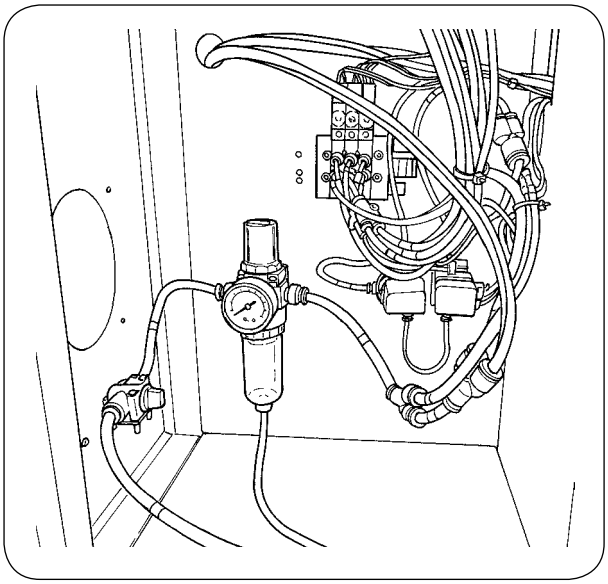
1	Sewing area	X (lateral) direction : 1,200 mm × Y (longitudinal) direction : 700 mm
2	Max. sewing speed	3,000 sti/min (When stitching pitch is 3 mm or less)
3	Settable stitch length	0.1 to 12.7 mm
4	Feed motion of feeding frame	Intermittent feed (2-shaft drive by stepping motor)
5	Needle bar stroke	39.8 mm
6	Needle	Organ needle DB × 1 #9 to 16 * For sewing shiny down which is the material for down jackets, ORGAN DB x 1SF (J BALL POINT) needle #9 to #11 should be used.
7	Thread	Filament #50, Span #30
8	Lift of disc presser	Max. 13 mm
9	Intermediate presser stroke	4 mm (Standard) (4 to 8.7 mm)
10	Lift of intermediate presser	23 mm
11	Hook	Double-capacity full-rotary hook
12	Lubricating oil	JUKI CORPORATION GENUINE OIL 7 (Supplied by oiler)
13	Memory of pattern data	Main body : Max. 999 patterns (Max. 60,000 stitches/pattern) External media : Max. 999 patterns (Max. 60,000 stitches/pattern)
14	Temporary stop facility	Used to stop machine operation during a stitching cycle.
15	Enlarging / Reducing facility	Allows a pattern to be enlarged or reduced on the X axis and Y axis independently when sewing a pattern. Scale : 10 to 400 % (0.1 % steps)
16	Enlarging / Reducing method	Pattern enlargement / reduction can be done by increasing / decreasing either stitch length or the number of stitches. (Increasing/decreasing stitch length only can be performed when pattern key is selected.)
17	Max. sewing speed limitation	200 to 3,000 sti/min (100 sti/min steps)
18	Pattern selection facility	Pattern No. selection method (Main body : 1 to 999, External media : 1 to 999)
19	Bobbin thread counter	UP/DOWN method (0 to 99,999)
20	Sewing counter	UP/DOWN method (0 to 99,999)
21	Memory back-up	In case of a power interruption, the pattern being used will automatically be stored in memory.
22	2nd origin setting facility	Using jog keys, a 2nd origin (needle position after a sewing cycle) can be set in the desired position within the sewing area. The set 2nd origin is also stored in memory.
23	Sewing machine motor	Servo-motor
24	Dimensions	1,870 mm (W) × 2,130 mm (L) × 1,410 mm (H) (Excluding thread stand)
25	Mass (gross mass)	722 kg
26	Power consumption	255.3 VA
27	Operating temperature range	5 to 35 ˚C
28	Operating humidity range	35 to 85 % (No dew condensation)
29	Storage temperature range	-20 to 60 ˚C
30	Storage humidity range	10 to 85 % (No dew condensation, 85 % applies to the case where the temperature is 40 ˚C or lower)
31	Line voltage	Single phase 220 to 240 V
32	Air pressure used	0.5 to 0.55 MPa (Max. 0.7 MPa)
33	Needle highest position stop facility	After the completion of sewing, the needle can be brought up to its highest position.
34	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 76.5 dB ; (Includes K_{pA} = 2.5 dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 2,500 sti/min.

2. CONFIGURATION



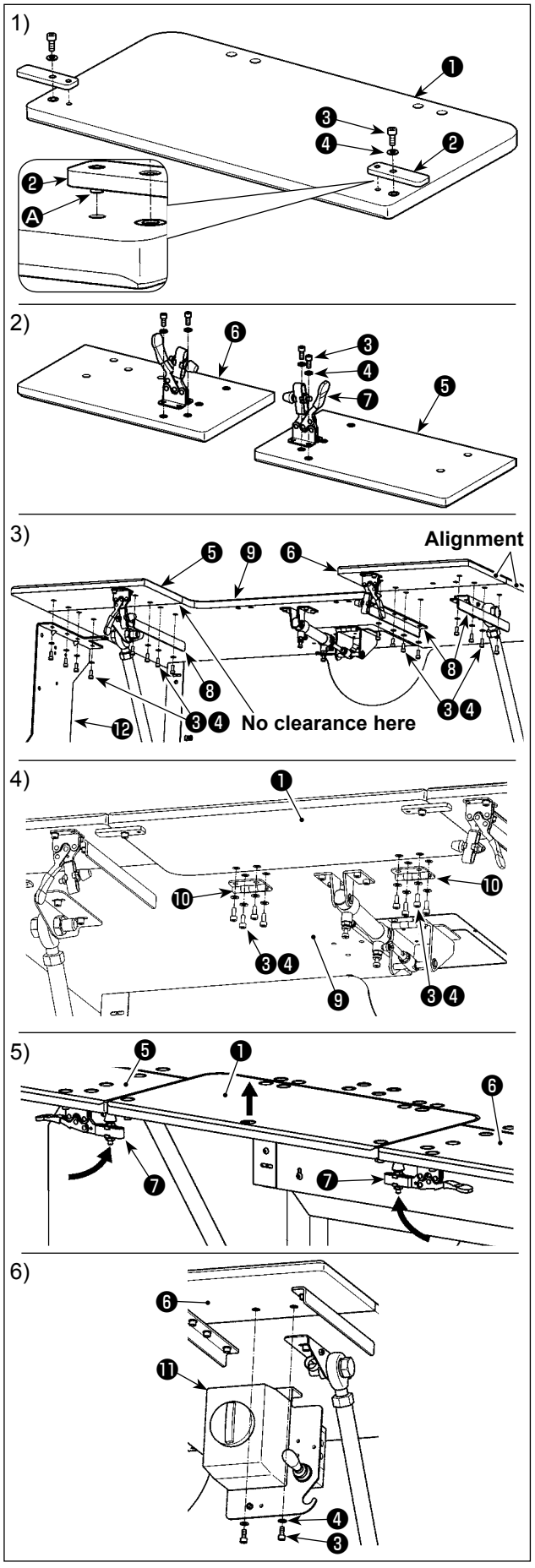
❶ **Machine head**
❷ **Table**
❸ **X-axis feed mechanism**
❹ **Y-axis feed mechanism**
❺ **Cassette clamp device**
❻ **Operation panel**
❼ **Air control box**
❽ **Electrical control box**
❾ **Power switch (also used as the emergency stop switch)**
❿ **Thread stand**
⓫ **Bobbin winder device**
⓬ **Safety bar (* For CE type only)**

Air control device



3. INSTALLATION

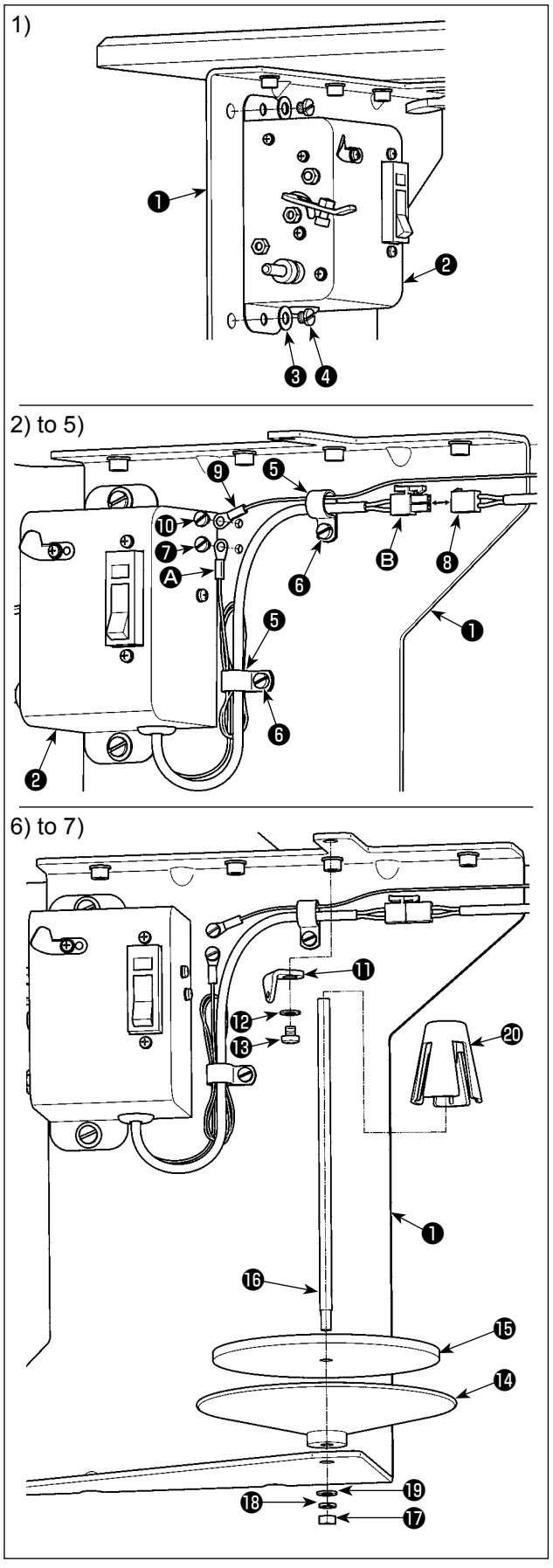
3-1. Installing the extension plate and the power switch



1) Insert pin Ⓐ of positioning plate ❷ into the hole in extension plate ❶ . Then, secure the pin with hexagon socket head screw ❸ and washer ❹ .
2) Attach toggle clamps ❼ respectively to left extension plate ❺ and right extension plate ❻ . Then, secure them respectively with hexagon socket head screw ❸ and washer ❹ .
3) Firstly, detach power switch (asm.) ⓫ from main table ❾ . Align the position of left extension plate ❺ and right extension plate ❻ with the position of main table ❾ . In this state, secure the extension plates and the main table using table support bracket ❽ and bobbin winder device mounting plate ⓬ with hexagon socket head screws ❸ and washers ❹ . At this time, carefully align the outer peripheries of left extension plate ❺ and of right extension plate ❻ with the outer periphery of main table ❾ and adjust them so that no clearance is provided between the extension plates and the main table.
4) Once extension plate ❶ and main table ❾ are correctly positioned, fix extension plate ❶ with hinge ⓾ using hexagon socket head screws ❸ and washers ❹ . At this time, take care not to provide any clearance between extension plate ❶ and main table ❾ . In addition, make sure that extension plate ❶ can be normally opened/closed without getting stuck with the related parts.
5) Lift extension plate ❶ until positioning plate ❷ comes in contact with left extension plate ❺ and right extension plate ❻ . In this state, lock toggle clamp ❼ . At this time, adjust clamp height of toggle clamp ❼ . If the clamp height is too low, extension plate ❶ drops, or if it is too high, toggle clamp ❼ cannot be closed. So, correctly adjust the clamp height of the toggle clamp.
6) Fix power switch (asm.) ⓫ on left extension plate ❻ with hexagon socket head screw ❸ and washer ❹ .

1. Do not lean over extension plate ❶ or push it by hand so as to prevent bodily injury due to abrupt lowering of extension plate ❶ .
2. When returning extension plate ❶ to its raised position from the tilted position, take care not to allow your hands and fingers to be caught in it.
3. When loosening toggle clamp ❼ , slowly lower it while supporting extension plate ❶ by hand. Never let the toggle clamp fall freely in order to prevent bodily injury.
4. Do not place any heavy object on the extension table sections.

3-2. Installing the bobbin winder device

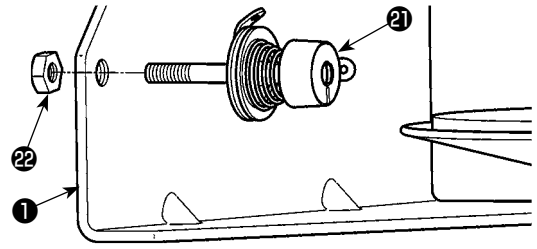


1) Attach bobbin winder (asm.) ❷ to bobbin winder device mounting plate ❶ that has been installed under the table as described in the previous section of this Instruction Manual with washer ❸ and setscrew ❹ .
2) Pass ground wire Ⓐ and power cable Ⓑ of bobbin winder (asm.) ❷ through cable clip ❺ . Then, attach cable clip ❺ to bobbin winder device mounting plate ❶ with setscrew ❻ .
   At this time, bundle the excess length of ground wire Ⓐ and fix it with cable clip ❺ .
3) Fix ground wire Ⓐ on bobbin winder device mounting plate ❶ with setscrew ❼ .
4) Connect power cable Ⓑ to junction cable ❽ on the main body side of the sewing machine.

Bundle ground wire Ⓐ and power cable Ⓑ with cable clip ❺ so that they do not become loose.

5) Pass ground wire ❾ on the main body side of the sewing machine through cable clip ❺ . Then, fix ground wire ❾ on bobbin winder device mounting plate ❶ with setscrew ❿ .
6) Attach thread guide ⓫ to bobbin winder device mounting plate ❶ with washer ⓬ and setscrew ⓭ .
7) Attach bobbin winder catch pan ⓮, bobbin winder catch pan cushion ⓯ and bobbin winder support rod ⓰ to bobbin winder device mounting plate ❶ with nut ⓱ , spring washer ⓲ and plain washer ⓳ . Put bobbin winder anti-vibrator ⓴ over bobbin winder support rod ⓰ .

8)



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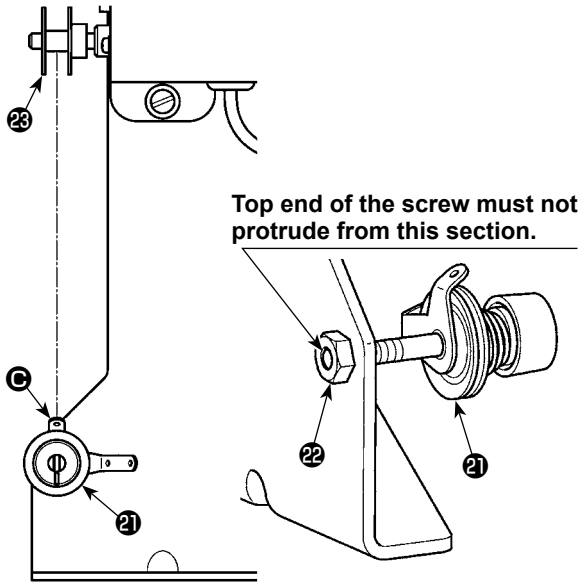

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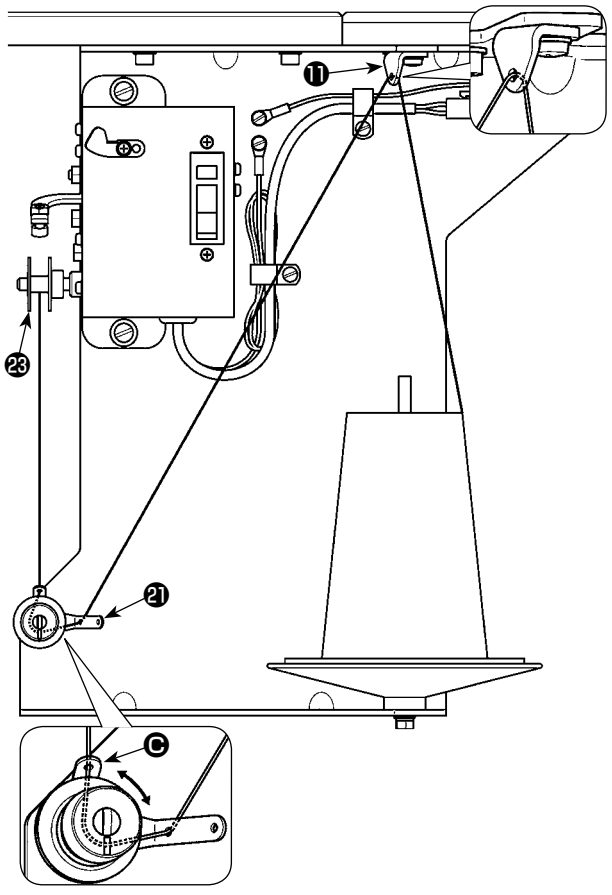


8) Temporarily fix bobbin winder tension controller (asm.) ㉑ on bobbin winder device mounting plate ❶ with nut ㉒ .

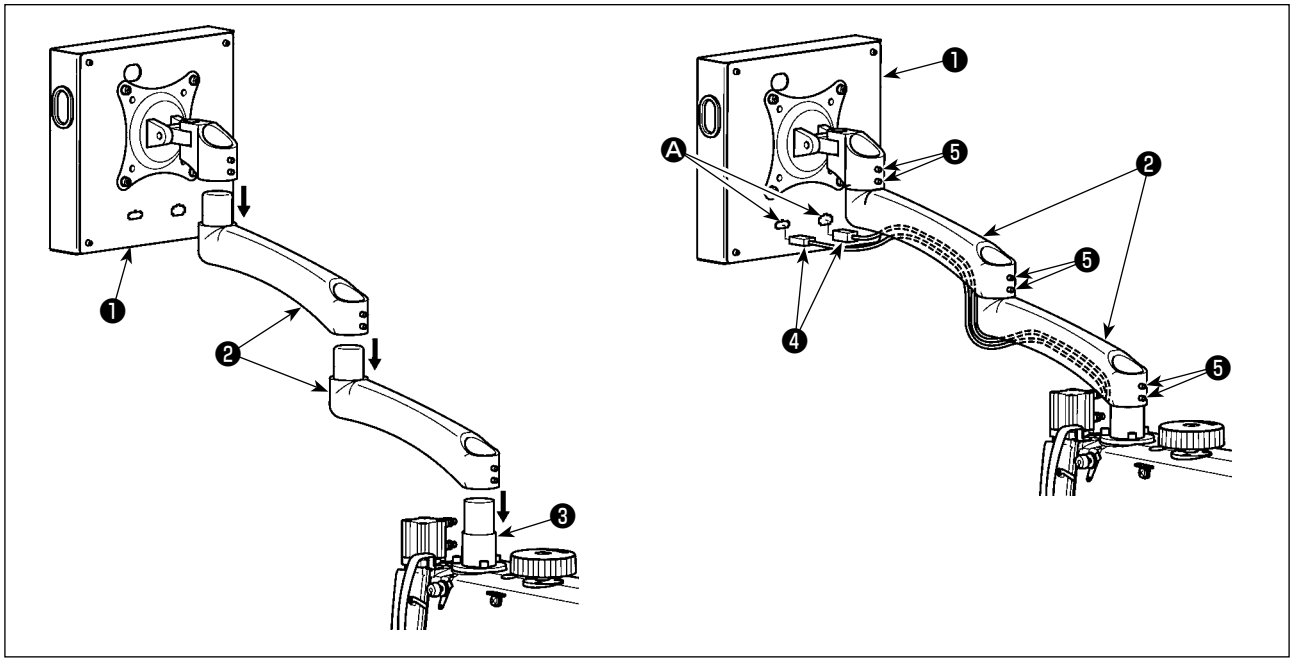
9) Aligning shorter thread guide section Ⓒ of bobbin winder tension controller (asm.) ㉑ with the direction of bobbin ㉓ , tighten nut ㉒ .

Take care not to allow the top end of screw of bobbin winder tension controller (asm.) ㉑ to protrude from the end face of nut ㉒ in order to prevent hands and fingers from being injured.

10) Pass the thread through thread guide ⓫ , bobbin winder tension controller (asm.) ㉑ in the written order. Then, wind thread on bobbin ㉓ .

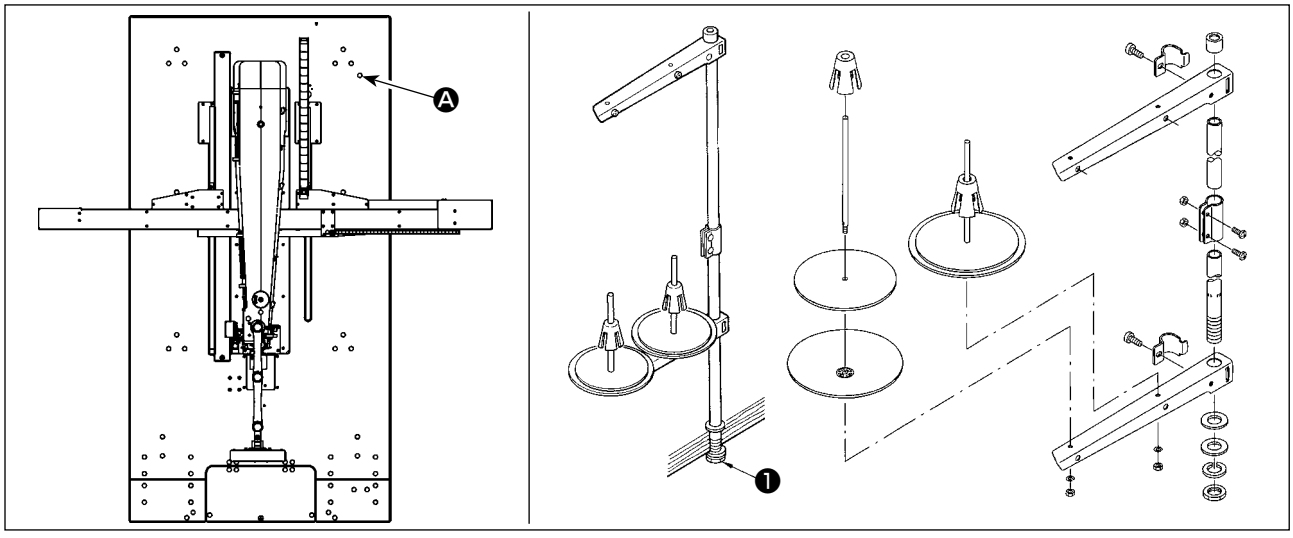
If bobbin ㉓ is wound with thread unevenly, loosen nut ㉒ and adjust the direction of rotation of thread guide section Ⓒ.

3-3. Installing the panel



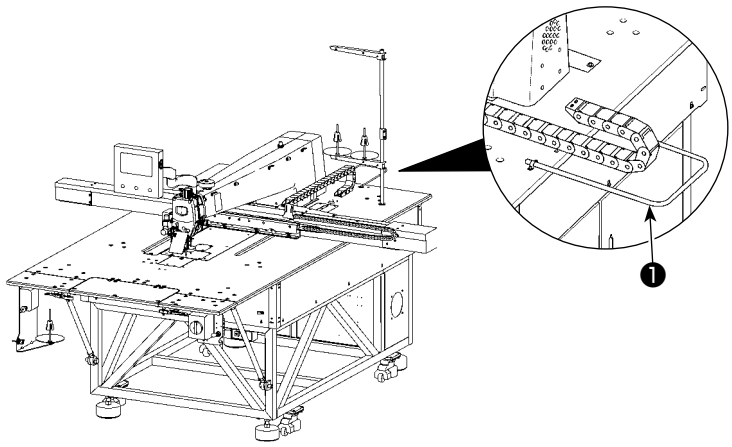
1) Take out operation panel ❶ and extension arm ❷ from the package. Attach them to seat ❸ of the sewing machine head in the written order.
2) Connect signal cable ❹ and signal cable terminal Ⓐ of operation panel ❶ . Then, pass signal cable ❹ through the groove on the lower side of extension arm ❷ . After the adjustment, tighten setscrew ❺ . At this time, carefully tighten the setscrew to such an extent as to allow the extension arm to move smoothly according to the actual use. Be careful not to fully tighten setscrew ❺ to allow operation panel ❶ to be operated with ease during use.

3-4. Installing the thread stand

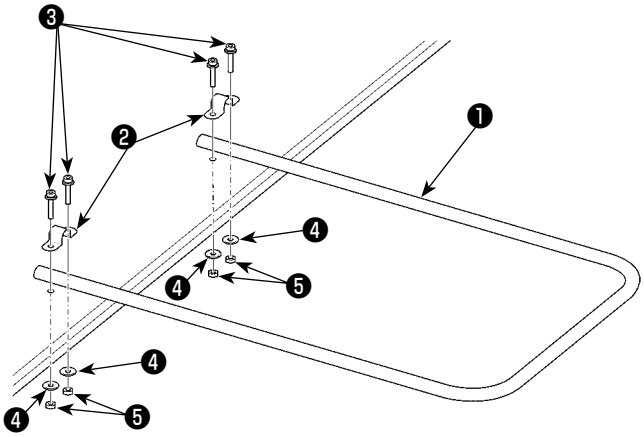


1) Assemble thread stand. Set the assembled thread stand device in hole Ⓐ located at the upper right of table.
2) Tighten locknut ❶ to fix the thread stand.

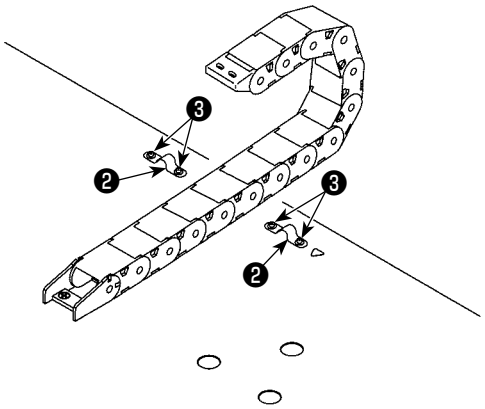
3-5. Installing the safety bar (For CE type only)

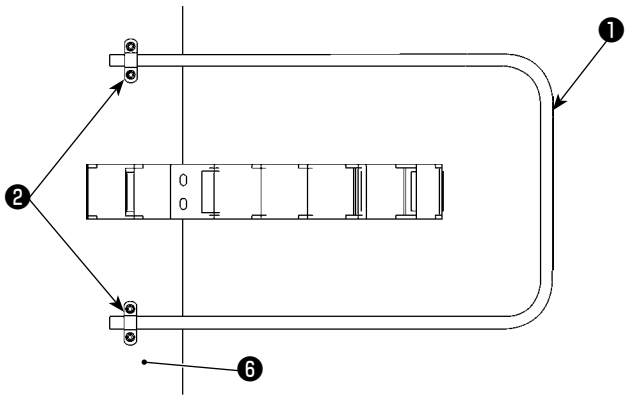


1) Attach safety bar ❶ at the position indicated in the figure on the left.



2) Pass screw ❸ and pipe clamp ❷ through the hole in table in the figure on the left.



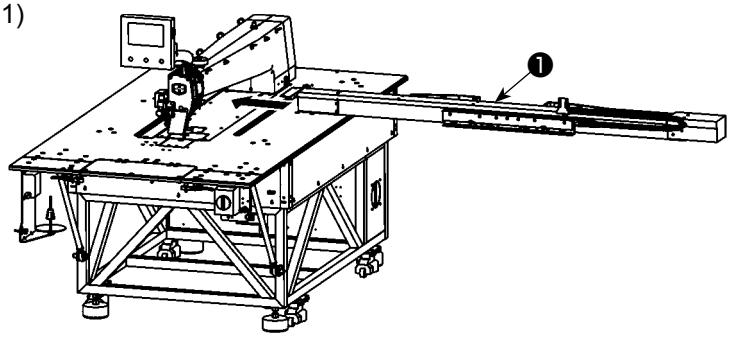


3) Put safety bar ❶ in pipe clamp ❷ and adjust so that the tip of pipe juts out from pipe clamp by 20 mm.
4) Secure safety bar ❶ to table ❻ by tightening nut ❺ (with a plain washer ❹) so that the safety bar does not fluctuate.

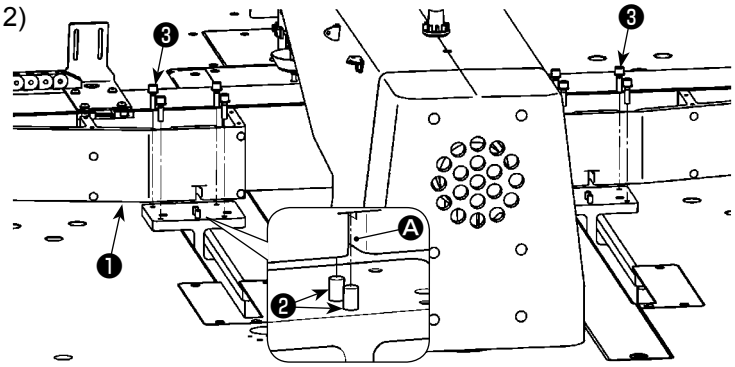
3-6. Installing the X-axis feed mechanism

WARNING :
1. Before the X-axis feed mechanism is installed, the sewing machine head can be tilted. However, do not tilt the sewing machine head since it is heavy and can be hazardous to the operator.
2. Take added care not to allow your hands and fingers to be caught in the X-axis feed mechanism when installing it.

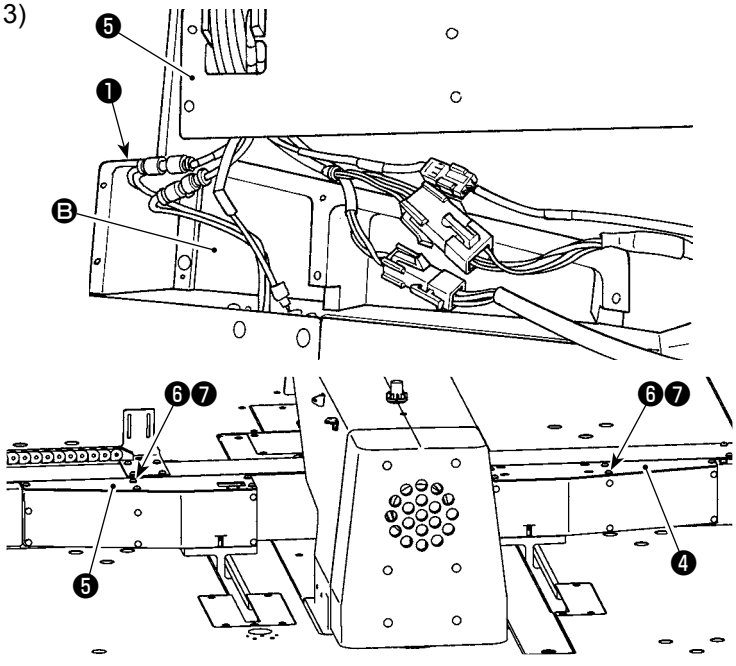
1)



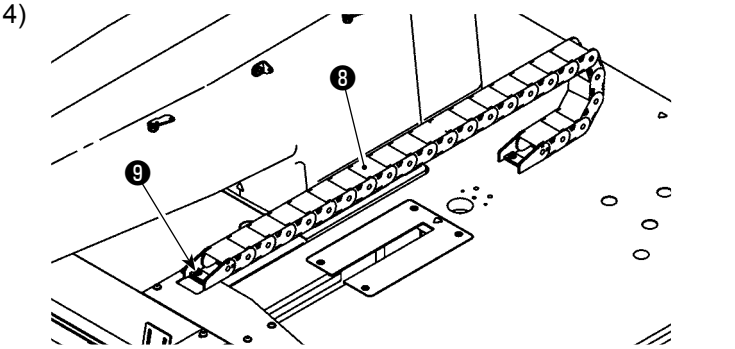
2)



3)



4)



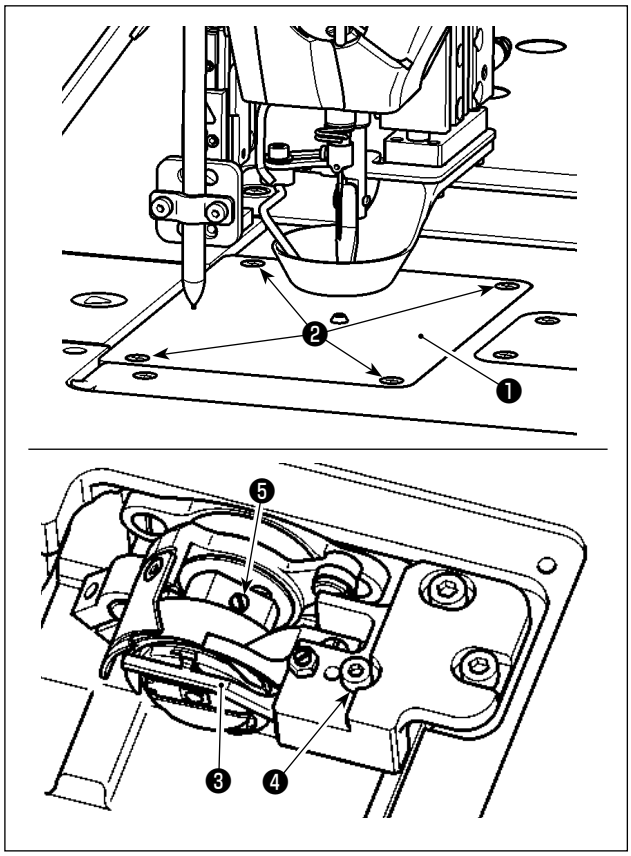
1) Install X-axis feed mechanism ❶ under the sewing machine table along the direction of the arrow. At this time, carefully check the direction of installation.

X-axis feed mechanism ❶ is heavy. Two workers are therefore needed to carry it.

2) Fit grooves Ⓐ on both of the right and left sides of X-axis feed mechanism ❶ over pins ❷ of the sewing machine head. Then, tighten setscrews ❸ . At this time, make sure that pins ❷ are properly fitted in grooves Ⓐ without fail.
3) Connect the cables and air hoses according to the numbers marked on them. Fit the connected cables and air hoses in concave portion Ⓑ in X-axis feed mechanism ❶ . Then, fix left cover ❹ and right cover ❺ with setscrews ❻ and washers ❼ .
4) Fix cable chain ❽ with setscrew ❾ .

3-7. Attaching and removing the hook

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



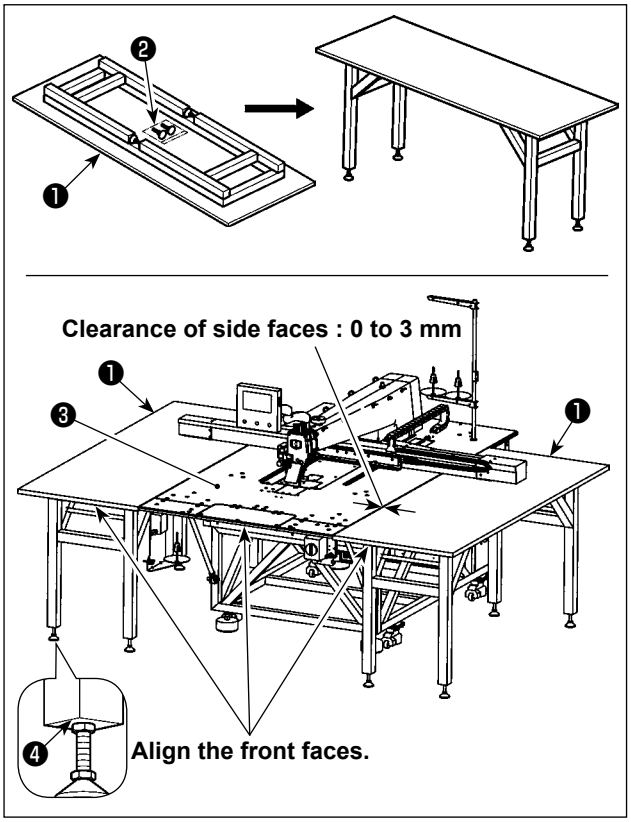
Replacement of the hook should be carried out following the procedure described below when necessary.

1) Turn the hand pulley to lift the needle bar to its upper dead point.
2) Lift the intermediate presser and the disc presser.
3) Loosen setscrews ❷ (4 pieces). Remove throat plate ❶ .
4) Loosen setscrews ❺ (3 pieces). (Turn the hand pulley until the setscrew locations can be observed.) Loosen setscrew ❹ . Detach inner hook holder ❸ . Take out the hook.
5) To attach the hook, reverse the removal procedure.

Nut is located under setscrew ❹ . Take care not to drop it when loosening the setscrew.

3-8. Installing the auxiliary table

WARNING :
Be sure to attach the sub tables in order to prevent accidents due to the operation of the X-axis feed mechanism.



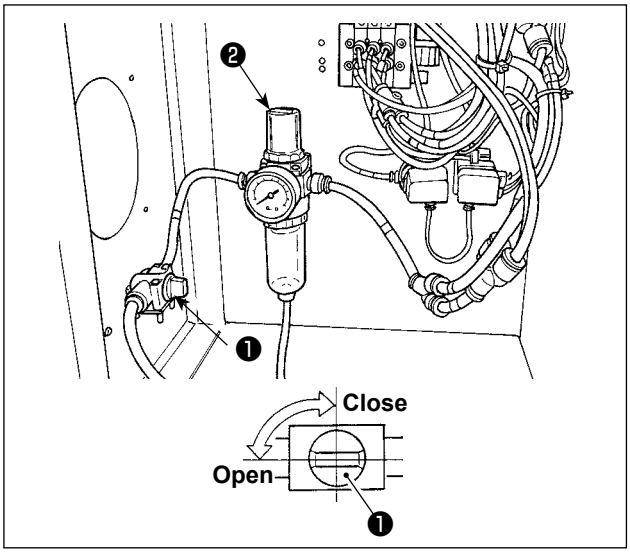
1) Take out sub tables ❶ (2 pieces) from the package. Open the support frame. Attach height adjustment support stand ❷ .
2) Install assembled sub tables ❶ to the right and left sides of table ❸ of the main body of sewing machine.
   Adjust the height of height adjustment support stand ❷ so that sub tables ❶ are positioned slightly lower than the top surface of table ❸ of the main body of sewing machine and so that the top surfaces of sub tables ❶ are in parallel to each other. After the adjustment, tighten nuts ❹ .

Caution

1. Never place a heavy thing on sub tables ❶ . In addition, align the front faces of sub tables ❶ with the front face of table ❸ of the main body of sewing machine.
2. Provide a clearance of 0 to 3 mm between sub tables ❶ and table ❸ of the main body of sewing machine.

3-9. Installing the air hose

WARNING :
Check to be sure that the air hose is fully inserted into the air cock before supplying the air to the machine so as to prevent the air from being blown directly to the human body. Then, carefully open the air cock.

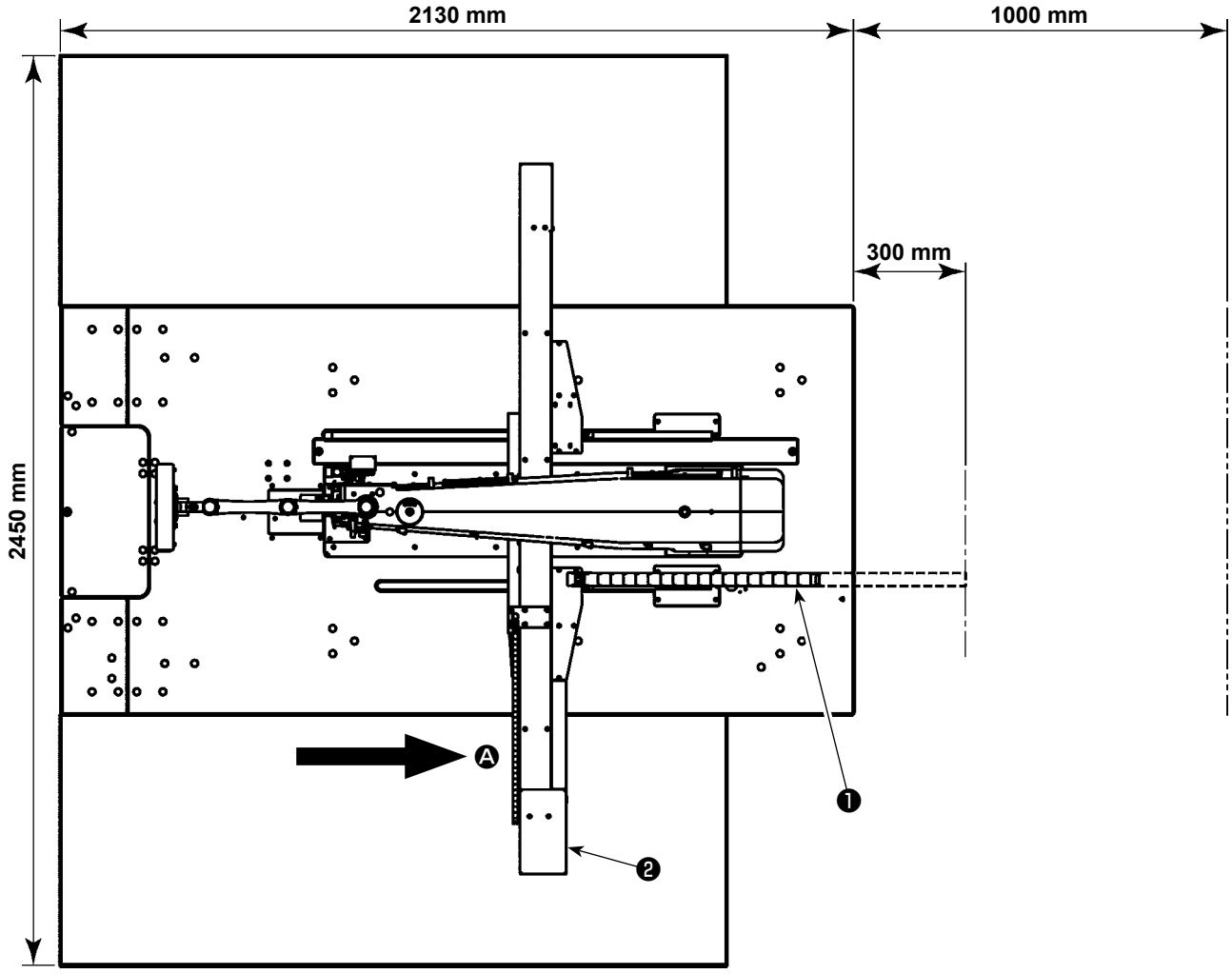


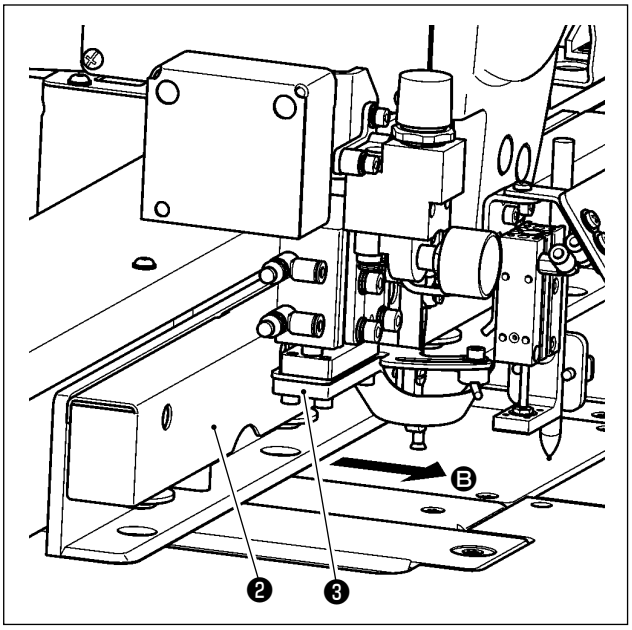
1) Connecting the air hose
   Connect the air hose outside diameter of which is ø8 mm to air cock ❶ .
2) Adjustment of air pressure
   Open air cock ❶ , pull up and turn air regulator knob ❷ and adjust so that air pressure indicates 0.5 to 0.55 MPa. Then, push down air regulator knob ❷ .

* The maximum air pressure of the air control device is 0.7 MPa or lower.

3-10. Precautions to be taken when installing the machine

Sewing machine dimensions after assembly : 2450 × 2580 mm (Including the space provided when the door of control box located at the rear section of machine is opened.)



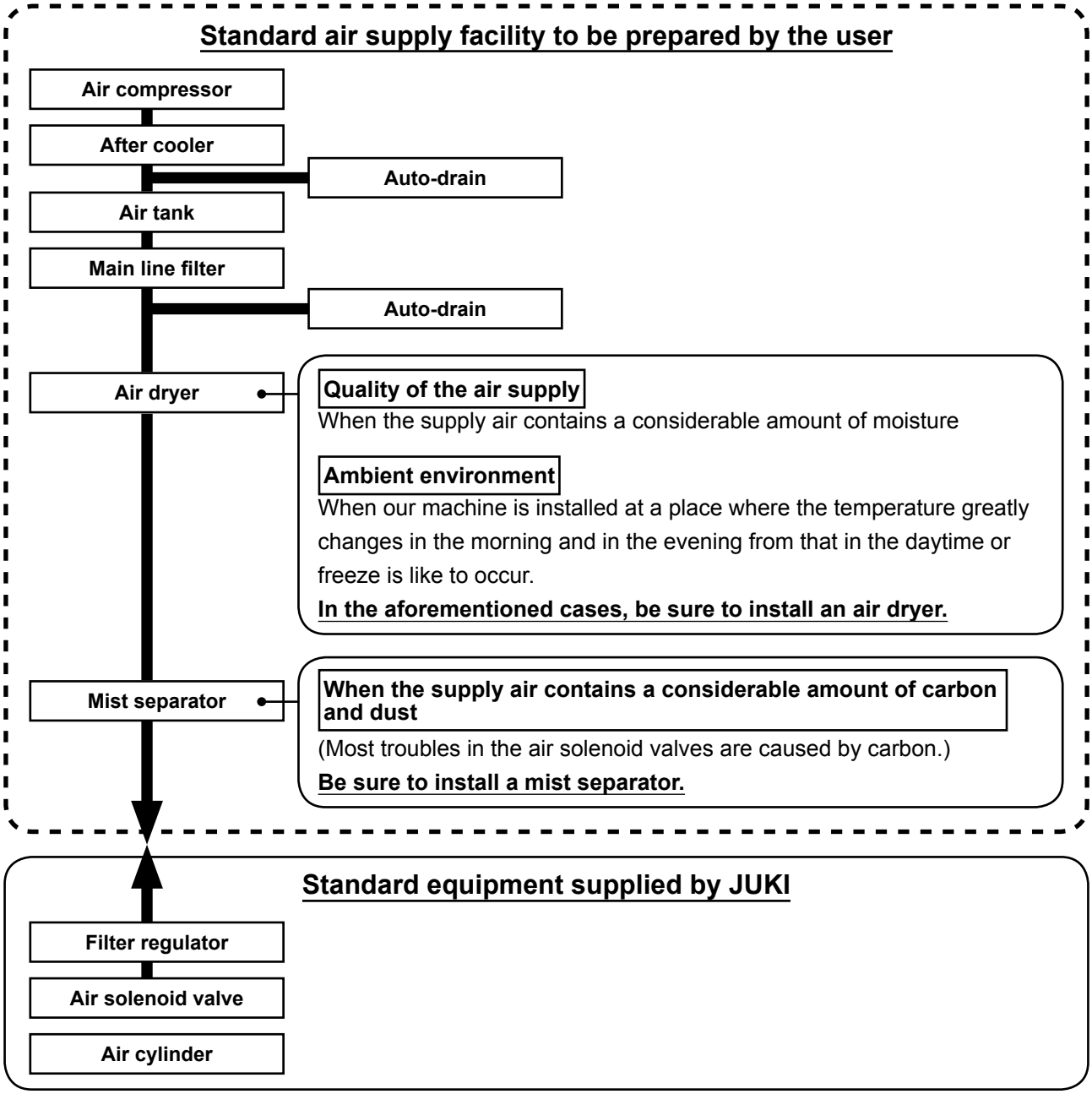


1. When X-axis feed mechanism ❷ is moved in the direction of arrow Ⓐ shown in the figure until its right most position is reached, the rear end of cable chain ❶ is brought to the position indicated with a chained line. In this case, cable chain ❶ protrudes from the table by approximately 300 mm. It is therefore necessary to provide a space of 1 m or more at the rear of the machine so as to prevent the cable chain from hitting against goods or against people to cause bodily injury.

2. When moving X-axis feed mechanism ❷ manually toward the operator's side (in the direction of arrow Ⓑ) for checking the state of sewing machine after the completion of installation, etc., carefully check the interference between X-axis feed mechanism ❷ and disc presser cylinder ❸ .

3-11. Cautions for the compressed air supply (source of supply air) facility

As large as 90 % of failures in pneumatic equipment (air cylinders, air solenoid valves) are caused by "contaminated air."
Compressed air contains lots of impurities such as moisture, dust, deteriorated oil and carbon particles. If such "contaminated air" is used without taking any measures, it can a cause of troubles, inviting reduction in productivity due to mechanical failures and reduced availability.
Be sure to install the standard air supply facility shown below whenever the machine provided with pneumatic equipment is used.



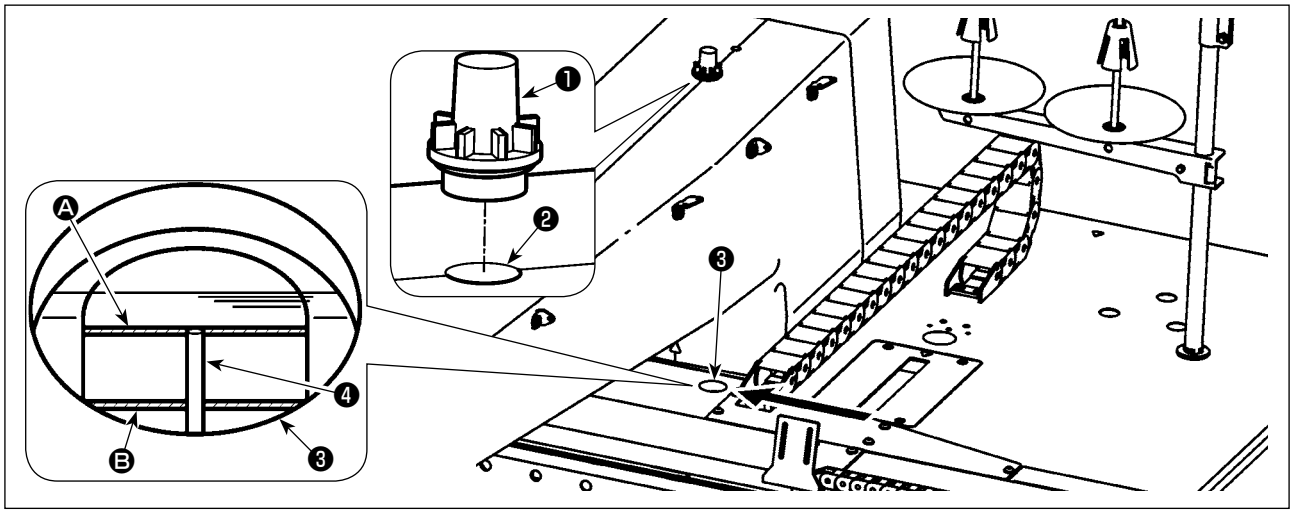
Cautions for main piping

- **Be sure to slope main piping by a falling gradient of 1 cm per 1 m in the direction of air flow.**
- **If the main piping is branched off, the outlet port of the compressed air should be provided at the top part of the piping using a tee in order to prevent drain settling inside the piping from flowing out.**
- **Auto drains should be provided at all lower points or dead ends in order to prevent the drain from settling in those parts.**

4. PREPARATION OF THE SEWING MACHINE

4-1. Lubricating method and check of the oil quantity

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

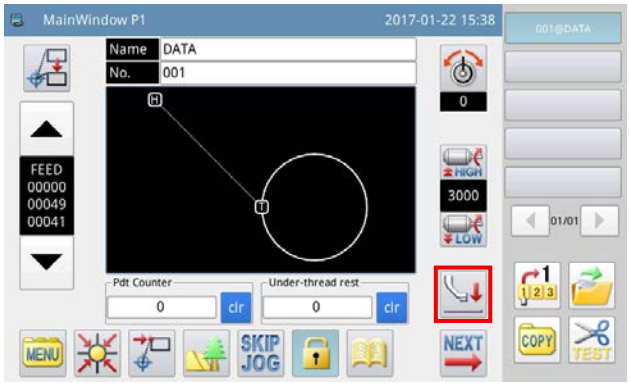


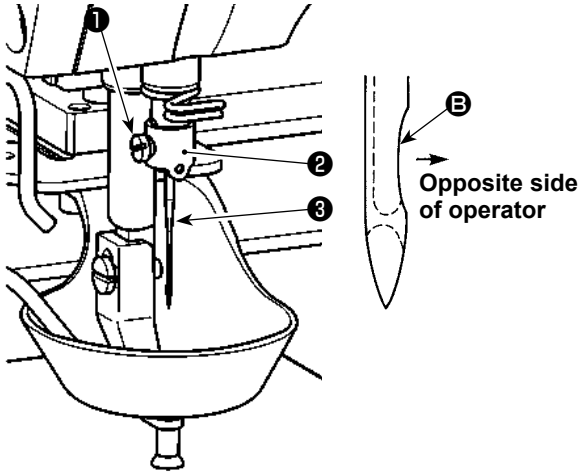
Remove oil sight window ❶ and add oil through lubrication hole ❷ . (JUKI CORPORATION GENUINE OIL 7)
Details of oil-quantity checking procedure are as described below.

1) Oil amount indicating window ❸ is marked in red. Check the oil quantity through the oil sight window from the direction of the arrow as shown in the figure.
2) Two red marker lines can be observed. These marker lines respectively indicates the maximum value Ⓐ and minimum value Ⓑ of the oil quantity. As long as the oil gauge ❹ is positioned between these two marker lines, the oil quantity is adequate. (480 mL ≤ Oil quantity ≤ 800 mL)

1. During the sewing process, check whether oil splashes against sight window ❶ . If not, check the oil quantity so as to prevent sewing machine seizure.
2. Never use any oil other than the specified one. It is also important to firmly close sight window ❶ after the lubrication.

4-2. Attaching the needle





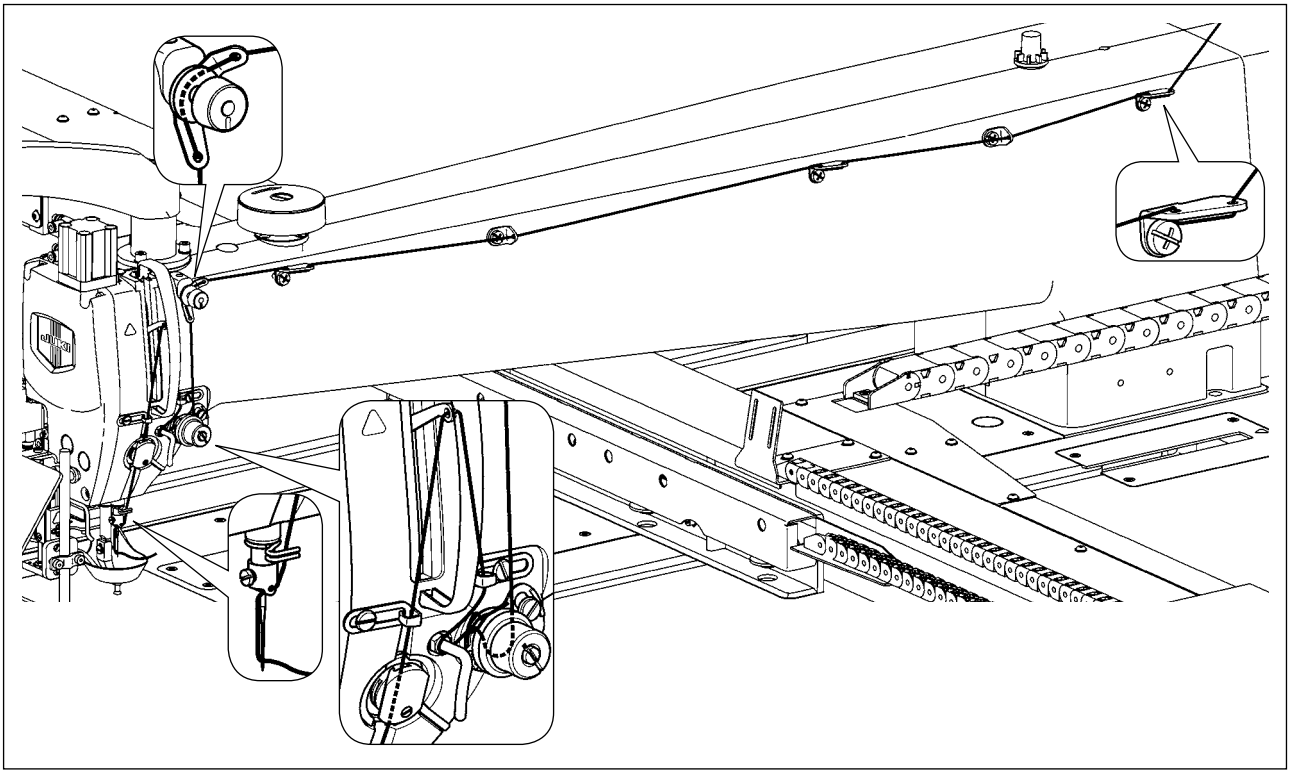
1) Press the key on the main screen P1 to lower the intermediate presser. In this state, attach the needle. (The needle to be used : Organ needle DB × 1, #9 to 16)

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

2) Loosen setscrew ❶ at needle bar thread holder ❷ section. Insert needle ❸ into the needle bar until it will go no further. At this time, scarf section Ⓑ of needle ❸ must face the opposite side of the operator. In this state, tighten setscrew ❶ .

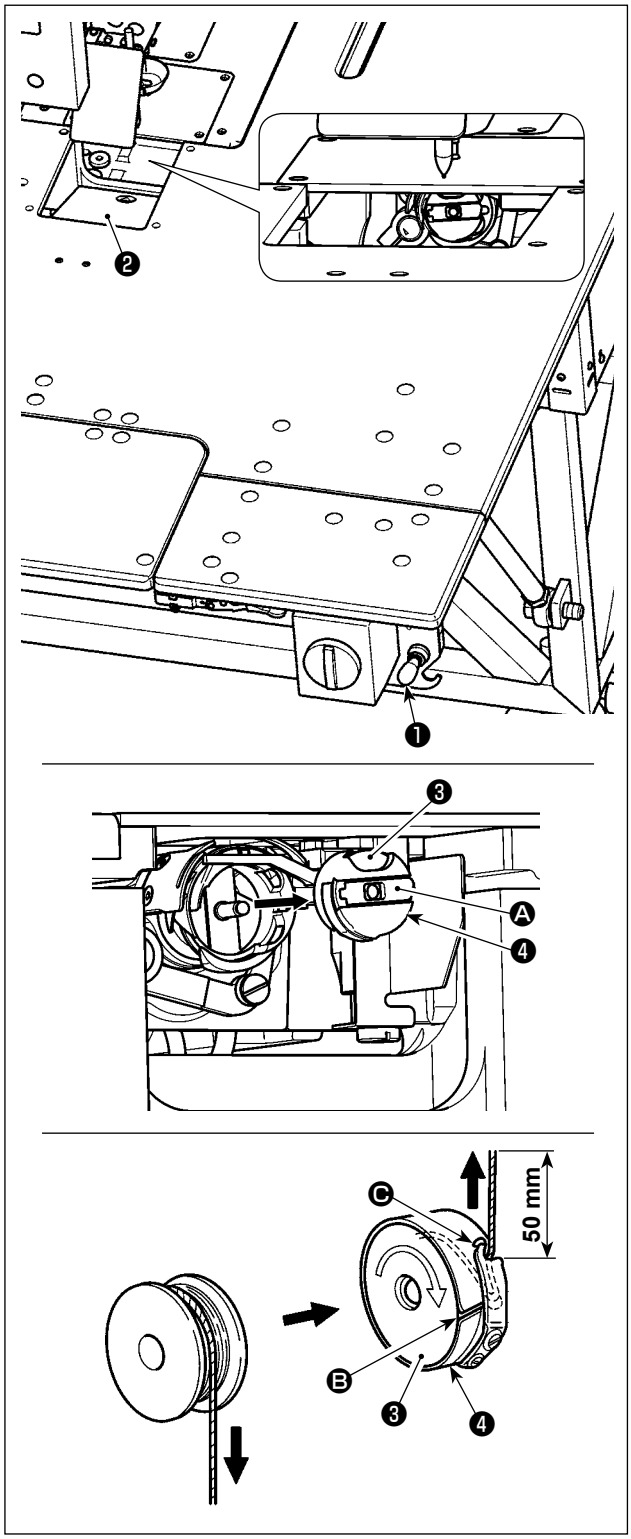
4-3. Threading the machine head

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



4-4. Bobbin replacement procedure

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



(1) Removing the bobbin case

1) Open cover ❷ by operating manual valve ❶ . Then, the bobbin can be changed.
2) Raise latch Ⓐ of bobbin case ❹ , and remove the bobbin case ❹ and the bobbin ❸ .

Check the position of your hands and the locations of goods before opening / closing cover ❷ so as to prevent the goods from being caught under the cover and to prevent bodily injury. In addition, do not push cover ❷ with your hands placed on it.

(2) Installing the bobbin

1) Set the bobbin ❸ into bobbin case ❹ in the direction shown in the figure.
2) Pass the thread through thread slit Ⓑ of bobbin case ❹ , 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 Ⓒ.
3) Pull out the thread by 5 cm from thread opening Ⓒ.

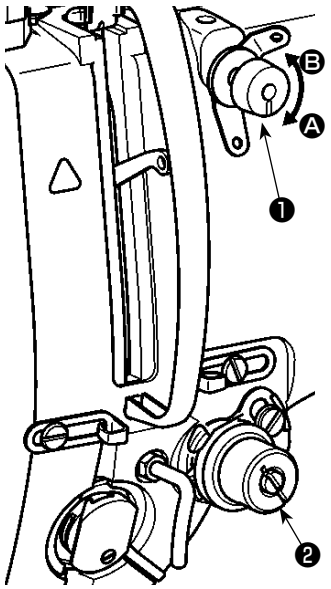
If the bobbin ❸ is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

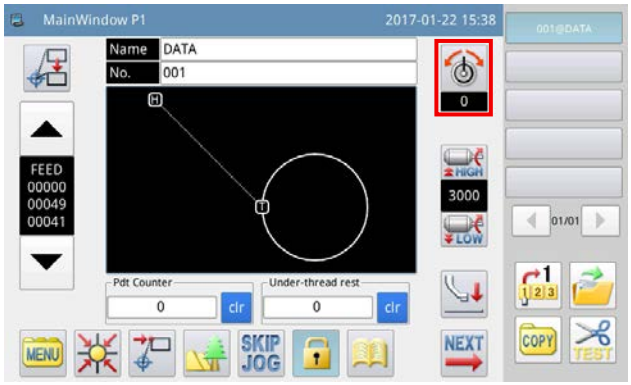
(3) Installing the bobbin case

1) Place the bobbin case in the hook with its knob Ⓐ tilted and fully push it into the hook until you hear it click.
2) Close cover ❷ by operating manual valve ❶ .

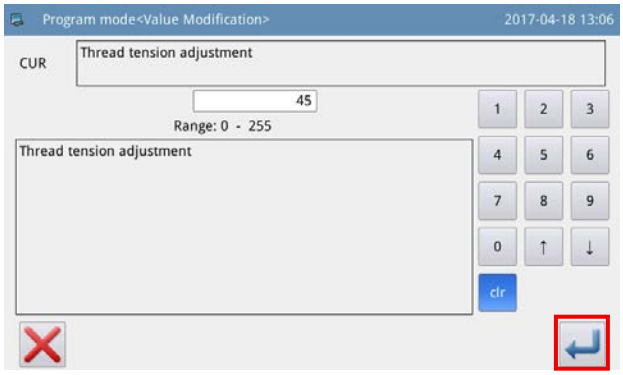
If it is not fully inserted, bobbin case ❹ may slip off during sewing.

4-5. Adjusting the thread tension





<Main screen P1>



<AT value setting screen>

(1) Adjusting the needle thread tension

1) Turn thread tension No. 1 nut ❶ clockwise (in direction Ⓐ), to shorten the thread length remaining on the needle after thread trimming or counterclockwise (in direction Ⓑ), to lengthen the thread length.
2) ❷ shown in the figure is the electronic thread tension controller (AT device). The AT value adjustment procedure is as described below.

   Press the 

key on the main screen P1 to display the AT value setting screen.

   Press the  key after having entered a desired AT value to store the AT value you have set in memory.

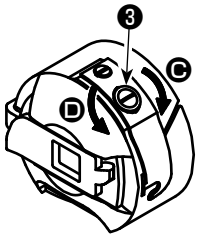
> **Caution** **The AT value entered on the pattern sewing screen applies only to the current sewing pattern.**

[Reference values of thread tension with respect to the AT values]

AT value	Thread tension (N)	Remarks
50	0.35	
100	1.40	
150	3.40	

[Condition of measurement]

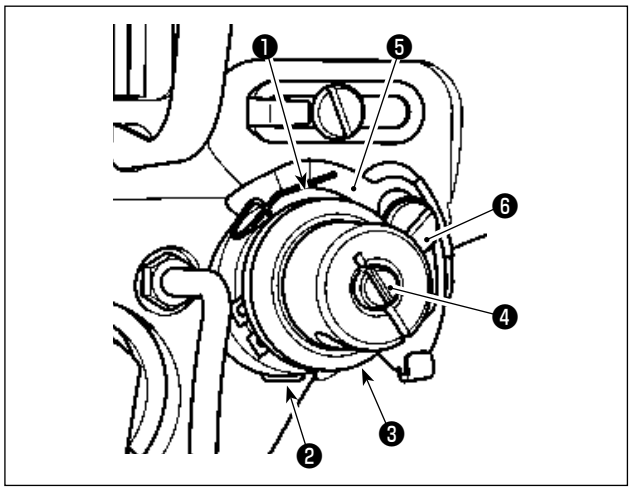
① Thread : Tetoron #50
② Tension of thread take-up spring : 0.12 N
③ Stroke of thread take-up spring : 15 mm
④ Tension of thread tension No. 1 : 0.05 N



(2) Adjusting the bobbin thread tension

1) Turn tension adjusting screw ❸ clockwise (in direction Ⓒ) to increase or counterclockwise (in direction Ⓓ) to reduce the bobbin thread tension.

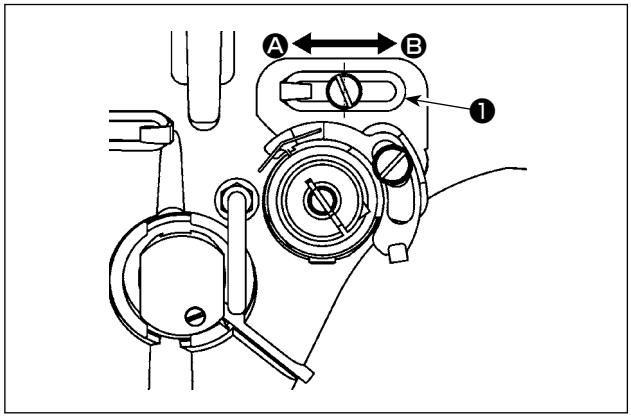
4-6. Adjusting the thread take-up spring and the thread breakage detector plate



1) Adjusting the stroke
   Loosen setscrew ❷ , and turn AT device ❸ . Turning it clockwise will increase the stroke of the thread take-up spring ❶ and the thread drawing amount will increase.
2) Adjusting the pressure
   To change the pressure of the thread take-up spring ❶ , insert a thin screwdriver into the slot of thread tension post ❹ while screw ❷ is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring ❶ . Turning it counterclockwise will decrease the pressure.
3) Adjusting the thread breakage detector plate
   Loosen setscrew ❻ . Adjust the position of thread breakage detection plate ❺ so that the contact depth between thread breakage detection plate ❺ and thread take-up spring ❶ becomes 0 to 0.2 mm.

Adjust so that thread breakage detector plate ❶ does not touch any adjacent metallic parts other than thread take-up spring ❷ . If the thread breakage detection plate comes in contact with any other metal part, a maloperation can occur.

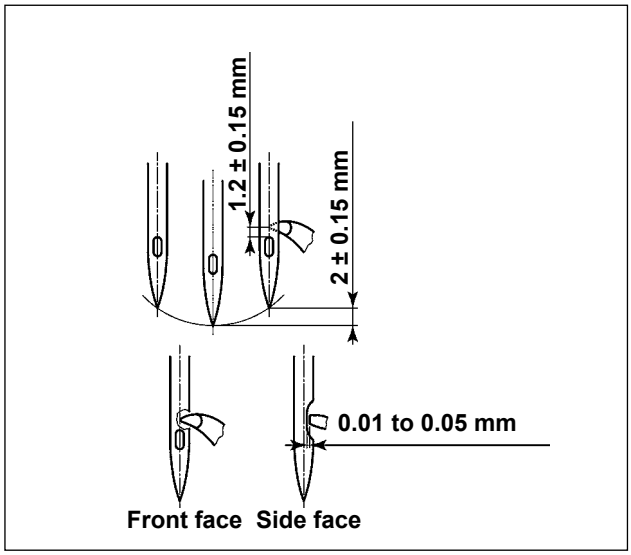
4-7. Adjusting the thread take-up stroke



1) When sewing heavy-weight materials, move thread guide ❶ to the left (in direction Ⓐ) to increase the length of thread pulled out by the thread take-up.
2) When sewing light-weight materials, move thread guide ❶ to the right (in direction Ⓑ) to decrease the length of thread pulled out by the thread take-up.
3) Normally, thread guide ❶ is positioned in a way that the center of elongated hole is aligned with the center of the screw.

4-8. Needle-to-hook relationship

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



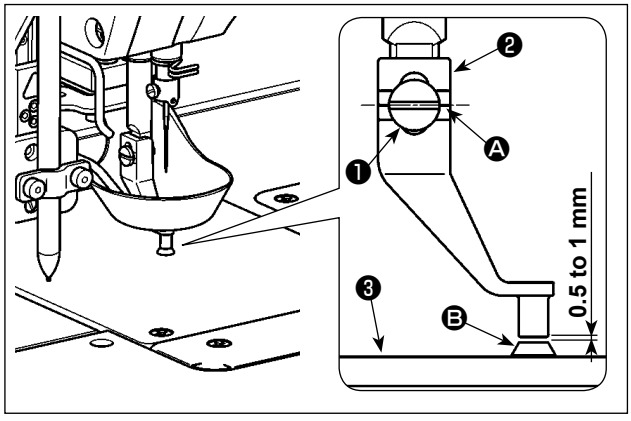
1) Lift the needle bar from its lower dead point by 2 ± 0.15 mm. In this state, adjust the needle bar height and the hook position.
2) The distance from the blade point of hook to the top end of the needle eyelet must be adjusted to 1.2 ± 0.15 mm.
3) When observing from the front face of the sewing machine, the blade point of hook seems to overlap with the center of needle.
4) When observing from the side face of the sewing machine, the clearance provided between the blade point of hook and the scarf of needle is 0.01 to 0.05 mm.

If thread breakage occurs, the thread can be tangled in the hook. In such a case, remove the thread being tangled in the hook carefully. Then, re-start sewing.

4-9. Adjusting the height of the intermediate presser

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

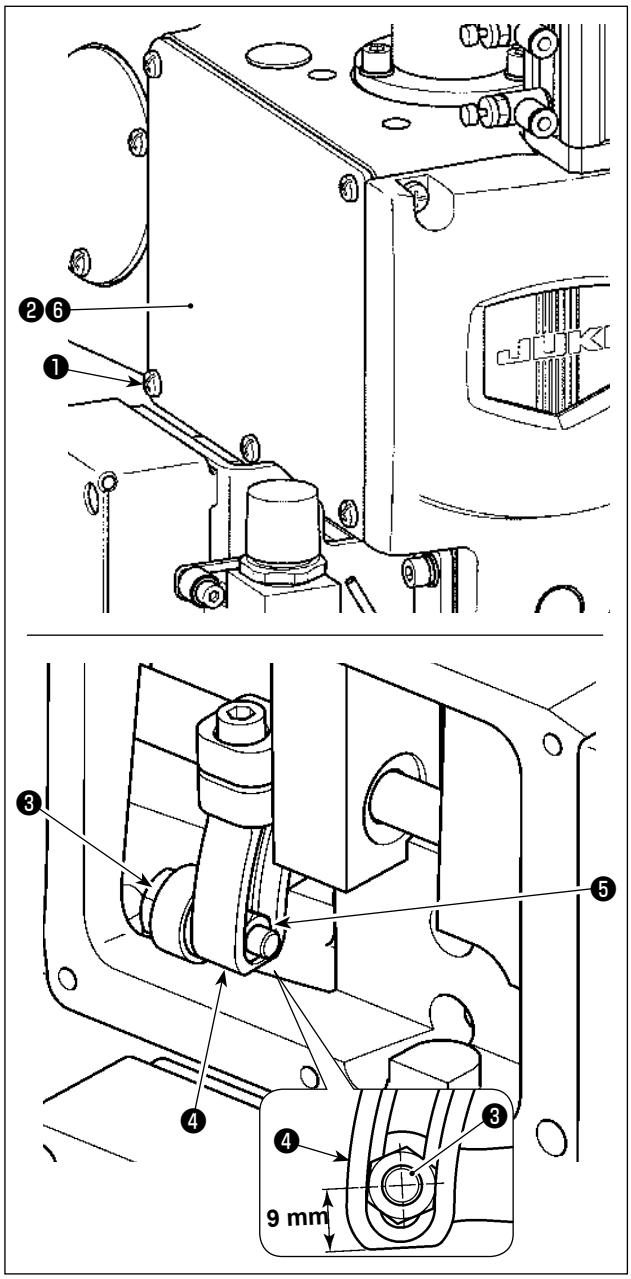
1. When raising the intermediate presser height, turn the pulley by hand to lower the needle bar, and confirm that the needle bar does not interfere with the intermediate presser.
2. Take care not to allow your hands and fingers to be caught in the disc presser and the intermediate presser.



1) As a guide, temporarily tighten setscrew ❶ while aligning second marker line Ⓐ of the intermediate presser ❷ with the center of setscrew ❶ .
2) Lower the intermediate presser to its lower dead point (the state where the tip of needle is away from needle hole guide Ⓑ). In this state, adjust the vertical position of intermediate presser ❷ so that the distance from the undersurface of intermediate presser ❷ to the top surface of needle hole guide Ⓑ of the throat plate ❸ becomes 0.5 to 1 mm (reference value). Then, tighten setscrew ❶ . (Adjust this distance according to the thickness of material.)

4-10. Adjusting the stroke of the intermediate presser

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

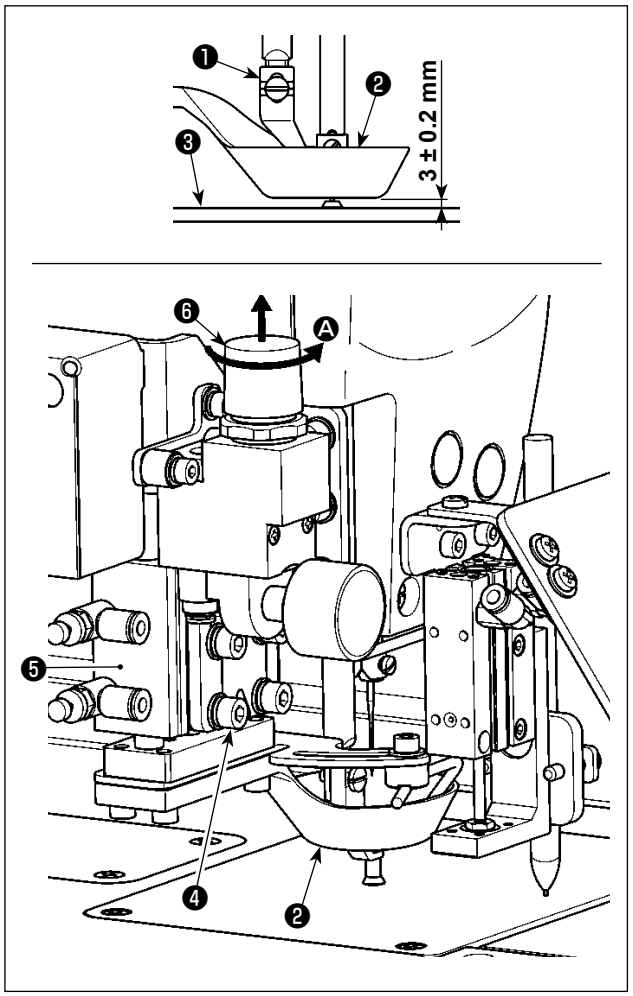


When sewing materials which differ in thickness, adjust the height of intermediate presser referring to the procedure described below.

1) Loosen setscrews ❶ (5 pieces). Detach side plate (front) ❷ and packing ❻ .
2) Loosen hinge screw ❸ with a wrench. Adjust the position of nut ❺ in driving arm ❹ up or down.
   * The stroke of the intermediate presser should be 4 to 8.7 mm. It has been factory-adjusted to 4 mm according to the specification at the time of shipment. (Guide : Distance from the center of hinge screw ❸ to the undersurface of driving arm ❹ is 9 mm.)
3) Determine the required stroke of the intermediate presser according to the material thickness. Then, tighten setscrew ❸ . Then, attach side plate (front) ❷ and packing ❻ in place.
4) After you have determined the stroke of the intermediate presser, re-adjust the height of the intermediate presser referring to **"I-4-9. Adjusting the height of the intermediate presser" p. 18**.

Caution
After the completion of adjustment of the intermediate presser stroke, check for interference between the intermediate presser and the needle bar. Re-adjust the height of the intermediate presser where necessary.

4-11. Adjusting the height of disc presser and the presser foot pressure



(1) Adjusting the height of disc presser

1) Lower disc presser ❷ . In this state, loosen setscrews ❹ (4 pieces).
2) Adjust the vertical position of air cylinder ❺ so that the distance from the undersurface of disc presser ❷ to the top surface of throat plate ❸ becomes 3 ± 0.2 mm. Then, tighten setscrews ❹ (4 pieces). (This distance should be adjusted according to the thickness of template to be used.)

1. During adjustment, take care to prevent interference between disc presser ❷ and intermediate presser ❶ . At the same time, take care so that the undersurface of disc presser ❷ is in parallel to the top surface of throat plate ❸ .

2. Aforementioned adjustment value of the height of disc presser ❷ (3 ± 0.2 mm) is given on the assumption that the recommended template (total thickness of upper and lower (i.e., two) templates is 3 mm) is used. In the case templates of different thickness are used, the height of disc presser ❷ should be adjusted so that no space is provided between disc presser ❷ and the templates and so that the former is not pressed against the latter.

*** The height of disc presser ❷ should be adjusted to such a height that the thread remaining at the tip of needle is securely clamped by disc presser ❷ at the beginning of sewing and that the templates do not warp due to the feed operation during sewing.**

(2) Adjusting the disc presser pressure

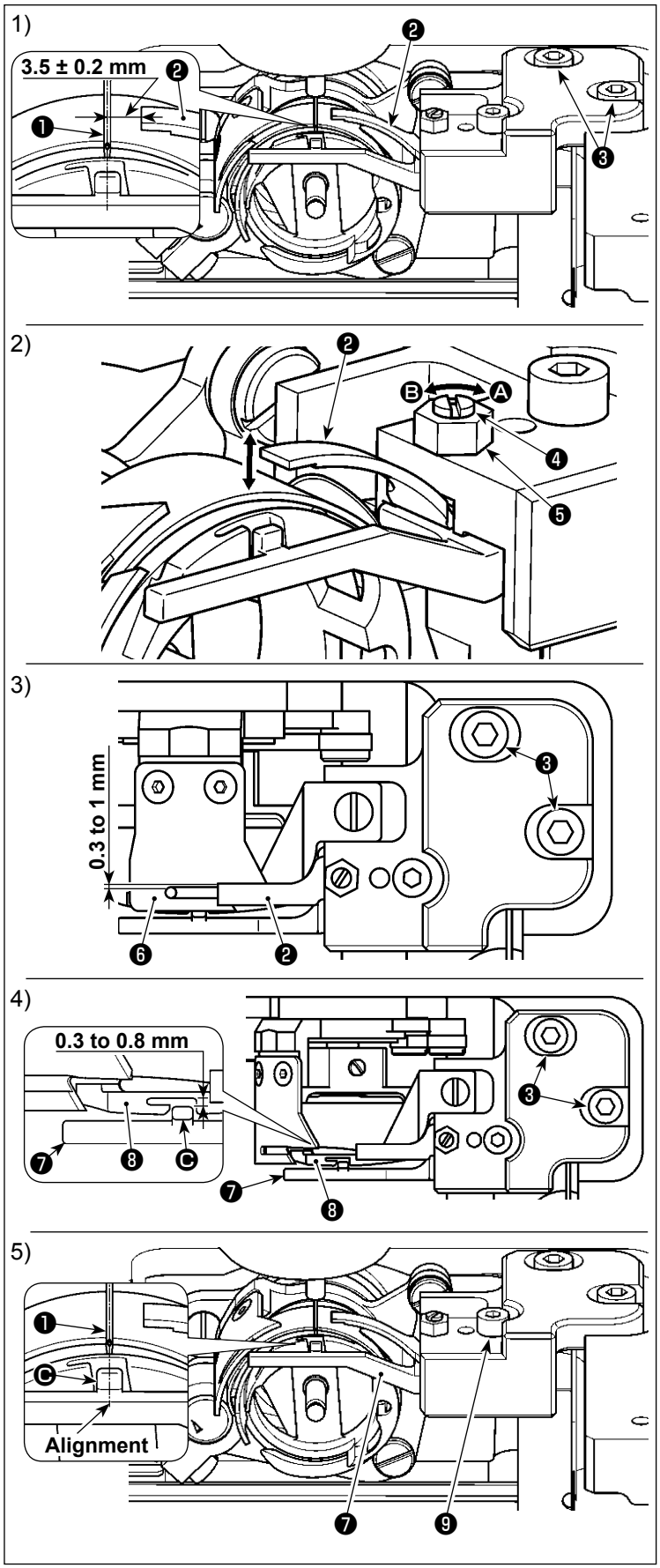
Disc presser ❷ is lifted/lowered by air cylinder ❺ . When two pieces of material are sewn with cotton or feather stuffed between them, the pressure applied to the material can be reduced by appropriately adjusting the height and pressure of disc presser ❷ .

1) Pull up pressure reducing valve ❻ . Turn the valve in the direction of arrow Ⓐ to reduce the pressure applied to the material.

The adjustment value of air pressure should be adjusted to 0.25 MPa or higher.

4-12. Adjusting the 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) Adjusting the lateral position of counter knife

1) Lower the needle bar.
2) Loosen setscrews ❸ . Adjust the lateral position of counter knife ❷ so that a distance of 3.5 ± 0.2 mm is provided between the tip of counter knife ❷ and the center of needle ❶ .

(2) Adjusting the counter knife pressure

1) Loosen nut ❺ . Adjust the pressure between counter knife ❷ and moving knife ❻ by turning the setscrew ❹ with a flat-blade screwdriver. The pressure is increased by turning the nut in the direction of arrow Ⓐ, or decreased by turning it in the direction of arrow Ⓑ.
2) After the adjustment, tighten nut ❺ .

(3) Adjusting the longitudinal clearance provided between the counter knife and the moving knife

1) Loosen setscrews ❸ . Adjust the longitudinal position of counter knife ❷ so that a clearance of 0.3 to 1 mm is provided between counter knife ❷ and moving knife ❻ .

(4) Adjusting the longitudinal clearance provided between the inner hook holder and the inner hook

1) Loosen setscrews ❸ . Adjust the longitudinal position of inner hook holder ❼ so that a clearance 0.3 to 0.8 mm is provided between projection portion Ⓒ of inner hook holder ❼ and inner hook ❽ .
2) Finely adjusting the aforementioned clearance according to the thread thickness will allow the thread to pass through the clearance smoothly.

(5) Adjusting the lateral position of inner hook holder

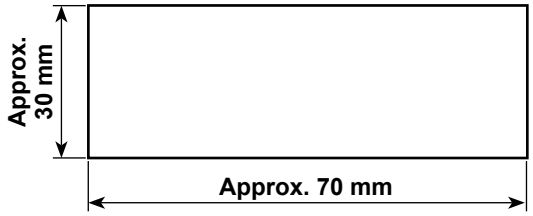
1) Loosen setscrew ❾ . Adjust the lateral position of inner hook holder ❼ so that the center of projection portion Ⓒ of inner hook holder ❼ is aligned with the center of needle ❶ .

4-13. How to confirm the amount of oil (oil splashes) in the hook

WARNING :
Be extremely careful about the operation of the machine since the amount of oil has to be checked by turning the hook at a high speed.

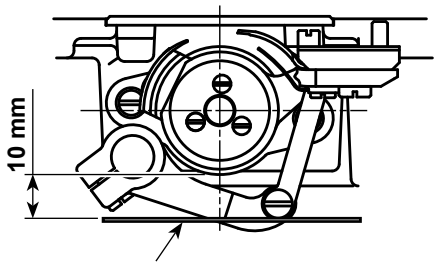
(1) How to confirm the amount of oil (oil splashes)

❶ Amount of oil (oil splashes) confirmation paper



* Use any paper available regardless of the material.

❷ Position to confirm the amount of oil (oil splashes)

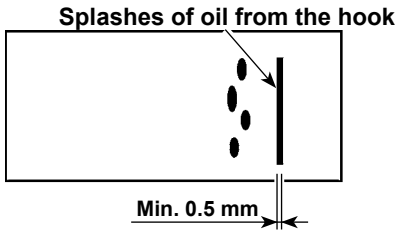


When carrying out the procedure described below, confirm the state that the needle thread from the thread take-up lever to the needle and the bobbin thread are removed, the presser foot is lifted and the slide plate is removed. At this time, take extreme caution not to allow your fingers to come in contact with the hook.

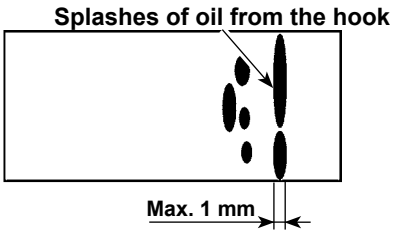
1) Check to make sure that the oil quantity is adequate referring to **"I-4-1. Lubricating method and check of the oil quantity" p. 13**.
2) If the machine has not been sufficiently warmed up for operation, make the machine run idle for approximately three minutes.
3) Place the amount of oil (oil splashes) confirmation paper under the hook while the sewing machine is in operation.
4) Confirmation of the amount of oil (oil splashes) should be completed in five seconds.

(2) Sample showing the appropriate amount of oil (oil splashes)

Appropriate amount of oil (smaller)



Appropriate amount of oil (larger)

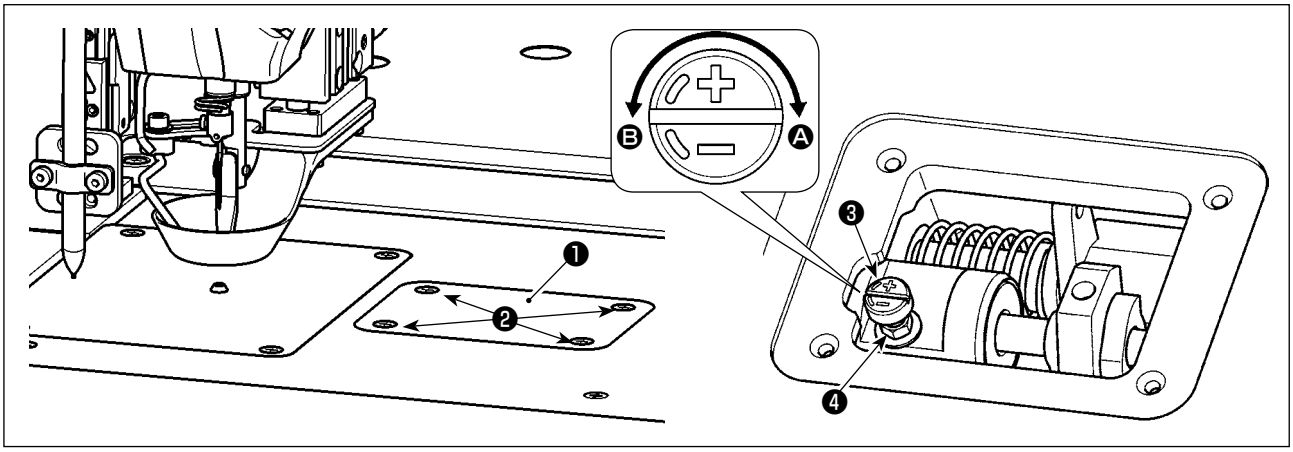


1) The state given in the figure above shows the appropriate amount of oil (oil splashes).
2) Check the oil amount (oil splashes) three times (on the three sheets of paper), and adjust so that it should not change.

Do not excessively increase/decrease the amount of oil in the hook. If the amount of oil is too small, the hook will be seized (the hook will be hot). If the amount of oil is too much, the sewing product may be stained with oil.

4-14. Adjusting the amount of oil in the hook

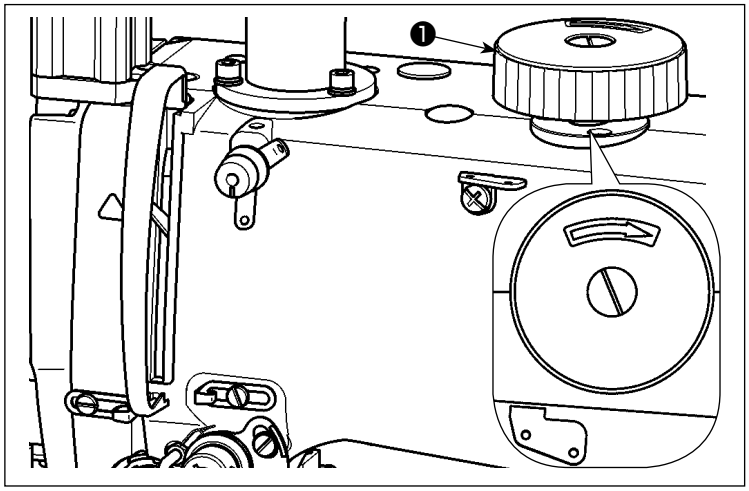
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



1) Loosen setscrews ❷ (4 pieces). Open cover ❶ .
2) Loosen nut ❹ . Adjust the hook oil quantity by turning oil quantity adjustment screw ❸ . The oil quantity is increased by turning the adjustment screw in the direction of arrow Ⓐ, or decreased by turning it in the direction of arrow Ⓑ.
3) After the adjustment, tighten nut ❹ and attach cover ❶ .

1. **After the adjustment, check the oil quantity by running the sewing machine idle for approximately 30 seconds, as well as by checking it in comparison with the sample showing the adequate oil quantity. (Refer to "I-4-13. How to confirm the amount of oil (oil splashes) in the hook" p. 22.)**
2. **In the case of adjusting the hook oil quantity, firstly adjust the oil quantity by turning oil quantity adjustment screw in the direction of arrow Ⓐ to increase it. Then, adjust the hook oil quantity by turning the adjustment screw in the direction of arrow Ⓑ to decrease it.**
3. **The hook oil quantity has been factory-adjusted at the time of shipment, based on the maximum sewing speed of sewing machine. When the customer always operate the sewing machine at a low speed, the hook oil quantity may run short causing a sewing machine failure. To prevent such a failure, adjustment of the hook oil quantity is required when the customer runs the sewing machine at a low speed at all times.**
4. **If the sewing machine is operated in the state that oil quantity adjustment screw ❸ of the hook is fully tightened, oil will not flow to the oil pan. In this case, oil can leak through the hook driving shaft causing a sewing machine failure. So, do not fully tighten oil quantity adjustment screw ❸ . In the case the oil in the hook fails to flow even if the hook oil quantity has been nearly maximized using oil quantity adjustment screw ❸ (the oil quantity is maximized when the adjustment screw is fully tightened by turning it in the direction of arrow Ⓐ), the oil wick should be changed with a new one since the current oil wick in the hook may have been clogged.**
5. **After the adjustment of the hook oil quantity, securely tighten nut ❹ so as to prevent oil leakage through oil quantity adjustment screw ❸ section.**

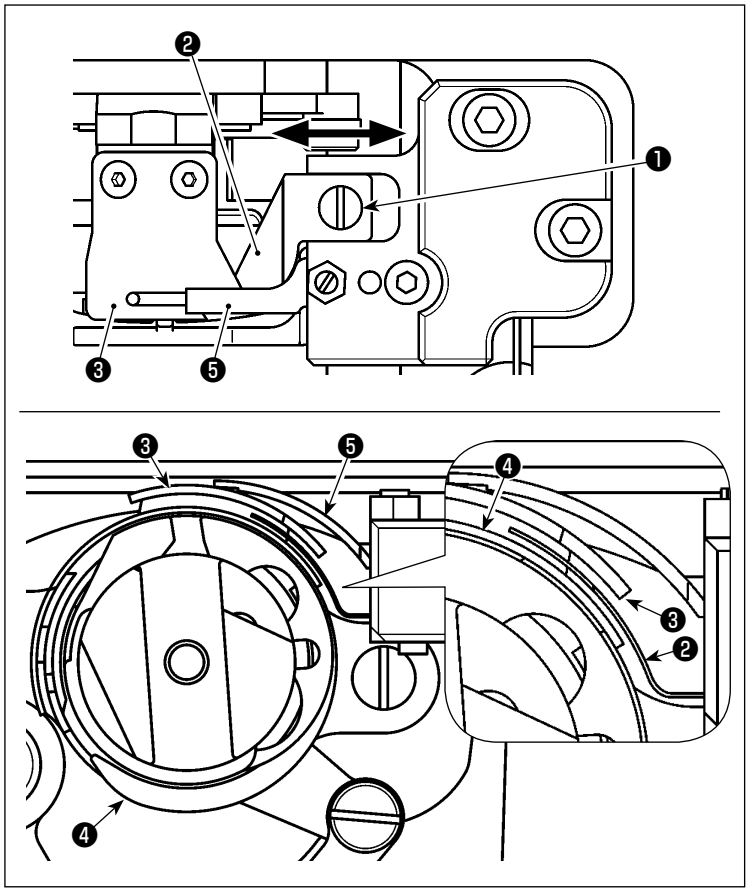
4-15. Direction of rotation of the hand pulley



When you turn hand pulley ❶ , be sure to push hand pulley ❶ in the lower direction first, then turn it in the direction shown in the figure.

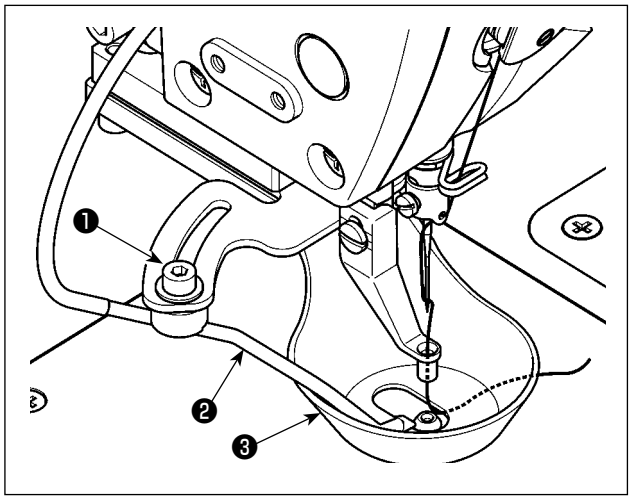
4-16. Installing and adjusting the thread separation plate

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



1) Loosen setscrew ❶ . Detach thread separation plate ❷ .
2) Assemble new thread separation plate ❷ and temporarily tighten setscrew ❶ .
3) Bring moving knife ❸ to the position at which it engages with counter knife ❺ . Adjust the position of thread separation plate ❷ so that it does not interfere with moving knife ❸ and periphery of hook ❹ by moving thread separation plate ❷ in the direction of the arrow.
4) Tighten setscrew ❶ .

4-17. Adjusting the angle of air blower



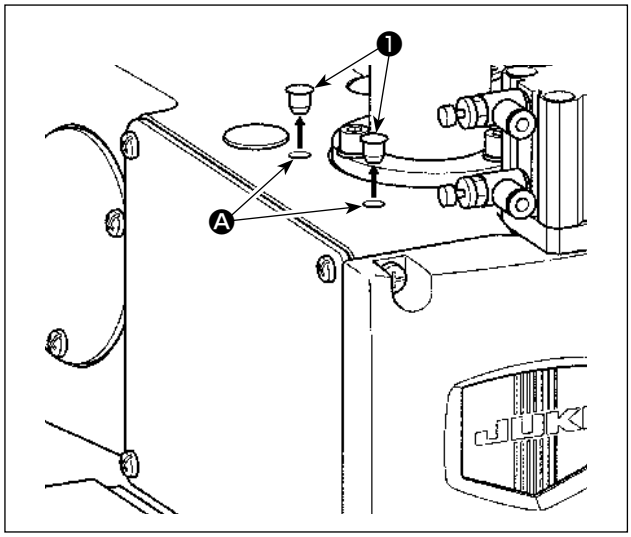
1) Loosen setscrew ❶ .
2) Adjust the air-blowing angle of air blower ❷ so that the air is blown to the center of needle sideways with respect to the sewing direction. Then, tighten setscrew ❶ .

In the case the direction of sewing is changed from vertical to horizontal, check the air-blowing angle of air blower ❷ and adjust it so that the thread remaining at the tip of needle can be clamped with disc presser ❸ without fail.

5. MAINTENANCE OF SAWING MACHINE

5-1. Replenishing the designated places with grease

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



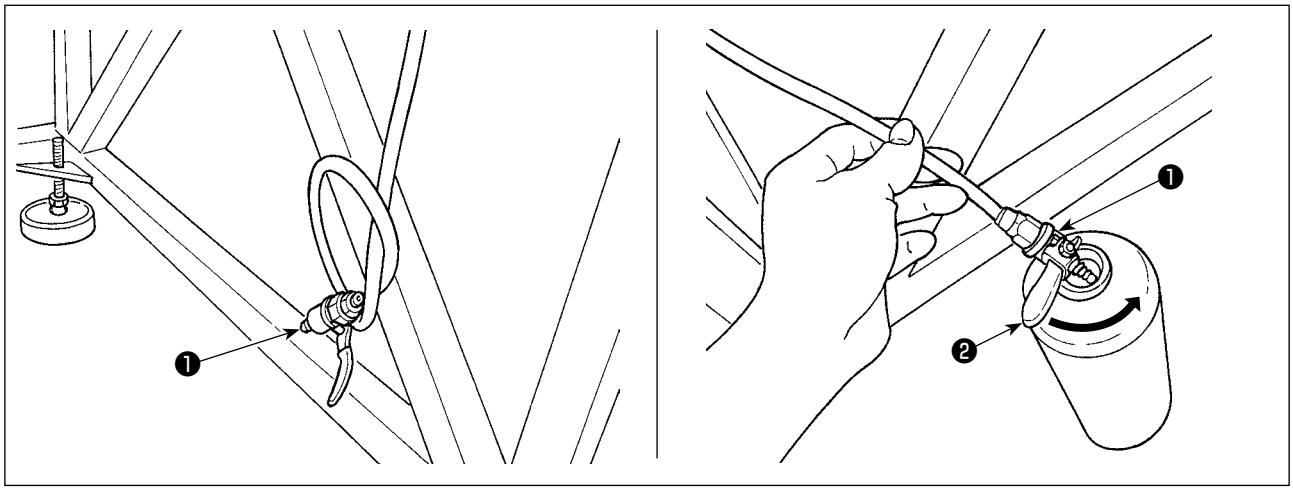
Apply grease to the bearings located at the front and rear of intermediate presser.

1) Remove rubber plug ❶ . Add grease through hole Ⓐ in the machine arm using an injector.

Grease should be replenished once every two years or in the case of changing the relevant part(s).

5-2. Draining waste oil

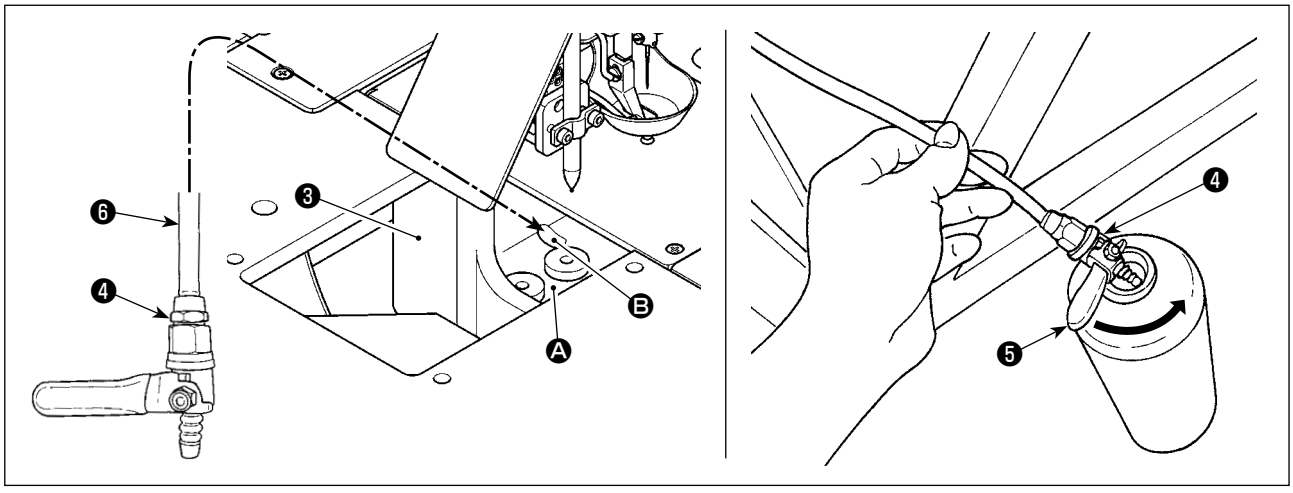
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



(1) Discharging the waste oil in the oil pan

Discharge the waste oil in the oil pan using oil drain valve ❶ installed under the table stand.

1) Put oil drain valve ❶ in the waste oil container. Turn lever ❷ of drain oil valve ❶ in the direction of the arrow until the waste oil is entirely discharged from the container.
2) After the completion of discharge of waste oil, return lever ❷ back to its home position.



(2) Discharging the waste oil in the hook section

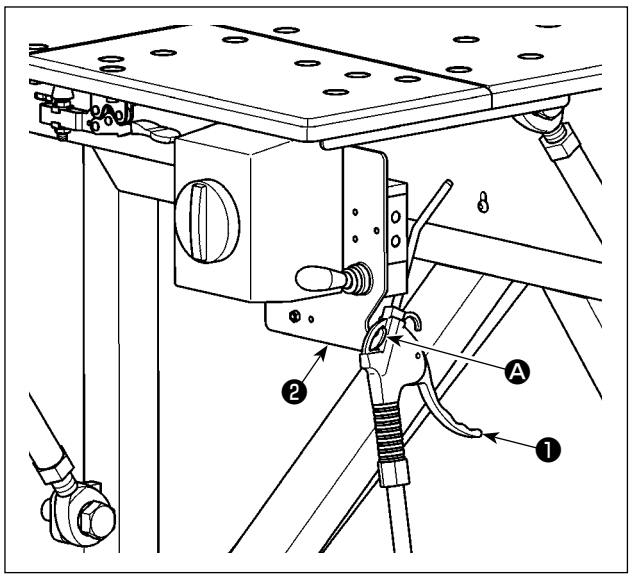
Waste oil in the hook section accumulates around front end Ⓐ of oil pan (large) ❸ .

1) Put oil drain pipe ❻ into hole Ⓑ as shown in the figure.
2) Put oil drain valve ❹ in the waste oil container. Turn lever ❺ of drain oil valve ❹ in the direction of the arrow until the waste oil is entirely discharged from the container.
3) After the completion of discharge of waste oil, return lever ❺ back to its home position.

Reference

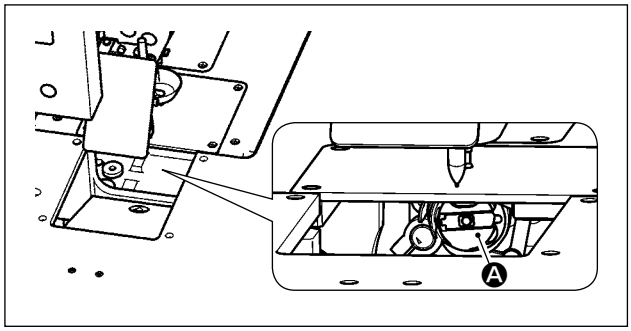
The waste oil container is not supplied with the unit at the time of delivery. It should be therefore prepared by the customer. (The bottle for JUKI CORPORATION GENUINE OIL 7 supplied with the unit can be used as a waste oil container when the bottle is emptied.)

5-3. Use of an air gun



Air gun ❶ is used for cleaning the sewing machine table and removing dirt accumulating in comparatively small gaps. Put it on hook Ⓐ of fixed plate ❷ when it is not used.

5-4. Cleaning the hook section



If flecks of fiber and thread waste accumulate in hook section Ⓐ, the sewing machine failures (stitching failure, hook seizure, etc.) can occur. To prevent those failures, it is necessary to clean hook section Ⓐ of the sewing machine periodically.

1) Wipe hook section Ⓐ clean with a piece of dry cloth. Then, remove remaining dust, etc. with an air gun.

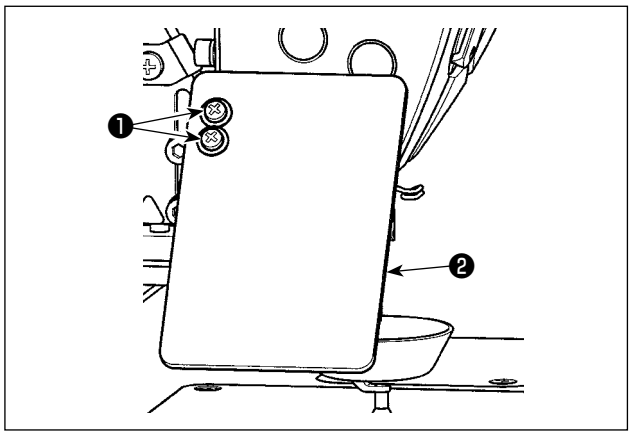
5-5. Other precautions

(1) Control box

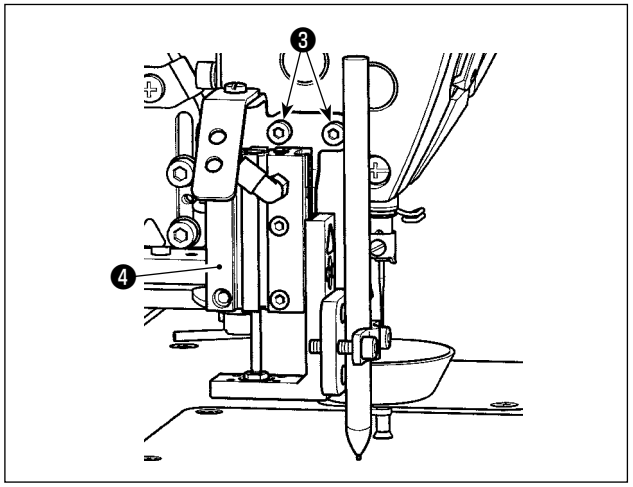
If dust has gathered on the control box, clean it to remove dust.

5-6. How to remove the face plate

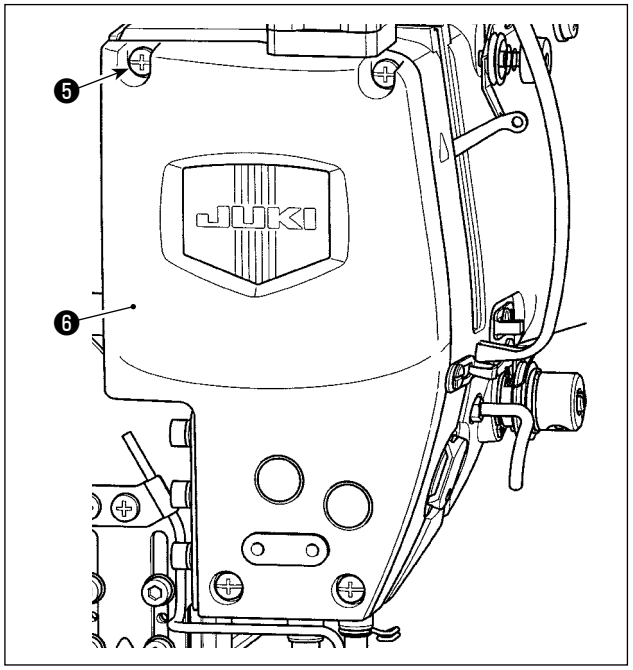
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



1) Loosen setscrews ❶ (2 pieces). Remove eye protection cover ❷ .



2) Loosen setscrews ❸ (2 pieces). Remove pen pricking device ❹ .



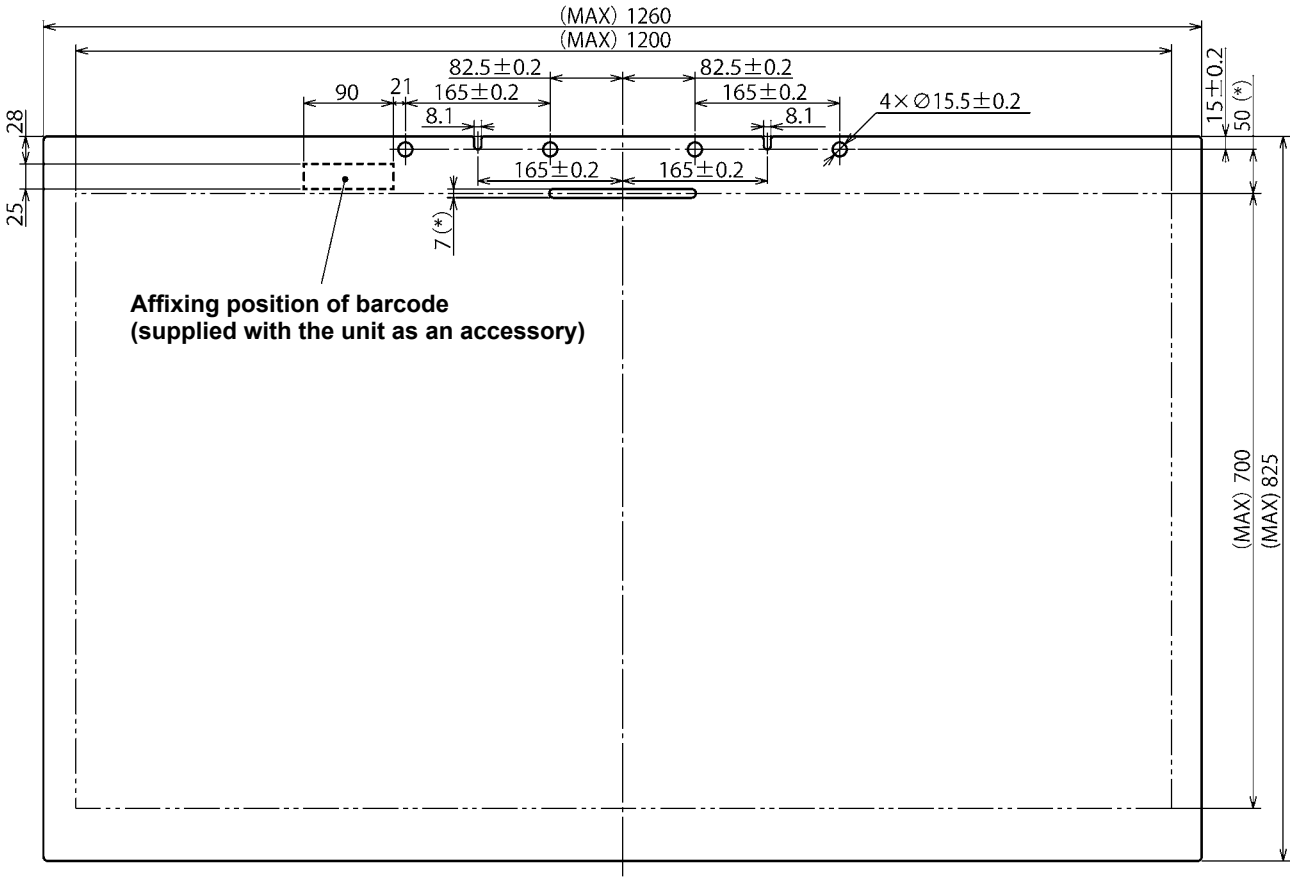
3) Loosen setscrews ❺ (4 pieces). Remove face plate ❻ .

5-7. Troubles and corrective measures (Sewing conditions)

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 0.01 to 0.05 mm.	18
		○ Set soft-start sewing at the beginning of sewing.	—
	② The needle thread remaining on the needle after thread trimming is too short.	○ Decrease the tension of the thread tension controller No. 1.	16
		○ Increase the tension of the thread take-up spring.	17
	③ The bobbin thread is too short.	○ Decrease the bobbin thread tension.	16
		○ Increase the clearance between the needle and the counter knife.	21
	④ Needle thread tension at 1st stitch is too high.	○ Decrease the needle thread tension at 1st stitch, and extend the duration of the AT operation at the beginning of sewing.	—
	⑤ Stitching pitch at 1st stitch is too small.	○ Make the stitching pitch at 1st stitch longer.	—
		○ Decrease the needle thread tension at 1st stitch.	—
2. Thread often breaks or synthetic fiber thread splits finely.	① The hook or the inner hook holder has scratches.	○ Remove the hook and grind hook or the inner hook holder with a fine grind stone or buff them.	9
	② The needle hole guide has scratches.	○ Buff the needle hole guide or replace it with a new one.	—
	③ Thread enters the groove in the hook.	○ Detach the hook to remove the thread.	9
	④ The needle thread tension is too high.	○ Decrease the needle thread tension.	16
	⑤ The tension of the thread take-up spring is too high.	○ Decrease the tension of the thread take-up spring.	17
	⑥ The synthetic fiber thread melts due to heat generated on the needle.	○ Use the optional needle cooler.	33
	⑦ When taking up the thread, the needle tip penetrates the thread.	○ Check the rough state of needle tip.	—
		○ Use the ball-pointed needle.	14
3. The needle often breaks.	① The needle is bent.	○ Replace the bent needle.	14
	② The needle comes in contact with the intermediate presser.	○ Adjust the position of the intermediate presser.	—
	③ The needle is too thin for the material.	○ Replace it with a thicker needle according to the material.	14
	④ Clearance between the needle and the hook is too small.	○ Adjust the clearance between the needle and the hook.	18
4. Threads are not trimmed.	① The counter knife is dull.	○ Replace the counter knife.	21
	② Knife pressure of the counter knife is low.	○ Adjust the knife pressure of the counter knife.	21
	③ The counter knife has been improperly positioned.	○ Correct the position of the counter knife.	21
	④ The last stitch is skipped.	○ Correct the timing between the needle and the hook.	18
(Bobbin thread only)	⑤ Bobbin thread tension is too low.	○ Increase the bobbin thread tension.	16
	⑥ Flopping of cloth	○ Lower the intermediate presser height.	18
5. Stitch skipping often occurs.	① Clearance provided between the needle and the hook is not correct.	○ Adjust the clearance between the needle and the hook.	18
	② Position of the inner hook holder against the needle is not correct.	○ Adjust the position of the inner hook holder against the needle.	21
	③ The needle is bent.	○ Replace the bent needle.	14
	④ The needle thread after thread trimming is too long.	○ Decrease the tension of the thread take-up spring.	17
		○ Increase the tension of the thread tension controller No. 1.	16
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.	16
	② The needle thread after thread trimming is too long.	○ Increase the tension of the thread tension controller No. 1.	16
7. Threads break at time of thread trimming.	① The knife has been improperly position.	○ Correct the position of the knife.	21
8. Thread end of the 1st stitch comes out on the right side of the material.	① Stitch skipping at the 1st stitch.	○ Increase the length of needle thread remaining at the needle after thread trimming.	16
	② Needle used and thread used are thick in terms of the inner diameter of the intermediate presser.	○ Change the current intermediate presser with another one which has a larger inner diameter.	39
	③ Intermediate presser is not properly positioned in terms of the needle.	○ Adjust the eccentricity between intermediate presser and needle so that needle enters in the center of intermediate presser.	—
	④ The direction of air blower is incorrect. As a result, needle thread at the tip of needle cannot be clamped with the disc presser.	○ Adjust the air-blowing direction of the air blower according to the direction of sewing so that the needle thread at the tip of needle can be clamped with the disc presser.	—
9. The needle thread is entangled in the inner hook holder.	① The clearance provided between the inner hook holder and the inner hook is too small.	○ Adjust the clearance provided between the inner hook holder and the inner hook appropriately according to the thickness of needle thread to be used.	21
10. The knotting section of bobbin thread at 2nd stitch at the sewing start appears on the right side.	① The bobbin runs idle excessively.	○ Adjust the height of idling prevention spring of the bobbin case appropriately.	—
	② Bobbin thread tension is too low.	○ Increase the bobbin thread tension.	16
	③ The needle thread tension at 1st stitch is too high.	○ Decrease the needle thread tension at 1st stitch.	—

6. PRECAUTIONS

6-1. Standard specification of the templates



1. Sewing area : 1200 × 700 mm
2. Maximum outside dimensions : 1260 × 825 mm
3. Maximum weight : 5.6 kg (10 kg or less including the material weight)
4. Barcode range : 90 × 25 mm
5. Thickness of template : Total of two pieces (upper and lower templates) : 3.0 mm (recommended)

1. The minimum distance from the groove on the template to the clamp hole is 50 mm or more. The groove dimension is 7 mm. (Dimensions marked with an asterisk (*))
2. If the pin is not easily inserted in the clamp hole in the template when placing the template on the sewing machine, the position of pin drive cylinder of the X-axis feed mechanism should be adjusted.

6-2. Sewing with large pitches

If the stitch pitch is 6 mm or more when using large pitches for sewing, reverse feed stitches or condensation stitches (reverse feed stitching or condensation stitching with the stitch pitch of 2 mm or more is recommended) should be additionally sewn at the beginning of sewing.

6-3. Reverse feed stitching

Reverse feed stitches may not be accurately sewn on the normal feed stitches due to lateral vibration of the template during sewing.

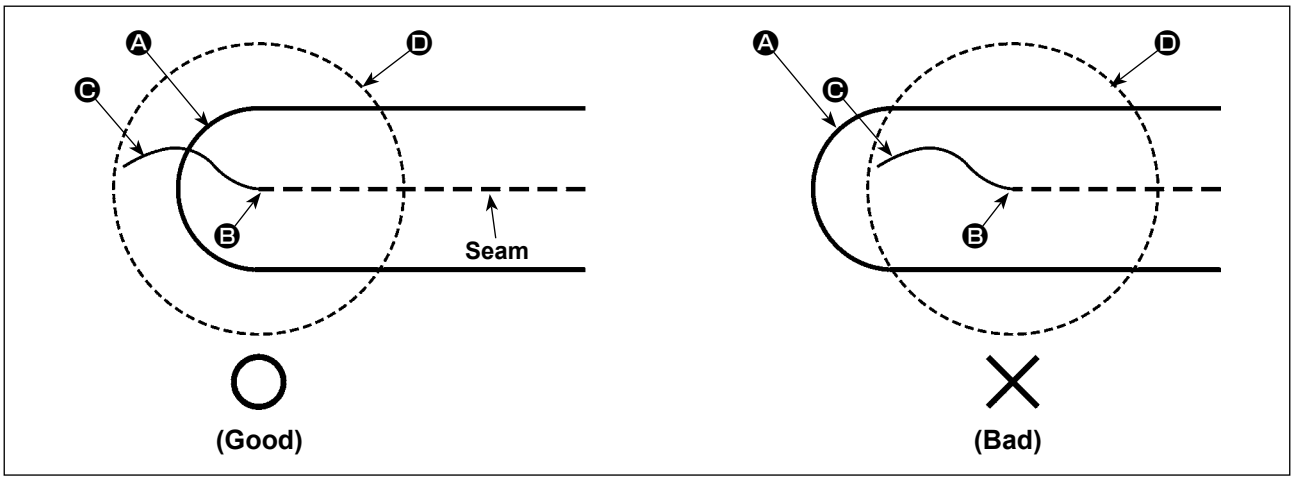
* In the case a template which has the largest longitudinal dimension (825 mm) is made, misalignment of the normal feed and reverse feed stitches may occur in the front (near the operator) zone when the direction of sewing is lateral.

In such a case, it is recommended to select condensation stitching instead of reverse feed stitching to sew fastening stitches.

6-4. Condensation stitching

In the case of sewing with thick thread such as Span #30, the condensation stitching pitch should be 1 mm or more in order to prevent sewing troubles such as stitching skipping when the needle enters the same needle entry point twice or more times and thread trimming failure.

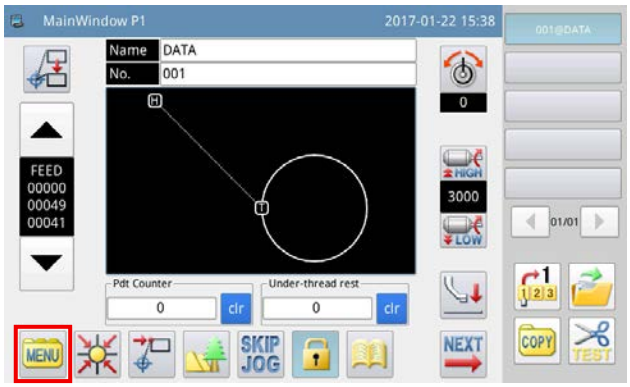
6-5. Groove on the template



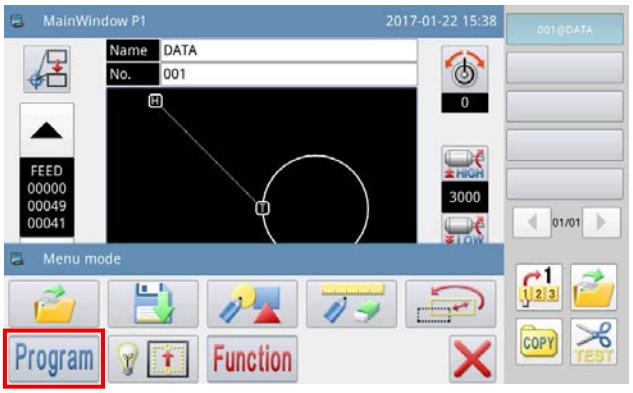
Create a stitch shape while aligning end Ⓐ of the groove on the template with sewing starting position Ⓑ, so that end Ⓒ of needle thread at the beginning of sewing can be clamped by undersurface Ⓓ of disc presser. If end Ⓐ of the groove on template is moved away from sewing starting position Ⓑ as shown in the figure on the right, end Ⓒ of needle thread enters the groove at the beginning of sewing and cannot be clamped by undersurface Ⓓ of disc presser. (Stitch skipping and thread-tangling on the reverse side of material (so-called bird's nest phenomenon) may occur at the beginning of sewing.)

7. OPTIONAL

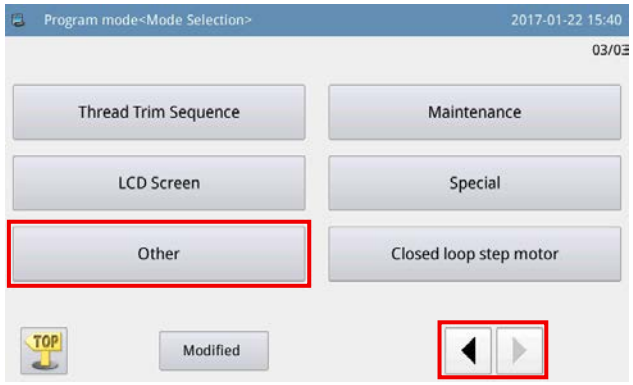
7-1. Setting the needle cooler device



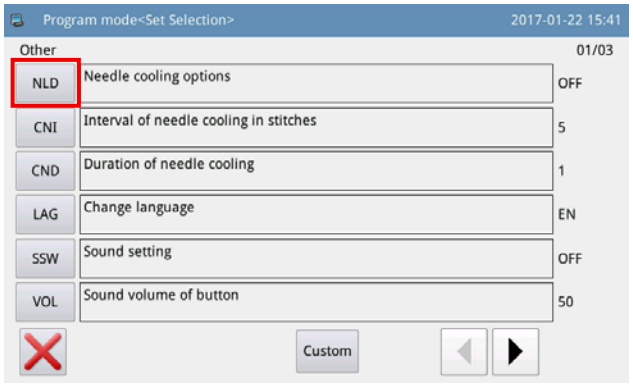
1) Press the MENU key on the main screen P1 to display the "Menu screen".



2) Press the Program key to enter the "Operation setup mode".



3) Change over pages by pressing the ◀ ▶ key, and press the Other key.

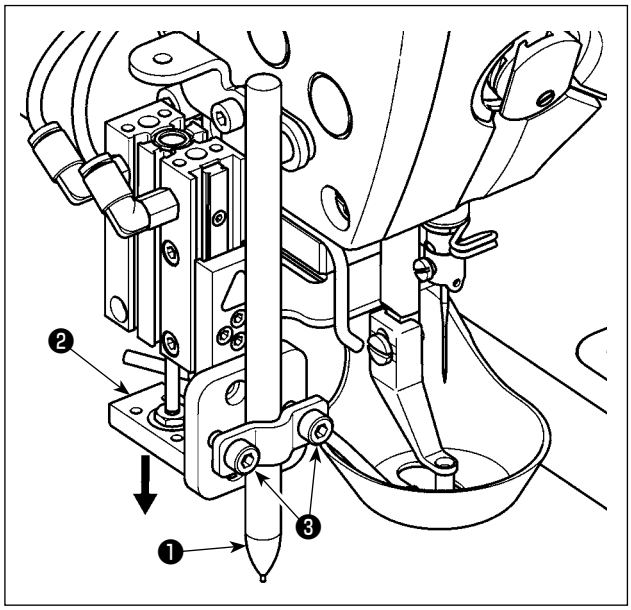


4) Press the NLD key to select ON/OFF of the needle cooler device.

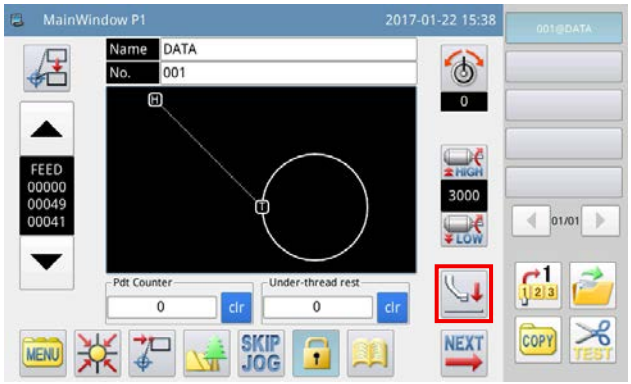
7-2. Setting the deviation amount of the pen pricking device

In the case of using the pen pricking device, it is necessary to set the deviation amount of the pen from its origin (needle entry) first.
Set the deviation amount of the pen as described below.

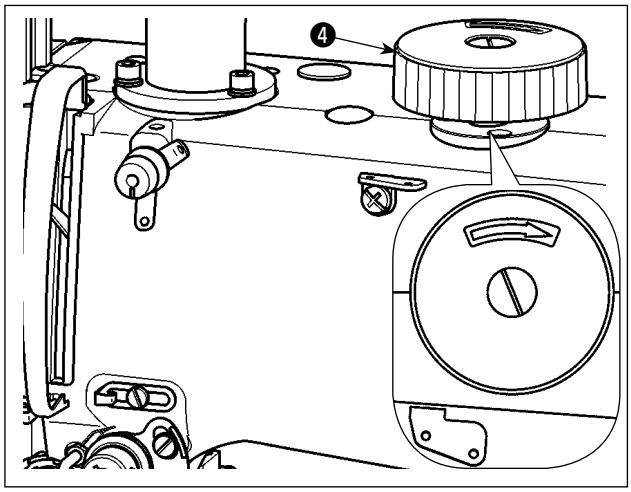
(1) Measuring the deviation amount of the pen



1) Close the air cock to discharge air from the machine.
2) Place a piece of white paper on the sewing machine. (Secure the paper with adhesive tape or the like.)
3) Attach pen ❶ to the pen pricking device. Press down air cylinder ❷ by hand to lower it to its lower end. Adjust the height of pen ❶ . Tighten setscrews ❸ .
4) Press down air cylinder ❷ by hand to lower it to its lower end. Put a mark on the paper.
5) Open the air cock to supply air to the machine.

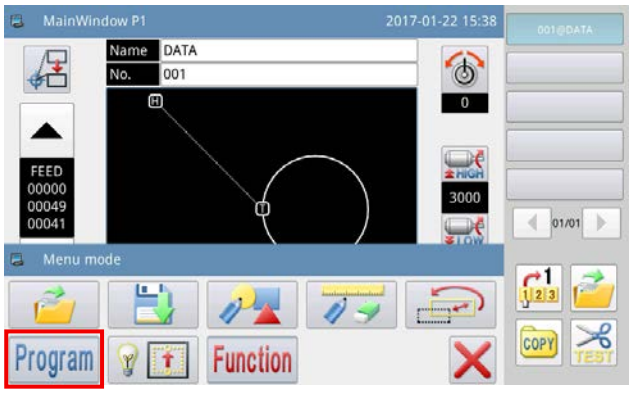


6) Press the  key on the main screen P1.

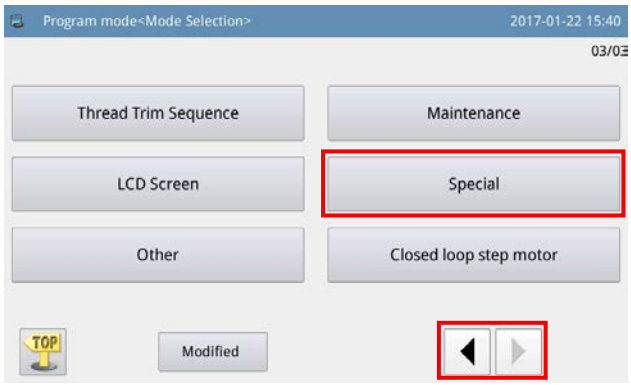


7) Turn hand pulley ❹ to allow the needle to penetrate the paper to leave a needle hole in it.
8) Measure with a ruler the deviation amount of the pen mark [Step 4] with respect to the needle hole [Step 7] in both of the X and Y directions.

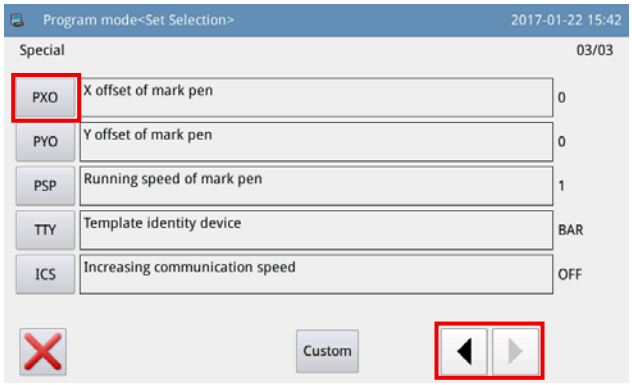
(2) Setting the deviation amount of pen



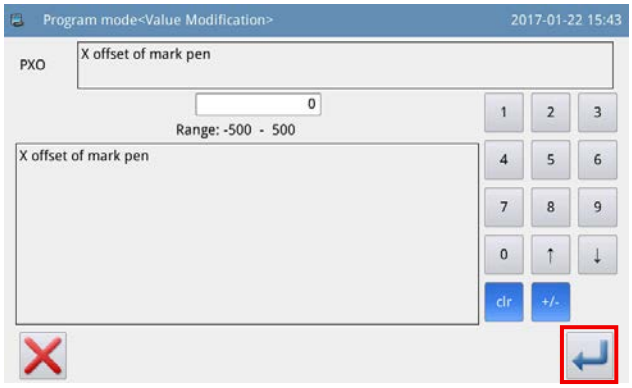
1) Press the MENU key on the main screen P1 to display the "Menu screen".
2) Press the Program key to enter the "Operation setup mode".



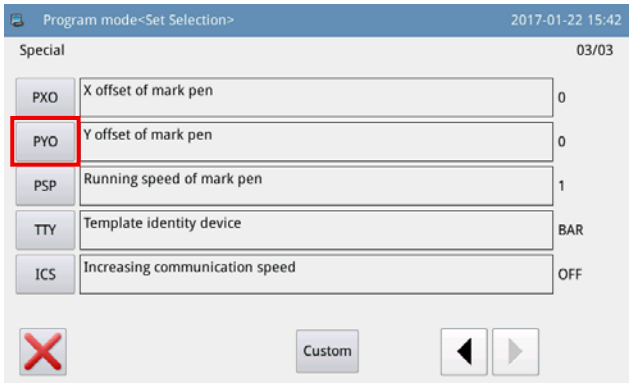
3) Change over pages by pressing the ◀ ▶ key, and press the Special key.



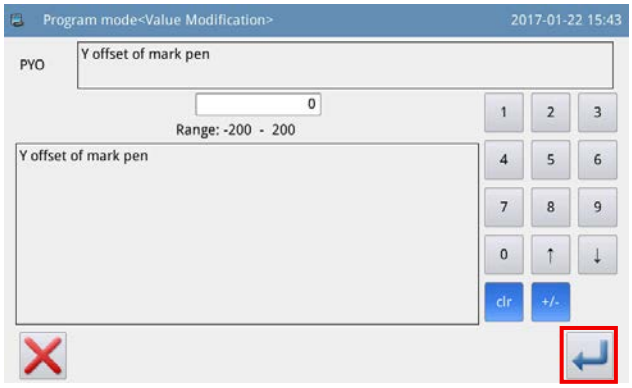
4) Press the ◀ ▶ key to change over the page. Press the PXO key to display the "X-direction deviation amount edit screen" for the pen.



5) Enter the measured deviation amount in the X-direction. Press the ↵ key. Then, the screen returns to the previous screen.

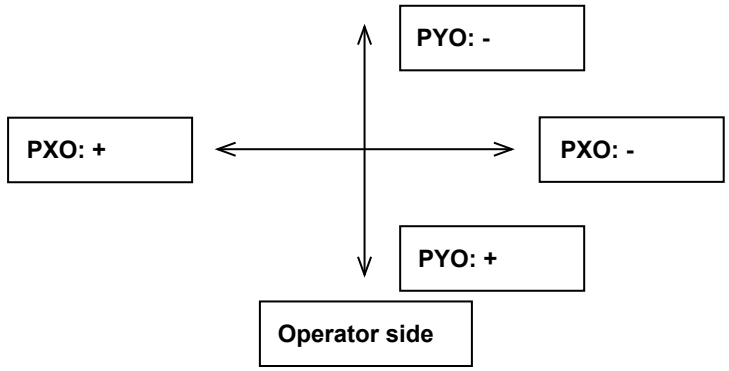


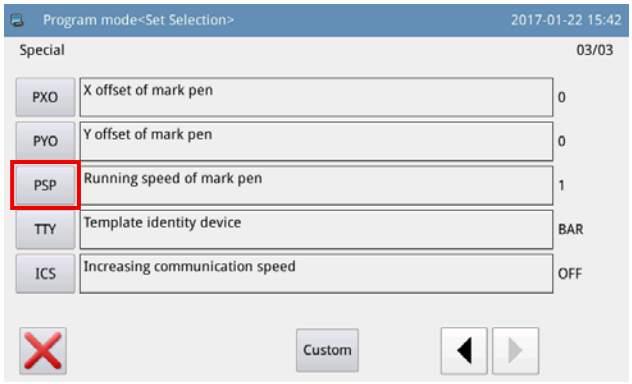
6) Press the PYO key to display the "Y-direction deviation amount edit screen" for the pen.



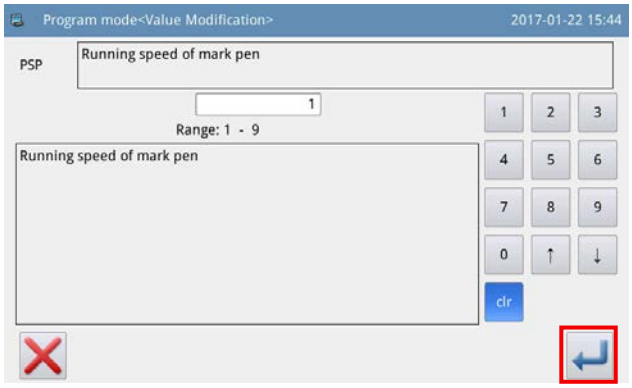
7) Enter the measured deviation amount in the Y-direction. Press the ↵ key. Then, the screen returns to the previous screen.

Setting the PXO / PYO direction of deviation:





8) Press the PSP key to display the "Speed setting screen" for the pen.



9) Enter the desired speed and press the key.

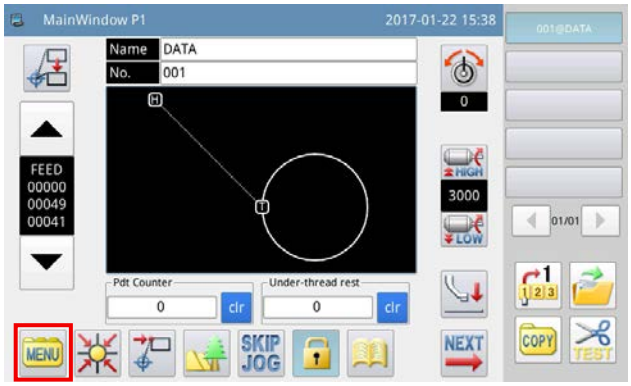
Then, the screen returns to the previous screen.

Pen speed input value				
1	2	· · ·	8	9
Slow	←	· · ·	→	Fast

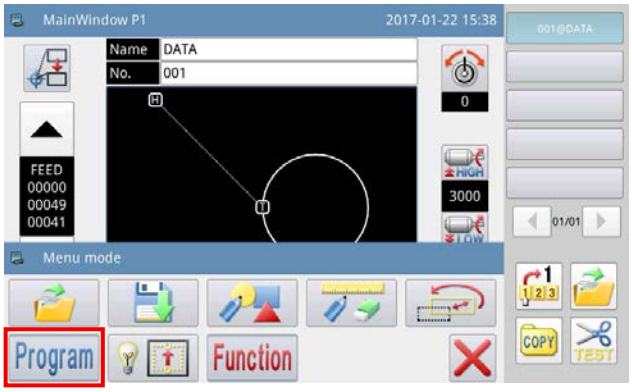
If the pen is changed with another one, the position of the pen tip will change. The deviation amount of pen, therefore, must to set again.

7-3. Setting the bobbin thread remaining amount detecting device

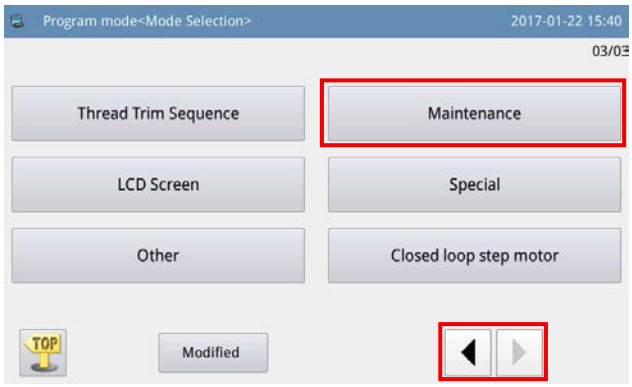
Part number of complete set : 40173537



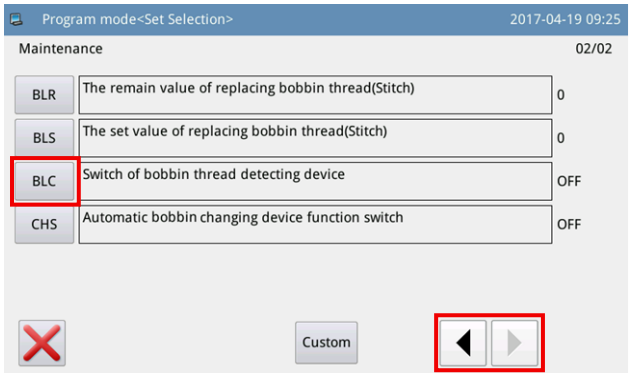
1) Press the MENU key on the main screen P1 to display the "Menu screen".



2) Press the Program key to enter the "Operation setup mode".



3) Change over pages by pressing the ◀ ▶ key, and press the Maintenance key.



4) Press the ◀ ▶ key to change over the page. Press the BLC key to select ON/OFF of the bobbin thread remaining amount detecting device.
When it is set to ON, the bobbin thread remaining amount detecting device operates every time thread trimming is performed.
In the case the bobbin thread remains on the bobbin, sewing machine travels to the next sewing starting point. If no bobbin thread remains on the bobbin, bobbin-thread shortage error is displayed on the screen.

8. CONSUMABLE PARTS LIST

No.	Part number	Part name	Remarks
1	40006323	JUKI grease tube A	
2	40173635	Bobbin	
3	40173746	Moving knife	
4	40173747	Counter knife	
5	40174016	Needle hole guide (asm.) ø2.0	Optional parts
6	40174017	Needle hole guide (asm.) ø1.6	
7	D1830560EA0	Lubricating hook (asm.)	
8	B1837201SA0	Bobbin case (asm.)	
9	B1601210D0BA	Intermediate presser ø2.7	
10	B1601210D0CA	Intermediate presser ø3.5	Optional parts
11	40173792	Thread separation plate	
12	MDB1SFB0902	Needle DB × 1SF #9-2	
13	MDB100B1100	Needle DB × 1 #11	
14	MDB100B1600	Needle DB× 1 #16	
15	40102087	JUKI CORPORATION GENUINE OIL 7	

II. OPERATION SECTION (WITH REGARD TO THE PANEL)

1. PREFACE

1-1. Kind of sewing data handled with panel

Pattern name	Description
User's pattern	Pattern that can be stored in the body. Max. 999 patterns can be registered.
Pattern data	File that extension is ".VDT" These are the files of sewing patterns created by editing data with the exclusive software (PM-1). Read from media. Max. 999 patterns can be used.

1-2. Using the sewing data with PS-700

This section describes how to use sewing data on the PS-700.

① **Using the sewing data stored in the operation panel**

Sewing patterns that have been factory-stored in the operation panel during the initial setup process can be used. Refer to **"II-2-4-1. Reading sewing patterns" p. 56** for details.

It is also possible to create or edit the sewing patterns with the operation panel. Refer to the Engineer's Manual for details.

② **Using the sewing data stored on an external medium**

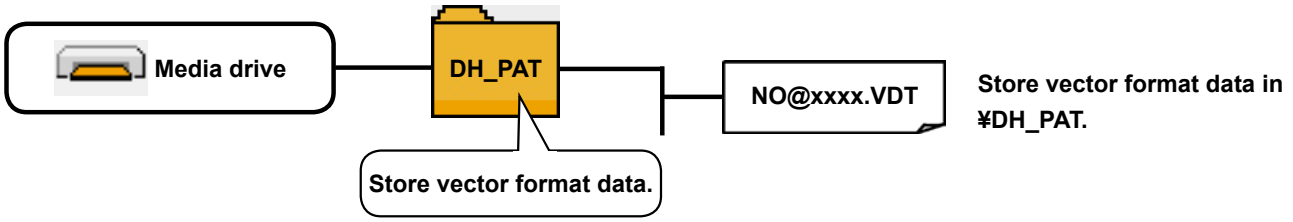
It is possible for the customer to create sewing data by installing the exclusive software (PM-1) on the customer's personal computer.

Copy the sewing data (¥DH_PAT¥NO@xxxx.VDT) you have created on an external medium (such as the USB thumb drive).

Insert the medium into the insertion slot of the operation panel to copy the data from the medium to the operation panel. It is also possible to directly read the sewing data stored on a medium. Refer to **"II-2-4-1. Reading sewing patterns" p. 56** for details.

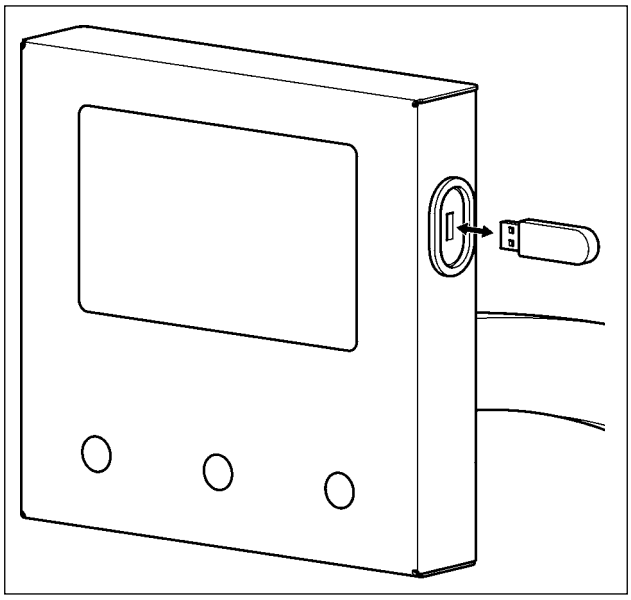
1-3. Folder structure of the media

Store each file in the folders below of the media.



Data that are not stored in the directories above cannot be read. So, be careful.

1-4. USB port



Insert the USB thumb drive into the USB port. Copy the data to be used to the directory of main body. After the completion of copy process, remove the USB thumb drive from the USB port.

Cautions when using the media :

1. Do not wet or touch it with wet hands. Fire or electric shock will be caused.
2. Do not bend, or apply strong force or shock to it.
3. Never perform disassembling or remodeling of it.
4. Do not put the metal to the contact part of it. Data may be disappeared.
5. Avoid storing or using it in the places below.
- **Place of high temperature or humidity**
- **Place of dew condensation**
- **Place with much dust**
- **Place where static electricity or electrical noise is likely to occur**

① Precautions to be taken when handling USB devices

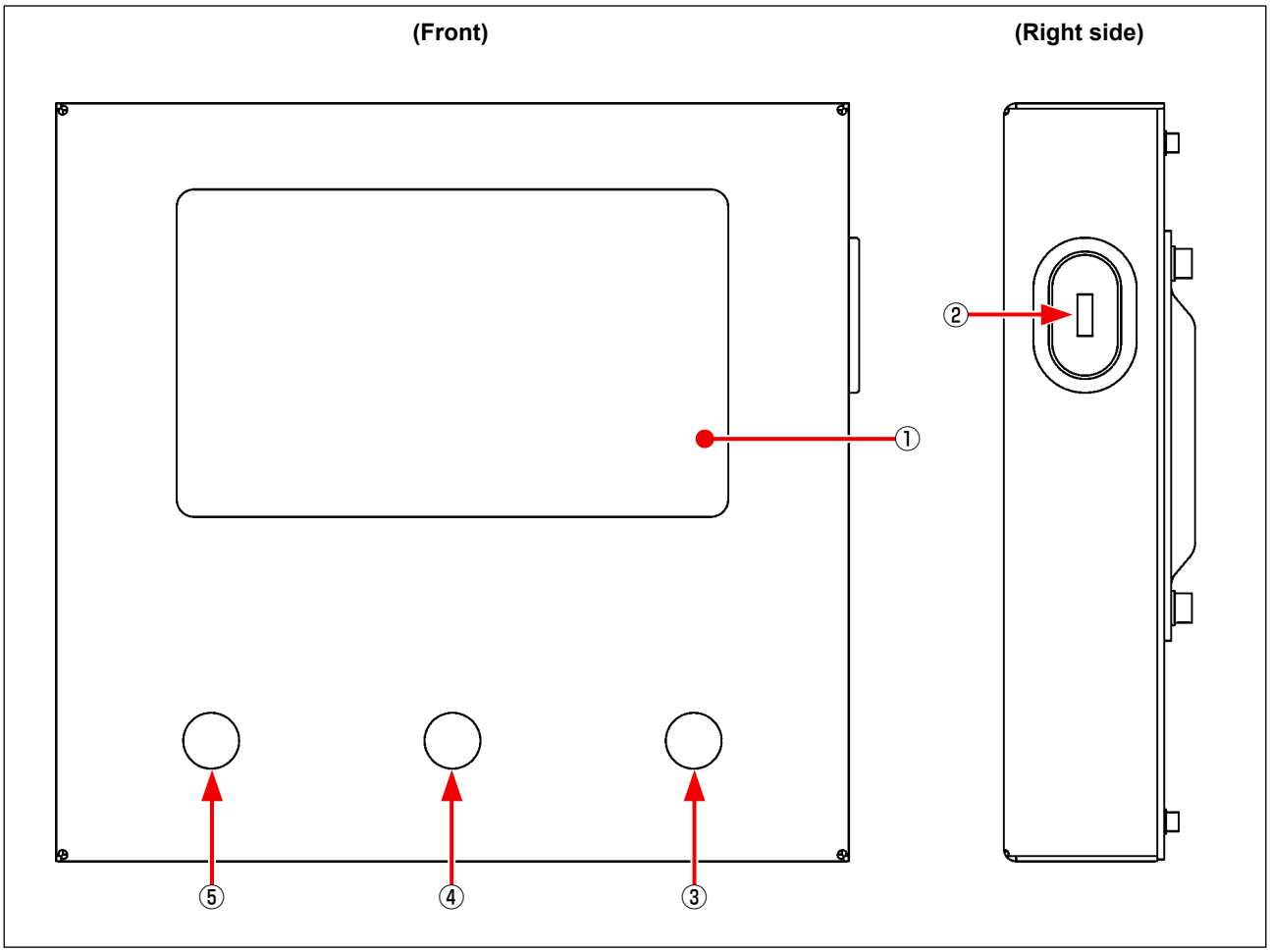
- Do not leave the USB device or USB cable connected to the USB port while the sewing machine is in operation. The machine vibration can damage the port section resulting in loss of data stored on the USB device or breakage of the USB device or sewing machine.
- Do not insert/remove a USB device during 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.

② USB specifications

- Conform to USB 2.0 standard
- Applicable devices _____ Storage devices such as USB memory
- Format supported _____ FAT 32
- Consumption current _____ The rated consumption current of the applicable USB devices is 500 mA at the maximum.

2. PANEL

2-1. Name of each section of panel



① Touch panel / LCD display section
② USB port
③ Start switch
④ Cassette clamp switch
⑤ Temporary stop switch

2-2. Explanation of the operation panel

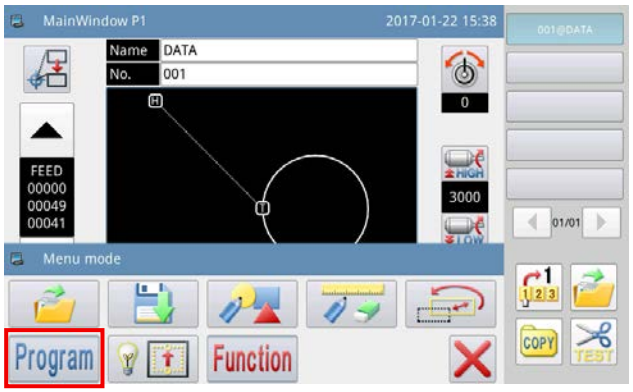
The operation screen of the operation panel is as described below.

2-2-1. Selecting the language to be displayed on the screen

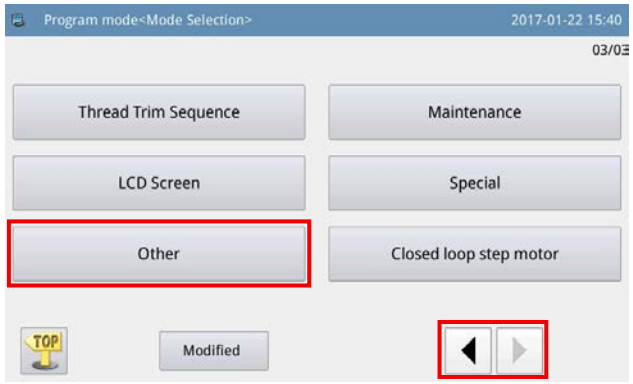
When you turn ON the power to the sewing machine for the first time after delivery, you can select the language.
Select the language to be displayed on the screen.
Then, press  key.

2-2-2. Changing over the display language

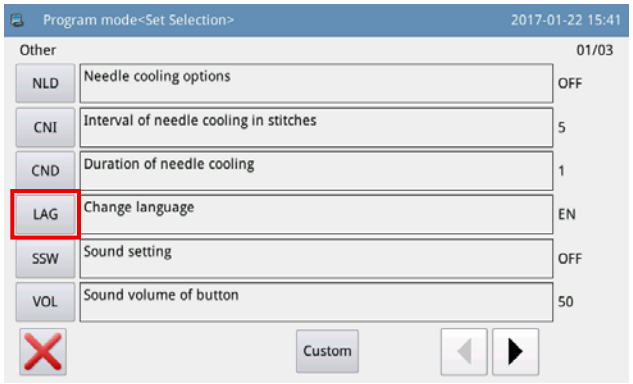
The following describes how to change over the language displayed on the operation panel.



1) Press the MENU key on the main screen P1 to display the "Menu screen".
2) Press the Program key to enter the "Operation setup mode".



3) Change over pages by pressing the ◀ ▶ key, and press the Other key.

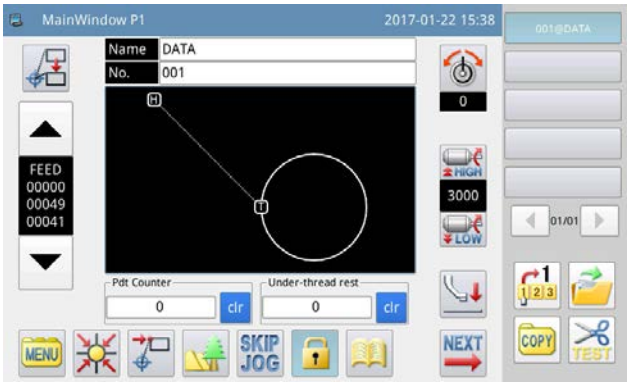


4) Press the LAG key to select the language you use.

5) One of the five languages, i.e., Chinese, English, Burmese, Korea and Turkish can be selected.

2-2-3. Main screen P1

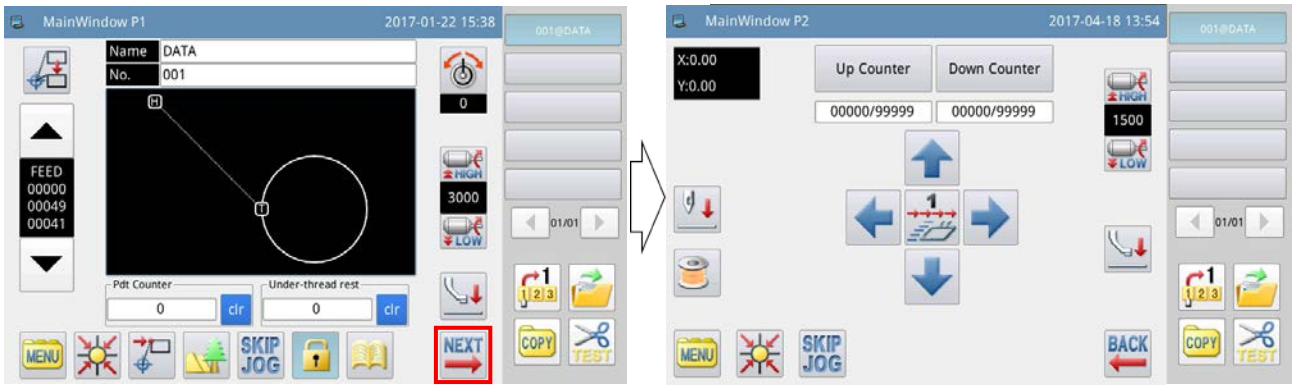
The screen which appears at the time of startup is the main screen P1.



<Screen display style : Icon display>

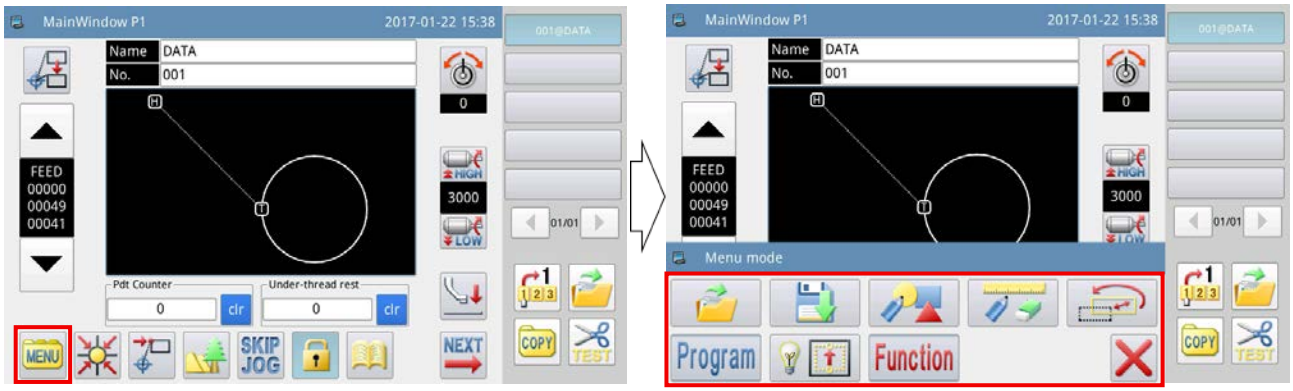
2-2-4. Main screen P2

When you press the NEXT key on the main screen P1, the main screen P2 is displayed.

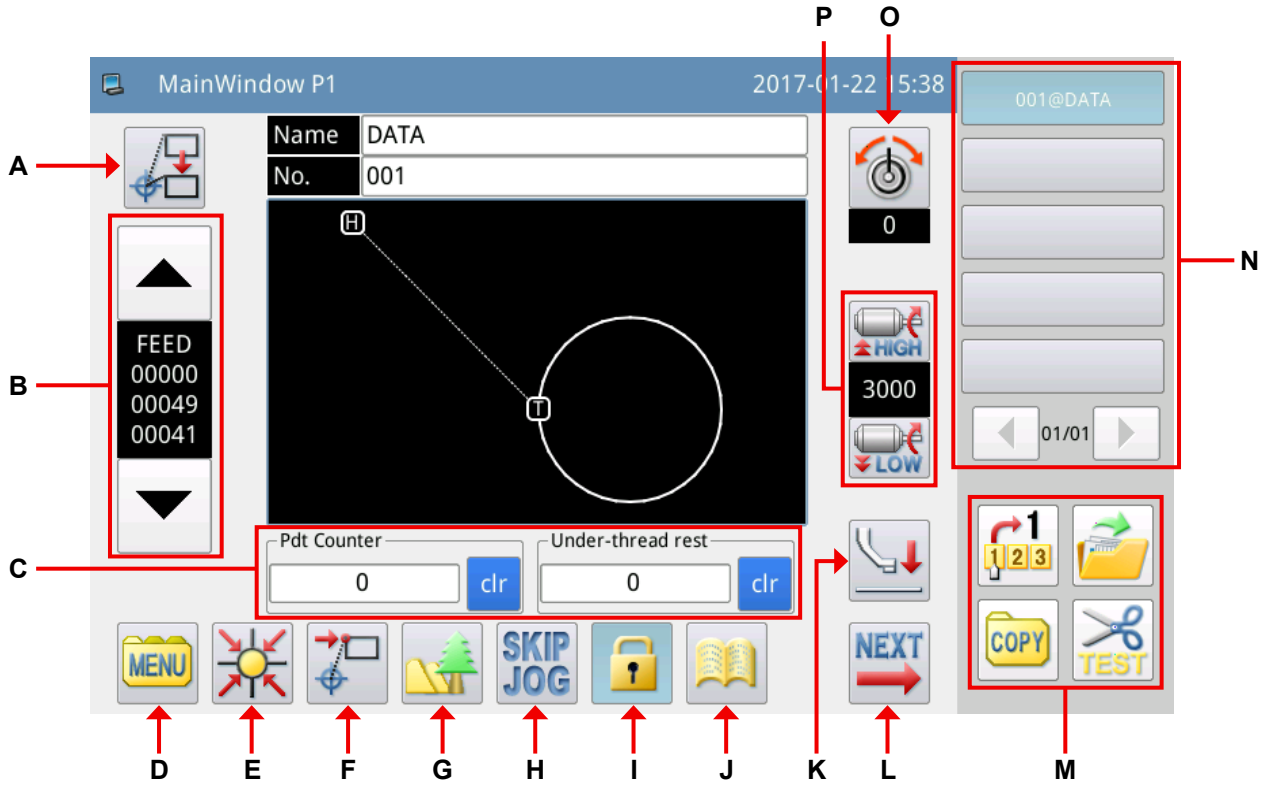


2-2-5. Menu screen

When you press the MENU key on the main screen P1, the menu screen is displayed.



2-2-6. Explanation of the main screen P1

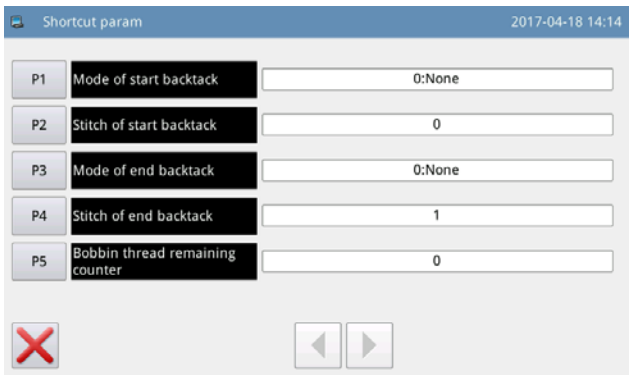


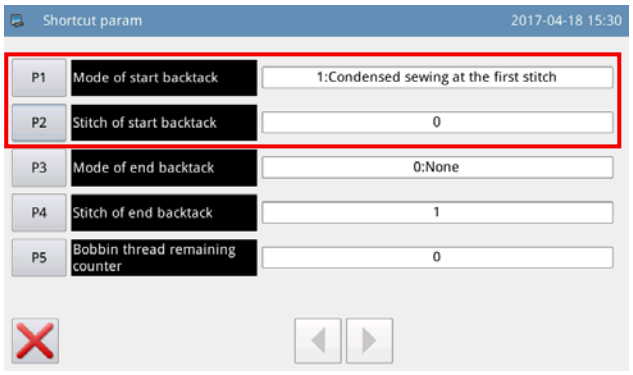
Explanation of functions :

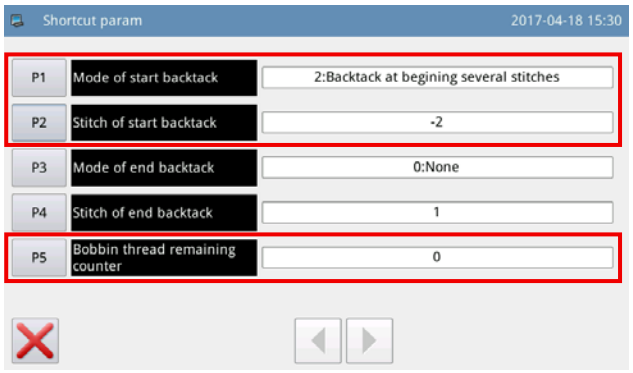
No.	Function	Description
A	Correction of sewing starting point	This function is used for correcting the sewing starting point.
B	Display of the number of stitches in a sewing pattern and the forward/backward key	This function is used for displaying the message indicating the number of stitches contained in the sewing pattern data, and for carrying out trial stitching operation.
C	Production counter and bobbin thread remaining amount counter	Production counter : Accumulated number of times of sewing is recorded. The content displayed can be erased and new counting can be started again with the clr key. Bobbin thread remaining amount counter : The number of stitches that can be sewn with bobbin thread currently remaining on the bobbin is displayed.
D	Menu key	This function is used for displaying the menu screen.
E	Origin return key	This function is used for returning the sewing machine to its origin.
F	Sewing start point return key	This function is used for returning the sewing machine to the sewing starting point.
G	Pattern display key	This function is used for displaying detailed message of the sewing pattern.
H	Quick travel setting key	This function is used for skipping to the specified number of stitch.
I	Sewing pattern change lock/unlock key	: Sewing pattern change lock → Pattern cannot be changed over : Sewing pattern change unlock → Pattern can be changed over

No.	Function	Description
J	Quick parameters	The following parameters can be set. P1 : Selection of the fastening stitching method at the beginning of sewing P2 : Setting of the number of fastening stitches at the beginning of sewing P3 : Selection of the fastening stitching method at the end of sewing P4 : Setting of the number of fastening stitches at the end of sewing P5 : Remaining bobbin-thread counter
K	Travel of the intermediate presser	This function is used for moving the intermediate presser in the direction of the arrow.  : Intermediate presser goes up  : Intermediate presser comes down
L	Display of the main screen P2	This function is used for displaying the main screen P2 on the screen.
M	Shortcut key	The following four shortcut keys are set as frequently-used function keys.  : Reading a sewing pattern by means of the sewing pattern number  : Displaying the sewing pattern reading mode  : Copying the sewing pattern  : Thread trimming test * Refer to the Engineer's Manual for how to change the setting of shortcut keys.
N	Shortcut key for sewing pattern number	This function is used for displaying the sewing pattern numbers that have been used recently. As many as 40 sewing pattern numbers can be stored in memory. When you select the pattern number, it will be changed to the current sewing pattern data.
O	Thread tension setting	This function is used for displaying the reference value of thread tension. The thread tension is set after pressing the key.
P	Main shaft revolution speed	This function is used for setting the revolution speed of main shaft.

[Quick parameter setting]





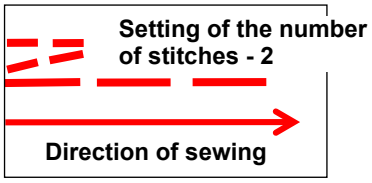


1) Press quick parameter button  to display the "quick parameter setting screen".

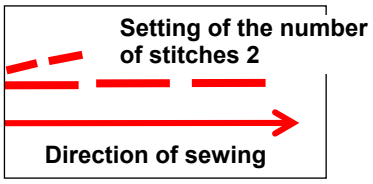
P1: 0 Reverse feed stitching is disabled
1 Condensation stitching
2 Reverse feed stitching according to the pre-set number of stitches

P2: -4 to +4 (Enabled only in the case of P1 = 2)
(P2=0 Reverse feed stitching is disable)

P2= -4 to -1



P2= 1 to 4



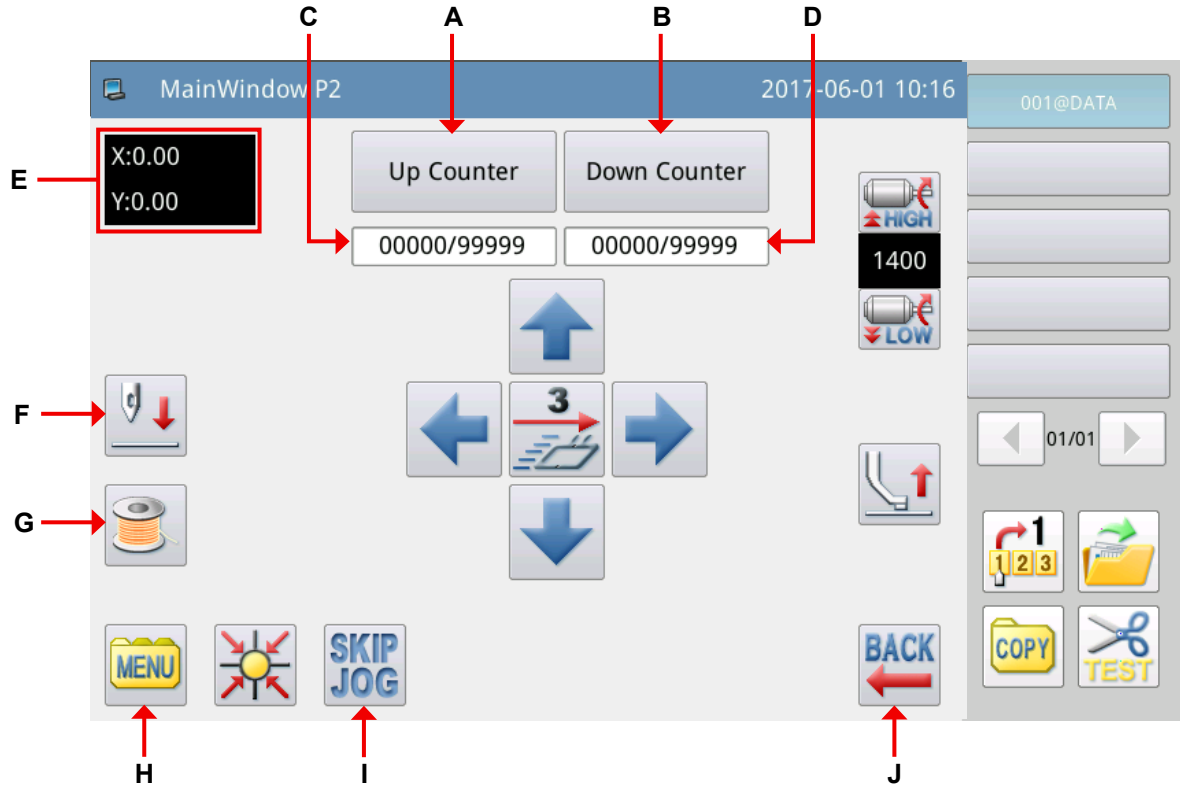
P3: 0 Reverse feed stitching is disabled
1 Condensation stitching
2 Reverse feed stitching according to the pre-set number of stitches

P4: -4 to +4 (Enabled only in the case of P1 = 2)

P5: Remaining bobbin-thread counter
0 to 60000

The quantity of bobbin thread to be required for sewing a sewing pattern is calculated before starting sewing. If the quantity of bobbin thread remaining on the bobbin is not enough for completing the sewing of the sewing pattern, an error will be displayed.

2-2-7. Explanation of the main screen P2



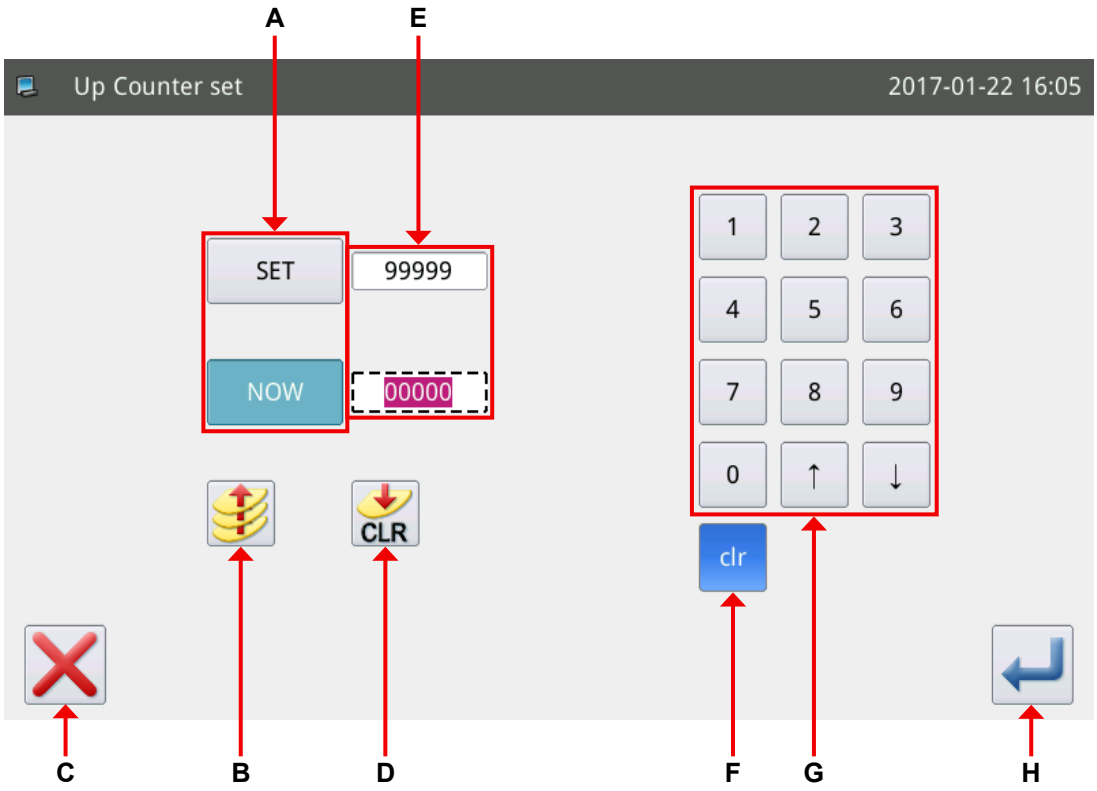
Explanation of functions :

No.	Function	Description
A	UP counter setting key	This function is used for displaying the UP counter setting screen.
B	DOWN counter setting key	This function is used for displaying the DOWN counter setting screen.
C	UP counter value	This function is used for displaying the current value / set value of the UP counter.
D	DOWN counter value	This function is used for displaying the current value / set value of the DOWN counter.
E	Display of coordinates	This function is used for displaying the current coordinates.
F	Needle position adjustment key	: Needle comes down : Needle goes up
G	Bobbin winding mode	Setting of the bobbin winder is carried out under this mode.
H	Menu key	This function is used for displaying the menu screen.
I	Function key	SKIP JOG : Setting of skipping to the specified number of stitch
J	Return key	This function is used for returning the sewing machine to the main screen P1.

[Explanation of the Counter function]

Select the Up Counter key on the main screen P2 to display the “UP counter setting screen”.

The counting method of the UP/DOWN counter is determined by the “counter” parameter under the operation setting mode. (Refer to "II-3-(4) Counter" p. 67.)



Explanation of functions :

No.	Description
A	Changeover of the input set value and the current value (white letters against a blue background means the state "being selected")
B	UP counter enable / disable key (blue background means the state "enable")
C	Exit from the counter setting mode and return to the previous screen
D	Clear of the current value
E	Display of the set value and current value (input state is displayed in dashed-line frame).
F	Clear of the currently input value
G	Numerical keypad used for inputting the set value and current value
H	Confirmation of the setting

The DOWN counter setting operation is same as the UP counter setting operation except for the enable / disable key ( ).

● Adding counter

Example) Set value → 3
Current value → 0
Enable / disable of adding counter → Enable

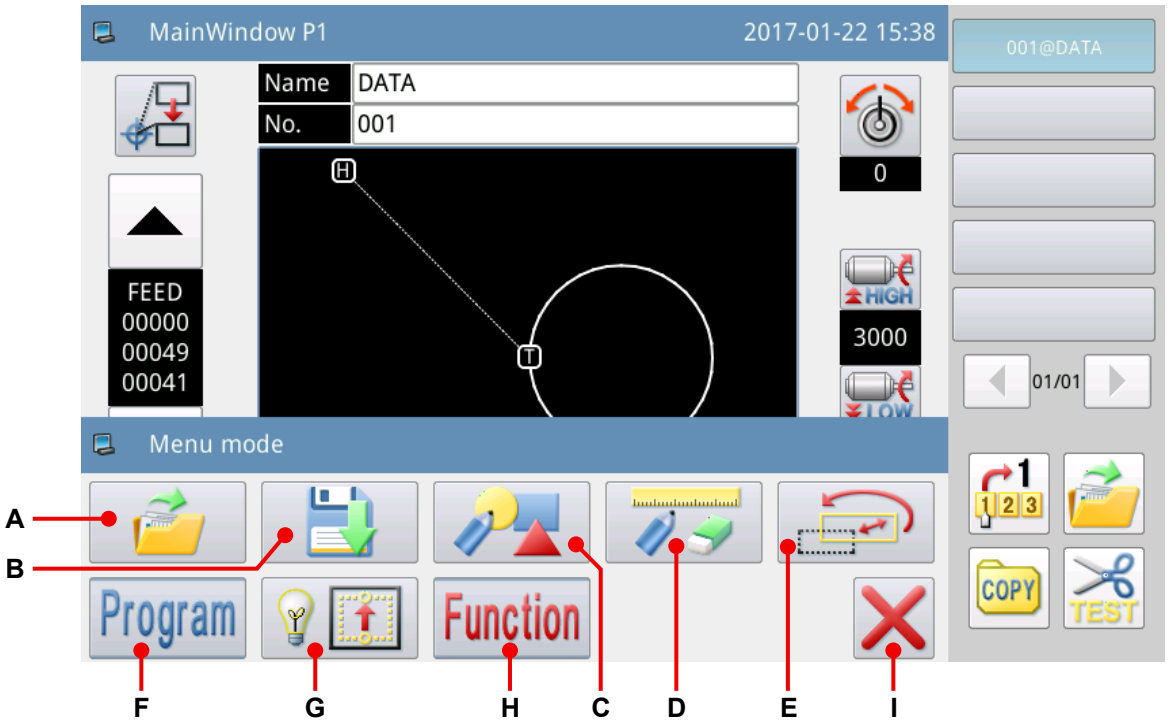
Counter values 0→1→2→3
The screen displaying the message "M001 The adding counter has reached the current value" appears.
The current value is changed to "0" (zero) by pressing enter button .

● Subtraction counter

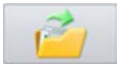
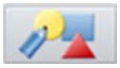
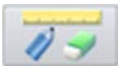
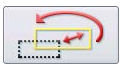
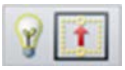
Example) Set value → 3
Current value → 3
Enable / disable of adding counter → Enable

Counter values 3→2→1→0
The screen displaying the message "M001 The subtraction counter has reached the minimum value" appears.
The current value is changed to "3" by pressing enter button .

2-2-8. Explanation of the menu screen



Explanation of functions :

No.	Key	Description
A		This key is used for reading sewing patterns (from the internal memory or from the USB thumb drive).
B		This key is used for storing sewing patterns in memory.
C		This key is used for editing sewing patterns.
D		This key is used for correcting sewing patterns.
E		This key is used for converting sewing patterns.
F		This key is used for setting parameters.
G		This key is used for running the sewing machine under the test mode.
H		This key is used for setting functions.
I		This key is used for closing the menu.

2-2-9. Changing over the screen display style

Method to change over the screen display between the icon display and the text display is described below.

① Main screen (only in the case Chinese is selected as the display language)

(1) Changing over the icon display to the text display

Press the function keys MENU, Function and ▬ in the written order.

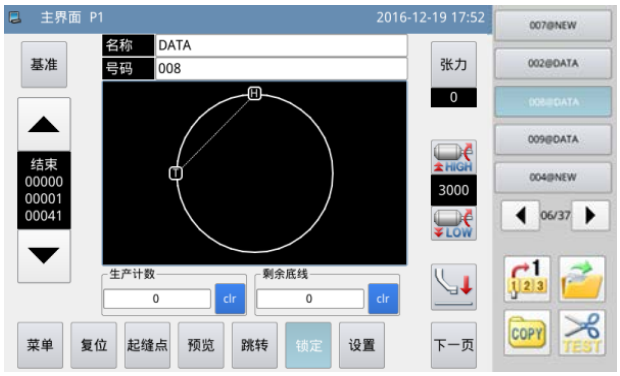
Then, press the ↑ or ↓ to change over the display style.

(2) Changing over the text display to the icon display

Press the function keys 菜单, 功能模式 and 面板设定 in the written order.

The steps of procedure to be followed thereafter are as described above.

<Screen display style : Icon display>



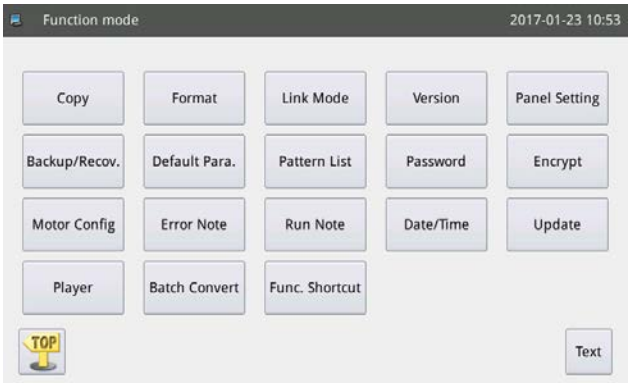
<Screen display style : text display>

② Menu screen (common to all languages available)

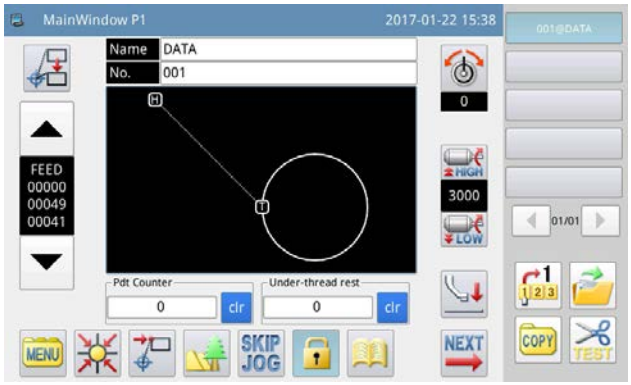
(1) Changing over the icon display to the text display

Press the function keys MENU and Function in the written order.

Then, press the 图标 to change over the display style.



2-3. Basic operation of the operation panel and the basic operation for sewing



1. Turning ON the power switch

When you turn ON the power to the sewing machine, the main screen P1 is displayed.
In the case no sewing pattern (graphic data) is stored in the internal memory, the message "No sewing pattern exists in the internal memory" is displayed after the power has been turned ON. When you press the key at this time, the message screen disappears and the screen is restored to the main screen.

2. Sewing pattern to be sewn

The pattern you have selected is displayed on the main screen P1. When you want to change the sewing pattern (sewing data), refer to **"II-2-4-1. Reading sewing patterns" p. 56**.

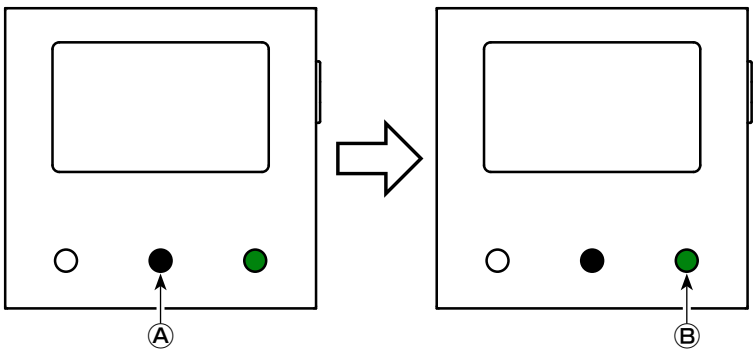
3. Starting sewing

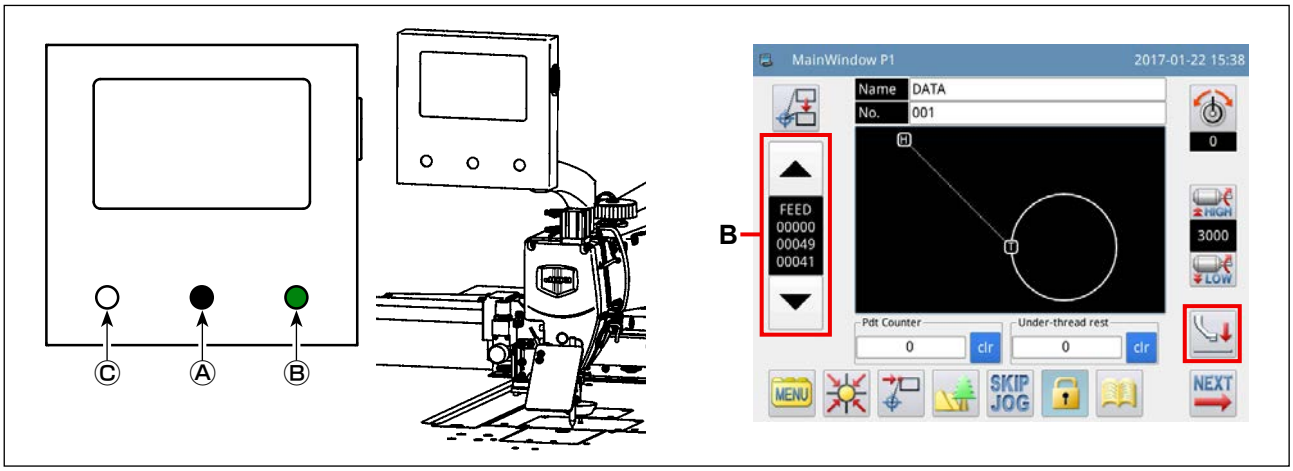
① Before starting actual sewing, re-check the settings of sewing conditions. Set the sewing machine speed in the range of 200 and 3,000 sti/min.

② The sewing machine speed is determined by the set value of speed and stitching pitch. The sewing speed automatically limits the sewing machine speed according to the set value of stitching pitch.

Caution **Do not change the set value of speed while the sewing machine is performing sewing. (Excluding the case that the sewing machine temporarily stops during sewing.)**

③ Place a material on the template. Place this template in the cassette clamp device. Lower the cassette clamp by pressing cassette clamp switch Ⓐ on the operation panel.
The sewing machine starts sewing when you press start switch Ⓑ on the operation panel. After the completion of sewing, the sewing machine automatically stops running and the cassette clamp automatically goes up.





4. Temporary stop

When you need to temporarily stop the sewing machine during sewing, press pause switch Ⓒ . The sewing machine immediately stops with its needle up (the factory-set stop position of the sewing machine at the time of shipment) to bring itself into the temporary stop state.
To release the sewing machine from the temporary stop state, press start switch Ⓑ . In addition, the following operations can be carried out directly from the temporary stop state.

① Sewing can be carried out from the temporarily-stopped position by pressing start switch Ⓑ .

② Sewing machine can be brought to the sewing starting position by pressing forward/backward key **B**.

③ Template is lifted by pressing cassette clamp switch Ⓐ .

④ Set value of sewing machine speed can be changed.

⑤ The intermediate presser can be lifted with the  key.

5. Method to splice seams

Seams can be spliced by using the aforementioned temporary stop function in the case of thread breakage, etc.

① When you press pause switch Ⓒ , the sewing machine stops with its needle up.

② Press backward key **B** to return the template to move the template backward to the position that is two or three stitches behind the position at which thread has broken.

③ Press the  key to lift the disc presser and the intermediate presser.

④ Re-thread the sewing machine head. Then, press the  key to lower the disc presser and the intermediate presser.

⑤ You can start sewing continuously from the aforementioned template position by pressing start switch Ⓑ .

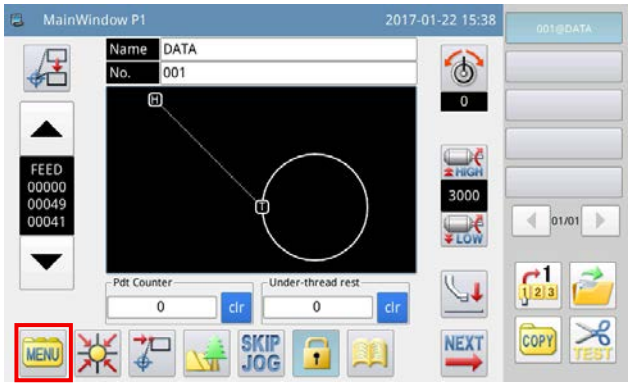
Never touch the start switch Ⓑ on the operation panel during threading of sewing machine head. Be aware touching the start switch Ⓑ is very dangerous since the sewing machine starts running if it is touched.

2-4. Explanation of operation functions

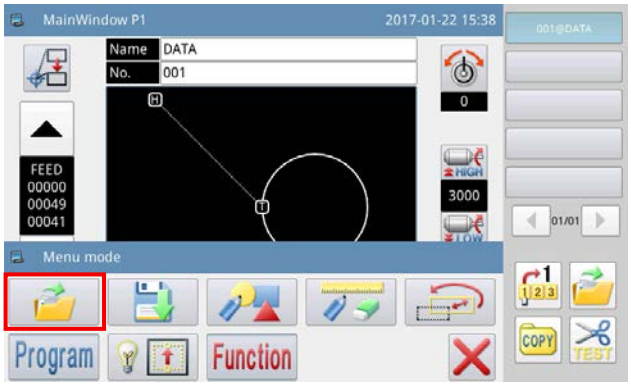
"Reading of sewing patterns" and "storage of sewing patterns" by using the operation panel are described below.

2-4-1. Reading sewing patterns

(1) Displaying the sewing pattern read mode screen



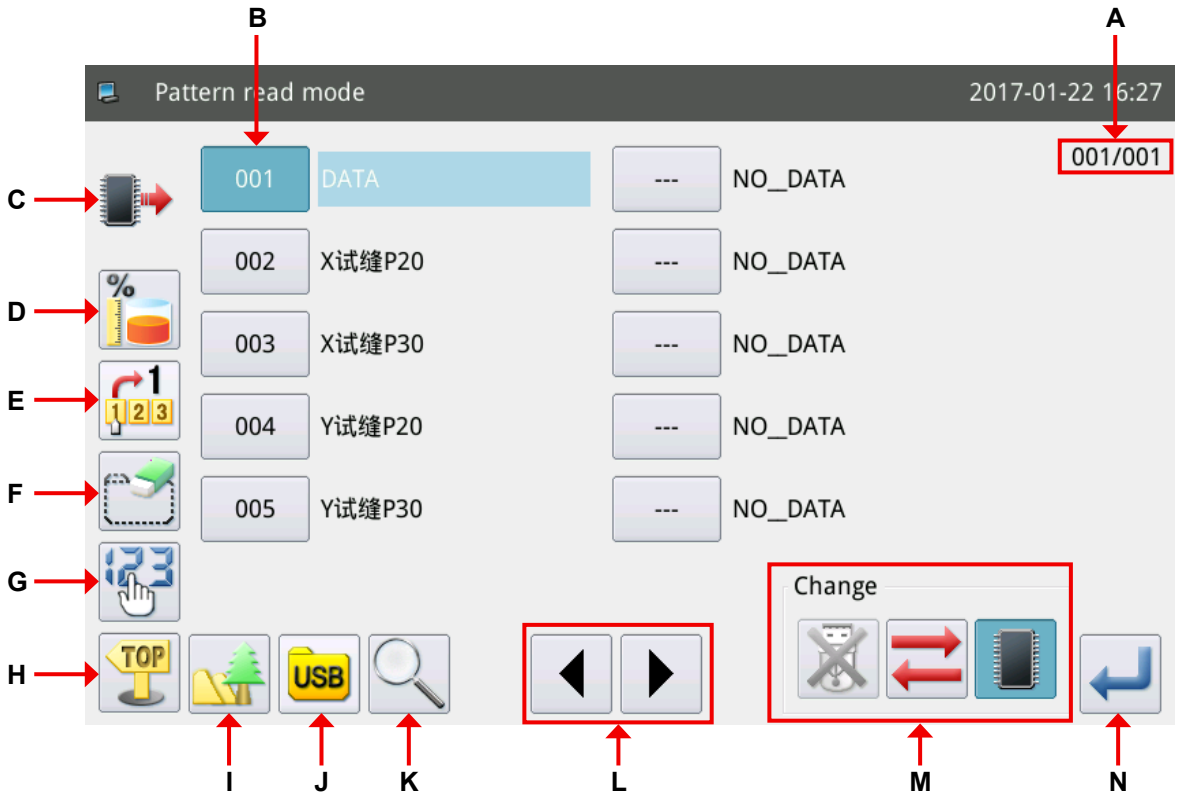
1) Press the MENU key on the main screen P1 to display the "Menu screen".



2) Press the key to enter the "Sewing pattern read mode screen".

The figure given below shows the screen displayed under the sewing pattern read mode.

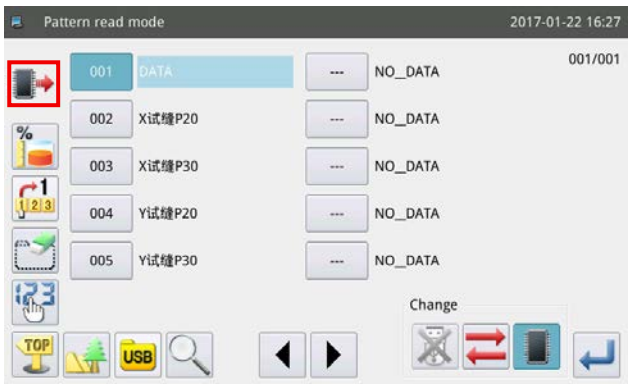
In the case the template does not rest at its point of origin, no sewing pattern data can be read. Return the template to its point of origin with the key.



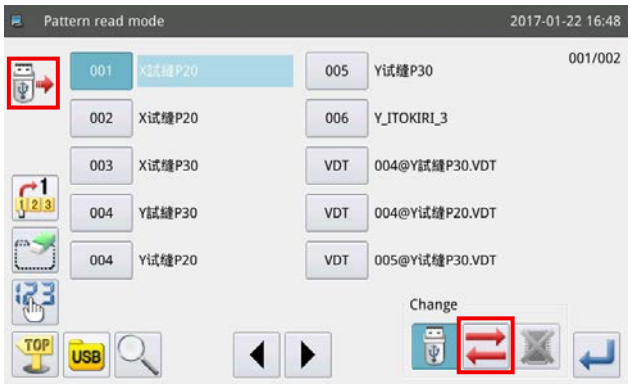
Explanation of functions :

<table>
<tr><th>No.</th><th>Function</th><th>Description</th></tr>
<tr><td>A</td><td>Page display</td><td>This function is used for displaying the current page number / total number of pages.</td></tr>
<tr><td>B</td><td>Pattern list</td><td>This function is used for displaying the list of sewing patterns stored in memory. (Number and name of the sewing pattern are displayed.)
(Note) 1. If you select any other sewing pattern displayed on the screen, the relevant message will be displayed and the current sewing pattern will be changed to the newly-selected one.
2. If the number of stitches in a sewing pattern exceeds the specified range or the data are broken, the relevant message will be displayed and selection of that sewing pattern will be disabled.</td></tr>
<tr><td>C</td><td>Display of the internal memory / USB thumb drive</td><td>  : Icon appearing on the screen when the list of sewing patterns stored in the internal memory is displayed
  : Icon appearing on the screen when the list of sewing patterns stored in the USB thumb drive is displayed
(Note) In the initial setting, sewing patterns are read from the internal memory every time this screen is invoked. The display is changed over by carrying out the operation described in the No. M column of this table.</td></tr>
<tr><td>D</td><td>Display of remaining memory capacity</td><td>This function is used for displaying the total number of sewing patterns stored in the internal memory.</td></tr>
<tr><td>E</td><td>Direct-read key</td><td>This key is used for accessing directly to the read mode by means of the specified sewing pattern number.</td></tr>
<tr><td>F</td><td>Delete key</td><td>This key is used for deleting the specified sewing pattern.
(Note) The sewing pattern that is being used for sewing cannot be deleted.</td></tr>
<tr><td>G</td><td>Sort key</td><td>This key is used for rearranging sewing patterns in order of time when a change is made to the respective sewing patterns or in numerical order.</td></tr>
<tr><td>H</td><td>Return to main screen</td><td>This function is used for returning the current screen to the main screen.</td></tr>
<tr><td>I</td><td>Sewing pattern graphic display key</td><td>With this key, the sewing pattern can be previewed.</td></tr>
<tr><td>J</td><td>Selection of a folder in the USB thumb drive</td><td>To read a sewing pattern from the USB thumb drive, all folders stored in the USB thumb drive can be displayed by pressing the  key.</td></tr>
<tr><td>K</td><td>Skip to a sewing pattern other than service sewing patterns</td><td>This function is used for skipping to the leading sewing pattern of vector form among the sorted sewing patterns.</td></tr>
<tr><td>L</td><td>Page scroll key</td><td>This key is used for moving the current page to the previous or next page.</td></tr>
<tr><td>M</td><td>Selection of the USB thumb drive / internal memory</td><td>This function is used for reading a sewing pattern from the USB thumb drive or from the internal memory.
<table>
<tr><th rowspan="2"></th><th colspan="2">Read mode</th></tr>
<tr><th>USB thumb drive</th><th>Internal memory</th></tr>
<tr><td>  </td><td>Disable</td><td>Enable</td></tr>
<tr><td>  </td><td>Enable</td><td>Disable</td></tr>
</table>
 : This key is used for changing over the selection of data storage area between the USB thumb drive and the internal memory.</td></tr>
<tr><td>N</td><td>Enter key</td><td>After executing the operation of this key, the current sewing pattern will be changed over to the newly-selected one.</td></tr>
</table>

(2) Selecting the data storage area from which a sewing pattern is read (Internal memory or the USB thumb drive)



In the initial setting, the list of sewing patterns stored in the internal memory is displayed to show the sewing patterns in order of time when a change is made to the respective sewing patterns.  is displayed at the upper left of the operation screen.



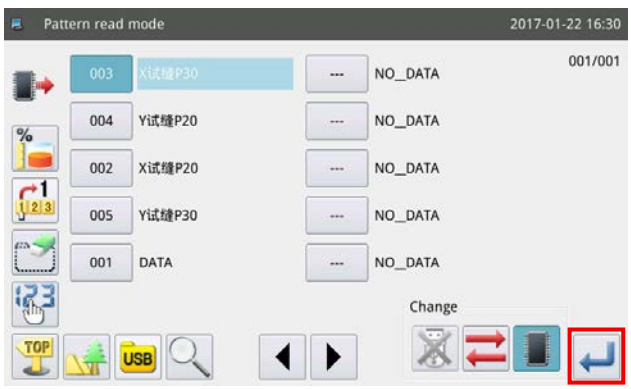
 is displayed at the upper left of the operation screen by changing over the read mode from the "internal memory mode read mode" to the "USB thumb drive read mode" by means of the  key.

1. If the aforementioned operation is carried out while no USB thumb drive is connected to the USB port of sewing machine, M033 "USB thumb drive is not connected" will be displayed.

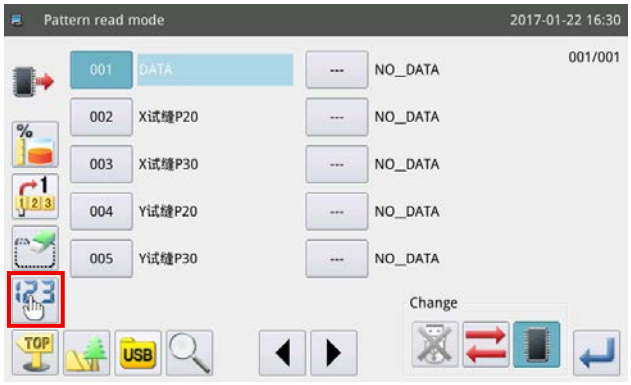
2. When the USB thumb drive is newly inserted into the USB port of sewing machine, approximately five seconds are required to read the data stored in the USB thumb drive. After the completion of reading, the "internal memory read mode" can be changed over to the "USB thumb drive read mode" by pressing the  key.

3. When you have read a sewing pattern from the USB thumb drive, and if the number you have selected also exists in the internal memory, the message M012 "Do you want to replace the sewing pattern data stored in the internal memory with this data?" will be displayed. Press the  key when you do not want to overwrite the sewing pattern data in the internal memory with the data you have read from the USB thumb drive, or press the  key to overwrite the former with the latter.

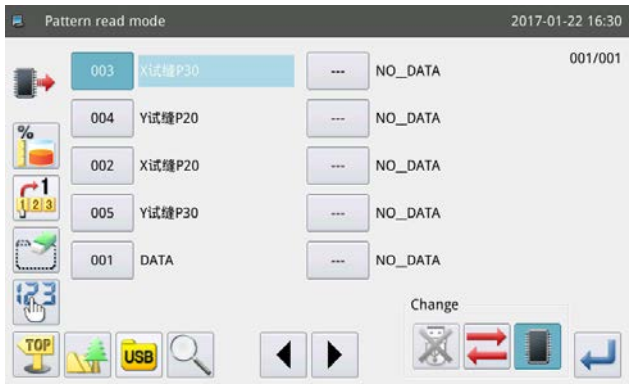
(3) Selecting and displaying a sewing pattern



Select the sewing pattern number to be used for sewing and press the  key. When the selection procedure is completed, the screen returns to the main screen.



If you select the key at this time, the sewing pattern display method is changed so as to rearrange sewing patterns in ascending order of the pattern number. In the case the number of sewing patterns is so large as to extend over several pages, the pages can be scrolled with the key.



<Sewing pattern number display>

<Sewing pattern shape display>

The sewing pattern list display styles are classified into two, i.e., the sewing pattern number display and the sewing pattern shape display.

Press the function keys MENU, Function and in the written order.

Press the key to retrieve Pattern selection display style.

Press the ↑ or ↓ to change the sewing pattern list screen display style.

(4) Displaying the folders in the USB thumb drive

Insert a USB thumb drive into the USB slot of sewing machine. Press the USB key. Then, the folders stored in the USB thumb drive are displayed.

If you press the key in the folder hierarchy in which no sewing pattern data is stored, the message M034 "No sewing pattern data is found in the USB thumb drive" will be displayed.

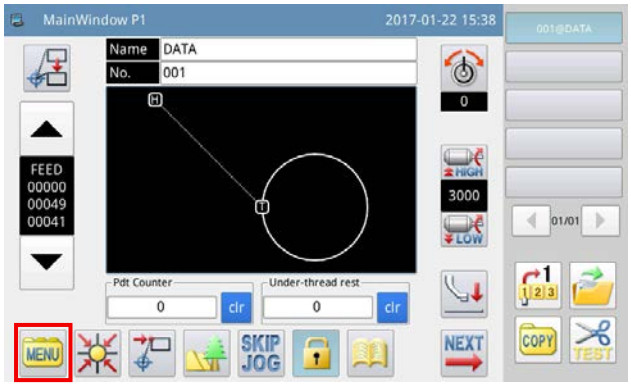
Caution

Sewing patterns cannot be stored in any folder other than the DH_PAT folders. Even if a sewing pattern is stored in a folder other than the DH_PAT folder, however, it can only be read.

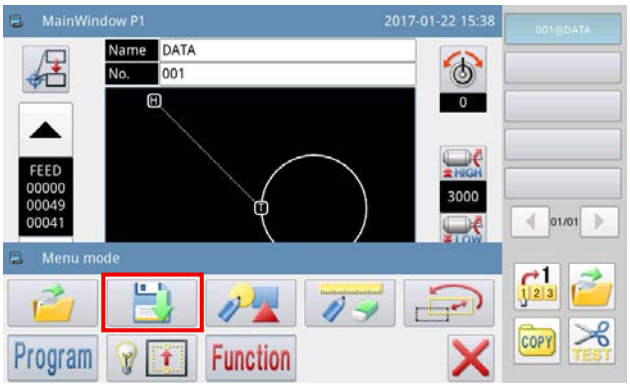
2-4-2. Storing sewing patterns

A sewing pattern displayed on the main screen P1 is stored in the internal memory or in the USB thumb drive.

(1) Displaying the sewing pattern storage mode



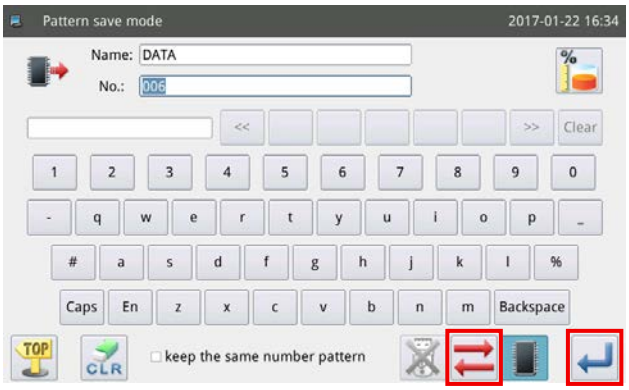
1) Press the MENU key on the main screen P1 to display the "Menu screen".



2) Press the key to enter the "Sewing pattern storage mode".

In the case the template does not rest at its point of origin, no graphic data can be read. Return the template to its point of origin with the key.

(2) Setting the name and number of a sewing pattern



1) Press the key to select the destination of storage.
2) Enter a name and number, on the operation panel, to be assigned to the sewing pattern to be stored.
3) Press the key to store the sewing pattern name. When the operation is completed, the screen returns to the main screen.

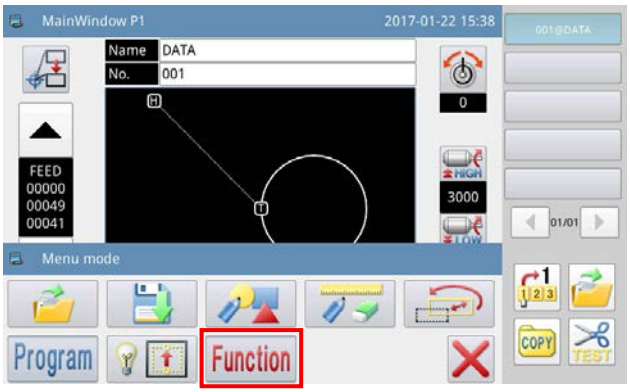
1. It is possible to select any desired number for a sewing pattern to be stored. In the sewing pattern file, two pieces of data, i.e., ["pattern number" + "@pattern name" + "extension .NSP"] and ["pattern number" + "@pattern name" + "extension .VDT"] are stored.

2. If the number assigned to the sewing pattern to be stored is same as the number of an already-stored sewing pattern in the internal memory, storage process will not be executed.
If the number assigned to the sewing pattern to be stored is same as the number of an already-stored sewing pattern in the USB thumb drive, the message M106 "Do you want to overwrite the sewing pattern assigned with the same name in the USB thumb drive?" will be displayed on the operation panel screen during operation.
Press the key when you do not want to overwrite the existing sewing pattern, or the key when you want to overwrite it.

Refer to the Engineer's Manual for the method to set parameters of sewing patterns.

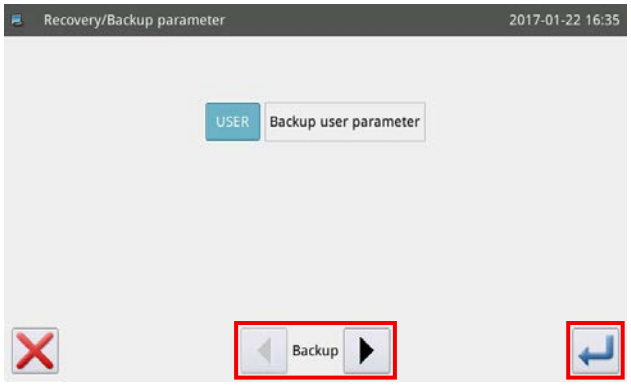
(3) Initialization and backup of parameters

Ⓐ Method to initialize and back up parameters



1) Press the MENU key on the main screen P1 (or P2) to display the "Menu screen".
2) Press the Function key to display the "Operation setup mode".

Ⓑ Backing up parameters



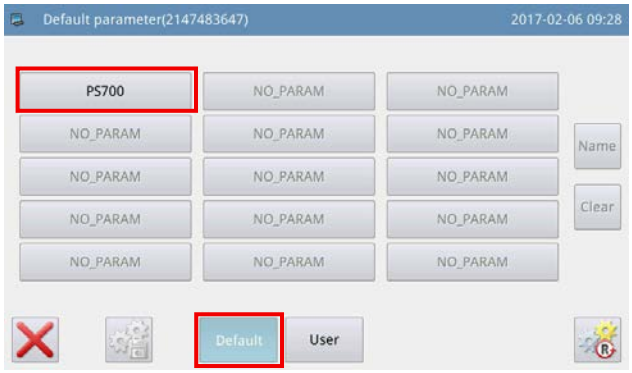
1) Press the key on the function setting screen.
   You can access the parameter initialization back-up screen by pressing the aforementioned key. In the initial setting state, the user parameters are backed up.
2) Insert a USB thumb drive into the USB slot of sewing machine. Press the key. Once the operation is completed, a "bakParam" folder will be created. "back up.param" file in this folder will be the parameter backup file.

> **Caution** **If data with the same file name already exists, the new data will be overwritten by the old data.**

3) When you initialize the parameters, press the key to change over the current mode to the "Initialization mode".

Ⓒ Initializing the parameters

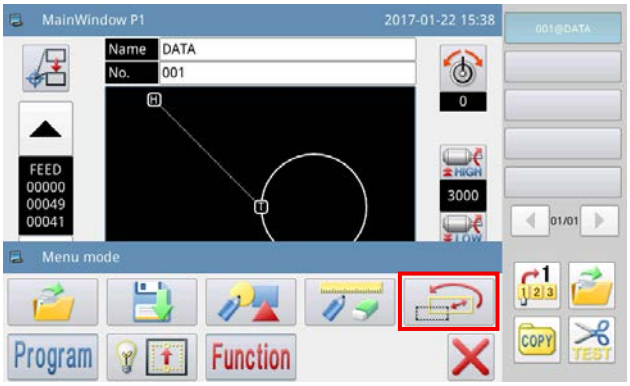
1) Press  key on the function setting screen to access the parameter initialization screen.



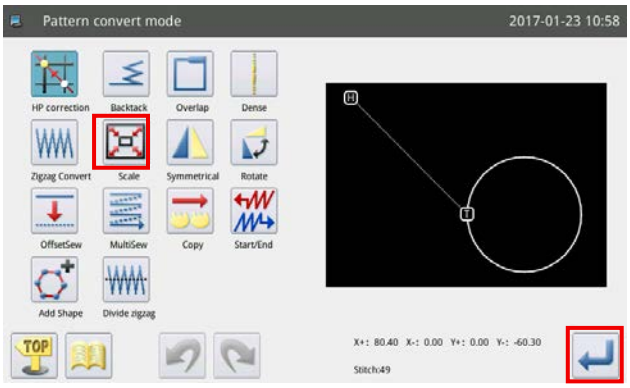
2) Select the model to be initialized and press  key. Then, initialization of the parameter is executed.

2-4-3. Enlargement / reduction of sewing patterns

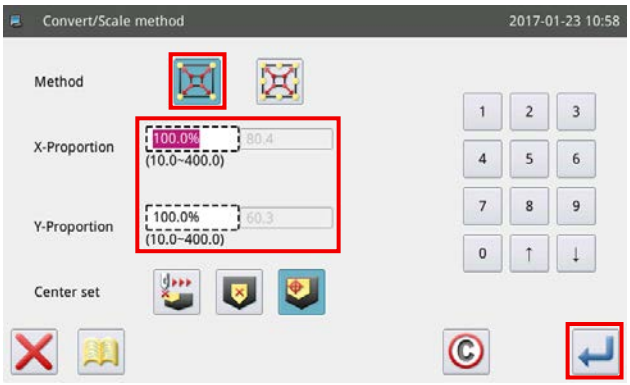
Method to enlarge / reduce the sewing pattern displayed on the main screen P1 is described below.



1) Press the MENU key on the main screen P1 to display the "Menu screen".
2) Press the key to enter the "Sewing pattern conversion mode".



3) Select "Enlargement / reduction mode" by pressing the key. Then, press the key.



4) Example : In the case of enlarging / reducing a sewing pattern using the "number of stitches fixing method"
Select the key. Enter a numerical value in the horizontal / vertical directions respectively.
Then, press the key.

Key	Enlargement / reduction method
	Enlargement / reduction with the number of stitches fixed
	Enlargement / reduction with the stitching pitch fixed
	Enlargement / reduction from the specified position
	Enlargement / reduction from the center point of sewing pattern
	Enlargement / reduction from the point of origin

5) When you press the key on the screen shown in the step 4), you can change the setting of enlargement / reduction.
   - First step : Changeover between ratio and dimensions at the time of enlargement / reduction
   - Second step : Change of the reverse feed stitching at the time of enlargement / reduction

6) In the case the setting of enlargement / reduction is changed to the dimension, the dotted line frame will be changed to dimensions to allow the sewing pattern to be enlarged / reduced by specifying dimensions.

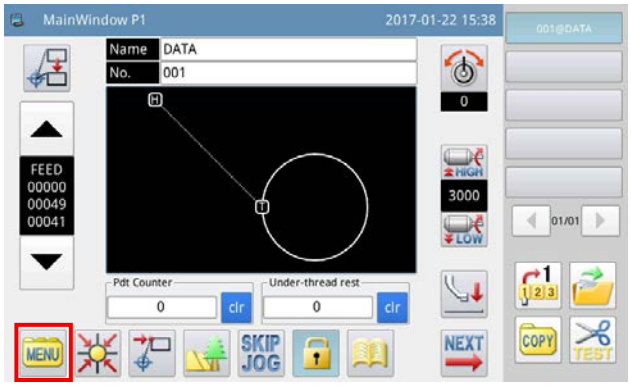
2-5. Operating the barcode reader

2-5-1. Explanation of the barcode reader

The barcode reader is used for identifying the template. In this section, template barcode identification method is described.

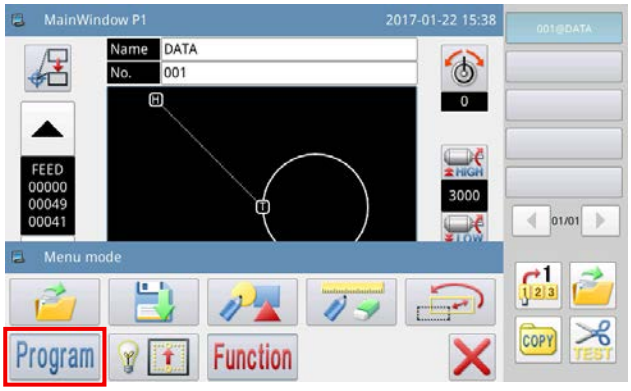
The sewing machine you have purchased is supplied with barcodes numbered from 1 to 50. The barcode number corresponds to the sewing pattern number. When you want to sew a sewing pattern, affix the barcode corresponding to the number of the desired sewing pattern on the corresponding template. Scan the barcode with the barcode reader before starting sewing. Then, the corresponding sewing pattern is displayed on the operation panel.
Refer to **"I-6-1. Standard specification of the templates" p. 31** for the barcode affixing position on templates.

2-5-2. Method to set the barcode reader

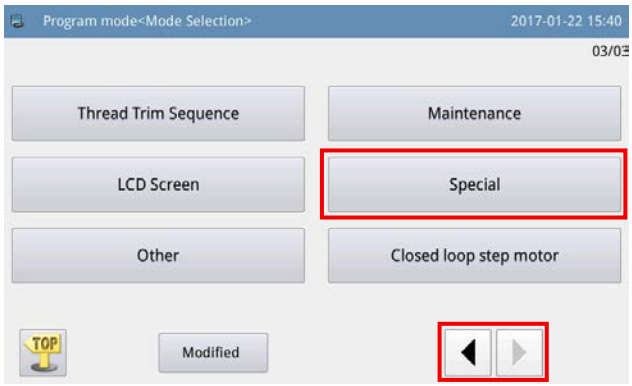


1) Press the MENU key on the main screen P1 (or P2) to display the "Menu screen".

> **Caution**
> **Reading of the barcode is enabled only when the pattern change operation is in the locked state.**
> **Check the key.**



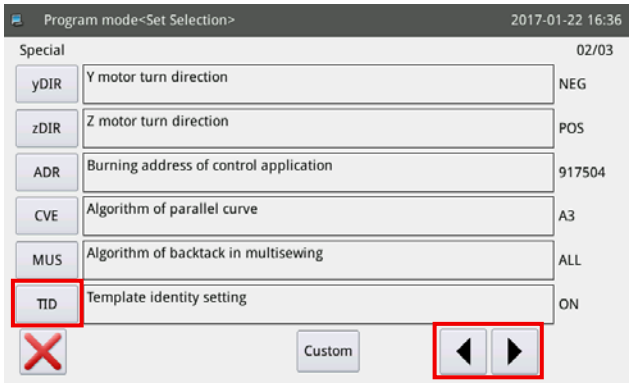
2) Press the Program key to enter the "Operation setup mode".



3) Change over pages by pressing the ◀ ▶ key, and press the Special key.

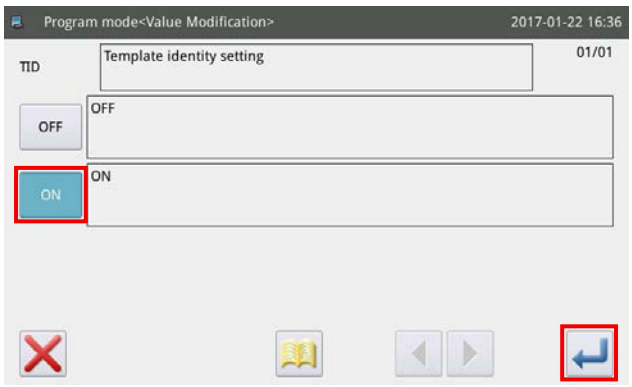
Barcode reader

* Caution: Be sure to disable the barcode function when using the link mode.



4) Change over the pages by pressing the  key. Select enable / disable of the template identification setting by pressing the  key.

"ON" refers to the "enable" of the template identification setting, or "OFF" refers to the "disable" of the template identification setting.



5) Select the  key. Then, press the  key to enable the template identification setting.

3. MEMORY PARAMETER LIST

(1) Thread breakage sensor

Code	Description	Unit	Step	Range	Factory setting	Type
PRT	Thread breakage detection			0 : OFF : Thread breakage detection-OFF 1 : ON : Thread breakage detection-ON	1	Selection
TRM	Thread trimming operation at the time of thread breakage detection			0 : ON : Thread trimming is carried out when thread breakage is detected 1 : OFF : Thread trimming is not carried out when thread breakage is detected	0	Selection

(2) Origin position

Code	Description	Unit	Step	Range	Factory setting	Type
PTR	Return to origin when turning the power ON			0 : OFF : Not return to the point of origin 1 : ON : Return to the point of origin	0	Selection

(3) Temporary stop

Code	Description	Unit	Step	Range	Factory setting	Type
TRM	Automatic thread trimming at the time of temporary stop			0 : AUT : Automatic thread trimming is carried out 1 : OFF : Automatic thread trimming is not carried out	0	Selection

(4) Counter

Code	Description	Unit	Step	Range	Factory setting	Type
UCM	UP counter mode			0 : OFF : UP counter is prohibited 1 : PAT : UP counter is activated according to the sewing pattern 2 : CYC : UP counter is activated according to the cycle	1	Selection
DCM	DOWN counter mode			0 : OFF : DOWN counter is prohibited 1 : PAT : DOWN counter is activated according to the sewing pattern 2 : CYC : DOWN counter is activated according to the cycle	1	Selection
URV	Reservation of UP counter value when a sewing pattern is introduced			0 : CLR : Deleted 1 : RSV : Reserved	1	Selection
DRV	Reservation of DOWN counter value when a sewing pattern is introduced			0 : CLR : Deleted 1 : RSV : Reserved	1	Selection
POC	Deletion of counter value when re-turning the power ON			0 : CLR : Deleted 1 : RSV : Reserved	1	Selection
NUP	Permission/prohibition of correction of UP counter (UP)			0 : OFF : Correction is permitted 1 : ON : Correction is prohibited	0	Selection
NDP	Permission/prohibition of correction of DOWN counter (DN)			0 : OFF : Correction is permitted 1 : ON : Correction is prohibited	0	Selection
UTO	Sewing machine operation in the case the UP counter (UP) set value is reached			0 : OFF : Sewing machine is stopped 1 : ON : Sewing machine is not stopped	0	Selection
DTO	Sewing machine operation in the case the DOWN counter (DN) set value is reached			0 : OFF : Sewing machine is stopped 1 : ON : Sewing machine is not stopped	0	Selection
NPC	Permission / prohibition of correction of the number count generated			0 : OFF : Correction is permitted 1 : ON : Correction is prohibited	1	Selection

(5) Thread trimming timing

Code	Description	Unit	Step	Range	Factory setting	Type
TRM	Thread trimming switch			0 : OFF : Switch OFF 1 : ON : Switch ON	1	Selection

(6) LCD screen

Code	Description	Unit	Step	Range	Factory setting	Type
WRN	Setting of the sound of buzzer			0 : OFF : Without buzzer sound 1 : PAR : Panel operating sound 2 : ALL : Panel operating sound + error	2	Selection
LIG	Brightness adjustment of backlight		1	20 to 100	100	Input
ATO	Automatic OFF switch of backlight			0 : OFF : Not set to automatically turn OFF the backlight 1 : ON : Set to automatically turn OFF the backlight	0	Selection
TIM	Waiting time before automatically turning OFF the backlight	Minute	1	1 to 9	3	Input
PSU	Unit of enlargement / reduction			0 : % : Percent 1 : SIZ : Size	0	Selection

(7) Others

Code	Description	Unit	Step	Range	Factory setting	Type
NLD	With/without needle cooler			0 : OFF : Without 1 : ATM : Needle is cooled after thread trimming and is not cooled during sewing 2 : DSW : Needle is not cooled after thread trimming and is cooled during sewing	0	Selection
SSW	Setting of sound			0 : OFF : Switch OFF 1 : ON : Switch ON	0	Selection
VOL	Sound volume button			30 to 63	50	Input
LED	Brightness of LED light		1	0 to 100	50	Input

4. ERROR CODE LIST

No.	Description of error	How to recover	Item to be checked
E-002	Machine is in temporary stop.		Refer to **"II-2-3-4. Temporary stop" p. 55**.
E-004	Input voltage is too low.	Turn OFF the power.	1. Check if the AC power supply has abnormal fluctuation. Make sure there is no high-power device that is turned ON/OFF frequently equip the voltage regulator. 2. If the AC power supply is normal, the problem may be at the hardware.
E-005	Input voltage is too high.		
E-007	Main shaft motor is overvoltage or overcurrent.	Turn OFF the power.	1. Make sure no short circuit at main shaft motor. Check if the value of each winding is equal and not 0. 2. Check if the earth or power supply are shorted.
E-008	Solenoid power supply voltage is too high. (24 V)	Turn OFF the power.	1. Check if the solenoid is shorted. 2. Check if the relay board is shorted. 3. Check whether the relay board is shorted out to machine head at installation.
E-009	Solenoid power supply voltage is too low. (24 V)		
E-010	Fan has problem.	Turn OFF the power.	1. Check whether the power of fan has problem. 2. Check if the fan connection is shorted.
E-013	Main shaft motor encoder error	Turn OFF the power.	1. Turn OFF the power, and check the connection between the encoder cable and the control box.
E-014	Main shaft motor error	Turn OFF the power.	1. Check whether the main shaft motor is locked by the load. 2. Turn the hand pulley and repower the machine when the main shaft motor is at another angle. 3. Check the connection between the main shaft motor and the control box.
E-015	Exceeds sewing area.	Press the Enter key.	1. Check whether the sewing range set in operation panel matches to the selected pattern.
E-017	Thread breakage detection error		Refer to **"II-2-3-5. Method to splice seams" p. 55** for threading.
E-019	Machine is in temporary stop.		Refer to **"II-2-3-4. Temporary stop" p. 55**.
E-025	X feed motor origin retrieval error	Turn OFF the power.	1. Adjust the installation position of the proximity sensor 2. Check the connection of cable, make sure this cable has no short.
E-026	Y feed motor origin retrieval error		
E-030	Stepping motor communication error	Turn OFF the power.	1. Check the connection of cable between the control box and the stepping motor.
E-034	Abnormal current	Turn OFF the power.	1. Turn OFF the power. Turn the hand pulley to check whether the main shaft is locked.
E-035	Main shaft motor overcurrent error 1		
E-036	Main shaft motor overcurrent error 2		
E-037	Main shaft motor lock error	Turn OFF the power.	1. Turn OFF the power. Turn the hand pulley to check whether the main shaft is locked.
E-040	Overcurrent error when the main shaft motor stops	Turn OFF the power.	1. The main shaft motor encoder has problem.
E-041	Motor overload	Turn OFF the power.	

No.	Description of error	How to recover	Item to be checked
E-045	Cassette clamp is not down.	Press the cassette clamp switch.	
E-046	Not at origin cannot operate.	Press the origin return key to return to origin.	
E-050	X feed motor overcurrent	Turn OFF the power.	1. Check the connection between the motor and the cable.
E-051	Y feed motor overcurrent		
E-054	X feed motor encoder error		
E-055	Y feed motor encoder error		
E-079	Servomotor communication fault	Turn OFF the power.	
E-081	Bobbin thread shortage.	Press the Enter key.	
E-086	Fail to write program.	Turn OFF the power.	
E-088	Replace cassette.	Turn OFF the power.	
E-089	Bobbin changer fault	Turn OFF the power.	1. Check to make sure that a replacement bobbin is placed in the cassette.
E-090	Replacement of bobbin is completed.		

5. MESSAGE LIST

No.	Description of message	Item to be checked
M-001	UP counter reaches set value.	Press the Enter key.
M-002	DOWN counter reaches set value.	Press the Enter key.
M-003	Not at origin, cannot operate.	Return to origin firstly.
M-004	Pattern data not exist.	Please reload or input again.
M-005	Set value is too large.	Please input value within valid range.
M-006	Set value is too small.	Please input value within valid range.
M-007	Please press the "Origin return key".	
M-008	Save parameter is abnormal.	Press the Enter key to restore the default values.
M-009	Cannot find pattern in memory.	Press the Enter key to load the default patterns.
M-010	Memory full	Please delete the idle sewing data.
M-011	Delete pattern data from memory?	
M-012	Replace pattern data in memory?	
M-013	Can not delete pattern data.	The selected sewing data is being used.
M-014	Format memory?	All the patterns within the memory will be deleted.
M-015	Communication error	Abnormal event occurs in the communication between the operation panel and the control box. Please turn OFF the power and check it.
M-016	Beyond sewing range.	Make sure pattern data is in sewing range.
M-017	Fail to load letter sewing file.	
M-018	Operation panel not match to machine type.	Please check the model and the software version.
M-019	Low memory	Please delete the unused pattern data.
M-020	Wrong pattern number	Please input the right pattern number.
M-021	Beyond max stitch interval.	
M-022	Wrong password	Please input password again.
M-023	Hardware clock error	The hardware clock has problem, please contact manufacturer for repair.
M-024	Stitch number beyond range	Please reduce stitch number.
M-025	Inputted stitch interval is too small.	Please input value within valid range.
M-026	Inputted stitch interval is too large.	Please input value within valid range.
M-027	2nd origin existed	Please check the 2nd origin setting.
M-028	Operation setting value is out of range.	Please input value within valid range.
M-029	Please press the Origin return key to return to origin.	
M-030	Copy the pointed pattern?	
M-031	Copy all pattern data?	
M-032	Restore to default setting?	
M-033	USB is not connected.	USB is pulled out.
M-034	Cannot find pattern data in USB.	
M-035	At least input one letter.	At making pattern of letter sewing, user has to input at least one letter.
M-036	No alarm record	
M-037	Replace needle.	Reach set value for needle replacement, please replace needle.
M-038	Replace oil.	Reach set value for oil replacement, please replace oil.
M-039	Clean machine.	Reach set value for cleaning machine, please clean machine.
M-040	Different data format	Please confirm the data format.
M-041	Cannot create curve.	Please input again according to the standards of curve input.

No.	Description of message	Item to be checked
M-042	Cannot insert trimming at current position.	Please add trimming behind sewing data.
M-043	Cannot add same function code in one position.	
M-044	Cannot insert 2nd origin at current position.	Please add 2nd origin after feeding.
M-045	Cannot create arc or circle at the inputted point.	Please input again.
M-046	Cannot create overlapped sewing data.	Please add overlapped sewing after close shape.
M-047	Cannot insert trimming after temporary stop.	
M-048	Cannot insert temporary stop before trimming.	
M-049	Not find offset sewing data.	Function of offset sewing data transfer is unavailable.
M-050	Not find multi-sewing data.	Function of multi-sewing data transfer is unavailable.
M-051	Select wrong position.	
M-052	Cannot scale.	
M-053	Distance over 12.7 mm.	
M-054	Wrong pattern data	
M-055	Create arc?	
M-056	Create circle?	
M-057	Create curve?	
M-058	Create polygon?	
M-059	Cassette clamp is not down.	Press the Cassette clamp switch.
M-060	Wrong User ID	Please input again.
M-061	Fail to conform password.	Please input password again.
M-062	Cannot change system time.	The periodical password is set. Can not change system time.
M-063	Fail to save password file.	
M-064	Fail to load password file.	
M-065	Password saved successfully.	
M-066	Fail to clear all passwords.	Cannot delete password file.
M-067	Fail to clear password.	After the password is cleared, the file input becomes abnormal.
M-068	Password file is deleted without authorization.	Periodical password is deleted without authorization, please turn OFF the power.
M-069	User ID file damage	
M-070	Input pattern name.	Please input pattern name no more than 8 figures.
M-071	Please clear current combination data.	Press the “CLR” key to delete current combination data.
M-072	Empty input invalid.	Can not input empty password.
M-073	Password not match.	Current password is wrong.
M-074	New password is different.	New password is different from the retry password.
M-075	Touching panel correction successful.	Correction is successful. Please turn OFF power to restart.
M-076	Clear alarm records?	Yes : Enter key, No : X key
M-077	Delete the selected file?	Yes : Enter key, No : X key
M-078	Copy all patterns.	Cover the original patterns? Yes : Enter key, No : X key
M-079	Fail to copy file.	Please check the space in memory.
M-080	Fail to copy file.	Please check if the USB is pulled out.
M-081	Fail to open file.	Fail to open file.
M-082	Format not match.	Formats don't match, current load denied.
M-083	Parameter over range	Parameter is over range. After confirmation, the parameter over range will be restored according to the default parameters.
M-084	Please create directory and file.	Please create backup parameter directory in USB. Name the back-up file as "backup.param" and copy it to backup parameter directory.
M-085	File I/O error	File I/O error

No.	Description of message	Item to be checked
M-086	Please select file.	Select the file for input / output.
M-087	File not exist.	Cannot find the corresponding file.
M-088	Not input move amount.	Please input move amount.
M-089	Enter touching panel correction mode?	Yes : Enter key, No : X key
M-090	Clear accumulated running time?	Yes : Enter key, No : X key
M-091	Clear accumulated sewing pieces?	Yes : Enter key, No : X key
M-092	Clear accumulated power-on time?	Yes : Enter key, No : X key
M-093	Clear accumulated stitch numbers?	Yes : Enter key, No : X key
M-094	Periodical passwords can't be same as password to be set in the panel.	Please input password again.
M-095	Cannot change UP counter. (NUP)	At change, please turn off setting. (NUP)
M-096	Cannot change DOWN counter. (NDP)	At change, please turn off setting. (NDP)
M-097	Pattern list (shortcut key) is empty.	If the pattern list is empty, the system will automatically input the current pattern to list.
M-098	Not select update item.	Please select item for updating. At least select one item.
M-099	Some selected update items don't exist.	The item not existing will be cancelled after return. For updating the rest items, please confirm again.
M-100	Update successful.	Update is successful, please restart machine.
M-101	Format USB?	Press the Enter key to perform formatting operation. Press the Esc key to quit current operation. After formatting, all pattern files will be deleted.
M-102	Can not find USB.	Please insert the USB for formatting.
M-103	Successful	Current operation is successful.
M-104	Failed	Current operation is failed.
M-105	Format pattern list (shortcut key)?	Press the Enter key to perform formatting operation. Press the Esc key to quit current operation.
M-106	Cover the pattern with same name in USB?	Press the Enter key to cover files. Press the Esc key to quit current operation.
M-107	Fail to correct touching panel.	Please perform correction again.
M-108	Letter sewing pattern saved successfully.	Please enter pattern loading screen to select newly created letter sewing pattern.
M-109	The selected pattern is not normal format, please transform.	Press the Enter key to perform transforming operation. Press the Esc key to quit current operation.
M-110	Cannot transform this pattern.	Please confirm pattern.
M-111	Restore all the settings?	Yes : Enter key, No : X key
M-112	Restore the selected item?	Yes : Enter key, No : X key
M-113	Not select item.	Please select one or more parameters.
M-114	SRAM initialization	Clear all data in SRAM. Please turn OFF the power and restore the setting of DIP switch.
M-115	Cannot copy and cover current pattern.	Current pattern number in copy group, system cannot cover it.
M-116	Need transform pattern format.	After transforming, user can preview the pattern.
M-117	Cannot perform operation to combined pattern.	Please enter pattern connection mode, press the “CLR” key to cancel the combined pattern.
M-118	Delete original pattern?	Delete original pattern after format transforming? Yes : Enter key, No : X key
M-119	Intermediate presser in down position.	Please lift intermediate presser.
M-120	Turn off machine, Bye.	
M-121	Format of pattern with 20 mm stitch interval.	Not support this pattern format in this system.
M-122	Wrong transformed pattern format.	Please confirm pattern.
M-123	Transformed pattern data is too long.	Please confirm pattern.

No.	Description of message	Item to be checked
M-124	Cannot open transformed pattern.	Please confirm pattern.
M-125	Wrong accuracy of transformed pattern.	Please confirm pattern.
M-126	Parameter recovery successful.	Parameter recovery is successful, please restart machine.
M-127	Software version saving successfully.	Software version is saved to the directory of USB memory successfully.
M-174	Disable UP counter.	
M-175	Disable DOWN counter.	