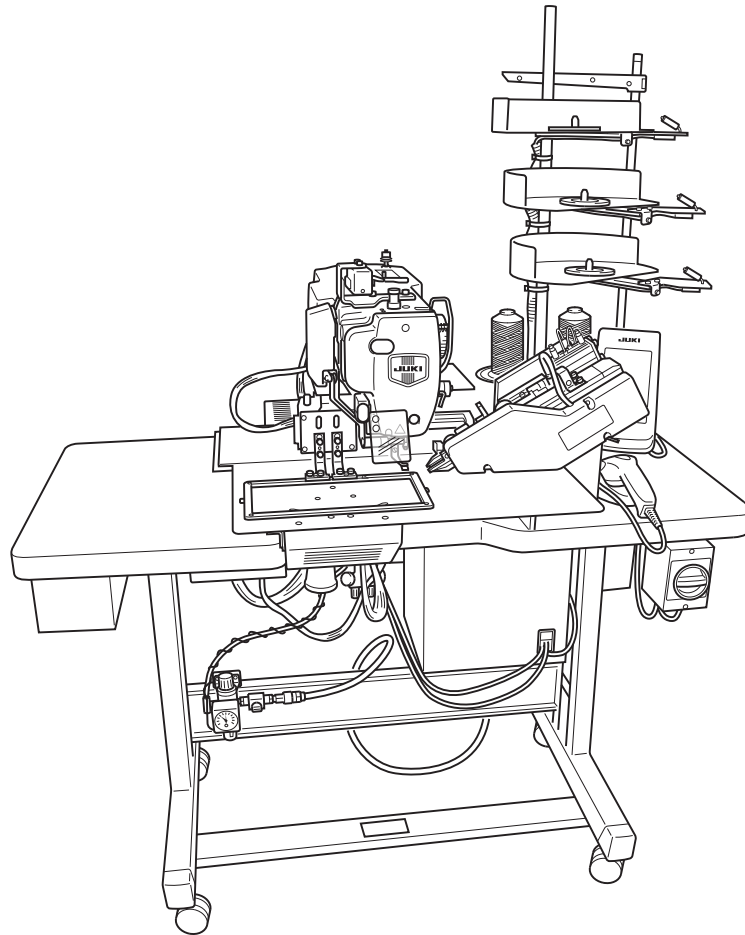


AMS-210ENHL2210/ TF10S

INSTRUCTION MANUAL 使用说明书



NOTE : Read safety instructions carefully and understand them before using.
Retain this Instruction Manual for future reference.

注意：为了安全地使用，请您在使用之前一定阅读本使用说明书。
另外，请您注意保管本使用说明书，以便随时查阅。

ENGLISH

ENGLISH

TO ENSURE SAFE USE OF YOUR SEWING MACHINE

For the sewing machine, automatic machine and ancillary devices (hereinafter collectively referred to as "machine"), it is inevitable to conduct sewing work near moving parts of the machine. This means that there is always a possibility of unintentionally coming in contact with the moving parts. Operators who actually operate the machine and maintenance personnel who are involved in maintenance and repair of the machine are strongly recommended to carefully read to fully understand the following **Safety precautions** before using/maintaining the machine. The content of the **Safety precautions** includes items which are not contained in the specifications of your product.

The risk indications are classified into the following three different categories to help understand the meaning of the labels. Be sure to fully understand the following description and strictly observe the instructions.

(I) Explanation of risk levels

	DANGER : This indication is given where there is an immediate danger of death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	WARNING : This indication is given where there is a potentiality for death or serious injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	CAUTION : This indication is given where there is a danger of medium to minor injury if the person in charge or any third party mishandles the machine or does not avoid the dangerous situation when operating or maintaining the machine.
	Items requiring special attention

(II) Explanation of pictorial warning indications and warning labels

Pictorial warning indication		There is a risk of injury if contacting a moving section.	Pictorial warning indication		Be aware that holding the sewing machine during operation can hurt your hands.
		There is a risk of electrical shock if contacting a high-voltage section.			There is a risk of entanglement in the belt resulting in injury.
		There is a risk of a burn if contacting a high-temperature section.			There is a risk of injury if you touch the button carrier.
		Be aware that eye deficiency can be caused by looking directly at the laser beam.	Indication label		The correct direction is indicated.
		There is a risk of contact between your head and the sewing machine.			Connection of a earth cable is indicated.

Warning label	
	<p>① • There is the possibility that slight to serious injury or death may be caused.</p> <p>• There is the possibility that injury may be caused by touching moving part.</p> <p>② • To perform sewing work with safety guard.</p> <p>• To perform sewing work with safety cover.</p> <p>• To perform sewing work with safety protection device.</p> <p>③ • Be sure to turn the power OFF before carrying out "machine-head threading," "needle changing," "bobbin changing" or "oiling and cleaning."</p>

Electrical-shock danger label		<p>⚠ 危険</p> <p>高電圧部分に触れて、大けがをすることがある。 電源を切って、5分以上たってからカバーをはずすこと。</p>	<p>⚠ DANGER</p> <p>Hazardous voltage will cause injury. Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover.</p>
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SAFETY PRECAUTIONS

Accident means "to cause personal injury or death or damage to property."



DANGER

1. When it is necessary to open the control box containing electrical parts, be sure to turn the power off and wait for five minutes or more before opening the cover in order to prevent accident leading to electrical shock.



CAUTION

Basic precaution

1. Be sure to read the instruction manual and other explanatory documents supplied with accessories of the machine before using the machine. Carefully keep the instruction manual and the explanatory documents at hand for quick reference.
2. The content of this section includes items which are not contained in the specifications of your product.
3. Be sure to wear safety goggles to protect against accident caused by needle breakage.
4. Those who use a heart pacer have to use the machine after consultation with a medical specialist.

Safety devices and warning labels

1. Be sure to operate the machine after verifying that safety device(s) is correctly installed in place and works normally in order to prevent accident caused by lack of the device(s). Refer to page v for the safety devices.
2. If any of the safety devices is removed, be sure to replace it and verify that it works normally in order to prevent accident that can result in personal injury or death.
3. Be sure to keep the warning labels adhered on the machine clearly visible in order to prevent accident that can result in personal injury or death. If any of the labels has stained or come unstuck, be sure to change it with a new one.

Application and modification

1. Never use the machine for any application other than its intended one and in any manner other than that prescribed in the instruction manual in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the use of the machine for any application other than the intended one.
2. Never modify and alter the machine in order to prevent accident that can result in personal injury or death. JUKI assumes no responsibility for damages or personal injury or death resulting from the machine which has been modified or altered.

Education and training

1. In order to prevent accident resulting from unfamiliarity with the machine, the machine has to be used only by the operator who has been trained/educated by the employer with respect to the machine operation and how to operate the machine with safety to acquire adequate knowledge and operation skill. To ensure the above, the employer has to establish an education/training plan for the operators and educate/train them beforehand.

Items for which the power to the machine has to be turned off

Turning the power off: Turning the power switch off, then removing the power plug from the outlet. This applies to the following.

1. Be sure to immediately turn the power off if any abnormality or failure is found or in the case of power failure in order to protect against accident that can result in personal injury or death.
2. To protect against accident resulting from abrupt start of the machine, be sure to carry out the following operations after turning the power off. For the machine incorporating a clutch motor, in particular, be sure to carry out the following operations after turning the power off and verifying that the machine stops completely.
 - 2-1. For example, threading the parts such as the needle, looper, spreader etc. which have to be threaded, or changing the bobbin
 - 2-2. For example, changing or adjusting all component parts of the machine.
 - 2-3. For example, when inspecting, repairing or cleaning the machine or leaving the machine
3. Be sure to remove the power plug by holding the plug section instead of the cord section in order to prevent electrical-shock, earth-leakage or fire accident.
4. Be sure to turn the power off whenever the machine is left unattended between works,
5. Be sure to turn the power off in the case of power failure in order to prevent accident resulting of breakage of electrical components.

PRECAUTIONS TO BE TAKEN IN VARIOUS OPERATION STAGES

Transportation

1. Be sure to lift and move the machine in a safe manner taking the machine weight in consideration. Refer to the text of the instruction manual for the mass of the machine.

2. Be sure to take sufficient safety measures to prevent falling or dropping before lifting or moving the machine in order to protect against accident that can result in personal injury or death.
3. Once the machine has been unpacked, never re-pack it for transportation to protect the machine against breakage resulting from unexpected accident or dropping.

Unpacking

1. Be sure to unpack the machine in the prescribed order in order to prevent accident that can result in personal injury or death. In the case the machine is crated, in particular, be sure to carefully check nails. The nails have to be removed.
2. Be sure to check the machine for the position of its center of gravity and take it out from the package carefully in order to prevent accident that can result in personal injury or death.

Installation

(I) Table and table stand

1. Be sure to use JUKI genuine table and table stand in order to prevent accident that can result in personal injury or death. If it is inevitable to use a table and table stand which are not JUKI genuine ones, select the table and table stand which are able to support the machine weight and reaction force during operation.
2. If casters are fitted to the table stand, be sure to use the casters with a locking mechanism and lock them to secure the machine during the operation, maintenance, inspection and repair in order to prevent accident that can result in personal injury or death.

(II) Cable and wiring

1. Be sure to prevent an extra force from being applied to the cable during the use in order to prevent electrical-shock, earth-leakage or fire accident. In addition, if it is necessary to cable near the operating section such as the V-belt, be sure to provide a space of 30 mm or more between the operating section and the cable.
2. Be sure to avoid starburst connection in order to prevent electrical-shock, earth-leakage or fire accident.
3. Be sure to securely connect the connectors in order to prevent electrical-shock, earth-leakage or fire accident. In addition, be sure to remove the connector while holding its connector section.

(III) Grounding

1. Be sure to have an electrical expert install an appropriate power plug in order to prevent accident caused by earth-leakage or dielectric strength voltage fault. In addition, be sure to connect the power plug to the grounded outlet without exceptions.
2. Be sure to ground the earth cable in order to prevent accident caused by earth leakage.

(IV) Motor

1. Be sure to use the specified rated motor (JUKI genuine product) in order to prevent accident caused by burnout.
2. If a commercially available clutch motor is used with the machine, be sure to select one with an entanglement preventive pulley cover in order to protect against being entangled by the V-belt.

Before operation

1. Be sure to make sure that the connectors and cables are free from damage, dropout and looseness before turning the power on in order to prevent accident resulting in personal injury or death.
2. Never put your hand into the moving sections of the machine in order to prevent accident that can result in personal injury or death.
In addition, check to be sure that the direction of rotation of the pulley agrees with the arrow shown on pulley.
3. If the table stand with casters is used, be sure to secure the table stand by locking the casters or with adjusters, if provided, in order to protect against accident caused by abrupt start of the machine.

During operation

1. Be sure not to put your fingers, hair or clothing close to the moving sections such as the handwheel, hand pulley and motor or place something near those sections while the machine is in operation in order to prevent accident caused by entanglement that can result in personal injury or death.
2. Be sure not to place your fingers near the surround area of the needle or inside the thread take-up lever cover when turning the power on or while the machine is in operation in order to prevent accident that can result in personal injury or death.
3. The machine runs at a high speed. Never bring your hands near the moving sections such as looper, spreader, needle bar, hook and cloth trimming knife during operation in order to protect your hands against injury. In addition, be sure to turn the power off and check to be sure that the machine completely stops before changing the thread.
4. Be careful not to allow your fingers or any other parts of your body to be caught between the machine and table when removing the machine from or replacing it on the table in order to prevent accident that can result in personal injury or death.
5. Be sure to turn the power off and check to be sure that the machine and motor completely stop before removing the belt cover and V-belt in order to prevent accident caused by abrupt start of the machine or motor.
6. If a servomotor is used with the machine, the motor does not produce noise while the machine is at rest. Be sure not to forget to turn the power off in order to prevent accident caused by abrupt start of the motor.
7. Never use the machine with the cooling opening of the motor power box shielded in order to prevent fire accident by overheat.

Lubrication

1. Be sure to use JUKI genuine oil and JUKI genuine grease to the parts to be lubricated.
2. If the oil adheres on your eye or body, be sure to immediately wash it off in order to prevent inflammation or irritation.
3. If the oil is swallowed unintentionally, be sure to immediately consult a medical doctor in order to prevent diarrhea or vomiting.



Maintenance

1. In prevention of accident caused by unfamiliarity with the machine, repair and adjustment has to be carried out by a service technician who is thoroughly familiar with the machine within the scope defined in the instruction manual. Be sure to use JUKI genuine parts when replacing any of the machine parts. JUKI assumes no responsibility for any accident caused by improper repair or adjustment or the use of any part other than JUKI genuine one.
2. In prevention of accident caused by unfamiliarity with the machine or electrical-shock accident, be sure to ask an electrical technician of your company or JUKI or distributor in your area for repair and maintenance (including wiring) of electrical components.
3. When carrying out repair or maintenance of the machine which uses air-driven parts such as an air cylinder, be sure to remove the air supply pipe to expel air remaining in the machine beforehand, in order to prevent accident caused by abrupt start of the air-driven parts.
4. Be sure to check that screws and nuts are free from looseness after completion of repair, adjustment and part replacement.
5. Be sure to periodically clean up the machine during its duration of use. Be sure to turn the power off and verify that the machine and motor stop completely before cleaning the machine in order to prevent accident caused by abrupt start of the machine or motor.
6. Be sure to turn the power off and verify that the machine and motor stop completely before carrying out maintenance, inspection or repair of the machine. (For the machine with a clutch motor, the motor will keep running for a while by inertia even after turning the power off. So, be careful.)
7. If the machine cannot be normally operated after repair or adjustment, immediately stop operation and contact JUKI or the distributor in your area for repair in order to prevent accident that can result in personal injury or death.
8. If the fuse has blown, be sure to turn the power off and eliminate the cause of blowing of the fuse and replace the blown fuse with a new one in order to prevent accident that can result in personal injury or death.
9. Be sure to periodically clean up the air vent of the fan and inspect the area around the wiring in order to prevent fire accident of the motor.

Operating environment

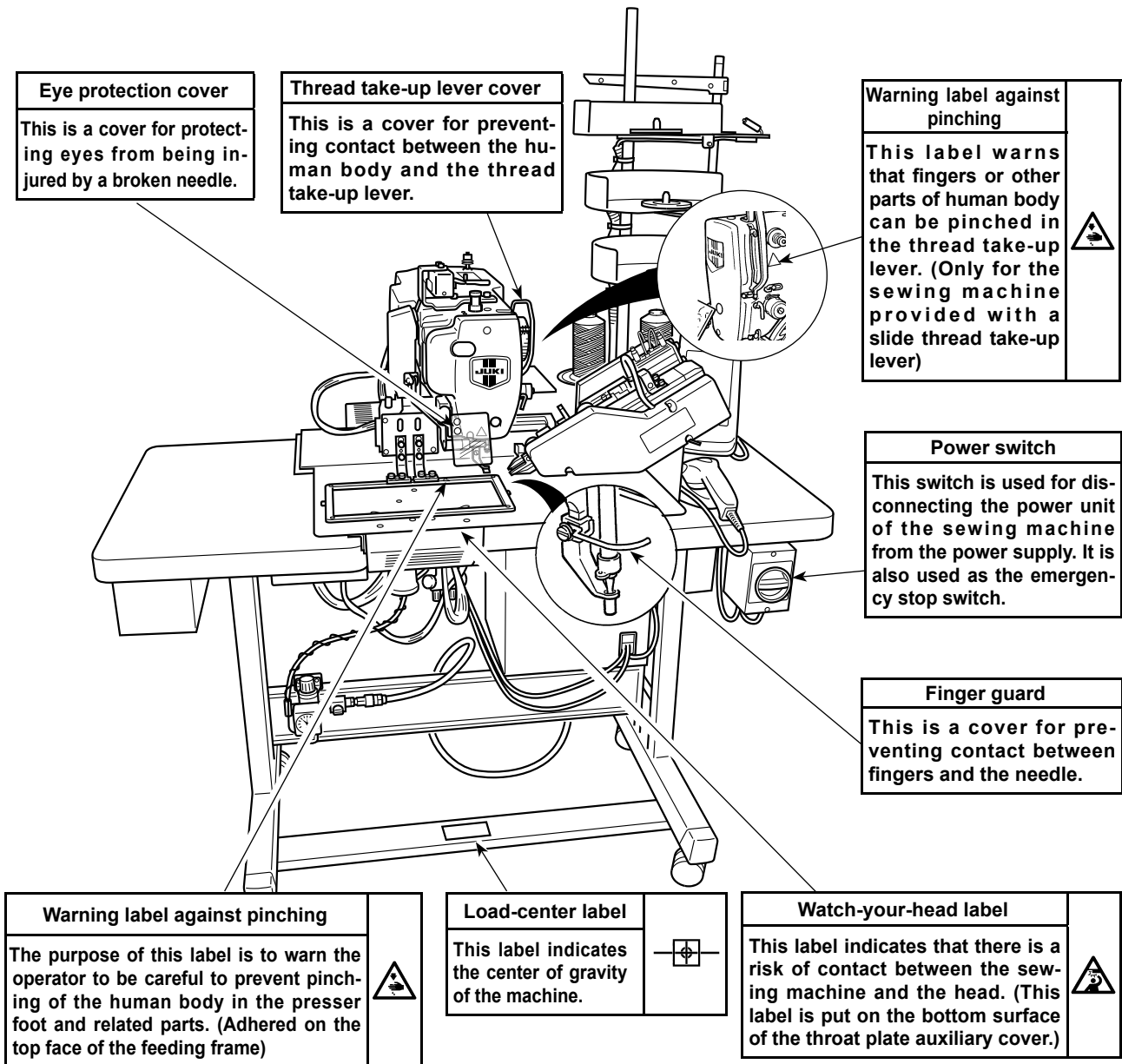
1. Be sure to use the machine under the environment which is not affected by strong noise source (electromagnetic waves) such as a high-frequency welder in order to prevent accident caused by malfunction of the machine.
2. Never operate the machine in any place where the voltage fluctuates by more than "rated voltage \pm 10 %" in order to prevent accident caused by malfunction of the machine.
3. Be sure to verify that the air-driven device such as an air cylinder operates at the specified air pressure before using it in order to prevent accident caused by malfunction of the machine.
4. To use the machine with safety, be sure to use it under the environment which satisfies the following conditions:
Ambient temperature during operation 5°C to 35°C
Relative humidity during operation 35 % to 85 %
5. Dew condensation can occur if bringing the machine suddenly from a cold environment to a warm one. So, be sure to turn the power on after having waited for a sufficient period of time until there is no sign of water droplet in order to prevent accident caused by breakage or malfunction of the electrical components.
6. Be sure to stop operation when lightning flashes for the sake of safety and remove the power plug in order to prevent accident caused by breakage or malfunction of the electrical components.
7. Depending on the radio wave signal condition, the machine may generate noise in the TV or radio. If this occurs, use the TV or radio with kept well away from the machine.
8. In order to ensure the work environment, local laws and regulations in the country where the sewing machine is installed shall be followed.
In the case the noise control is necessary, an ear protector or other protective gear should be worn according to the applicable laws and regulations.
9. Disposal of products and packages and treatment of used lubricating oil should be carried out properly according to the relevant laws of the country in which the sewing machine is used.

Precautions to be taken so as to use the AMS-210ENHL2210/TF10S more safely

	<ol style="list-style-type: none"> 1. To prevent possible accidents due to electric shocks, neither open the cover of motor electrical box nor touch the component(s) inside the electrical box. 2. Make sure of the needle entry after changing the pattern. Should the pattern protrude from the work clamp check, needle interferes with the work clamp check resulting in the danger of occurrence of needle breakage or the like. In addition, check that the work clamp check which has been set corresponds to that which has been installed on the sewing machine.
	<ol style="list-style-type: none"> 1. In case nothing is displayed in the operation panel even when the power switch is turned ON, turn OFF the power switch and check the power voltage and phase. 2. In order to protect against personal injury, never place your fingers inside the thread take-up lever, work clamp, work clamp mechanical section and thread take-up lever cover and near the underside of the thread trimmer and needle when turning ON the power switch and while the sewing machine is in operation. 3. To protect against possible accidents due to abrupt startup of the machine, turn OFF the power switch before tilting the machine head or removing the motor cover. 4. So as to prevent possible accidents caused by abrupt start of the sewing machine, depress the start switch after ascertaining that there is no interfering thing under the needle when winding the bobbin thread. In addition, do not allow hair to be close to the bobbin winder while it is in operation. 5. Feeding frame automatically comes down when pattern is changed, ready key is ON, Presser switch is ON, intermediate presser button is ON and bobbin winder button is ON. To prevent possible accidents caused by abrupt start of the sewing machine, never place your fingers under the feeding frame. 6. To avoid personal injury, never bring your fingers, hair or clothing close to V belt, cloth cutting knife or motor during operation, and never place anything on any of these parts. 7. To avoid personal injury, never operate the machine with the motor cover, eye protection cover, or any other safety devices removed. 8. To prevent personal injury or death, do not operate the sewing machine with its covers removed. 9. The operation panel displays safety warnings. It is necessary therefore to first verify normal display on the panel when the power switch is turned on, before operating the sewing machine. 10. To prevent personal injury or death, do not press the hand pulley while the sewing machine is in operation. 11. To avoid personal injury, be careful never to allow your fingers to go inside the machine when tilting or raising the machine head. 12. To prevent possible accidents due to electric shocks or damaged electrical component(s), always turn OFF the power switch before connecting or disconnecting the power plug. 13. During thunder and lightning storms, stop your work and disconnect the power from the outlet to ensure safety and prevent possible accidents due to damaged electrical component(s). 14. If the machine is suddenly moved from a cold place to a warm place, dew condensation may result. If this occurs, be sure to confirm that there are no potentially dangerous water drops in the machine before turning it on in order to prevent possible accidents due to damaged electrical component(s). 15. In the event of a power failure, be sure to turn OFF the power to the machine to protect against damaged electrical components. 16. This sewing machine should be used under industrial environment. Under general household environment, the machine may cause poor reception when used in proximity of the television set or radio. 17. When the sewing machine is used without a break for many hours, the temperature of a part of the machine body or the rear side of operation panel rises higher by 15°C than the environmental temperature, and you may feel the heat from the part. However, this phenomenon is not abnormal, and does not affect the components or the like. 18. Do not lubricate the machine oil to the places other than the oil tank and the hook section. The grease lubricating system except the hook section is employed for this sewing machine, and the grease flows out when lubricating the machine oil resulting in worn-out of the components. 19. Be careful of handling this product so as not to pour water or oil, shock by dropping, and the like since this product is a precision instrument. 20. This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to make corrective actions. 21. In order to prevent possible accidents due to a ground fault or a dielectric voltage, an appropriate power plug should be installed by a person who has expertise in electricity. In addition, the power plug should be connected to the receptacle which is properly grounded without exceptions. 22. In order to prevent possible accidents due to a ground fault, the earth cable should be properly grounded.

*"CompactFlash(TM)" is the registered trademark of SanDisk Corporation, U.S.A.

Safety devices and warning labels



Eye protection cover
This is a cover for protecting eyes from being injured by a broken needle.

Thread take-up lever cover
This is a cover for preventing contact between the human body and the thread take-up lever.

Warning label against pinching
This label warns that fingers or other parts of human body can be pinched in the thread take-up lever. (Only for the sewing machine provided with a slide thread take-up lever)

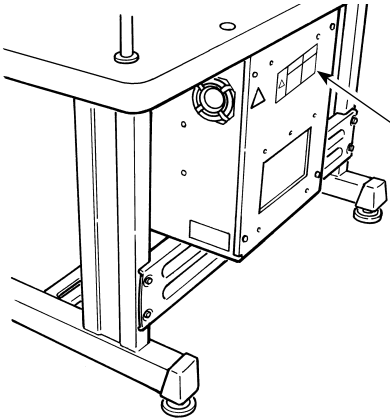
Power switch
This switch is used for disconnecting the power unit of the sewing machine from the power supply. It is also used as the emergency stop switch.

Finger guard
This is a cover for preventing contact between fingers and the needle.

Warning label against pinching
The purpose of this label is to warn the operator to be careful to prevent pinching of the human body in the presser foot and related parts. (Adhered on the top face of the feeding frame)

Load-center label
This label indicates the center of gravity of the machine.

Watch-your-head label
This label indicates that there is a risk of contact between the sewing machine and the head. (This label is put on the bottom surface of the throat plate auxiliary cover.)

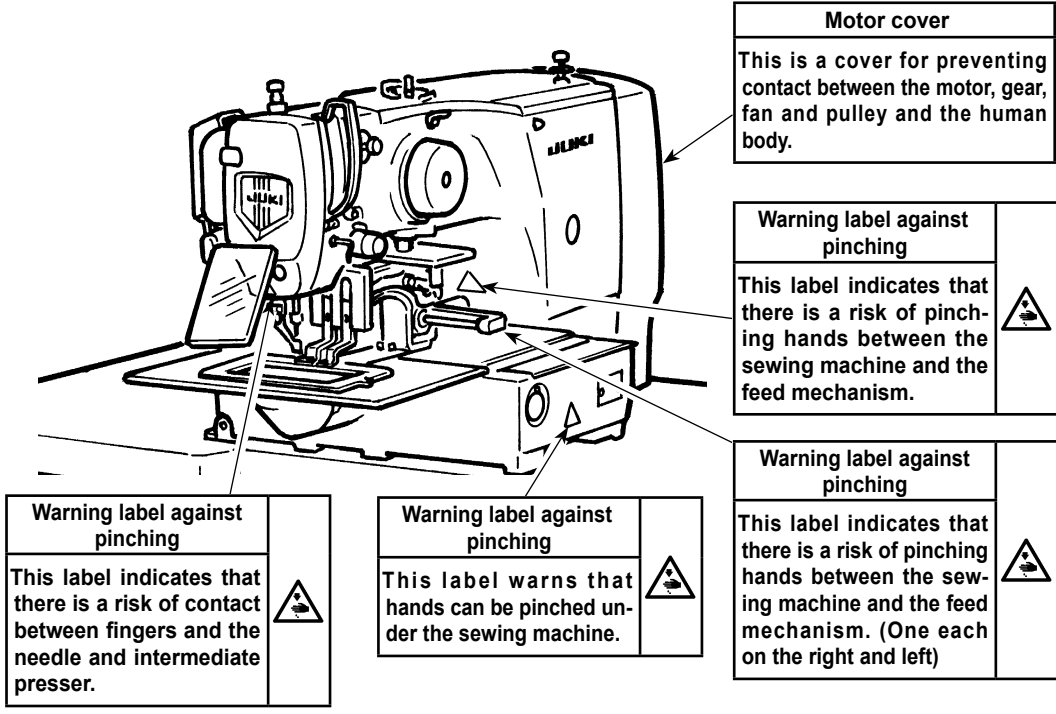


Electrical-shock danger label
In order to protect against electrical shock, safety precautions to be taken to avoid danger are written on this label.

(Refer to "Electrical-shock danger label" on page i.)

CAUTION

In addition, be aware that the safety devices such as the "eye protection cover" and "finger guard" are sometimes omitted in the sketches, illustrations and figures included in the Instruction Manual for the explanation's sake. In the practical use, never remove those safety devices.



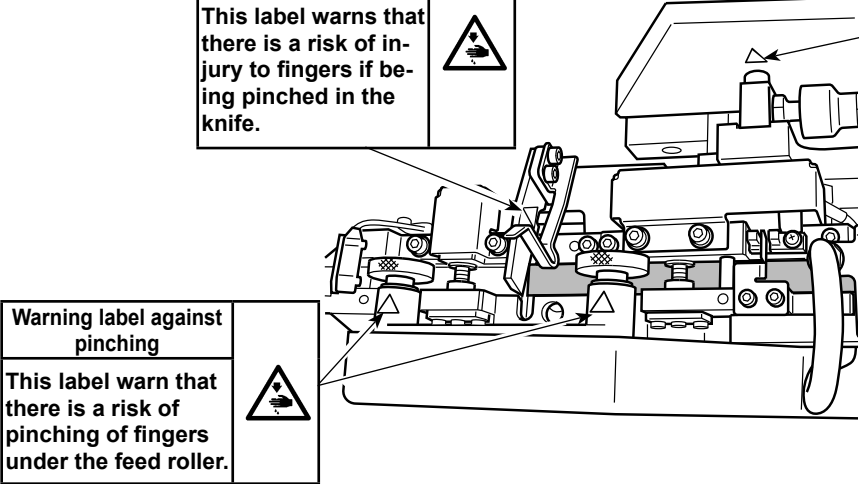
Warning label against pinching	
This label indicates that there is a risk of contact between fingers and the needle and intermediate presser.	

Warning label against pinching	
This label warns that hands can be pinched under the sewing machine.	

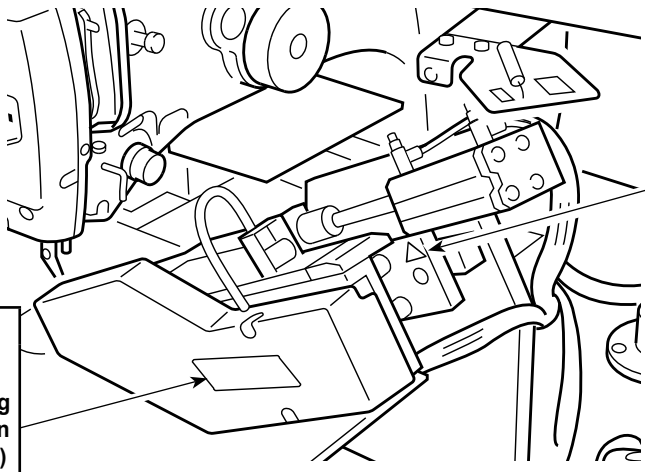
Warning label against pinching	
This label indicates that there is a risk of pinching hands between the sewing machine and the feed mechanism. (One each on the right and left)	

Warning label against pinching	
This label warns that there is a risk of injury to fingers if being pinched in the knife.	

Warning label against pinching	
This label warns that there is a risk of pinching of fingers in the cylinder.	



Warning label against pinching	
This label warn that there is a risk of pinching of fingers under the feed roller.	



Warning label against pinching	
This label warns that there is a risk of pinching in the tape travel guide.	

Warning label	(Refer to the warning label on page i.)
The label gives the minimum precautions to be taken when operating the sewing machine.	

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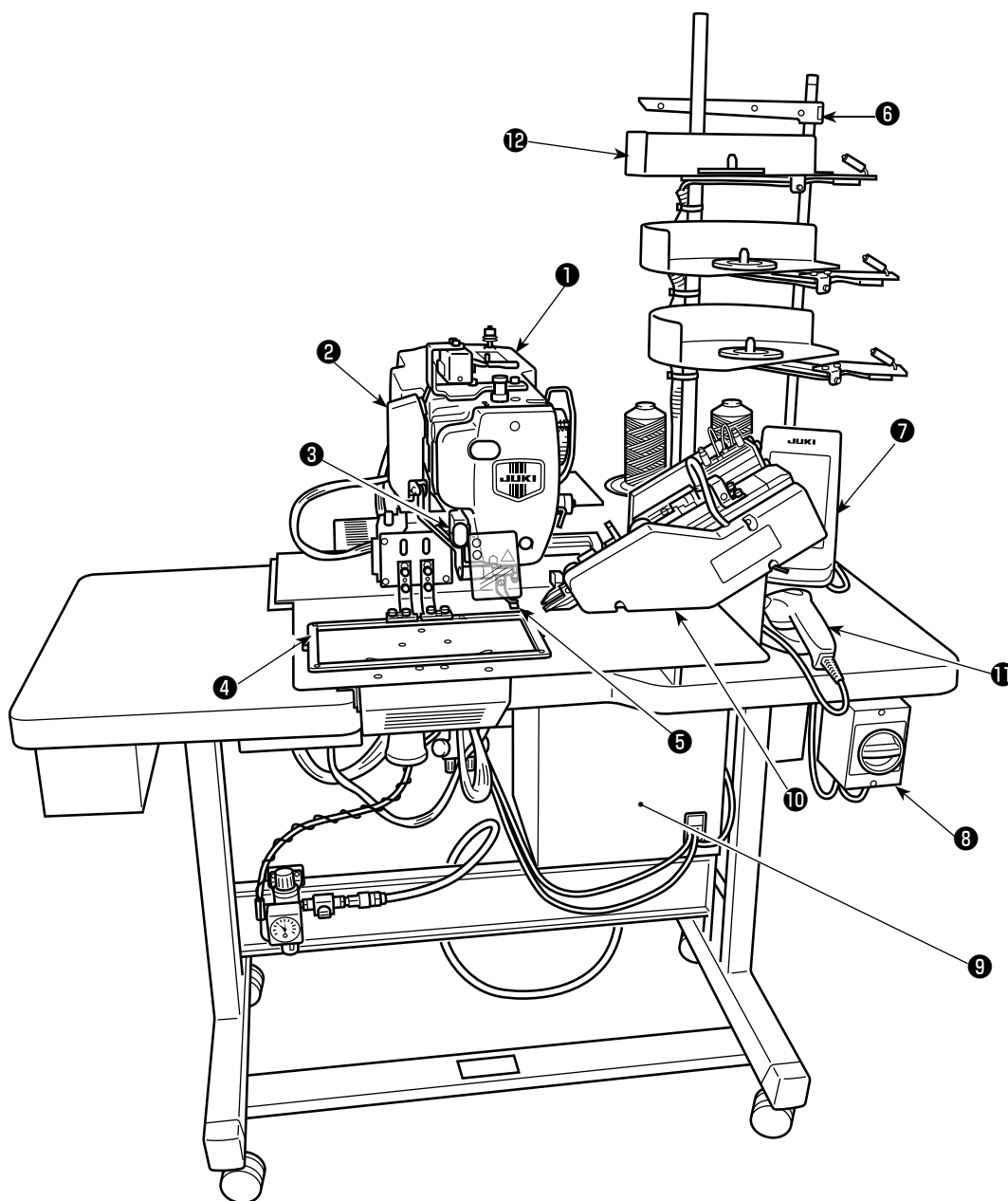
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I. MECHANICAL SECTION (WITH REGARD TO THE SEWING MACHINE)

1. SPECIFICATIONS

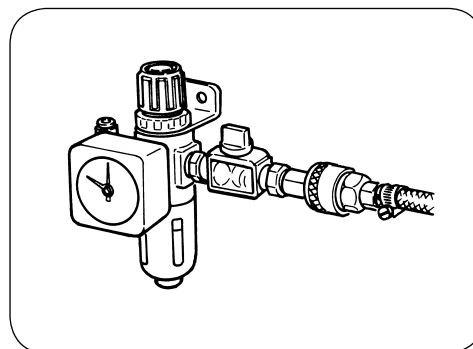
1	Sewing area	X (lateral) direction 220 mm × Y (longitudinal) direction 100 mm Applicable tape width : 10 to 16.7 mm Tape length : 55 to 130 mm
2	Sewing speed	2,800 sti/min (When sewing pitch is 3.5 mm or less) Factory-set sewing speed at the time of shipment.: 2000 sti/min
3	Stitch length	0.1 to 12.7 mm (Min. resolution : 0.05 mm)
4	Feed motion of feeding frame	Intermittent feed (2-shaft drive by stepping motor)
5	Needle bar stroke	41.2 mm
6	Needle	ORGAN needle DPx17
7	Lift of feeding frame	Max. 30mm
8	Intermediate presser stroke	4 mm (Standard) (0 to 10 mm)
9	Lift of intermediate presser	20 mm
10	Intermediate presser DOWN position variable	Standard 0 to 3.5 mm (Max. 0 to 7.0 mm)
11	Shuttle	Double-capacity semi-rotary hook
12	Lubricating oil	New Defrix Oil No. 2 (Supplied by oiler)
13	Temporary stop facility	Used to stop machine operation during a stitching cycle.
14	Max. sewing speed limitation	200 to 2,800 sti/min (Scale : 100 sti/min steps)
15	Pattern selection facility	Pattern No. selection method (Main body : 1 to 999, Media : 1 to 999)
16	Bobbin thread counter	UP/DOWN method (0 to 9,999)
17	Sewing counter	UP/DOWN method (0 to 9,999)
18	Sewing machine motor	Servo-motor
19	Dimensions	1,200mm (W) x 780mm (L) x 1,600mm (H) (Excluding thread stand)
20	Mass (gross mass)	120 kg
21	Power consumption	360 VA
22	Operating temperature range	5°C to 35°C
23	Operating humidity range	35 % to 85 % (No dew condensation)
24	Line voltage	Rated voltage ±10% 50 / 60 Hz
25	Air pressure used	0.5 to 0.55 MPa (Max. 0.55 MPa)
26	Air consumption	1.8 dm ³ / min (ANR)
27	Needle highest position stop facility	After the completion of sewing, the needle can be brought up to its highest position.
28	Noise	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 85 dB; (Includes L _{pA} = 2.5 dB); according to ISO 10821- C.6.3 -ISO 11204 GR2 at 2,800 sti/min. - Sound power level (L _{wA}); A-weighted value of 94 dB; (Includes K _{wA} = 2.5 dB); according to ISO 3744- C.6.3 -ISO 11204 GR2 at 2,800 sti/min Time required for sewing: 2.2 sec, using Pattern No. 233

2. CONFIGURATION



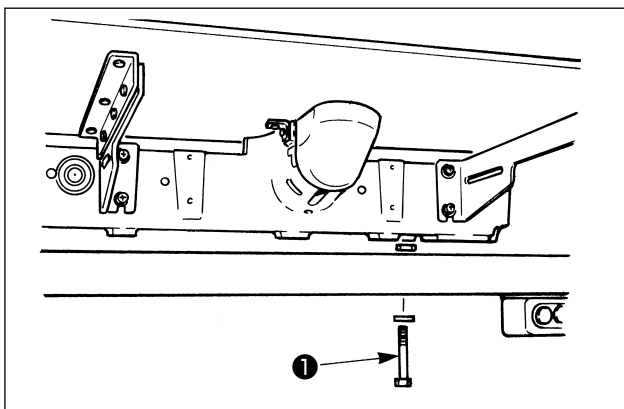
- ① Machine head
- ② Wiper switch
- ③ Temporary stop switch
- ④ Feeding frame
- ⑤ Intermediate presser
- ⑥ Thread stand
- ⑦ Operation panel (IP-420)
- ⑧ Power switch
(also used as the emergency stop switch)
- ⑨ Control box
- ⑩ Tape feeder
- ⑪ Bar-code reader
- ⑫ Tape rack

Air regulator



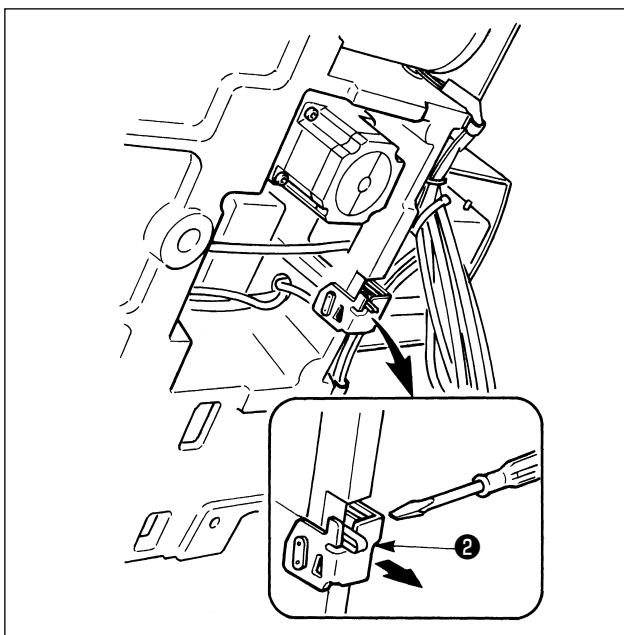
3. INSTALLATION

3-1. Removing the bed fixing bolt



Remove bed fixing bolt **1**. This bolt is necessary to transport the sewing machine.

3-2. Adjusting the safety switch



In case error 302 occurs when the sewing machine works after setup, loosen the safety switch fitting screw with a screwdriver, and lower the switch **2** to the downside of the sewing machine.

3-3. How to install the bar-code reader



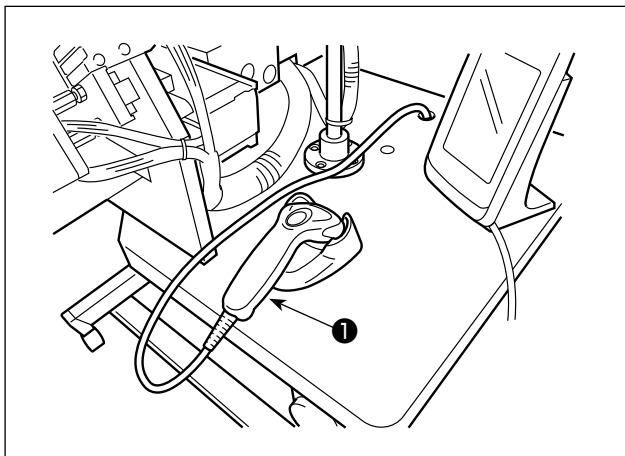
WARNING :

- Do not look directly into the laser beam of the bar code reader. The laser beam can damage eyes.
- Do not emit laser beam toward human eyes. The laser beam can damage eyes.
- Do not look into the laser beam directly using an optical device. The laser beam can damage eyes.

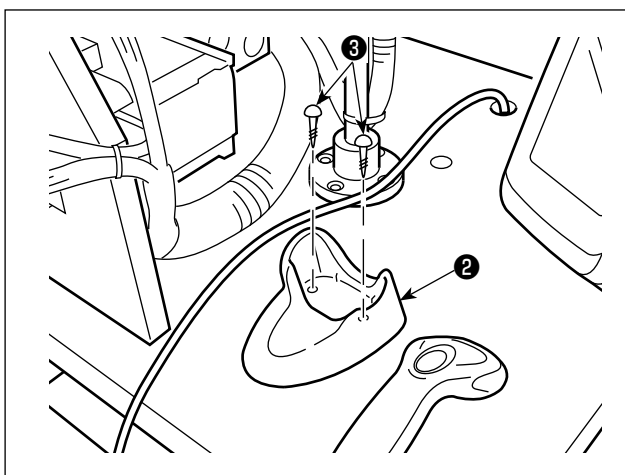


CAUTION :

- Be sure to use the sewing machine within the specified temperature range and the specified humidity range.
- Do not connect/remove connectors with the power supplied to the sewing machine.



- 1) Connect the cord to bar-code reader ❶ on the top of the table.

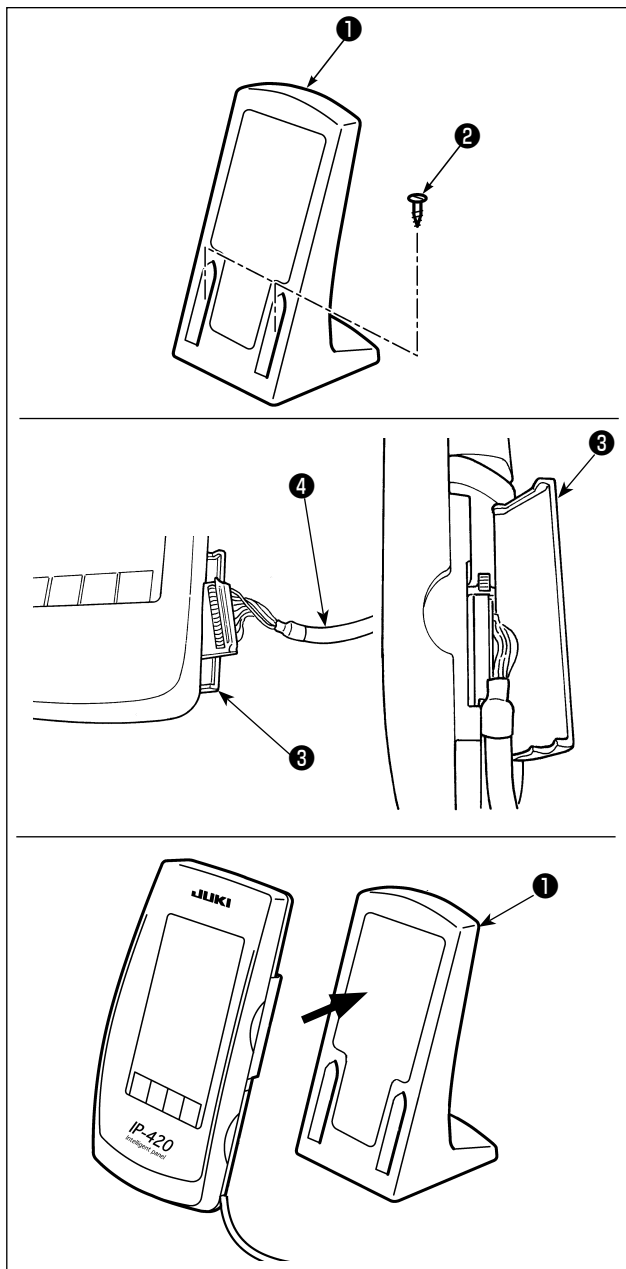


- 2) Install bar-code reader mounting plate ❷ at a desired position on the table and fix it with two wood screws ❸ .



Install the bar-code mounting plate at such position that it does not interfere with the X movable cover and the machine head grip since the interference can break the bar-codes.

3-4. Installing the panel



1) Open cover ❶ and remove cable ❷ once. Then connect it again to the panel on the top surface of the table after passing it through the hole in the table.

2) Open cover ❸ of the IP-420. Insert junction cable ❹ properly.

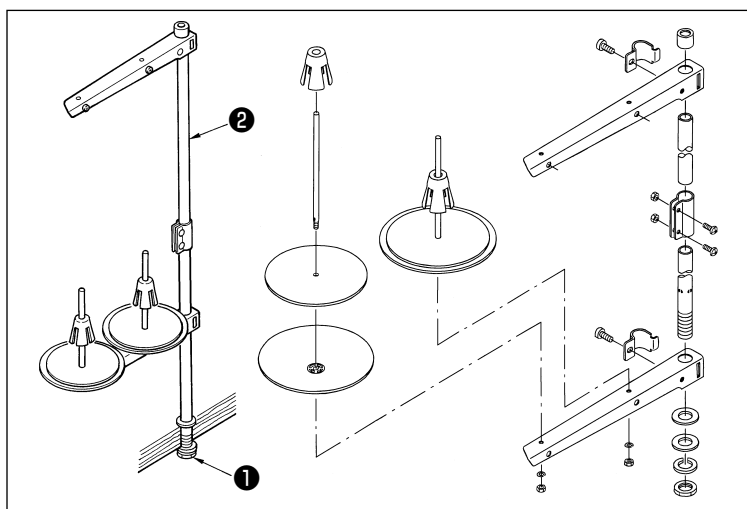
3) Route the junction cable downward. Close cover ❸.

4) Place the IP-420 on open cover ❶.



Install the panel at the position where X-move cover or head grip does not interfere with it since breakage of the panel will be caused.

3-5. Installing the thread stand



1) Assemble the thread stand, and put it in the hole in the top left corner of the machine table.

2) Tighten locknut ❶ to fix the thread stand.

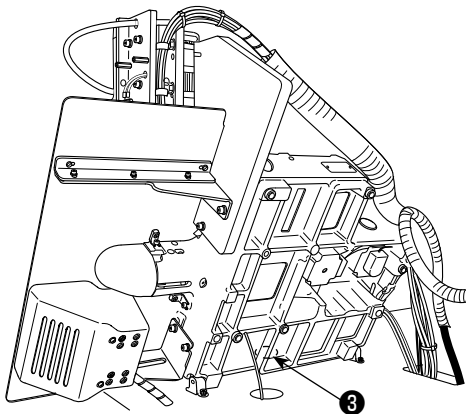
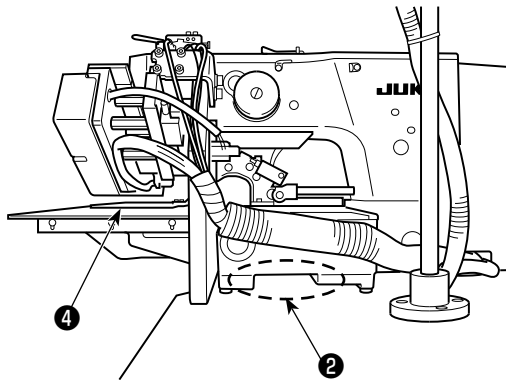
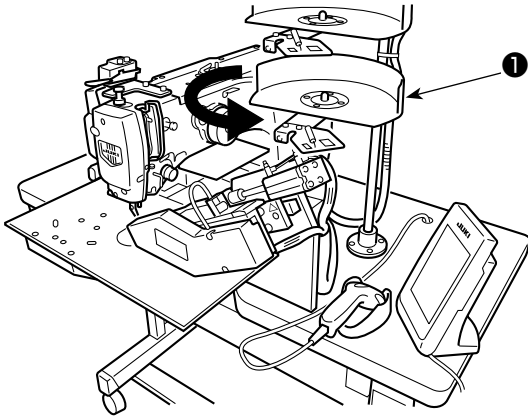
3) When ceiling wiring is possible, pass the power cord through spool rest rod ❷.

3-6. Raising the machine head

WARNING :



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

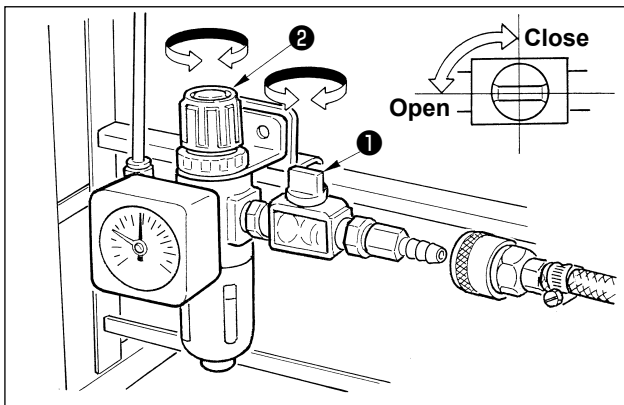


- 1) Turn tape rack ① in such a direction that the rack is moved away from the sewing machine head.
- 2) Hold inserting section ② of the machine bed by hand, and quietly raise it until bed support rubber ③ comes in contact with the table.

1. Be sure to raise the machine head at the leveled place so as to prevent the sewing machine from falling.
2. When raising the machine head, move feeding frame ④ beforehand to the right-hand side until it goes no further, and fix it with tape or the like. When the machine head is raised in the state that moving or fixing is insufficient, breakage of X-move cover or X-move rail will be caused. Besides, feeding frame ④ which is tilted to the left-hand side by the self-weight interferes with the intermediate presser or the like and breakage of the components will be caused.
3. When lifting the sewing machine, do not hold the base. If lifting the sewing machine by holding the base, accuracy of the tape feeder will be adversely affected.
4. Be sure to raise the machine head with two or more workers where necessary.

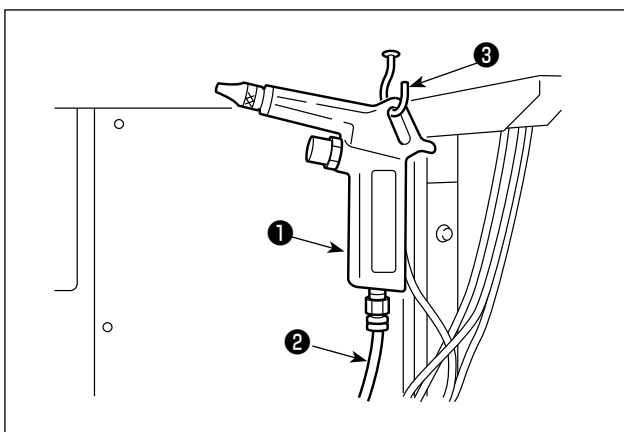


3-7. Installing the air hose

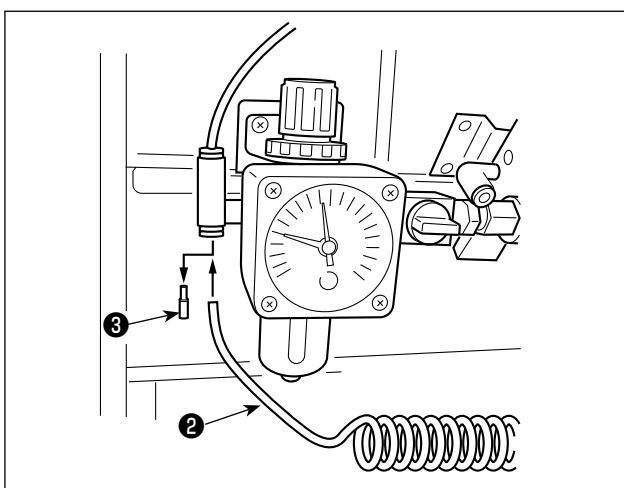


- 1) Connecting the air hose
Connect the air hose to the regulator .
 - 2) Adjustment of air pressure
Open air cock ① , pull up and turn air adjustment knob ② and adjust so that air pressure indicates 0.5 to 0.55 MPa (Max. 0.55 MPa).
Then lower the knob and fix it.
- * **Close air cock ① to expel air.**

3-8. Installing the air gun

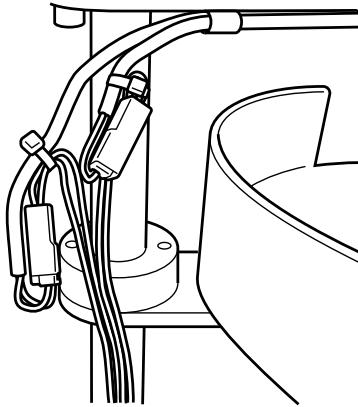


- 1) Insert spiral tube ② into air gun ① .

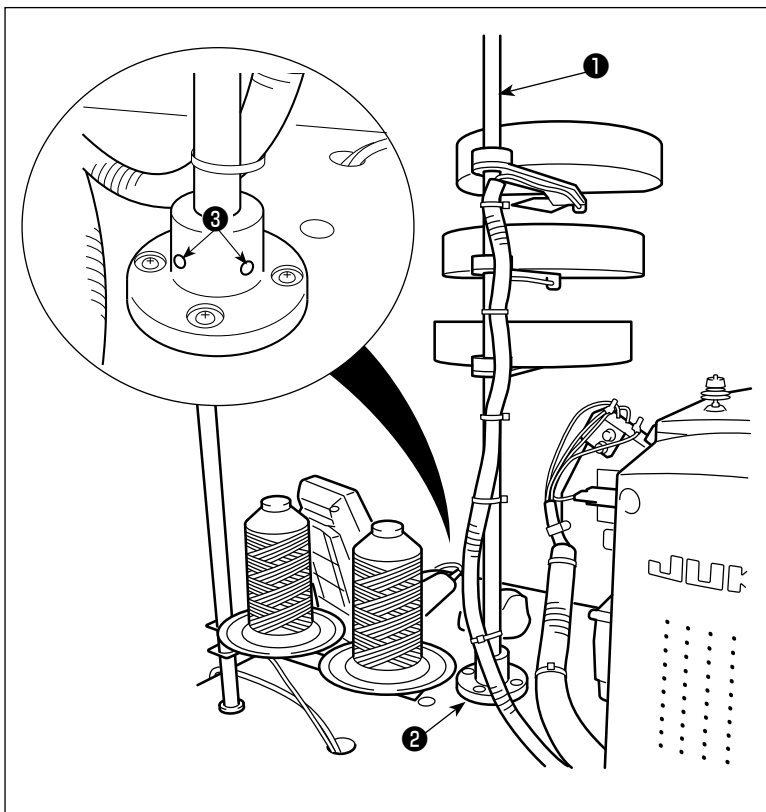


- 2) Remove plug ③ which is connected to the regulator. Then, connect spiral tube ② to the regulator.
- 3) Install hook ③ at anywhere under the table.
Put air gun ① on the hook.

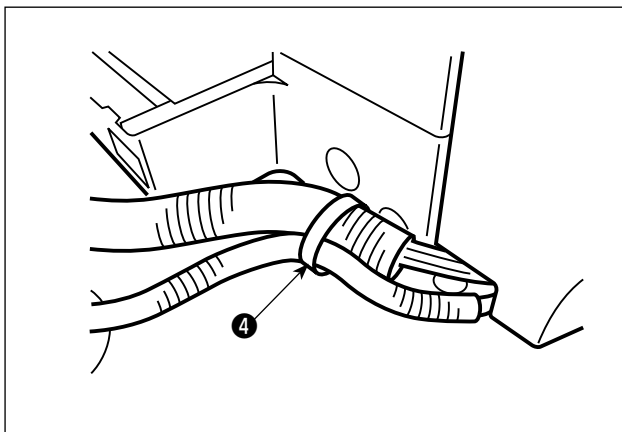
3-9. Installing the tape rack



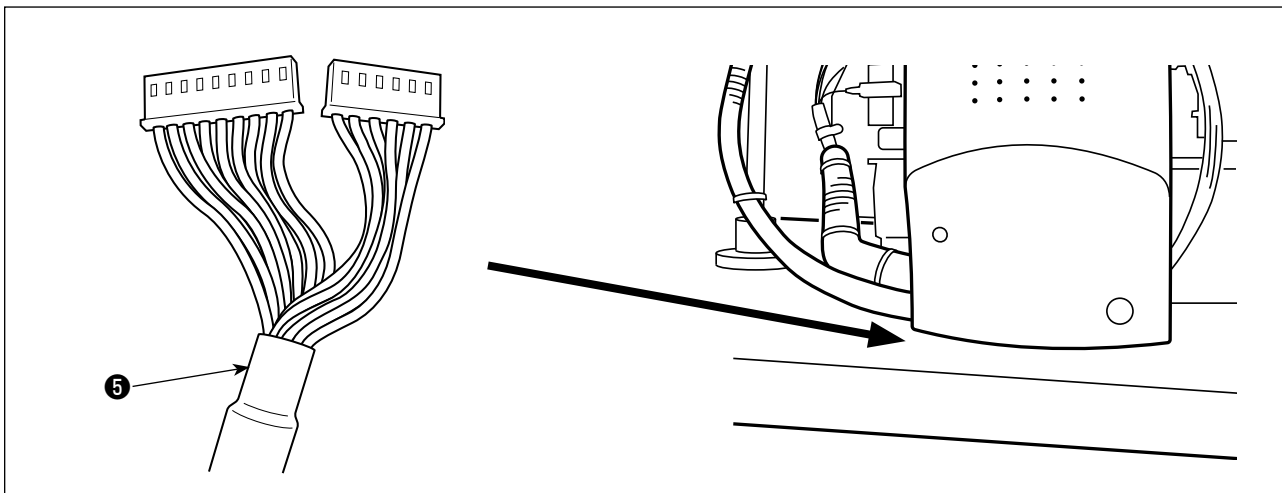
When installing the tape rack, check the connectors for slip-off.



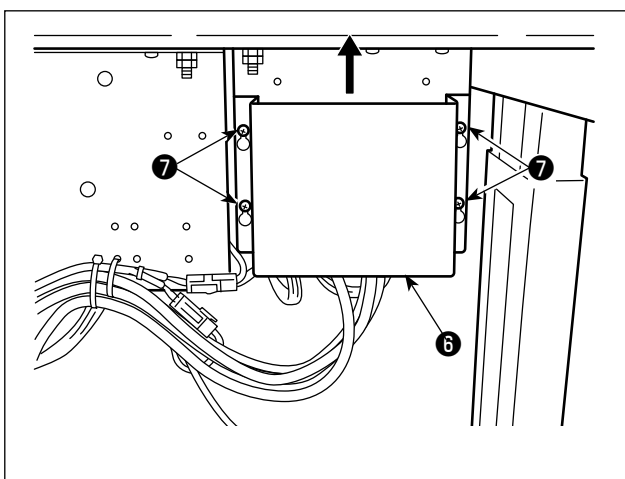
- 1) Insert tape rack ❶ into base ❷ .
- 2) Tighten two screws ❸ of the base to fix tape rack ❶ .



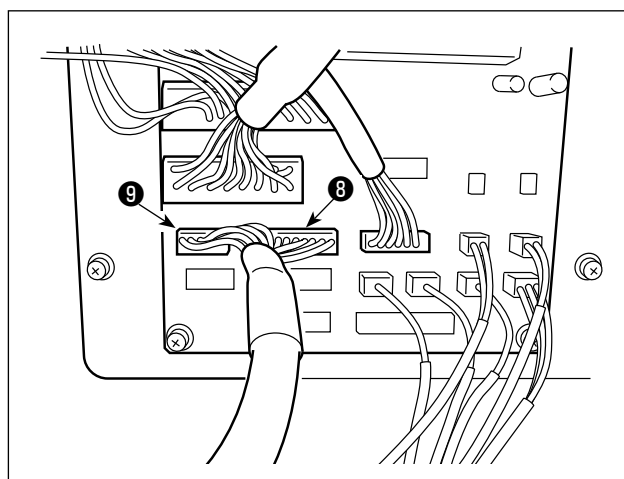
- 3) Pass tape feeder wiring through cable clamp ❹ for securing the wiring.



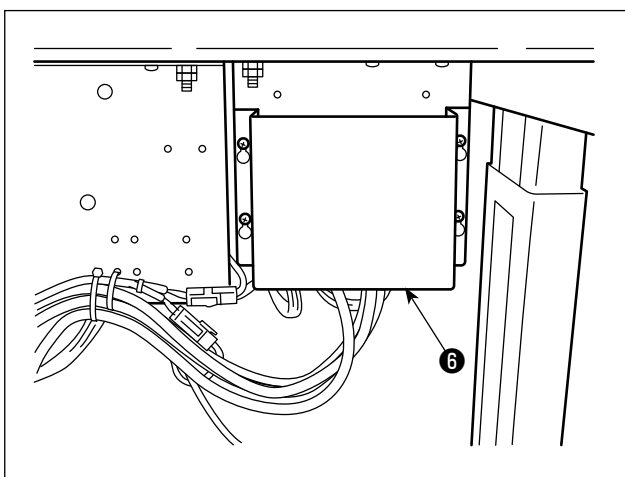
4) Pass cable 5 through the clearance provided between the motor cover and the table to route it under the table. (If the connector cannot be inserted through the clearance, slightly raise the machine head to route cable 5 appropriately. Refer to "I-3-6. Raising the machine head" p.6)



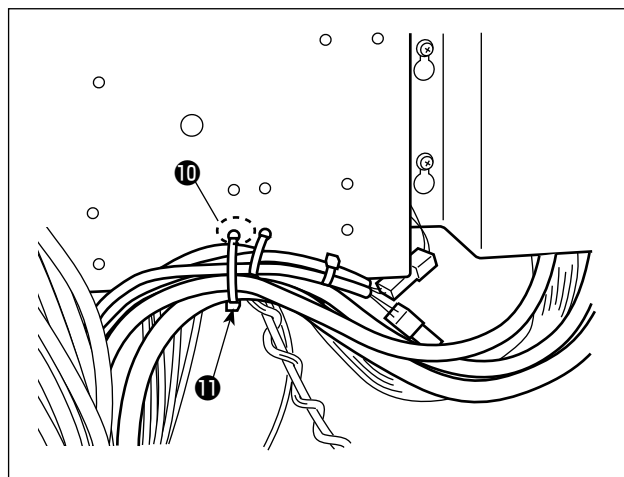
5) Loosen four setscrews 7 of TAPE_INT PCB cover 6. Lift the cover to remove it.



6) Insert connectors into connector CN150 (white, 9-pin) 8 and CN160 (white, 6-pin) 9.

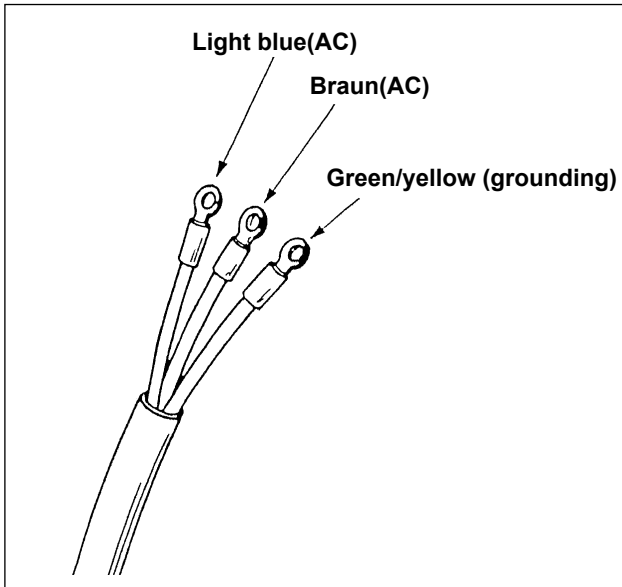


7) Replace cover 6 of the TAPE_INT PCB to its home position.



8) Secure the wiring of the tape rack with cable clip band 11 using hole 10 in the solenoid valve mounting plate.

3-10. Connecting the power supply



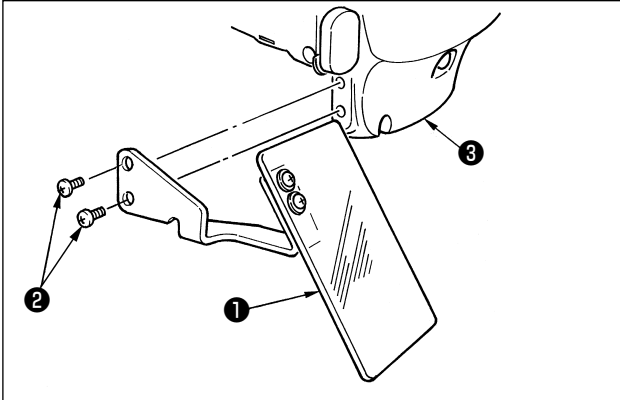
- 1) The machine is not supplied with a power plug. It is therefore necessary for you to select a plug that matches the receptacle available under a given operating environment and attach it to the power cable.
- 2) This sewing machine has been designed for single-phase power supply. Use the single-phase power supply which meets the voltage specification.

3-11. Installing the eye protection cover



WARNING :

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




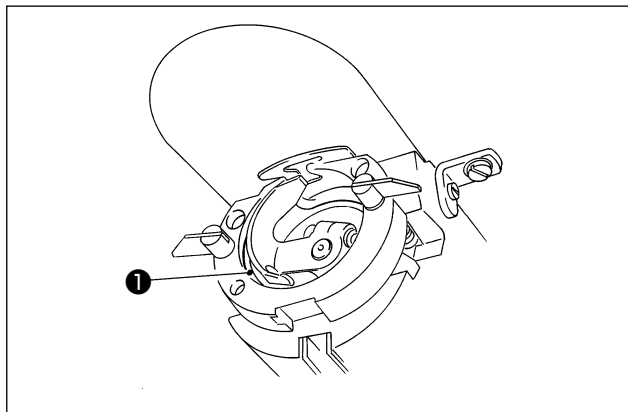
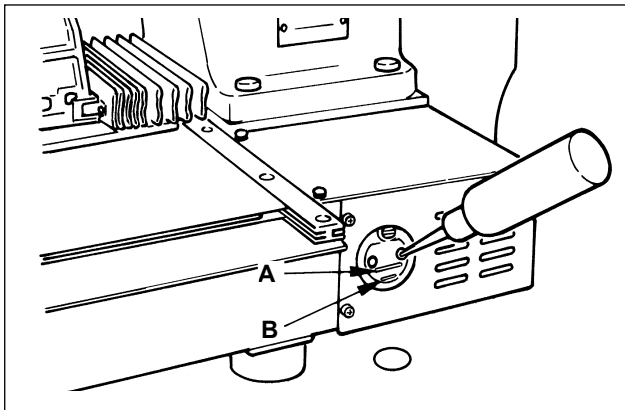
Use eye protection cover ① after securely attaching it on face plate cover ③ with screw ② .

4. Operation and adjustment of each section of the sewing machine


4-1. Preparation of the sewing machine


(1) Lubrication

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




- 1) Check that the place between lower line **B** and upper line **A** is filled with oil. Fill there with oil using the oiler supplied with the machine as accessories when oil is short.
- 2) Apply one drop of oil to the hook race **1** part to spread on it.

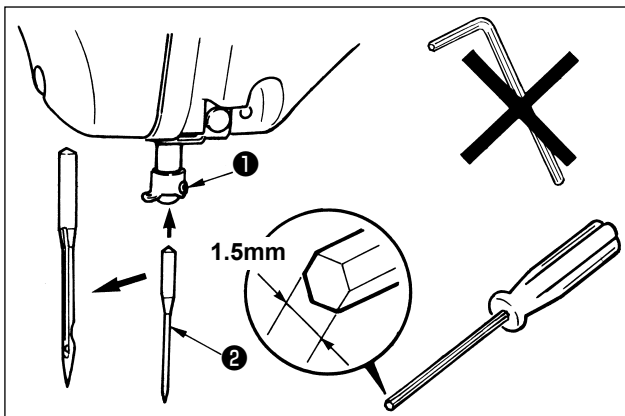
 **Reference**
The oil tank which is filled with oil is only for lubricating to the hook portion. It is possible to reduce the oil amount when the number of rotation used is low and the oil amount in the hook portion is excessive. (Refer to “III-1-9. Amount of oil supplied to the hook” p.118.)

 **Caution**


1. Do not lubricate to the places other than the oil tank and the hook of Caution 2 below. Trouble of components will be caused.
2. When using the sewing machine for the first time or after an extended period of disuse, use the machine after lubricating a small amount of oil to the hook portion. (For removing the shuttle, see “III-1-2. Adjusting the needle-to-shuttle relation” p.113.)

(2) Attaching the needle

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



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

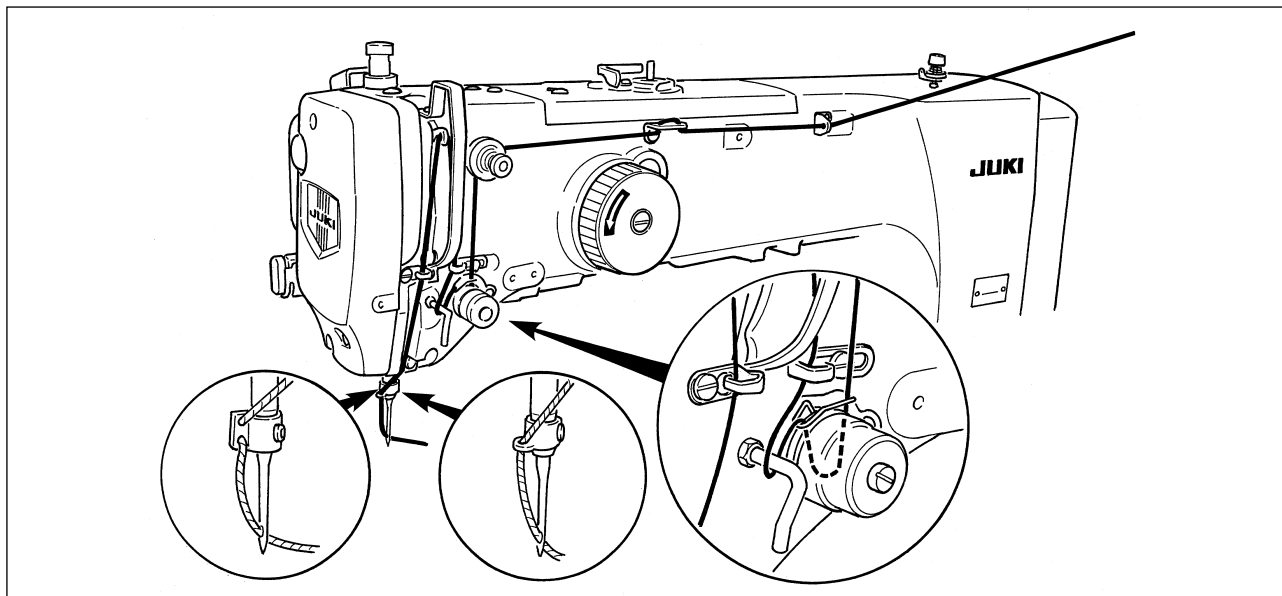
 **Caution**
When tightening setscrew **1**, be sure to use the screwdriver (Part No. : 40032763) supplied as accessories. Do not use L-shaped hexagon wrench key. There is a danger of breaking setscrew **1**.

(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.

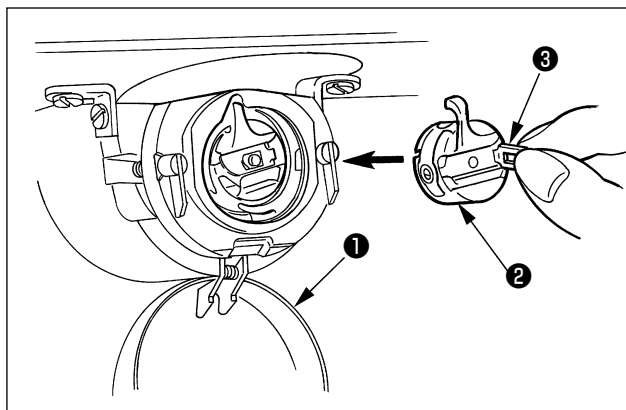


(4) Installing and removing the bobbin case



WARNING :

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



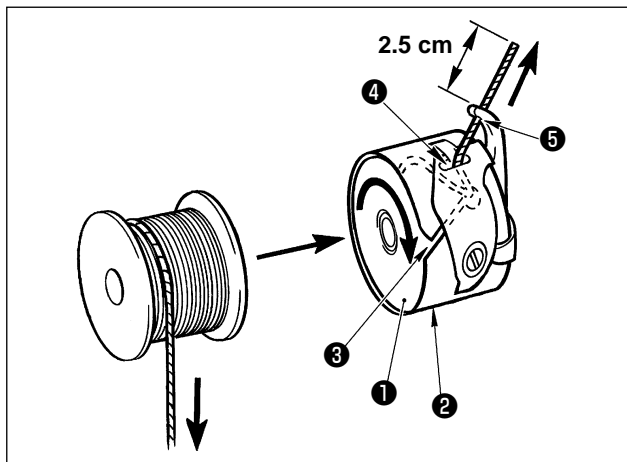
- 1) Open hook cover ① .
- 2) Raise latch ③ of bobbin case ② , and remove the bobbin case.
- 3) When entering bobbin case, insert it with the latch tilted until "click" sounds.



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

(5) Installing the bobbin

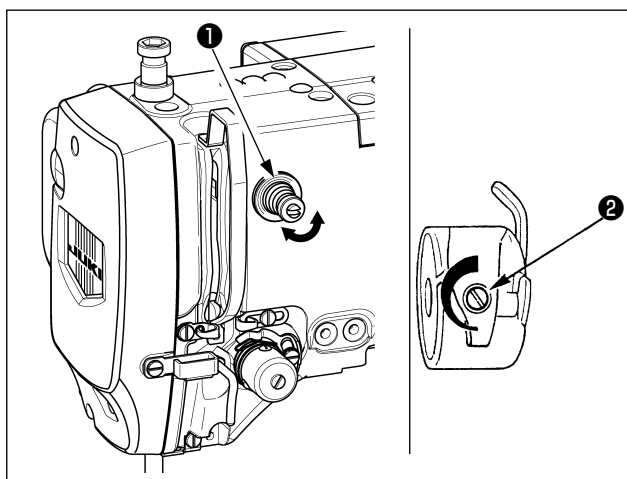
WARNING :
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Set the bobbin ❶ into bobbin case ❷ in the direction shown in the figure.
- 2) Pass the thread through thread slit ❸ of bobbin case ❷, 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 ❹.
- 3) Pass the thread through thread hole ❺ of the horn section, and pull out the thread by 2.5 cm from the thread hole.

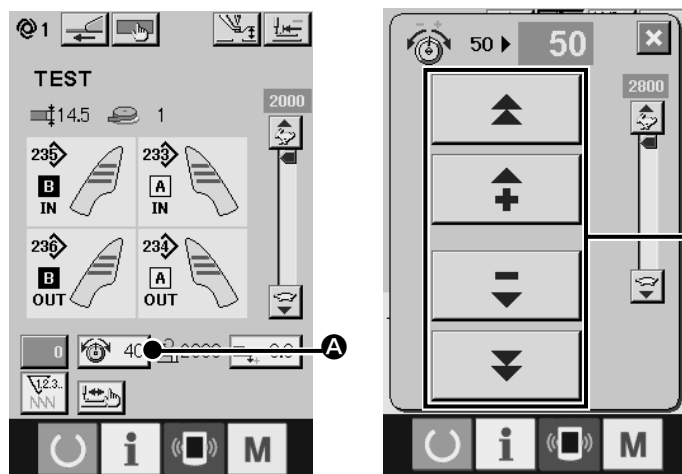
Caution
If the bobbin is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

(6) Adjusting the thread tension



If thread tension controller No. 1 ❶ is turned clockwise, the length of remaining thread on the needle after thread trimming will be shorter. If it is turned counterclockwise, the length will be longer. Shorten the length to an extent that the thread is not slipped off. Adjust needle thread tension from the operation panel and bobbin thread tension with ❷.

Adjusting the needle thread tension

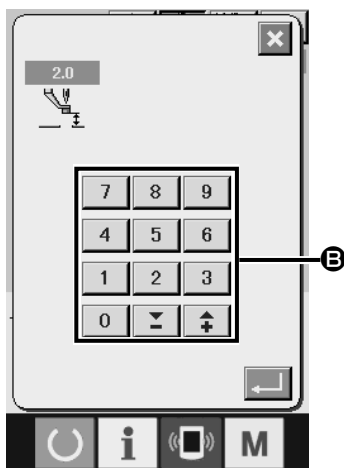



- 1) Select THREAD TENSION button ❶ in the sewing screen.
 - 2) Set a needle thread tension using PLUS/MINUS (+/-) button ❷. There is a setting range of 0 to 200. When the set value is increased, the tension becomes higher.
- * When the set value is 50 at the time of standard delivery, the thread tension is adjusted so that H type is 2.35N (spun thread #50).
(When thread tension No. 1 is released)

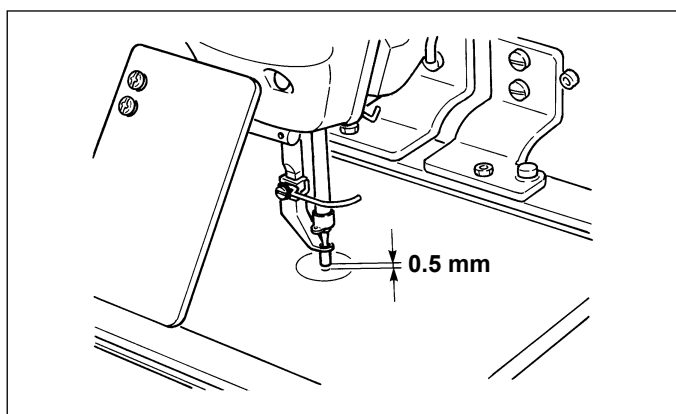
(7) Intermediate presser height



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 get your hands and fingers caught in the feeding frame or intermediate presser.

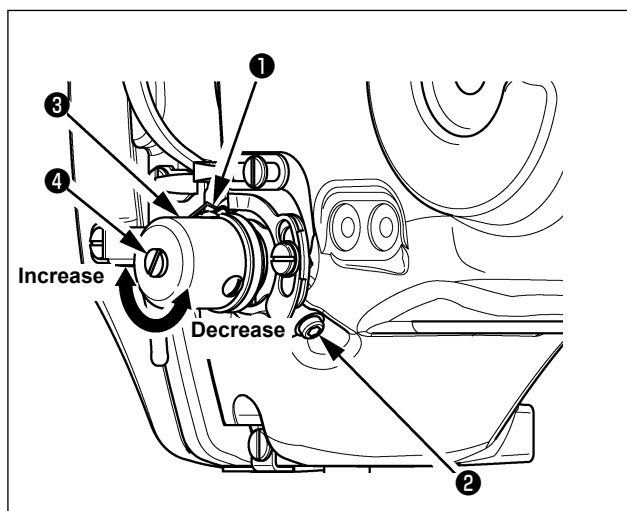


Press INTERMEDIATE PRESSER SETTING button  **A** and adjust with TEN keys **B** so that the clearance between the bottom end of intermediate presser and the cloth is 0.5 mm (thickness of thread used).



When increasing the height of intermediate presser or making the needle size thicker, confirm the clearance between the wiper and the components. Wiper cannot be used unless the clearance is secured. Turn OFF the wiper switch. Besides, note that the wiper is set so as to sweep at the position where the intermediate presser is in the lowest position in spite of the setting of intermediate presser height at the time of delivery. (Memory switch U 105)

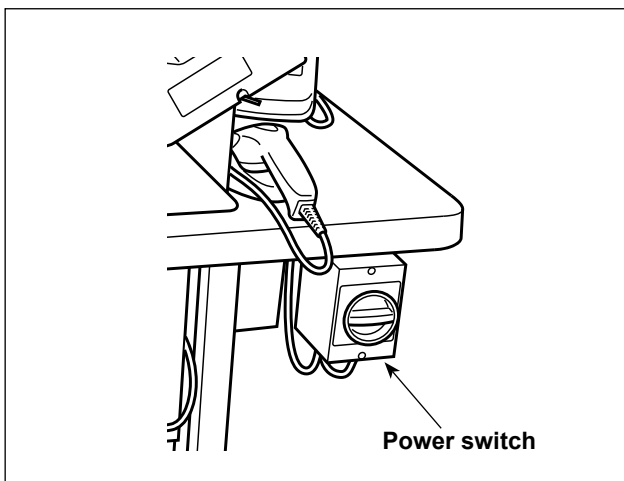
(8) Adjusting the thread take-up spring



- 1) Adjusting the stroke
Loosen setscrew **2**, and turn thread tension asm. **3**.
Turning it clockwise will increase the moving amount and the thread drawing amount will increase.
- 2) Adjusting the pressure
To change the pressure of the thread take-up spring **1**, insert a thin screwdriver into the slot of thread tension post **4** while screw **2** is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring. Turning it counterclockwise will decrease the pressure.

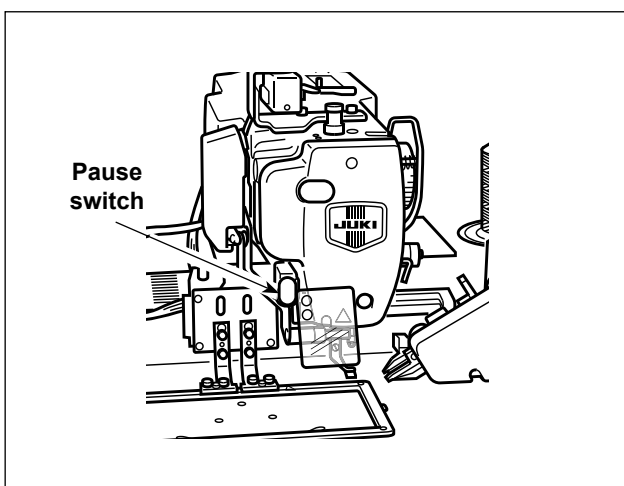
4-2. Operating the sensors and adjusting the pneumatic components

(1) Power switch



This switch is used for turning ON/OFF the power to the device.

(2) Pause switch



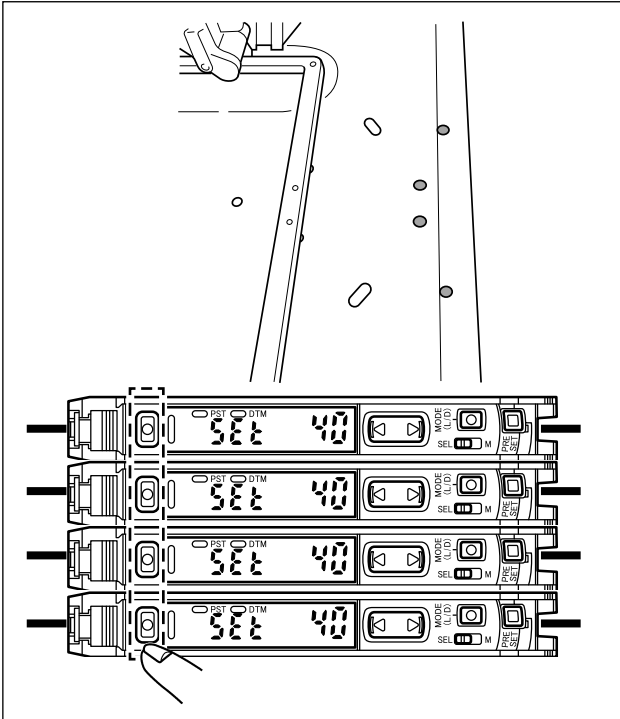
This switch is used for stopping the operation of the device.

(3) Garment body detection sensor

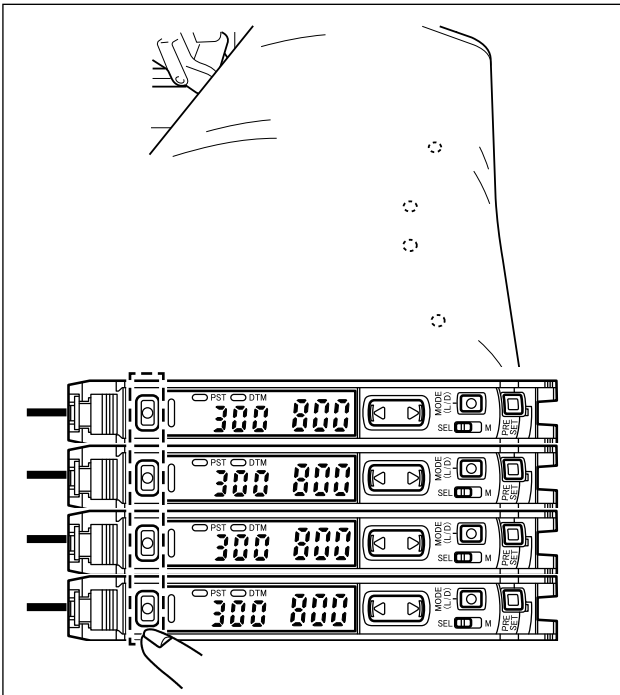
Most of garment bodies can be recognized by the sensor without changing the factory-set sensitivity. In the case, however, the garment body cannot be recognized because of its material or color, the sensor should be adjusted as described below.



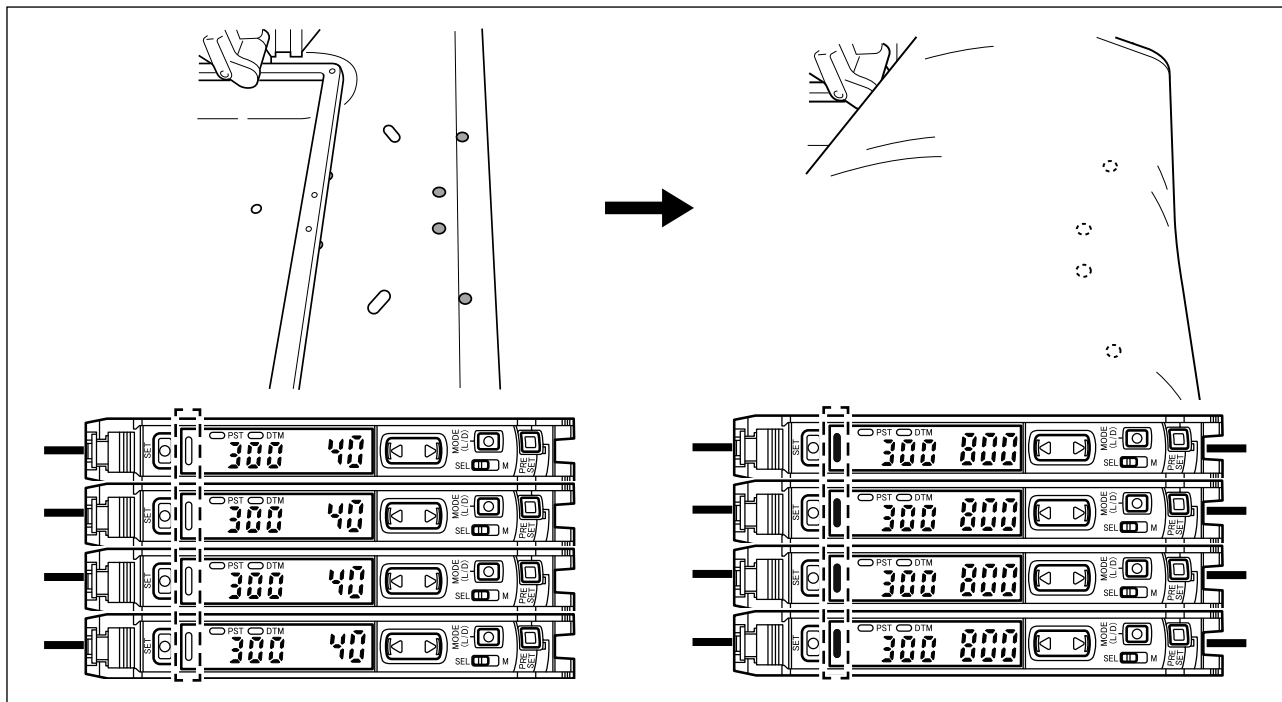
For the garment body which cannot be recognized after the adjustment, set the operation mode to "MANUAL" and select A or B and IN (inner) or OUT (outer) by operating the sewing machine manually. Refer to "II-4-2. Selection of the sewing mode" p.58 for the setting of the operation mode.



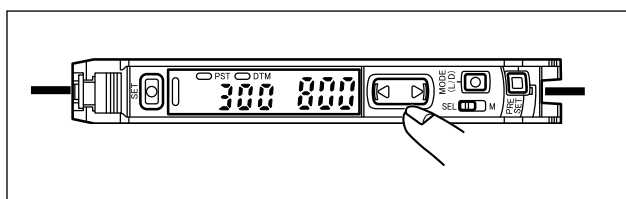
- 1) When nothing is placed on the throat plate auxiliary cover, press the "SET" buttons (press all of the four buttons, A, B, A IN/OUT and B IN/OUT).
- 2) Check to be sure that all of the displays (green) for the threshold show "SET".



- 3) Place a garment body on the throat plate to check that the numerical value on the display for indicating the amount of light received has changed.
- 4) Press the "SET" buttons (press all of the four buttons, A, B, A IN/OUT and B IN/OUT).
- 5) The display (green) of the threshold is changed.



6) Check to be sure that the operation indicating lamp goes out when a garment body is not placed on the throat plate auxiliary cover and lights up when a garment body is placed there.



7) To set the threshold at a desired value, press the "UP/DOWN" button to set a new threshold.

* The factory-set threshold at the time of shipment is "300" (garment body sensors, A, B, A IN/OUT, B IN/OUT).

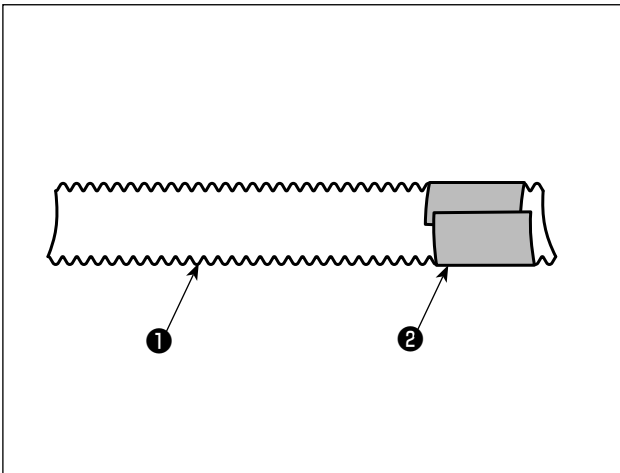


1. In the case the operation indicating lamp lights up when a garment body is not placed on the machine, increase the threshold.
2. Clean up the garment body detection hole in the throat plate auxiliary cover with an air gun since a false detection by the garment body detection sensor can be caused if the hole is covered.
3. Do not place hands over the garment body detection sensor when you start the sewing machine. The sensor can detect erroneously to fail to properly determine A, B, IN and OUT. (This caution is particularly important when you have re-adjusted the sensor to lower the threshold.)

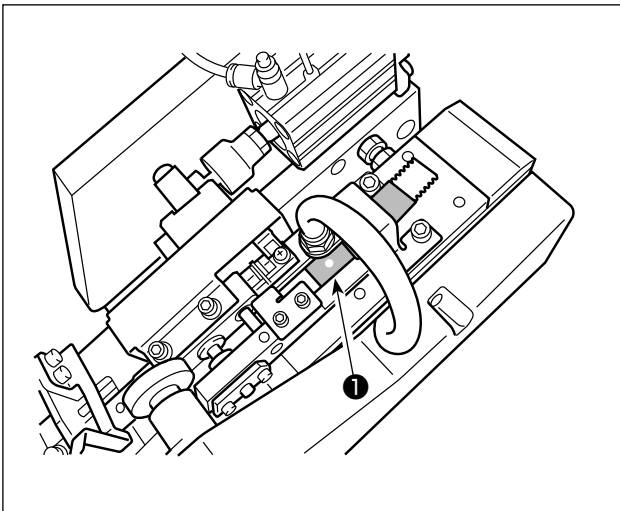
(4) Gold tape detection sensor



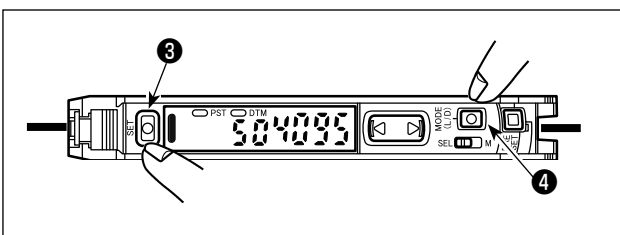
Most of gold tapes (splice tapes) can be recognized by the sensor without changing the factory-set sensitivity. In the case, however, the gold tape cannot be recognized because of its type or material, the sensor should be adjusted as described below.



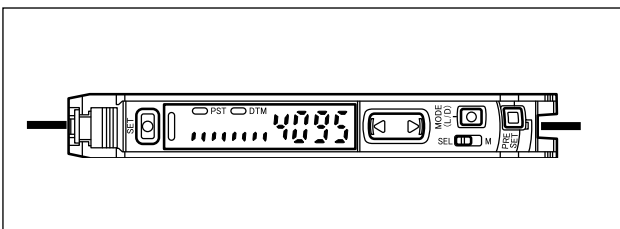
- 1) Prepare the following parts.
 - ① Gold tape (splice tape)
 - ② Tape which has the highest reflection rate among all tapes in use



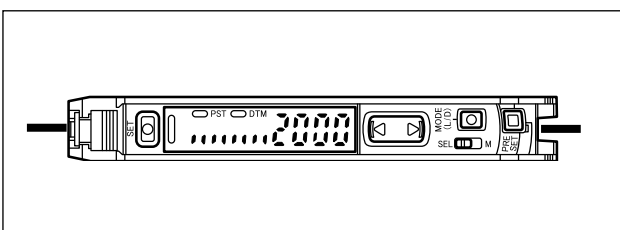
- 2) Insert gold tape (splice tape) ① until the sensor light position is reached.



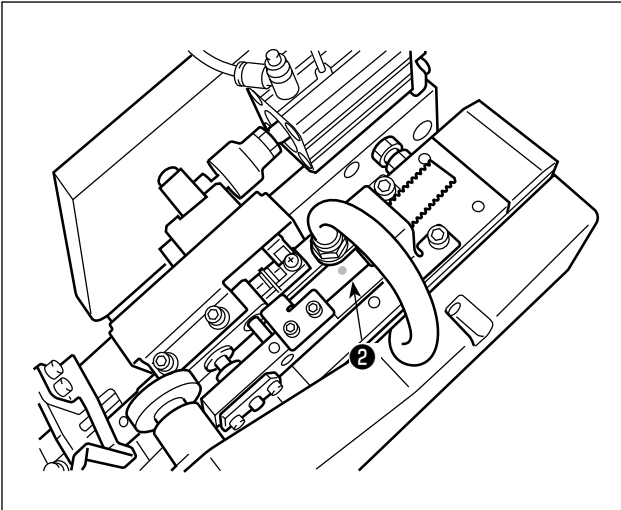
- 3) In this state, press "MODE" button ④ while pressing "SET" button ③ .



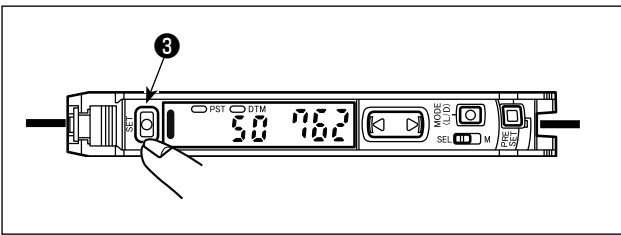
- 4) The threshold of the amplifier is shown on the display (green) as ██████████ .



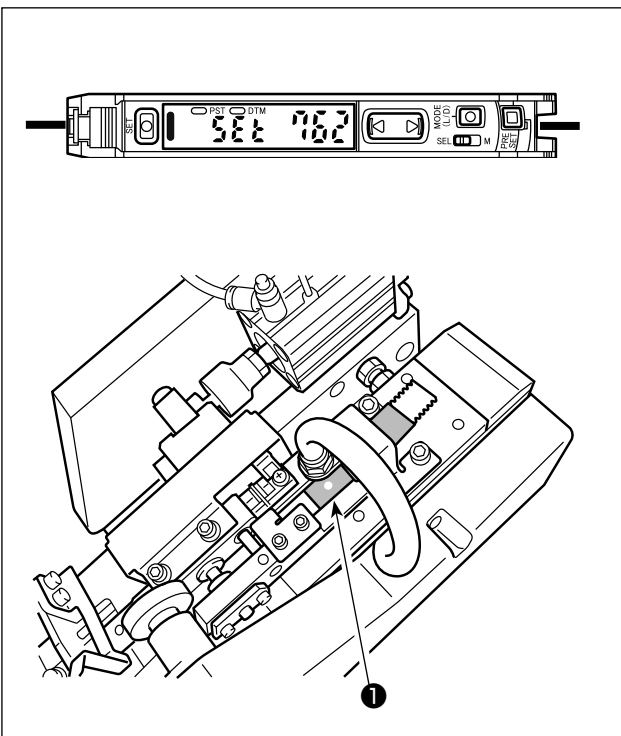
- 5) Thereafter, red display (the amount of light received) indicates approximately 1700 to 2300.



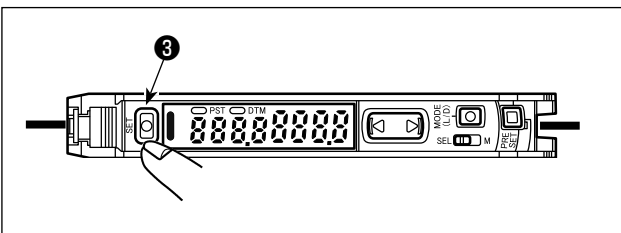
6) In this state, remove the gold tape. Insert the tape ② which has the highest reflection rate among all tapes in use until the sensor light position is reached.



7) Press "SET" button ③ of the amplifier.



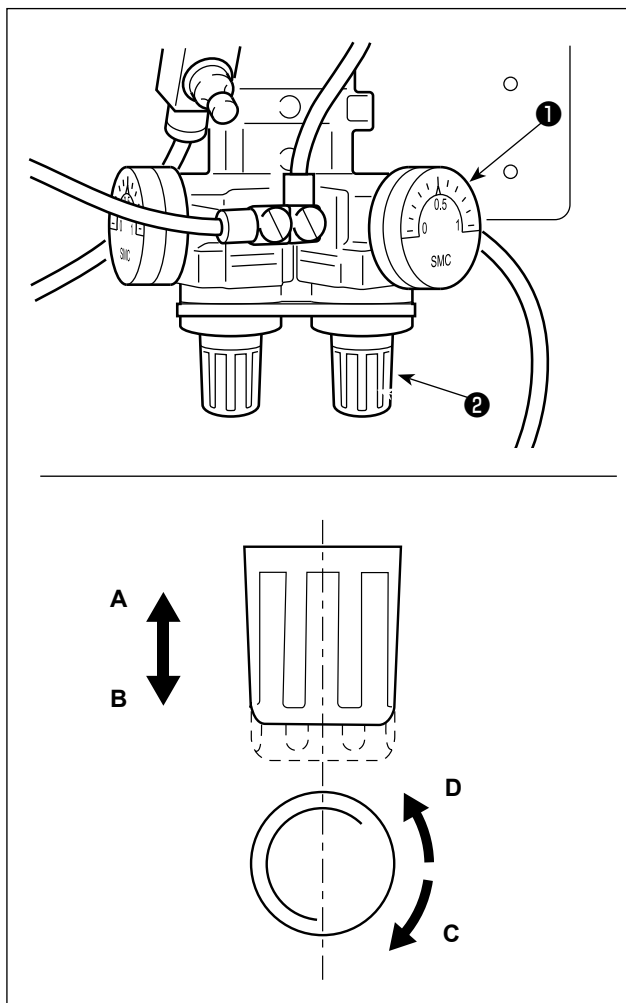
8) When "SET" is indicated on the threshold display (green), insert gold tape (splice tape) ① until the sensor light position is reached.



9) Press "SET" button ③ again.

10) In this state, the amplifier adjustment is completed.

(5) Adjusting the roller pressure



- 1) Set the air pressure at 0.5 MPa. To adjust, pull down knob ② of regulator ① in direction B. If the air pressure is lower than 0.5 MPa, turn knob ② clockwise (direction C). If it is higher than 0.5 MPa, turn the knob counterclockwise (direction D).
- 2) When the air pressure is set at 0.5 MPa, push down knob ② until it clicks (direction A). The knob can be locked in this state.

Caution
If the air pressure is set at a value higher than 0.5 MPa, the pressure applied to the tape by the roller is increased to damage the tape.

5. OPERATION OF THE SEWING MACHINE



WARNING :

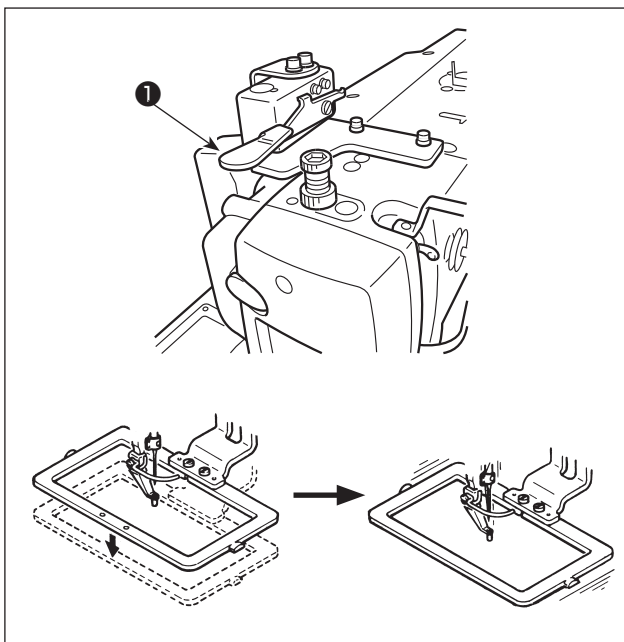
In order to prevent accidents due to abrupt start of the sewing machine, take added care not to press the START switch unless it is necessary

5-1. Sewing



Take care not to get your hands and fingers caught in the feeding frame or intermediate presser when they are in operation.

In addition, be careful not to allow your hands and fingers to hit against the work clamp since it moves at a high speed.




- 1) Set a workpiece on the sewing machine.
- 2) When START switch ❶ is pressed, the feeding frame comes down and the sewing machine starts sewing.
- 3) Upon completion of sewing, the needle tip returns to the sewing starting position and the feeding frame goes up.



Keep your hands away from machine head while the sewing machine is in operation.


5-2. Needle thread clamp device

* The "thread clamp operation" has been disabled at the time of shipment.

By actuating the needle thread clamp device, trouble of sewing at the high-speed start (needle thread slip-off, stitch skipping or needle thread stain) is prevented, and can reduce gathering (bird's nest) of needle thread on the wrong side of cloth while keeping stable sewing. When mounting the IP-420, changeover of motion ON/OFF is performed with  key.

When the needle thread clamp device is OFF, the machine automatically operates at slow-start.



When memory switch No. 35 is "1" (prohibited), the thread clamp does not work. In addition,  key is ineffective.

* Matters that demand special attention when using the needle thread clamp device

Refer the respective types and the contents of the memory switches that can be set to the list below.

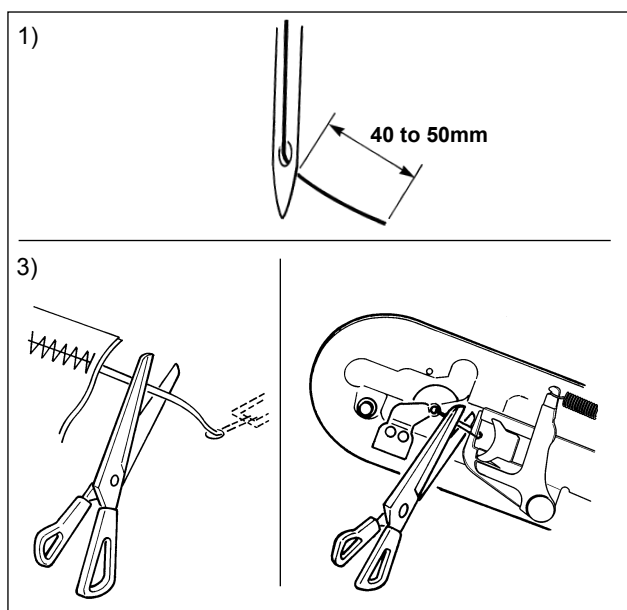
Sewing machine type	Thread clamp unit type	Memory switch	
		U69	U70
AMS-210EN2210	H type	1 : H type thin thread (standard)(#50 to #8) 2 : H type intermediate (#20 to #5) 3 : H type thick thread (#5 to #2)	0 : Front 1 : Rear (standard)

[Regarding H type thread clamp unit]

Change the set value of memory switch U069 in accordance with the thickness of needle thread. The set value has been set to 1 : H type thin thread at the time of delivery. Commendable value is Set value : 1 for thread count #50 to #8, Set value : 2 for thread count #20 to #5, and Set value : 3 for thread count #5 to #2. (The value will change in accordance with the kind and thickness of the actual thread and the kinds of materials to be sewn.) Set the value by adjusting to the state of needle thread on the wrong side of materials.

In addition, it is possible to select the thread clamp position by means of memory switch U070. When using thick thread of thread count #5 to #2, and rolling-in or tucking at the start of sewing occurs, set the set value to 1 : Rear and use the machine.

(1) When with thread clamp (motion), use the sewing machine after adjusting the needle thread length at the start of sewing to 40 to 50 mm. When the needle thread length is too long, the needle thread end held with the needle thread clamp may be rolled in the seams.



1) In case of with the needle thread clamp, the standard of the length of needle thread is 40 to 50 mm.

- To prevent the thread from slipping off from the needle eyelet at the beginning of sewing or to prevent stitch skipping from the first stitch
→ Adjust the length of needle thread longer within the range.
- To prevent stitch skipping within the second to tenth stitches from the beginning of sewing
→ Adjust the length of needle thread shorter within the range



When needle thread is excessively long at the time of using the thick thread, the end of needle thread held with the needle thread clamp is rolled in the seams, and slip of position of material may occur or needle breakage may be caused.

(2) When the thread clamp is used, and bobbin thread at the sewing start appears on the right side of material, reduce thread tension at the sewing start (2 to 3 stitches) and bobbin thread becomes less conspicuous.

[Example of setting]

Tension of 1 to 2 stitches at the sewing start is "20" when sewing tension setting is "35".

* For setting of tension at the start of sewing, see of "**I-4-1.(6) Adjusting the thread tension**" p.13.

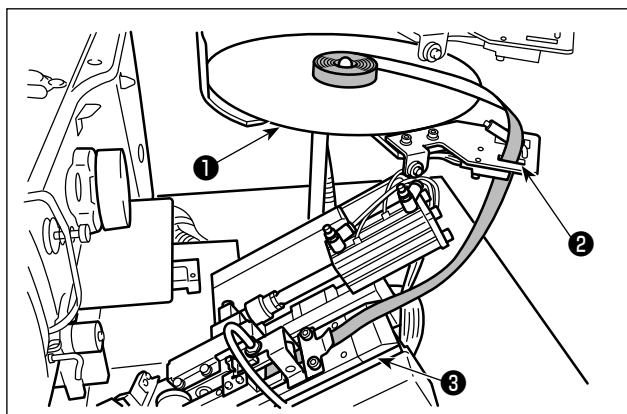


1. Thread at the start of sewing may be rolled in case of some patterns. When thread is rolled in even after performing adjustment of (1) or (2), use the sewing machine with thread clamp OFF.
2. Thread clamp failure may occur in the state that thread waste is jammed in the thread clamp device. Remove the thread waste referring to "III-1-6. Needle thread clamp device" p.117.

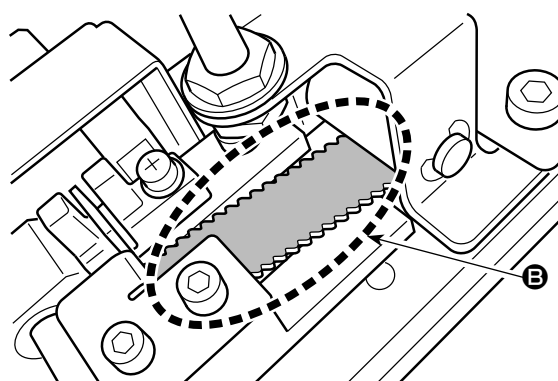
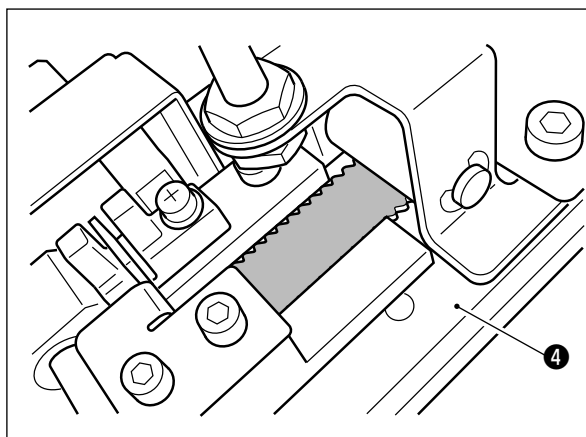
5-3. How to feed the tape



1) Press ready key **A** to bring the main body of the sewing machine in the ready state.

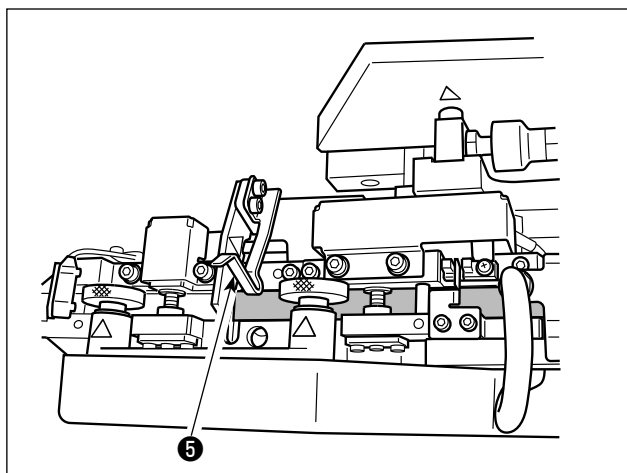


2) Place the tape on tape reel base **1**. Pass the tape through the hole in tape guide **2** and insert it into tape guide plate **3**.



3) Feed the tape along the groove in tape travel guide **4**.

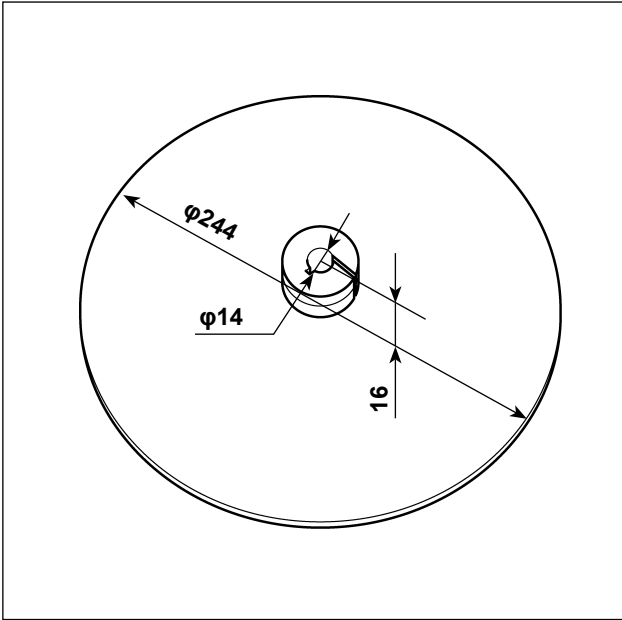
At this time, check to be sure that the tape does not protrude as **B**.



4) Pull tape clamp **5** upward to feed the tape until it comes in contact with the top end of the knife.

1. Do not carry out tape supplying work immediately after turning ON the POWER switch. Since the tape feeder unit and the knife unit can move, a personal injury may be caused.
2. On the operation check screen which appears after the power is turned ON, press the RESET switch. Then, the guide width motor carries out the origin retrieval. After the completion of the origin retrieval, set the tape on the feeder.
3. In the case the tape is fed before the sewing machine completes the preparation for sewing, the tape travel guide will move to cause the tape to be caught in the guide. If the tape is fed before the sewing machine completes the preparation for sewing, draw out the tape once from the tape travel guide. Then, wait until the sewing machine completes the preparation for sewing and re-feed the tape.





- * Tape reel base ❶ is not supplied with the sewing machine.
Make it according to the dimensions shown in the figure.

II. OPERATION SECTION (WITH REGARD TO THE PANEL)

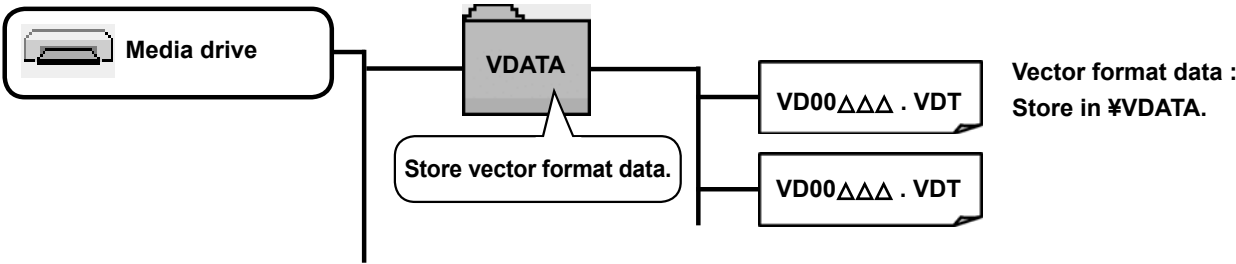
1. PREFACE

1) Kind of sewing data handled with IP-420

Pattern name	Description
Users' pattern	Pattern that can be stored in the body. Max. 999 patterns can be registered.

2) Folder structure of the media

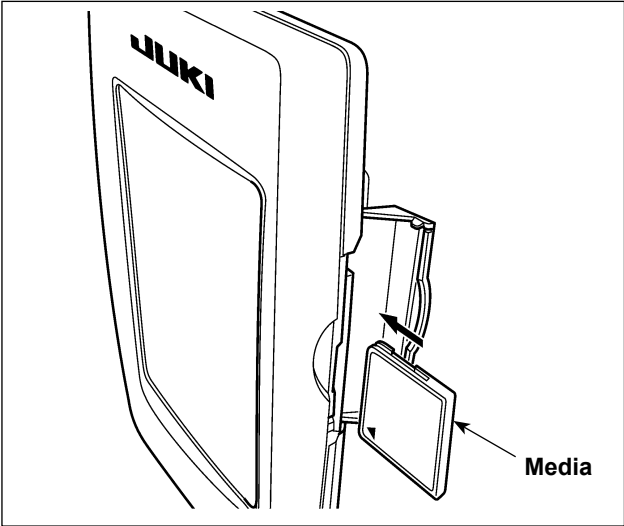
Store each file in the directories below of the media.



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

4) CompactFlash (TM)

■ Inserting the CompactFlash (TM)

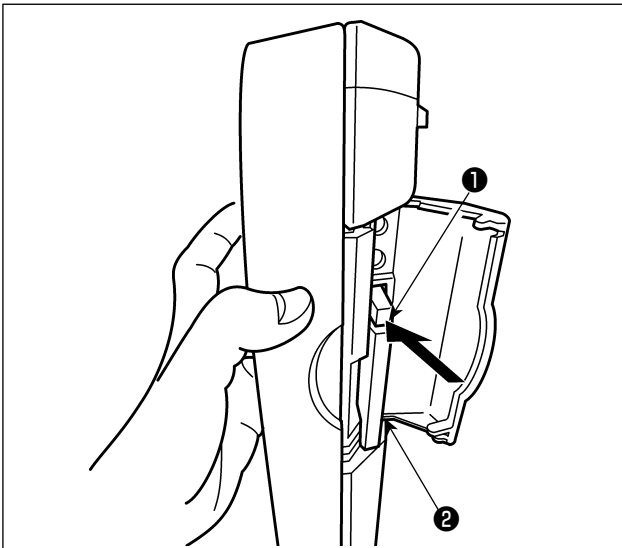


- 1) Turn the label side of the CompactFlash(TM) to this side (place the notch of the edge to the rear.) and insert the part that has a small hole into the panel.
- 2) After completion of setting of the media, close the cover. By closing the cover, it is possible to access. If the media and the cover come in contact with each other and the cover is not closed, check the following matters.
 - Check that the media is securely pressed until it goes no further.
 - Check that the inserting direction of the media is proper.

Caution

1. When the inserting direction is wrong, panel or media may be damaged.
2. Do not insert any item other than the CompactFlash (TM).
3. The media slot in the IP-420 accommodates to the CompactFlash (TM) of 2 GB or less.
4. The media slot in the IP-420 supports the FAT16 which is the format of the CompactFlash (TM). FAT32 is not supported.
5. Be sure to use the CompactFlash (TM) which is formatted with IP-420. For the formatting procedure of the CompactFlash (TM), see "II-4-19. Performing formatting of the media", p.92.

■ Removing the CompactFlash (TM)



- 1) Hold the panel by hand, open the cover, and press the media ② removing lever ①. The media is eject.

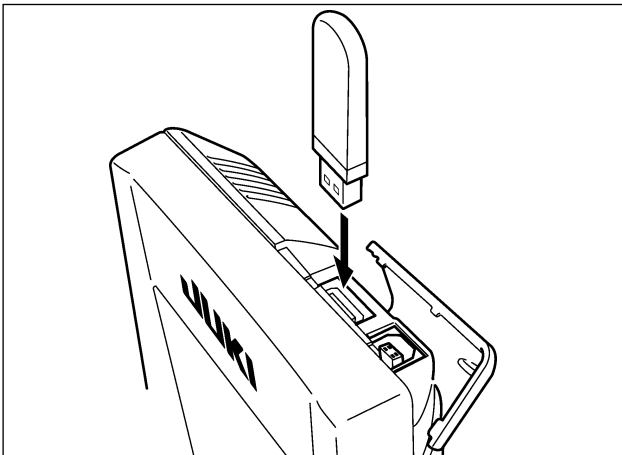


When the lever ① is strongly pressed, the media ② may be broken by protruding and falling.

- 2) When the media ② is drawn out as it is, removing is completed.

5) USB port

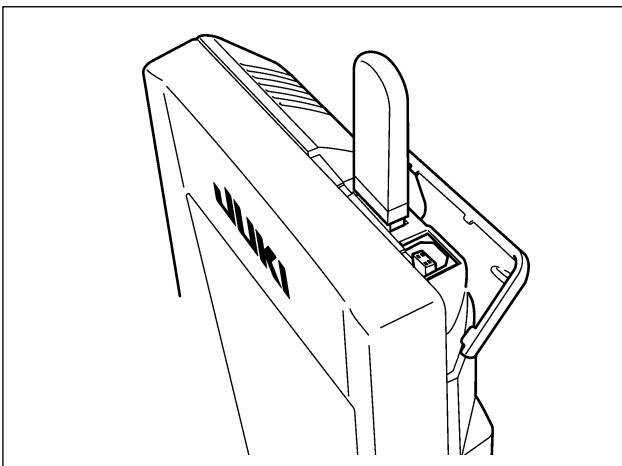
■ Inserting a device into the USB port



Slide the top cover and insert the USB device into the USB port. Then, copy data to be used from the USB device onto the main body.

After completion of copying the data, remove the USB device.

■ Disconnecting a device from the USB port



Remove the USB device. Put the cover back in place.

Cautions when using the media



- Do not wet or touch it with wet hands. Fire or electric shock will be caused.
- Do not bend, or apply strong force or shock to it.
- Never perform disassembling or remodeling of it.
- Do not put the metal to the contact part of it. Data may be disappeared.
- Avoid storing or using it in the places below.

Place of high temperature or humidity / Place of dew condensation /

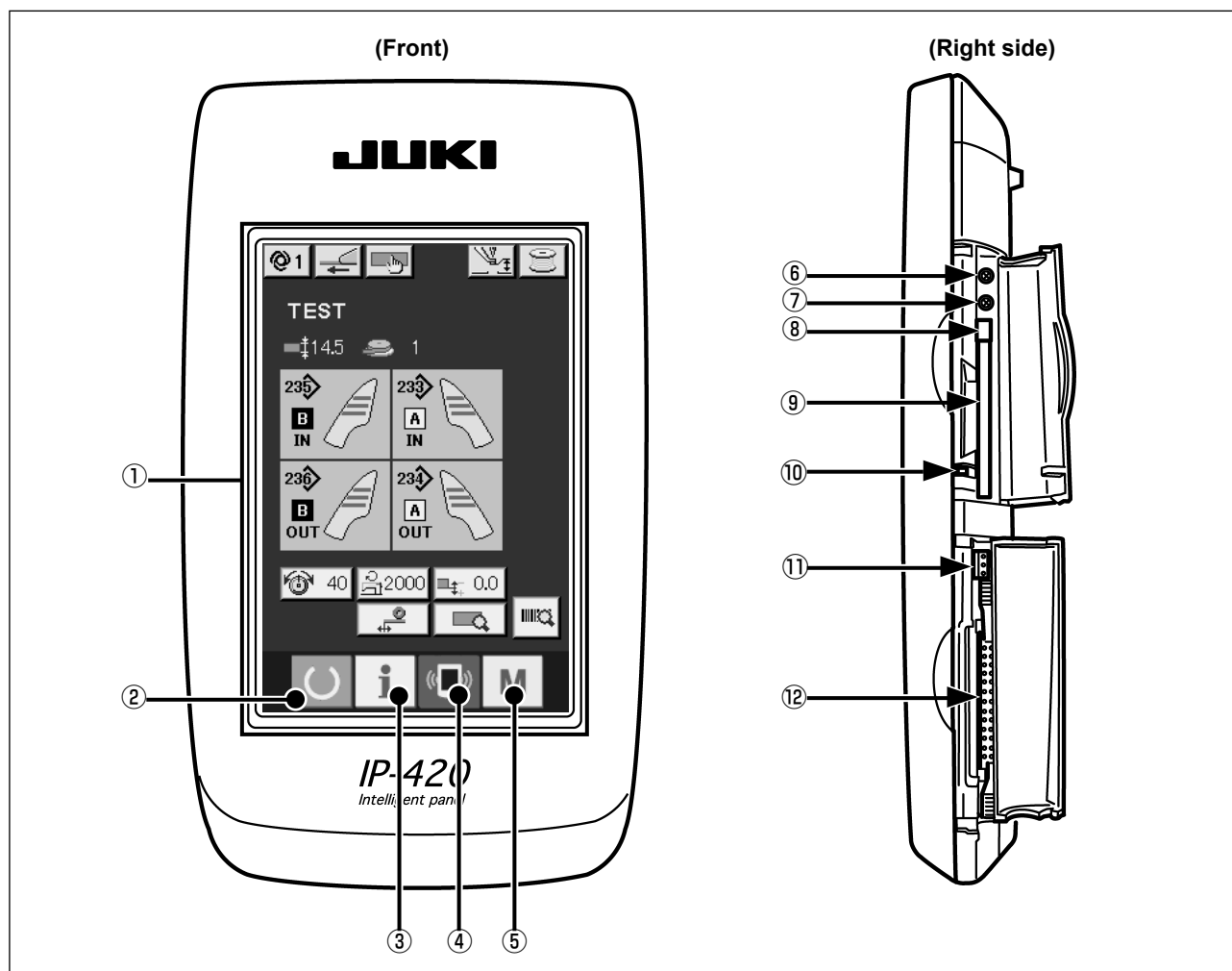
Place with much dust / Place where static electricity or electrical noise is likely to occur

- 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.
 - When the panel displays the communication screen or pattern data list, the USB drive is not recognized even if you insert a medium into the slot.
 - For USB devices and media such as CF cards, only one device/medium should be basically connected/inserted to/into the sewing machine. When two or more devices/media are connected/inserted, the machine will only recognize one of them. Refer to the USB specifications.
 - Insert the USB connector into the USB terminal on the IP panel until it will go no further.
 - Do not turn the power OFF while the data on the USB flash drive is being accessed.
- ② USB specifications
- Conform to USB 1.1 standard
 - Applicable devices *1 ___ Storage devices such as USB memory, USB hub, FDD and card reader
 - Not-applicable devices ___ CD drive, DVD drive, MO drive, tape drive, etc.
 - Format supported ___ FD (floppy disk) FAT 12
Others (USB memory, etc.), FAT 12, FAT 16, FAT 32
 - Applicable medium size _ FD (floppy disk) 1.44MB, 720kB
Others (USB memory, etc.), 4.1MB ~ (2TB)
 - Recognition of drives ___ For external devices such as a USB device, the device which is recognized first is accessed. However, when a medium is connected to the built-in media slot, the access to that medium will be given the highest priority. (Example: If a medium is inserted into the media slot even when the USB memory has already been connected to the USB port, the medium will be accessed.)
 - Restriction on connection _ Max. 10 devices (When the number of storage devices connected to the sewing machine has exceeded the maximum number, the 11th storage device and beyond will not be recognized unless they are once disconnected and re-connected.)
 - Consumption current ___ The rated consumption current of the applicable USB devices is 500 mA at the maximum.




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


2. WHEN USING IP-420

2-1. Name of each section of IP-420



① Touch panel • LCD display section










- ②  READY key → Changeover of the data input screen and the sewing screen can be performed.
- ③  INFORMATION key → Changeover of the data input screen and the information screen can be performed.
- ④  COMMUNICATION key → Changeover of the data input screen and the communication screen can be performed.

⑤  MODE key → Changeover of the data input screen and the mode changeover screen which performs various detail settings can be performed.

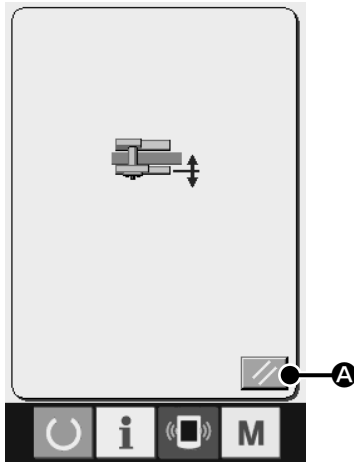
- ⑥ Contrast control
- ⑦ Brightness control
- ⑧ CompactFlash (TM) eject button
- ⑨ CompactFlash (TM) slot
- ⑩ Cover detection switch
- ⑪ Connector for external switch
- ⑫ Connector for control-box connection

2-2. Buttons to be used in common

The buttons which perform common operations in each screen of IP-420 are as follows :

- | | | |
|---|------------------------|--|
|  | CANCEL button | → This button closes the pop-up screen.
In case of the data change screen, the data being changed can be cancelled. |
|  | ENTER button | → This button determines the changed data. |
|  | UP SCROLL button | → This button scrolls the button or the display in the upward direction. |
|  | DOWN SCROLL button | → This button scrolls the button or the display in the downward direction. |
|  | RESET button | → This button performs the release of error. |
|  | NUMERAL INPUT button | → This button displays ten keys and input of numerals can be performed. |
|  | CHARACTER INPUT button | → This button displays the character input screen. |
|  | RESSER LOWERING button | → Presser is lowered, and the presser lowering screen is displayed. To lift presser, press presser lift button displayed in the presser lowering screen. |
|  | Bobbin winder button | → Bobbin thread winding is performed.
→ Refer to “II-4-15. Winding bobbin thread” p.77. |

2-3. Basic operation of IP-420



① Turning ON the POWER switch.

When the POWER switch is turned ON firstly, the operation check screen is displayed.

When the RESET button  (A) is pressed, the tape feed unit carries out the origin retrieval.





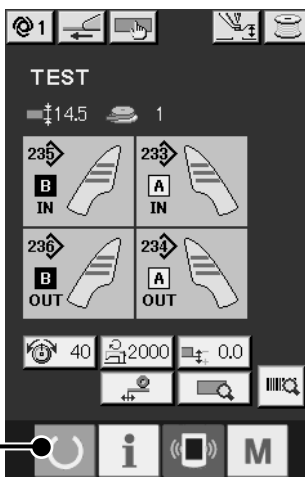
1. Do not carry out tape supplying work immediately after turning ON the POWER switch. Since the tape feeder unit and the knife unit can move, a personal injury may be caused.
2. On the operation check screen which appears after the power is turned ON, press the RESET switch. Then, the guide width motor carries out the origin retrieval. After the completion of the origin retrieval, set the tape on the feeder.

② Selecting the language for display

The language selection screen is displayed. Select the language you use. (It can be changed by means of the MEMORY switch U500.)



When ending the selection screen with CANCEL button  or ENTER button  without performing the language selection, the language selection screen is displayed whenever the power is turned ON.




③ Scanning the bar-code corresponding to the sewing pattern you want to sew

After the completion of the origin retrieval, the data entry screen is displayed.

Scan the bar-code which corresponds to the sewing pattern you want to sew with the bar-code reader.

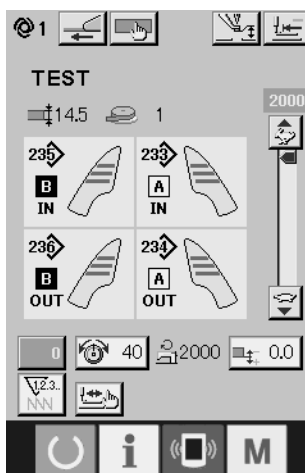
(Refer to "II-3-2. Creating a bar-code" p.37 for detailed information on the bar-code.)

When the barcode is read, the data corresponding to the scanned bar-code appears on the screen.

When READY key  (B) is pressed, the background color of the LCD changes over to green to indicate that sewing can be started.

Place a garment body and press the START switch to start sewing.

The bar-code can be read on both the setting screen and the sewing screen.



3. Before the start of sewing

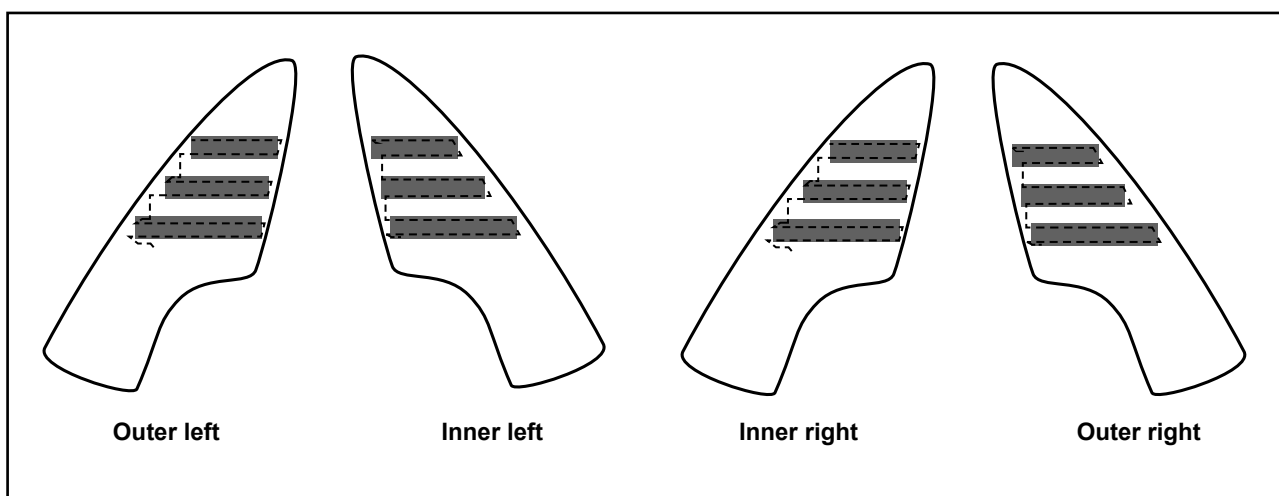
3-1. How to create a sewing pattern

When you use this sewing machine, it is necessary to create sewing patterns (type of data: Vector data) for the garment bodies to be sewn.

Create vector data by means of the main unit input function or the sewing data creation/editing software PM-1.

(Refer the respective Instruction Manuals for how to use the main unit input function or the sewing data creation/editing software PM-1.

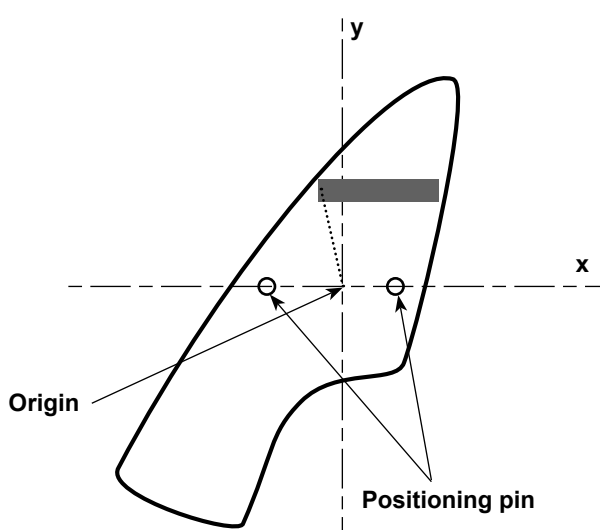
To sew a pair of shoes, four different patterns have to be created for the garment body (outer left, inner left, inner right, outer right) to be sewn.



* The bold-line sections are the tapes. Dotted-line parts are seams.

For two positioning pins

Create a pattern using the middle position between the two positioning pins as an origin (0, 0).

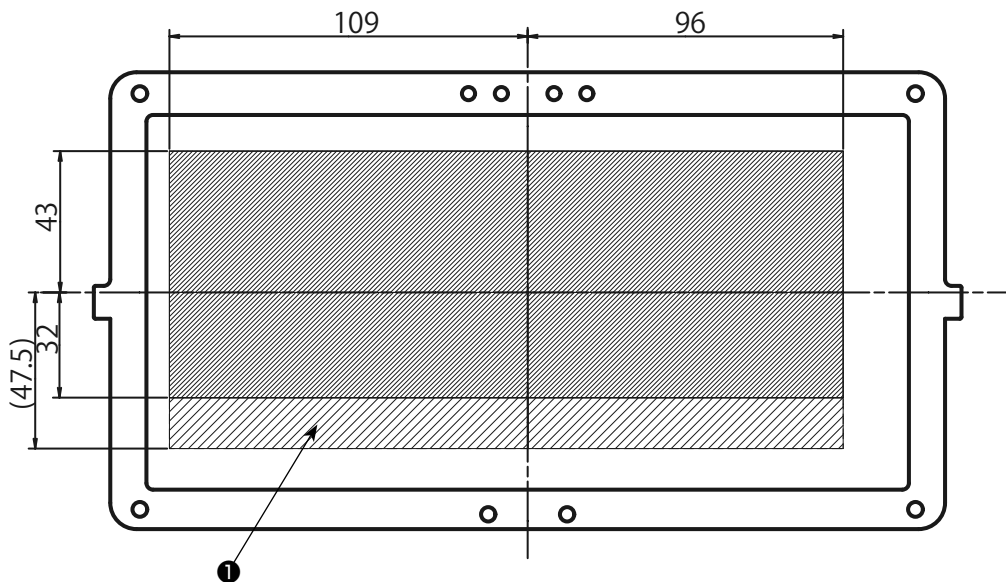


While the data is being entered on the main body, the feeding frame cannot be lifted/low-ered. Place the material on the sewing machine before starting the main-body data entry procedure. The trial stitching mode cannot be used during the main-body data entry procedure.

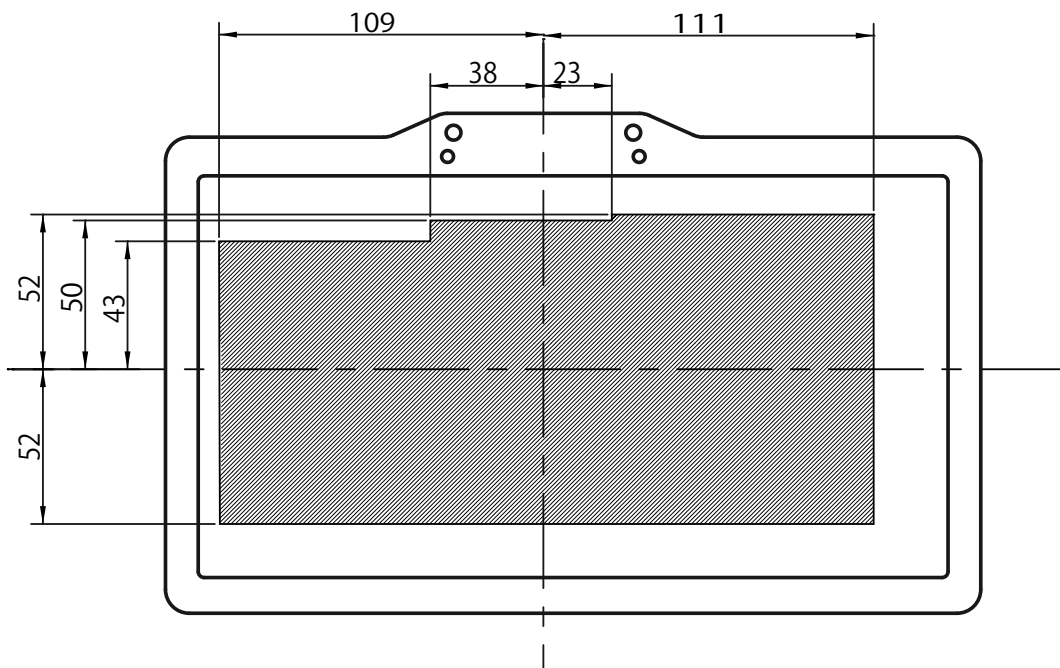
The possible sewing area is as shown in the table below corresponding to the feeding frame. Create a pattern which fits inside the possible sewing area.

■ Sewing range within the large feeding frame

* The dimensions indicate the distance from the position of origin.



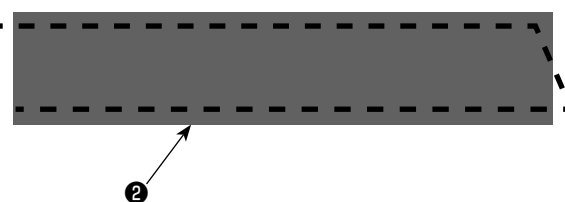
■ Sewing range within the standard feeding frame (Optional)



Sewing range ❶ indicates the sewing range at the time when the tape is returned to the home position (when the feeder goes up) ❷.



If sewing is started from the point that is 32 mm away from the position of origin in Y direction, the tape feeder and the feeding frame can interfere with each other. So, be careful.

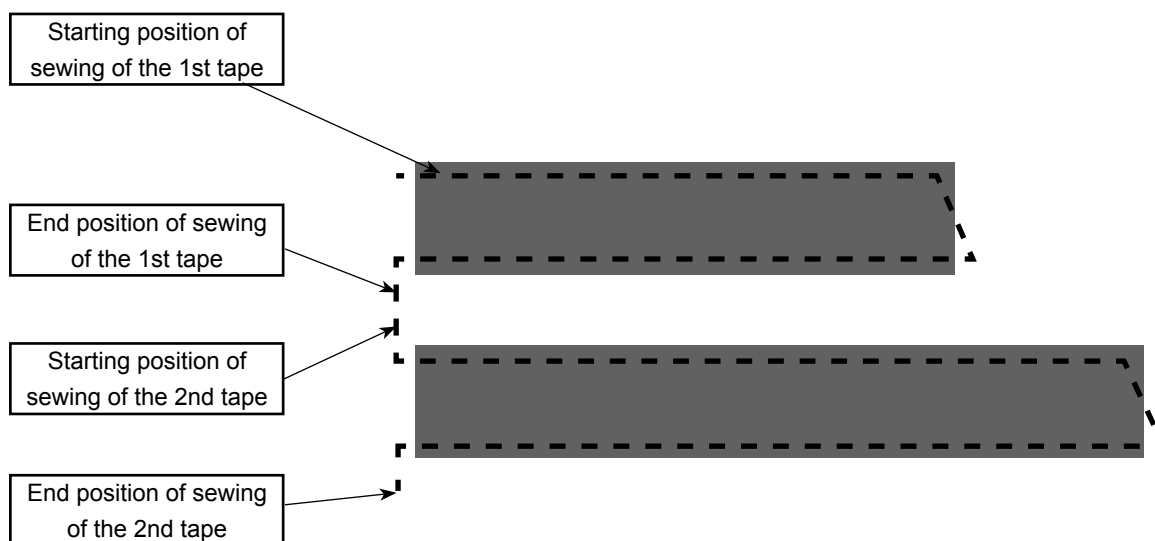


The machine control commands required by the sewing machine are as shown in the table below.

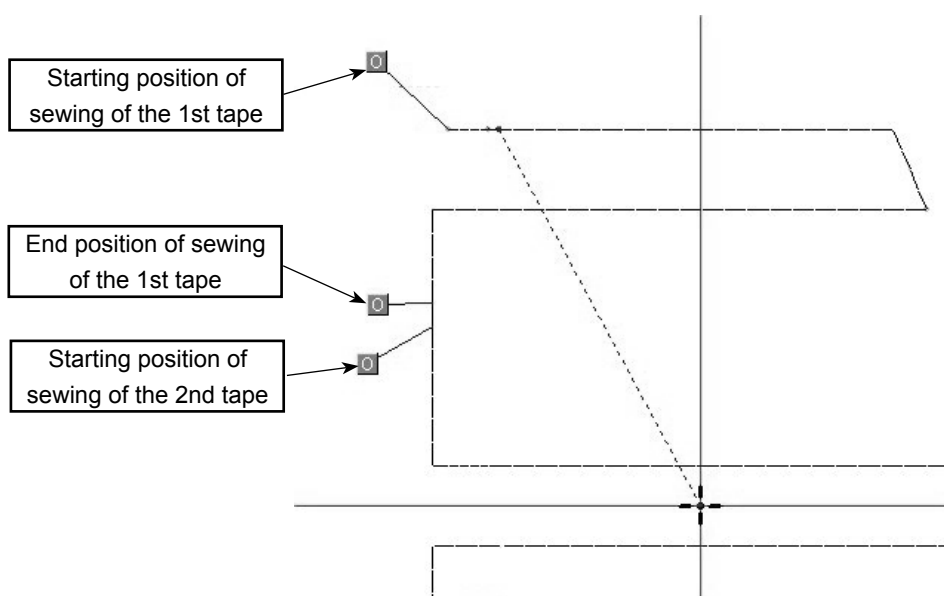
	Machine control command	Function
1	External output command (0)	Separation on a tape-by-tape basis
2	External output command (1)	Starting position of tape feeding and end position of tape feeding

(1) External output (0)

Enter the external output command (0) at the starting position and end position of sewing on a tape-by-tape basis.

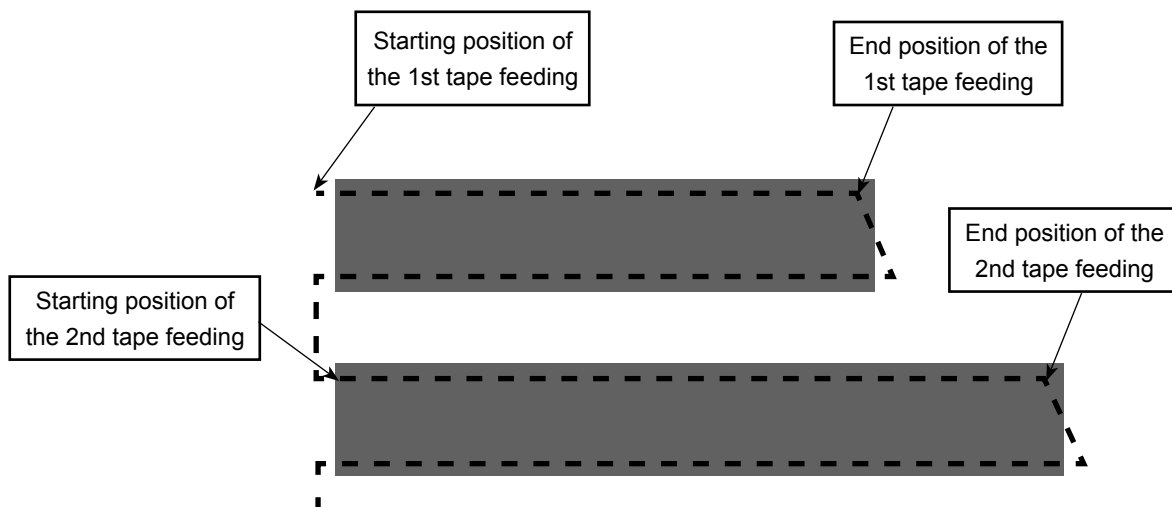


*** Example of display of the PM-1**

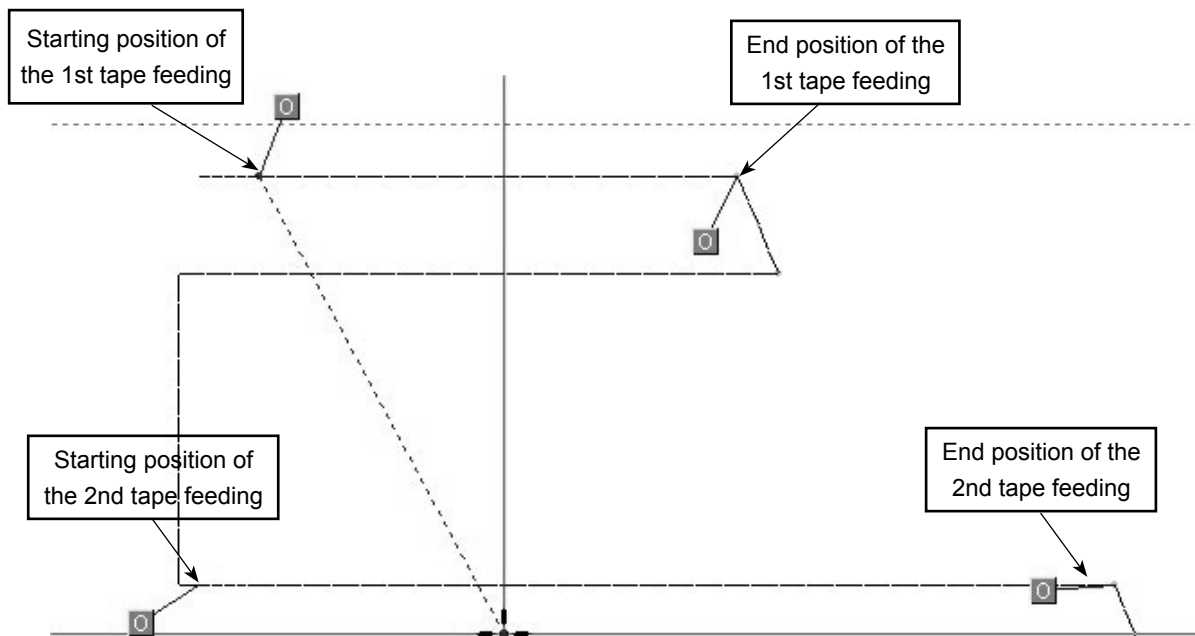


(2) External output (1)

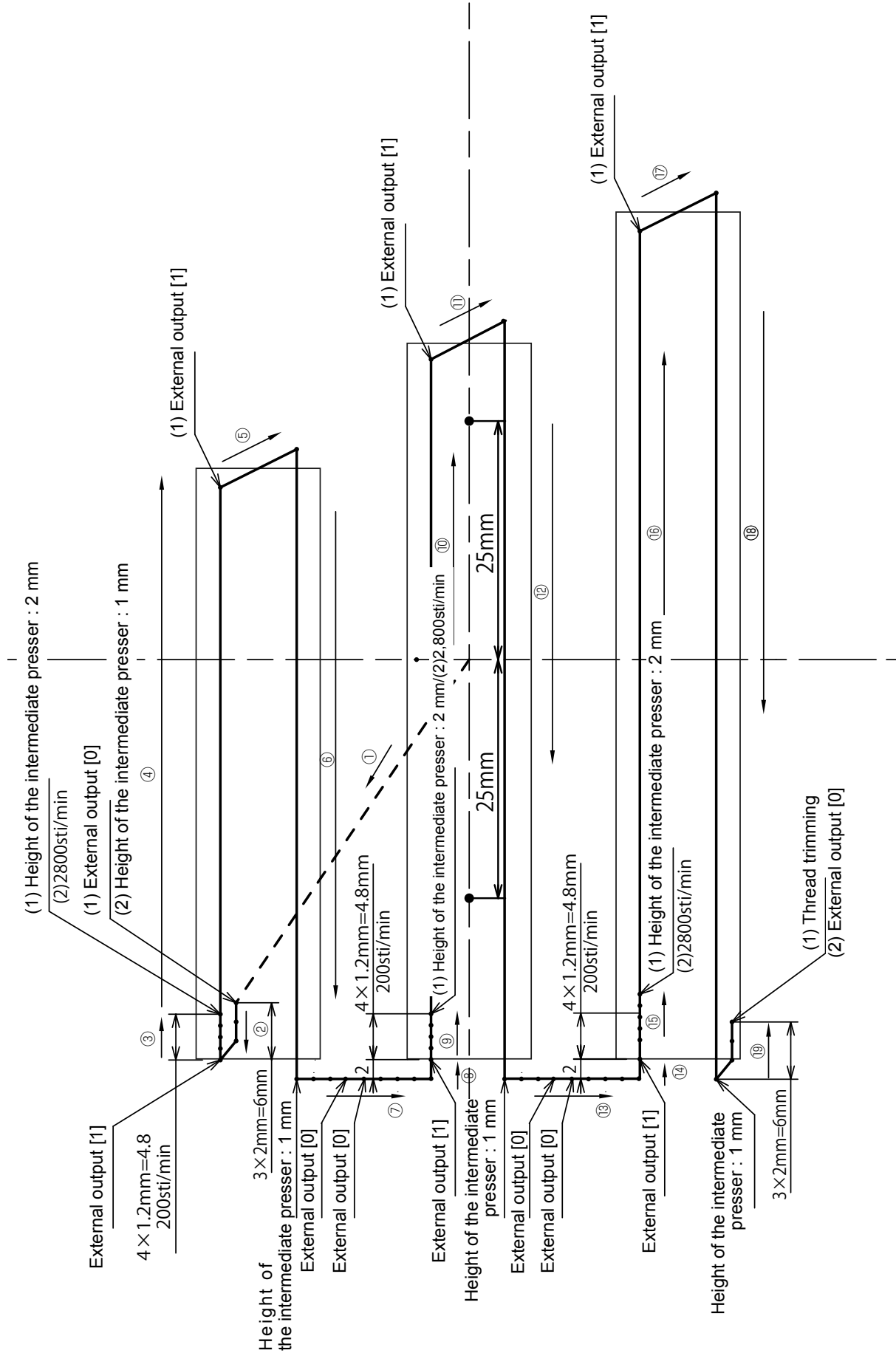
Enter the external command (1) at the starting position of tape feeding and the end position of tape feeding.



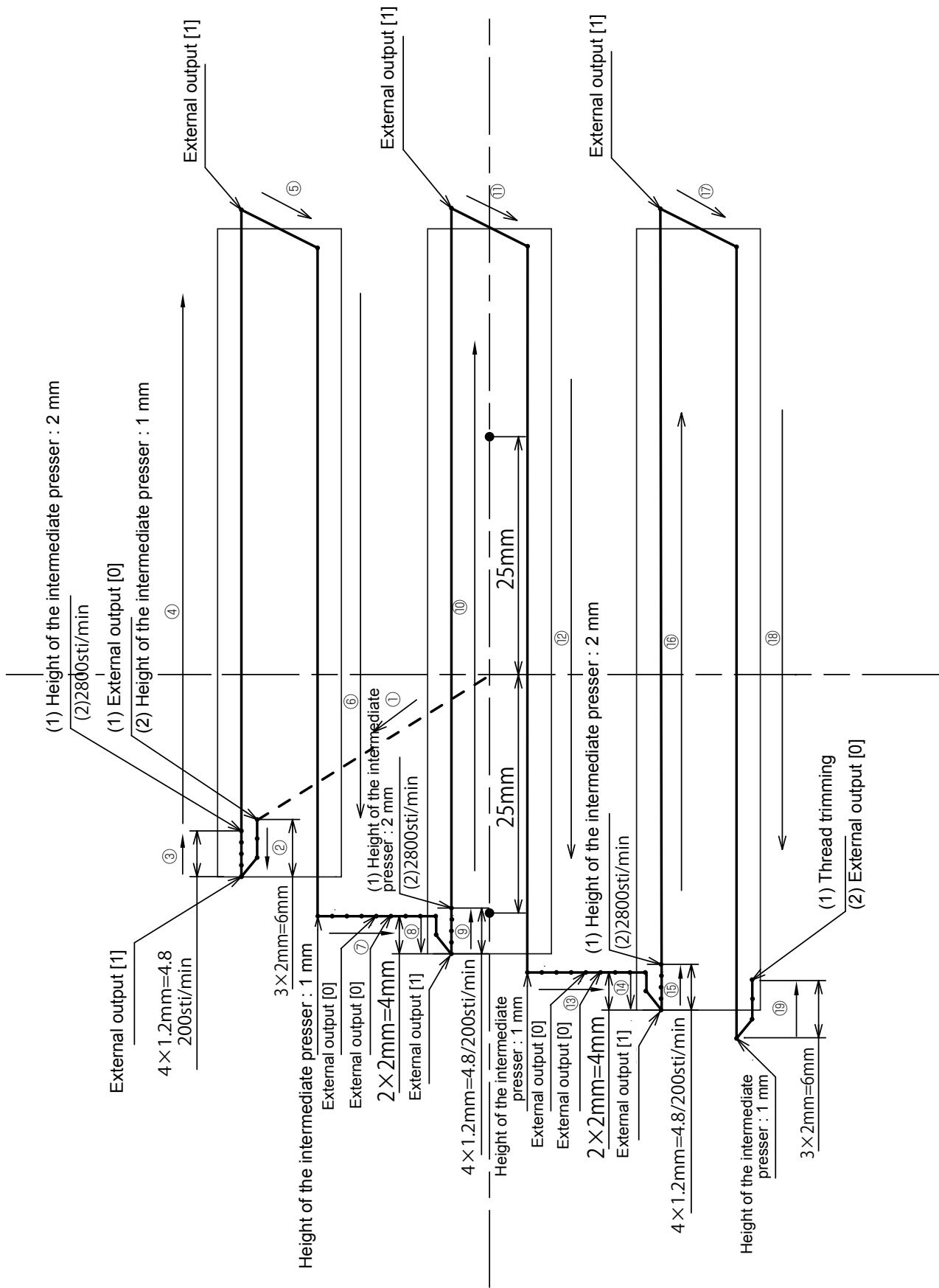
*** Example of display of the PM-1**



Example) Sample pattern for the case of sewing three tapes



- Caution**
1. Enter the intermediate presser height command according to the tape thickness.
 2. The end section of the tape ⑤, ⑩, and ⑰ should be cut at a diagonal line to help decrease slippage of the tape to be sewn next.



1. Enter the intermediate presser height command according to the tape thickness.
2. The end section of the tape ⑤, ⑩, and ⑰ should be cut at a diagonal line to help decrease slippage of the tape to be sewn next.

3-2. Creating a bar-code

(1) Bar-code specification

Supported code	CODE39
Supported characters	A to Z, 0 to 9, +, -, SP (space), . (dot) * If a bar-code which contains character(s) other than those described above, the characters will be replaced with "*" and "*" will be displayed.
Supported number of characters	14



1. The software for creating bar codes is not supplied with the sewing machine. The software which is able to create CODE39 should be prepared.
2. Because of the CODE 39 specifications, asterisks (*) are necessary at the beginning and the end of a bar-code as start/stop characters. Asterisks may not be automatically created depending on the bar-code creation software you use. In this case, add asterisks at the beginning and the end of a bar-code manually.
3. Be sure to provide sufficient allowances on both sides of the sheet of paper (1 cm or more) when you print the code name. If the allowances are not adequate, a read failure can be caused.

(2) Sample of bar-codes



3T



8T



13T



4



9



14



4T



9T



14T



5



10



15



5T



10T



16



6



11



17



6T



11T



18



7



12



19



7T



12T



20



8



13



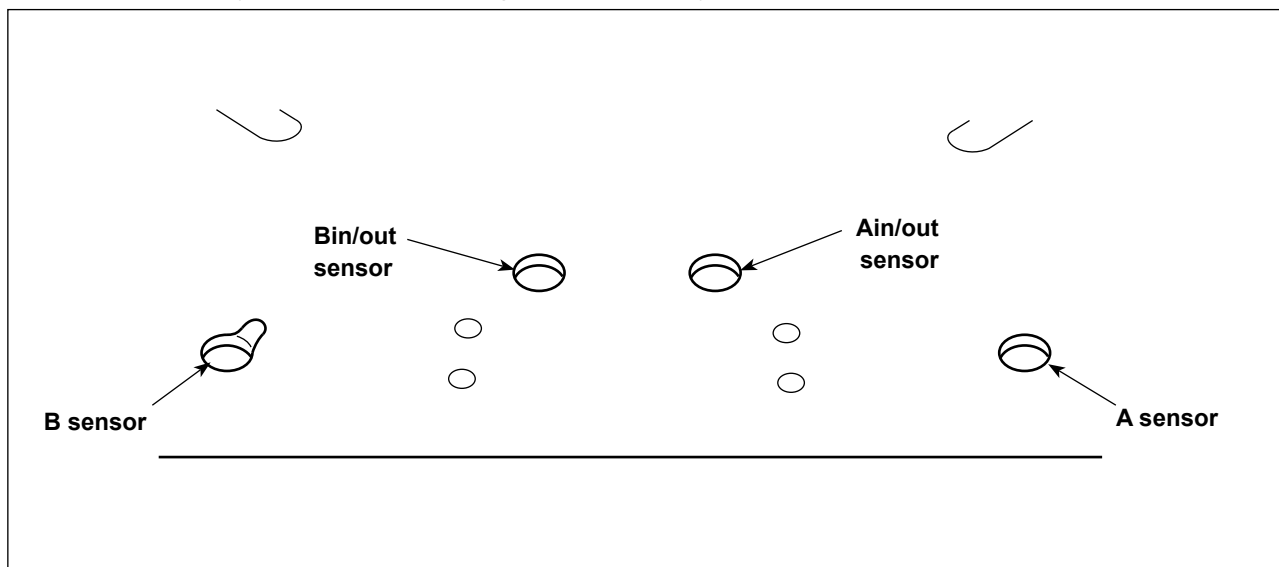
TEST

3-3. Operation modes

The sewing machine operates under three different operation modes.

(1) AUTO 1 mode

Under this mode, the type of garment body placed on the sewing machine is determined by four sensors installed on the throat plate and the vector data corresponding to the type of garment body is automatically selected and sewing is automatically carried out.



Types of garment bodies determined by the sensors are as described below.

A sensor is in the ON state	→ Ain/out sensor is in the ON state	→ Left inner (Ain)
	→ Ain/out sensor is in the OFF state	→ Right outer (Aout)
B sensor is in the ON state	→ Bin/out sensor is in the ON state	→ Right inner (Bin)
	→ Bin/out sensor is in the OFF state	→ Left outer (Bout)

(2) AUTO 2 mode

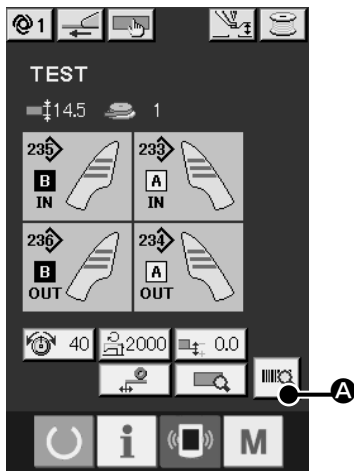
Under this mode, only the operator-specified pattern is sewn.

(3) MANUAL mode

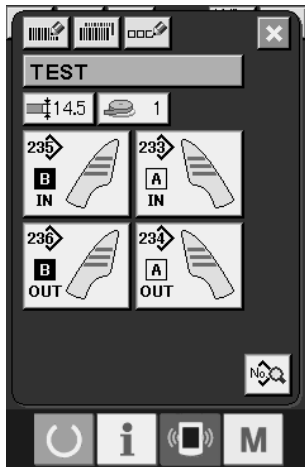
This is the manual selection mode under which the operator selects orientation A or B and IN (inner) or OUT (outer) of the garment body to be sewn by operating the operation panel or using the external switches. The operator-entered data determines the bar-codes of the patterns which correspond to the data on the "right or left" and "inner or outer" of a pair of shoes. Then, the operator finally confirms the pattern for sewing.

3-4. Creating the bar-code record (data on a pair of shoes)

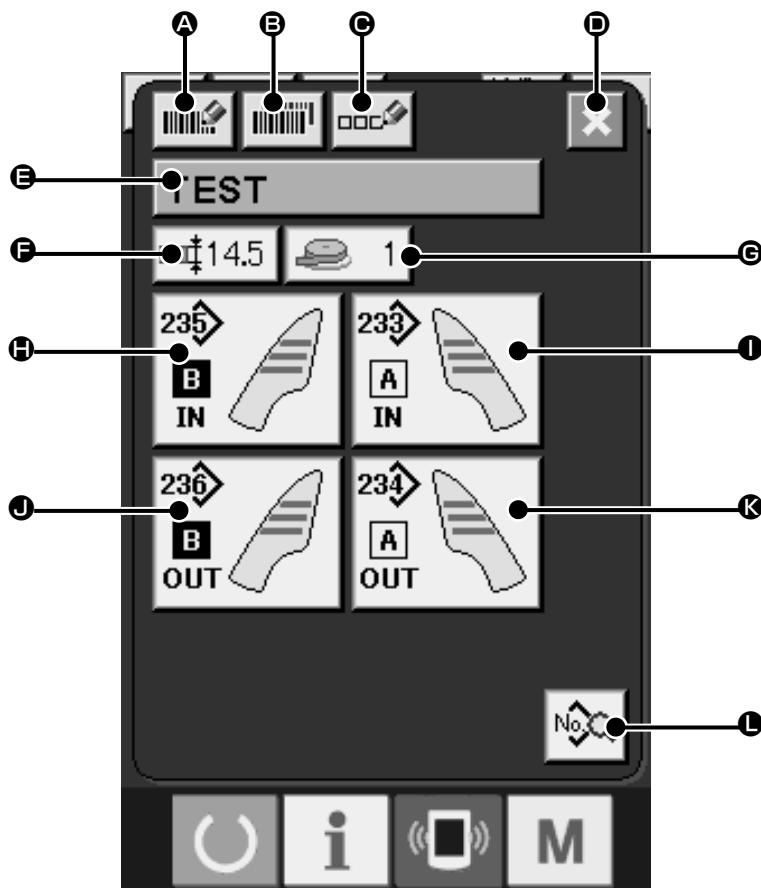
(1) How to display the data edit screen



- ① Keep DATA EDIT button  **A** held pressed until the data edit screen is displayed.



(2) LCD section of the data edit screen

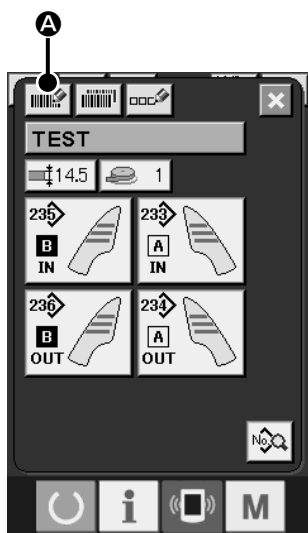



	Button name	Description
A	BAR-CODE RECORD NEW REGISTRATION button	The bar-code record registration screen is displayed. →Refer to "II-3-4. (3) New registration of a bar-code record" p.43.
B	BAR-CODE RECORD COPY button	The bar-code record copy screen is displayed. →Refer to "II-3-4. (7) Copy of the bar-code record" p.54.
C	CODE NAME EDIT button	The code name edit screen is displayed. →Refer to "II-3-4. (6) Editing the code name" p.53.
D	CLOSE button	The data edit screen is closed.
E	BAR-CODE RECORD SELECTION button	The bar-code record selection screen is displayed.
F	TAPE WIDTH SETTING button	The tape width is displayed. When this button is pressed, the parameter change screen is displayed. →Refer to "II-3-4. (5) Editing parameters" p.46.
G	NUMBER OF TAPE-IN-USE SETTING button	The number of tape used is displayed. When this button is pressed, the parameter change screen is displayed. →Refer to "II-3-4. (5) Editing parameters" p.46.
H	B-IN REGISTRATION button	The number of pattern registered for B-IN is displayed. When this button is pressed, the pattern list screen is displayed. →Refer to "II-3-4. (4) Registration of patterns corresponding to the B-IN, A-IN, B-OUT and A-OUT" p.45.

	Button name	Description
ⓘ	A-IN REGISTRATION button	The number of pattern registered for A-IN is displayed. When this button is pressed, the pattern list screen is displayed. →Refer to "II-3-4. (4) Registration of patterns corresponding to the B-IN, A-IN, B-OUT and A-OUT" p.45.
ⓙ	B-OUT REGISTRATION button	The number of pattern registered for B-OUT is displayed. When this button is pressed, the pattern list screen is displayed. →Refer to "II-3-4. (4) Registration of patterns corresponding to the B-IN, A-IN, B-OUT and A-OUT" p.45.
Ⓚ	A-OUT REGISTRATION button	The number of pattern registered for A-OUT is displayed. When this button is pressed, the pattern list screen is displayed. →Refer to "II-3-4. (4) Registration of patterns corresponding to the B-IN, A-IN, B-OUT and A-OUT" p.45..
Ⓛ	DETAILED PARAMETER SETTING button	→Refer to "II-3-4. (5) Editing parameters" p.46.

(3) New registration of a bar-code record

A new bar-code record is registered in two different ways; by means of the bar-code reader and by entering characters on the operation panel.

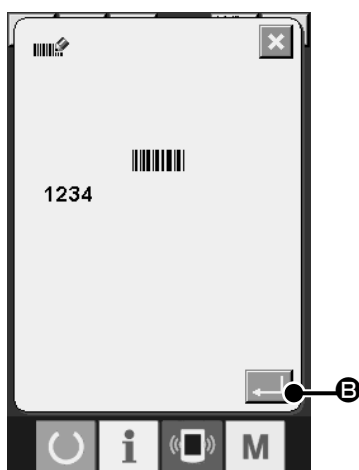


- ① **Displaying the bar-code new registration screen**
When BAR-CODE RECORD NEW REGISTRATION button  **A**, the bar-code record new registration screen is displayed.

■ Registration method by means of the bar-code reader



- ② **Scanning the code name**
Scan the code name you want to newly register with the bar-code reader.

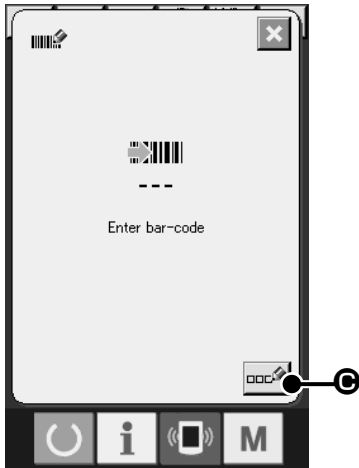


The code name scanned is displayed. Press ENTER button




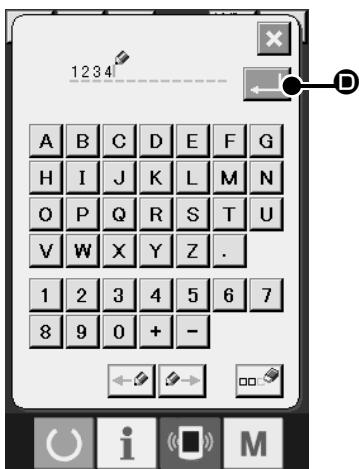
The new registration procedure is completed and the bar-code record new registration screen is closed.


■ Registration method by entering characters through the operation panel



② Entering a code name

When CODE NAME ENTRY button  **C** is pressed, the codename entry screen is displayed.

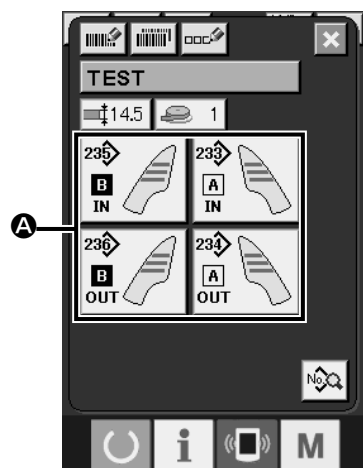


Enter a code name you want to newly register and press ENTER button  **D**.

The new registration procedure is completed and the bar-code record new registration screen is closed.

(4) Registration of patterns corresponding to the B-IN, A-IN, B-OUT and A-OUT

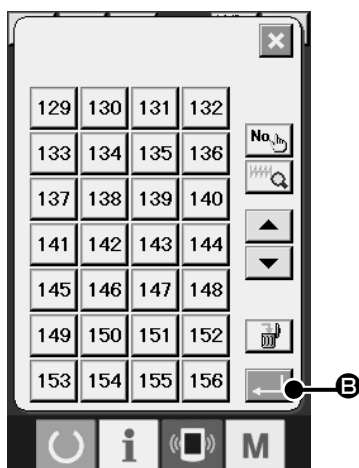
Register the patterns corresponding respectively to the B-IN, A-IN, B-OUT and A-OUT.



① Opening the pattern selection screen

Select one of the B-IN, A-IN, B-OUT and A-OUT buttons **A** with which you want to register a pattern.

When the button is pressed, the pattern selection screen is displayed.



② Selecting a pattern

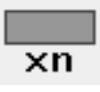





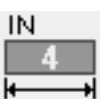


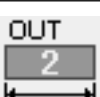
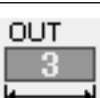
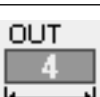
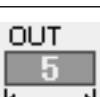


Select the pattern to be registered and press ENTER button


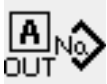



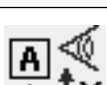


The registration procedure is completed and the pattern selection screen is closed.

(5) Editing parameters

■ List of parameters

Symbol	Pictograph	Item	Description	Data range	Initial value
S001		Number of tapes	The number of tapes to be sewn on a garment body	0 to 5	3
S002		Number of tape to be used	The number of tape rack to be used The tape racks are numbered as 1, 2, 3 and so on from the bottom.	0 to 6	1
S003		Tape guide width	Width of the tape to be sewn	10.0 to 16.7mm	14.5
S004		1st tape length for I	Length of the first tape to be sewn on the inner section of a garment body	55 to 130mm	72
S005		2nd tape length for I	Length of the 2nd tape to be sewn on the inner section of a garment body	55 to 130mm	80
S006		3rd tape length for I	Length of the 3rd tape to be sewn on the inner section of a garment body	55 to 130mm	86
S007		4th tape length for I	Length of the 4th tape to be sewn on the inner section of a garment body	55 to 130mm	0
S008		5th tape length for I	Length of the 5th tape to be sewn on the inner section of a garment body	55 to 130mm	0
S009		1st tape length for O	Length of the first tape to be sewn on the outer section of a garment body	55 to 130mm	66
S010		2nd tape length for O	Length of the 2nd tape to be sewn on the outer section of a garment body	55 to 130mm	74
S011		3rd tape length for O	Length of the 3rd tape to be sewn on the outer section of a garment body	55 to 130mm	82
S012		4th tape length for O	Length of the 4th tape to be sewn on the outer section of a garment body	55 to 130mm	0
S013		5th tape length for O	Length of the 5th tape to be sewn on the outer section of a garment body	55 to 130mm	0
S014		BI pattern number	Pattern number which corresponds to the right inner	0 to 999	235
S015		AI pattern number	Pattern number which corresponds to the left inner	0 to 999	233

Symbol	Pictograph	Item	Description	Data range	Initial value
S016		B O pattern number	Pattern number which corresponds to the left outer	0 to 999	236
S017		A O pattern number	Pattern number which corresponds to the right outer	0 to 999	234
S018		X coordinate for B-side IO sensor determination	X coordinate at which the inner/outer is determined by the B sensor side	-110.0 to 110.0	107.0
S019		Y coordinate for B-side IO sensor determination	Y coordinate at which the inner/outer is determined by the B sensor side	-50.0 to 50.0	28.5
S020		X coordinate for A-side IO sensor determination	X coordinate at which the inner/outer is determined by the A sensor side	-110.0 to 110.0	107.0
S021		Y coordinate for A-side IO sensor determination	Y coordinate at which the inner/outer is determined by the A sensor side	-50.0 to 50.0	28.5

1. Under auto 2 mode: S009 to S021 are hidden.

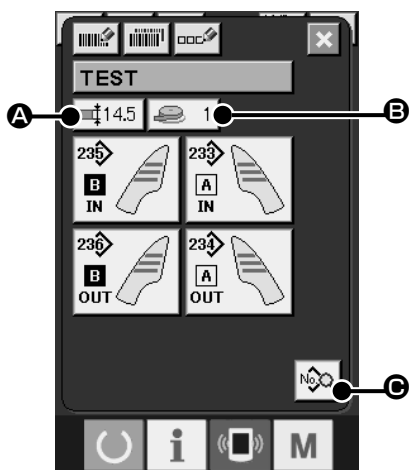
Under manual mode: S018 to S021 are hidden



2. In the case the set values of S004 to S013 exceed 100 mm, the tape is cut while it is being sewing. When the tape is cut, the sewing machine temporarily stops.

The stop timing is determined on the pitch-by-pitch basis. This means that the tape length may be longer than the set length of the stitching pitch at the maximum delay.

■ Procedure for setting parameters



① Opening the parameters list screen

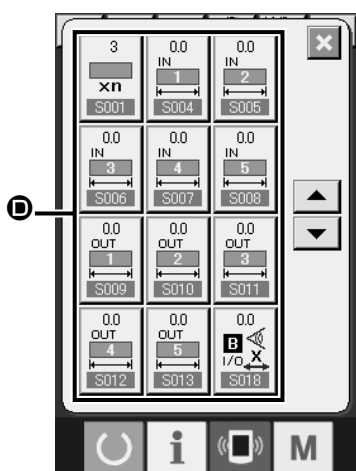
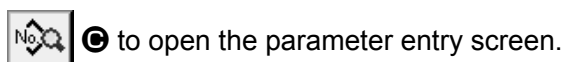
To enter a tape width, press TAPE WIDTH SETTING button



To enter a tape width, press TAPE WIDTH SETTING button



To set any other parameters, press PARAMETER LIST button

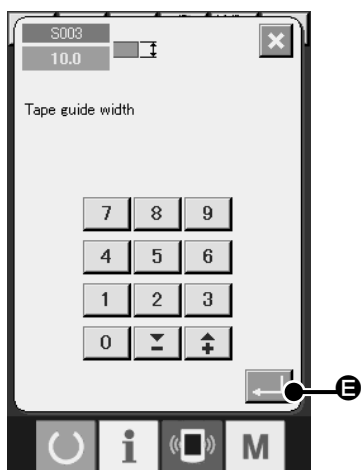


② Opening the parameter entry screen

Select the parameter you want to set and press button **D**.


Then, the parameter entry screen is displayed.

For S018 to S021, refer to 「**Setting the IN/OUT determination position**」 p.49.



③ Entering the parameter

Enter the parameter. After the completion of the entry, press

ENTER button  **E**. The parameter setting procedure is

completed and the parameter entry screen is closed.



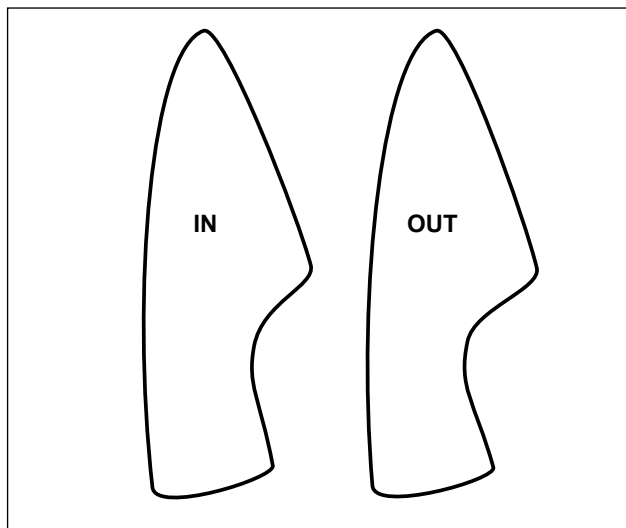
In the case the tape is fed before the sewing machine completes the preparation for sewing, the tape travel guide will move to cause the tape to be caught in the guide. If the tape is fed before the sewing machine completes the preparation for sewing, draw out the tape once from the tape travel guide. Then, wait until the sewing machine completes the preparation for sewing and re-feed the tape.

■ Setting the IN/OUT determination position

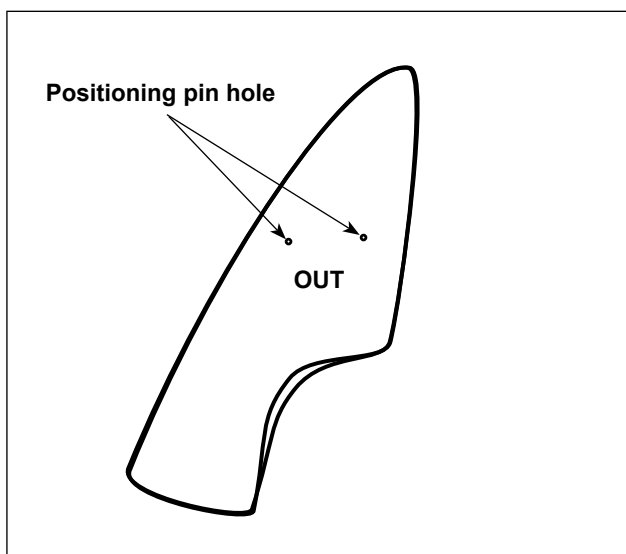
The IN/OUT determination position is the position at which the sensor detects the garment body placed inside the feeding frame to determine whether it is IN or OUT. It is necessary to set this position for the garment body on A side and for the one on B side.

[To set the IN/OUT determination position by checking the actual garment body]

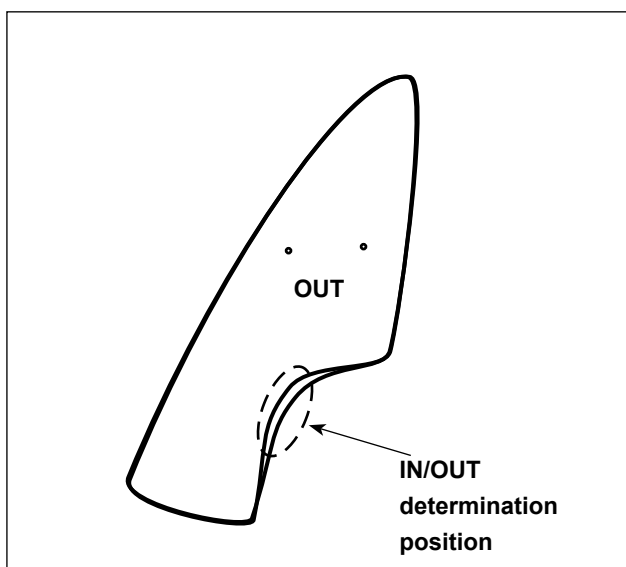
The following explains the case of the B-side garment body. In the case of the A-side garment body, substitute A for B.



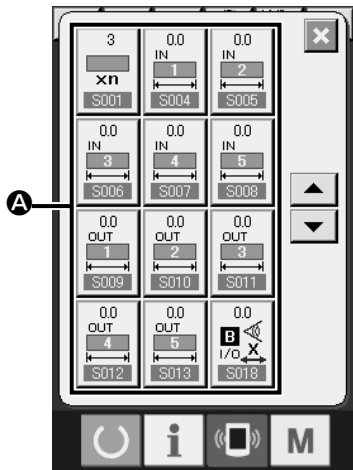
① Prepare the B-IN and B-OUT garment bodies.



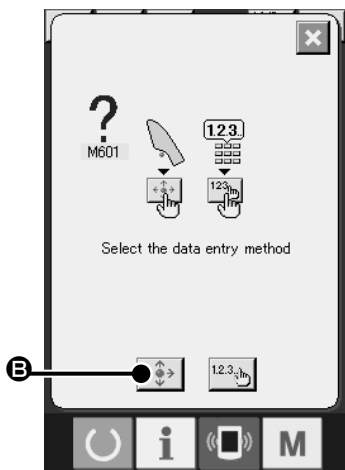
② Place the B-OUT garment body over the B-IN garment body with reference to the positioning pin hole.




③ Set the IN/OUT determination position at a given position where you can see the B-IN garment body protruding the B-OUT garment body.

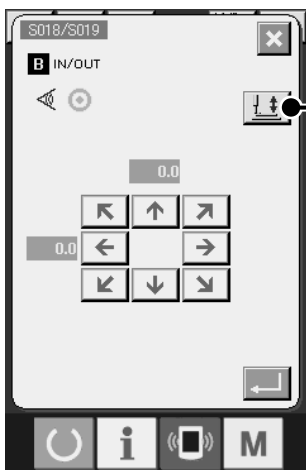



- ④ Open the parameter entry screen. Select S018 or S019 from buttons **A** (for the A-side garment body, select S020 or S021).

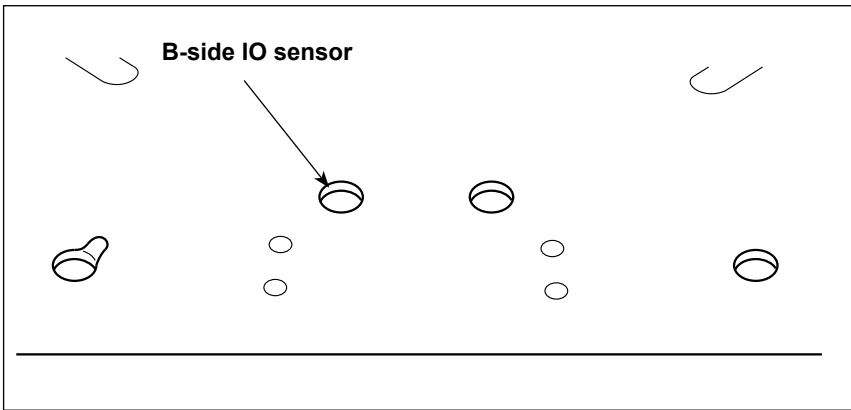


- ⑤ Press JOG entry button  **B**.

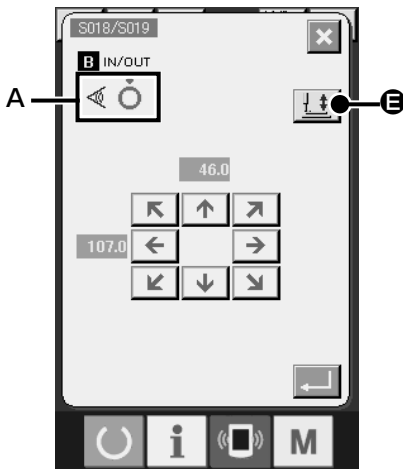
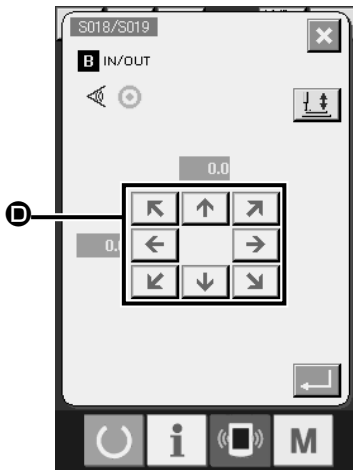
Caution If you have not carried out the origin retrieval after turning the power ON, the JOG entry screen will not be displayed even if you press the JOG entry button. Press the READY key  on the data entry screen to display the sewing screen.



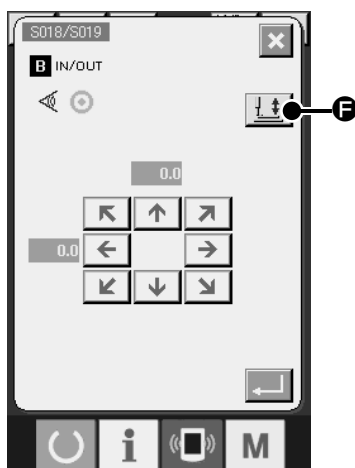
- ⑥ Place the B-IN garment body in the feeding frame.
- ⑦ Press FEEDING FRAME UP/DOWN button  **C**. The feeding frame comes down.



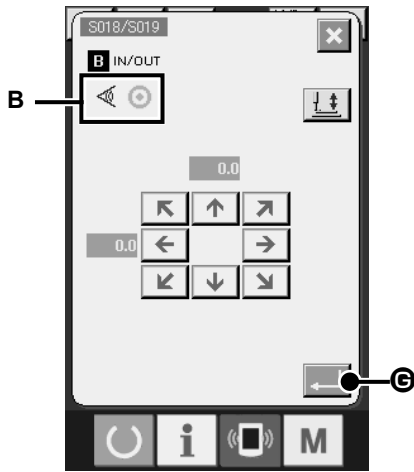
- ⑧ Operate JOG key **D** to move the feeding frame so that its IN/OUT determination position, set in step 3), overlaps the B-side IO sensor.




- ⑨ Check to be sure that the B-side IO sensor is in ON **A** state. Then, press FEEDING FRAME UP/DOWN button **E**. The feeding frame travels to its fixed retraction position. Then, it goes up.
- ⑩ Remove the B-IN garment body from the feeding frame. Place the B-OUT garment body in the feeding frame.



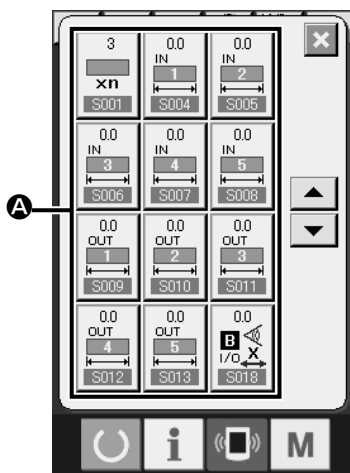
- ⑪ Press FEEDING FRAME UP/DOWN button **F**. The feeding frame comes down and automatically travels to the fixed retraction position as described in step 9).



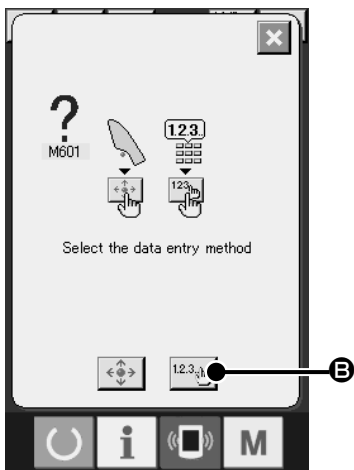
- ⑫ Check to be sure that the B-side IO sensor is in OFF B state.
Once you have checked the above, press ENTER button 
- Ⓒ. Setting of the IN/OUT determination position for the B-side garment body is completed.
Similarly, set the IN/OUT determination position for the A-side garment body. If the IO sensor is not in the OFF state, return to step 2) to change the IN/OUT determination position appropriately. Then, carry out the step 2) again.

[In the case the IN/OUT determination position is known by the coordinates]

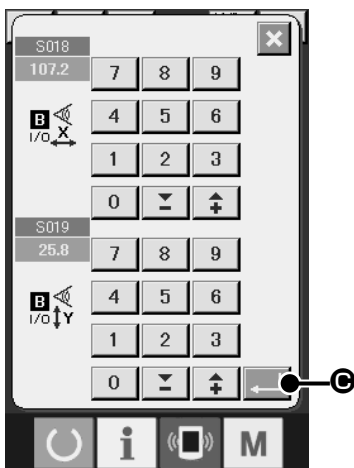
The following explains the case of the B-side garment body. In the case of the A-side garment body, substitute A for B.




- ① Open the parameter entry screen. To set the IN/OUT determination position for the B side, select S018 or S019 from buttons **A** (or select S020 or S021 for the A side).

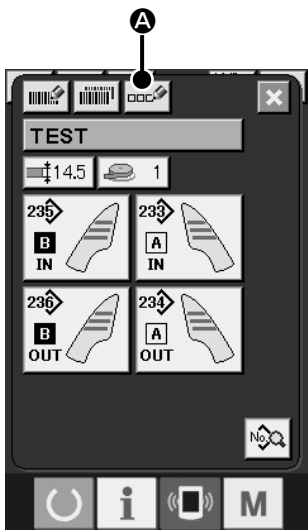


- ② Press COORDINATE ENTRY button  **B**.




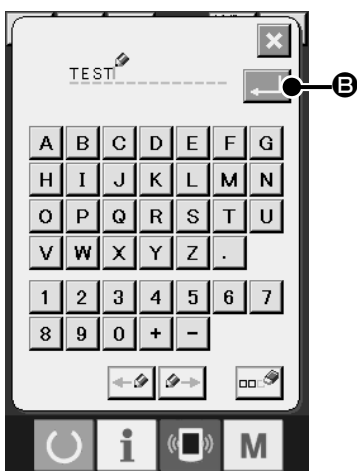
- ③ Enter X coordinate and Y coordinate at the IN/OUT determination position and press ENTER button  **C** to complete the procedure.

(6) Editing the code name




① Opening the code name edit screen

When CODE NAME EDIT button  **A** is pressed, the code name edit screen is displayed.

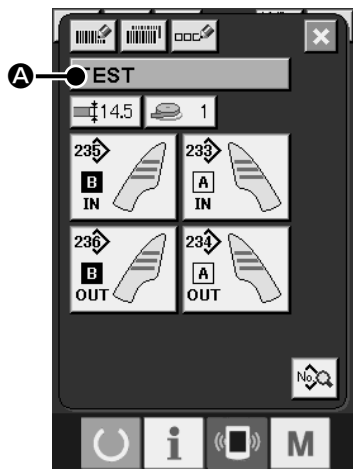


② Editing the code name

After the completion of editing of the code name, press ENTER button  **B**. The code name editing is completed and the code name edit screen is closed.


(7) Copy of the bar-code record

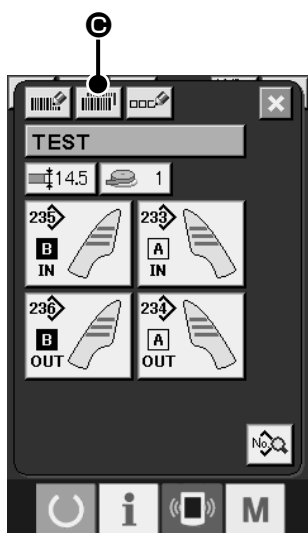
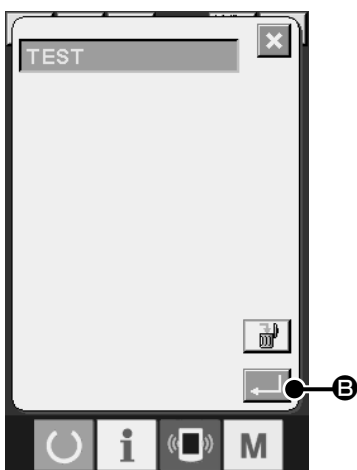
Bar-code record can be copied in two different ways; one is copy by using the bar-code reader and the other is copy by entering characters on the operation panel.




① Selecting the bar-code record to be copied

When BAR-CODE RECORD SELECT button **A** is pressed, the bar-cord record selection screen is displayed.

Select the bar-code record you want to copy and press ENTER button  **B**.



② Displaying the bar-code record copy screen

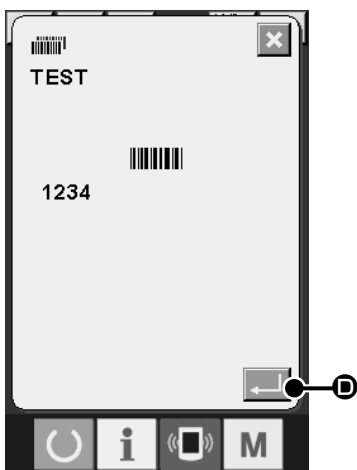
When BAR-CODE RECORD COPY button  **C** is pressed, the bar-code record copy screen is displayed.

■ Copy procedure by means of the bar-code reader



③ Reading the code name

Read the code name to be copied from the source by means of the bar-code reader.

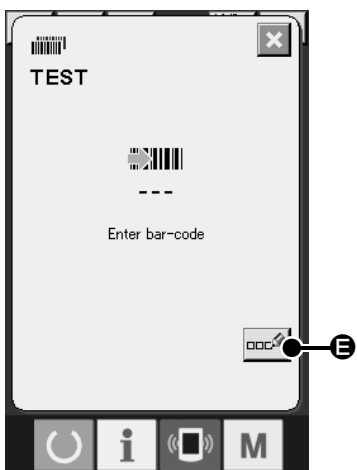


The code name read as described above is displayed. Press


ENTER button  ④.

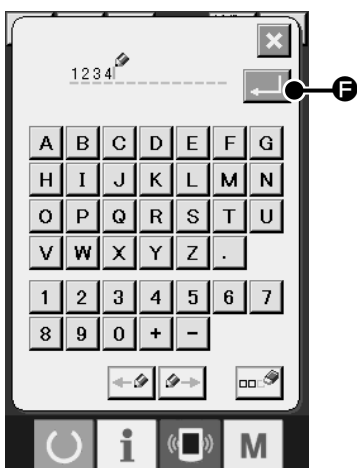
The copy procedure is completed and the bar-code copy screen is closed.

■ Copy procedure by entering characters on the operation panel



① Selecting the bar-code record to be copied

When CODE NAME ENTRY button  ⑤ is pressed, the code name entry screen is displayed.



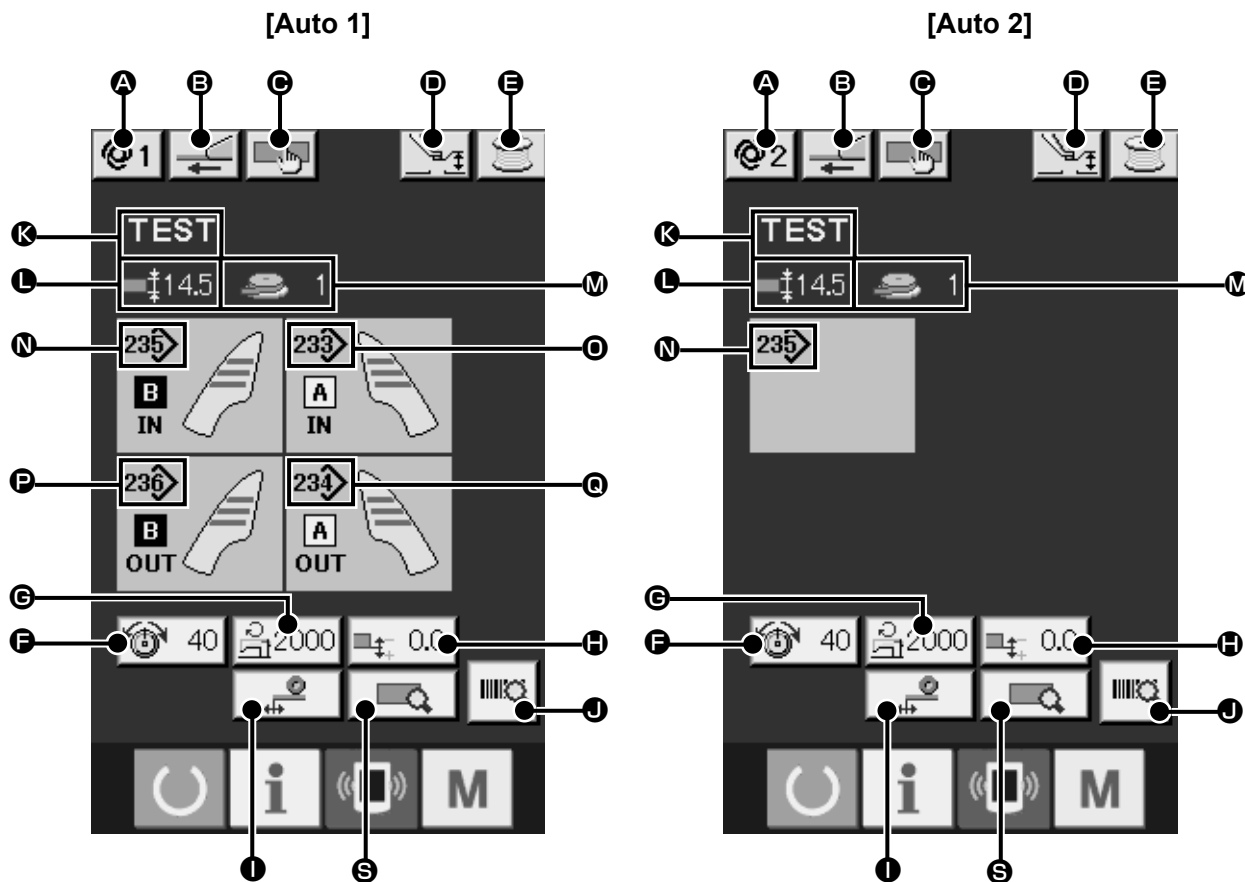
Enter the code name to be copied from the source and press

ENTER button  ⑥.

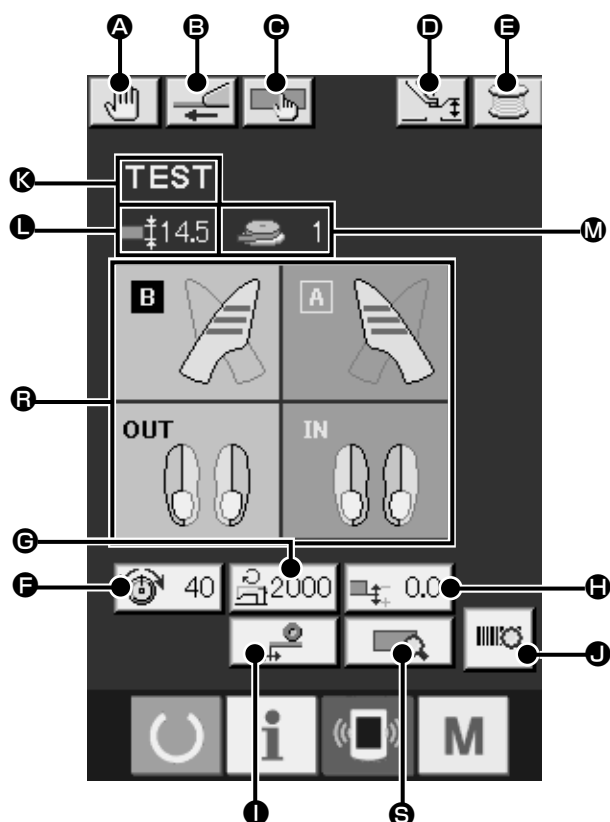
The copy procedure is completed and the bar-code record copy screen is closed.




4. How to carry out sewing

4-1. LCD section on the data entry screen

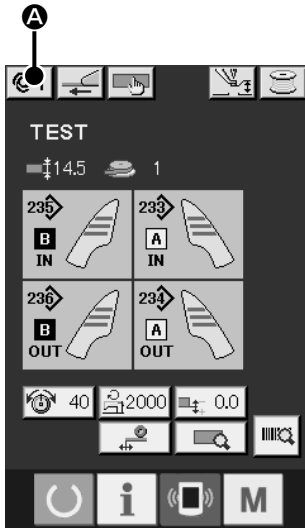


[Manual mode]




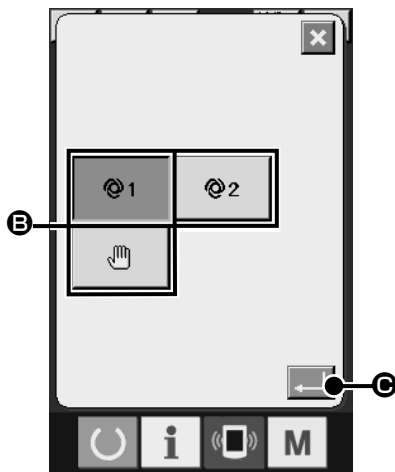
	Button name	Description
A	SEWING MODE SELECT button	Displays the sewing mode currently selected  : Auto 1  : Auto 2  : Manual mode When the button is pressed, the sewing mode selection screen is displayed. → Refer to "II-4-2. Selection of the sewing mode" p.58.
B	FEEDER OPERATION button	Used when the feeder is operated independently. When the button is pressed, the feed operation screen is displayed. → Refer to "II-4-6. Operation of the discrete unit of the feeder" p.62.
C	SEWING TAPE SELECT button	Used to select the tape to be sewn. When the button is pressed, the sewing tape selection screen is displayed. → Refer to "II-4-7. Selection of the tape to be used" p.63.
D	INTERMEDIATE PRESSER SETTING button	Used to lower the intermediate presser and the numerical value entry screen is displayed → Refer to "II-4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit" p.59.
E	INTERMEDIATE PRESSER SETTING button	Bobbin thread can be wound. → Refer to "II-4-15. Winding bobbin thread" p.77.
F	THREAD TENSION SETTING button	The button displays the needle thread tension value on it. When it is pressed, the numerical value entry screen is displayed. → Refer to "II-4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit" p.59.
G	MAX.SEWING SPEED LIMIT button	The button displays the max. sewing speed limit currently set on it. When it is pressed, the numerical value entry screen is displayed. → Refer to "II-4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit" p.59.
H	TAPE WIDTH CORRECTION button	Used to display the tape width correction screen → Refer to "II-4-4. Correction of the tape width" p.60.
I	TAPE FEED AMOUNT SETTING button	Used to display the tape feed amount setting screen. → Refer to "II-4-5. Setting of the tape feeding amount" p.61.
J	DATA EDIT button	Used to display the data edit screen → Refer to "II-3-4. Creating the bar-code record (data on a pair of shoes)" p.40.
K	Code name	Displays the code name of the bar-code record
L	Tape width	Displays the tape width
M	Tape number in use	Displays the number of tape to be used
N	B-IN pattern number	Displays the pattern number registered with B-IN
O	A-IN pattern number	Displays the pattern number registered with A-IN
P	B-OUT pattern number	Displays the pattern number registered with B-OUT
Q	A-OUT pattern number	Displays the pattern number registered with A-OUT
R	Manual mode pattern	Displays the pattern in the case of the manual mode → Refer to "II-4-10. Selection of pattern under the manual mode" p.68.
S	TAPE DETAIL SETTING button	The detailed tape setting list screen is displayed. → Refer to "II-4-8. How to set the details of the tape" p.64.

4-2. Selection of the sewing mode




① Displaying the sewing mode selection screen

When SEWING MODE SELECT button  **A** is pressed, the sewing mode selection screen is displayed.



② Selecting the sewing mode

Select the desired sewing mode from **B** and press ENTER button  **C**.

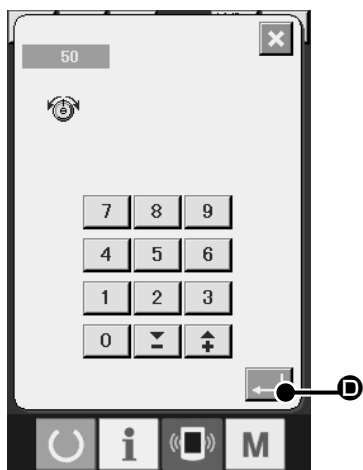
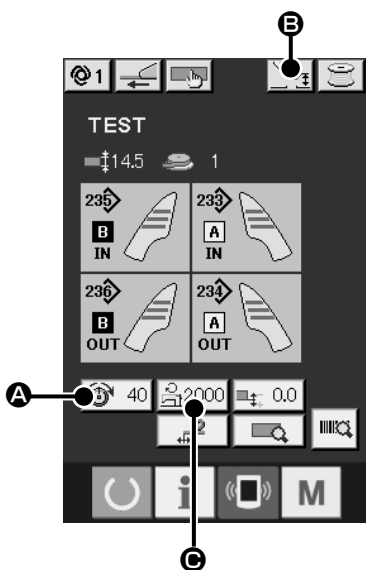
The sewing mode selection procedure is completed and the sewing mode selection screen is closed.

 : Auto 1

 : Auto 2

 : Manual mode


4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit



① **Displaying the numerical value entry screen**

Press one of THREAD TENSION SETTING button  40

A,  **B**, INTERMEDIATE PRESSER SETTING button

 **C**.

The numerical value entry screen is displayed

② **The numerical value entry screen is displayed**

Enter a desired numerical value and press ENTER button

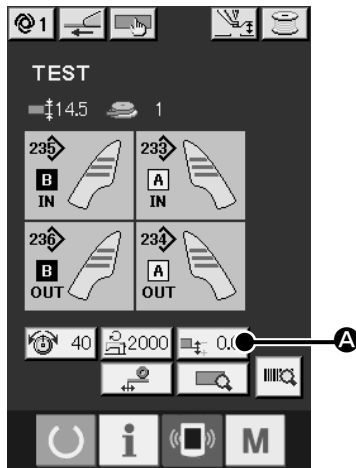
 **D**.

The numerical value entry procedure is completed and the numerical value entry screen is closed.

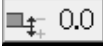
	Item range	Input range	Initial value
A	Thread tension	0 to 200	50
B	Intermediate presser height	0.0 to 3.5 (mm)	2.0(mm)
C	Max. speed limitation	200 to 2,800 (sti/min)	2,000 (sti/min)

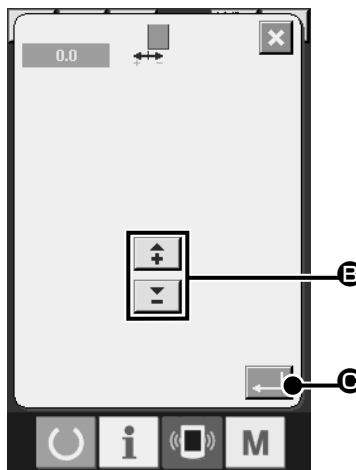
* Max. input range and initial value of max. speed limitation **C** are determined with memory switch U001.

4-4. Correction of the tape width





① Displaying the tape width correction screen

When TAPE WIDTH CORRECTION button  **A** is pressed, the tape width correction screen is displayed.



② Correcting the tape width

When  button **B** is pressed, the feeder operates according to the value entered. Once the tape width correction value is determined, press ENTER button  **C**.

The tape width correction procedure is completed and the tape width correction screen is closed.



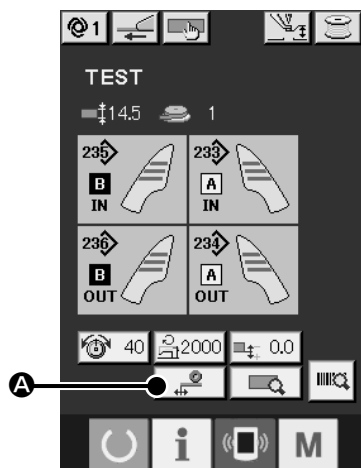
In the case the tape is fed before the sewing machine completes the preparation for sewing, the tape travel guide will move to cause the tape to be caught in the guide. If the tape is fed before the sewing machine completes the preparation for sewing, draw out the tape once from the tape travel guide. Then, wait until the sewing machine completes the preparation for sewing and re-feed the tape.

4-5. Setting of the tape feeding amount


The tape feeding amount differs with the tape material.

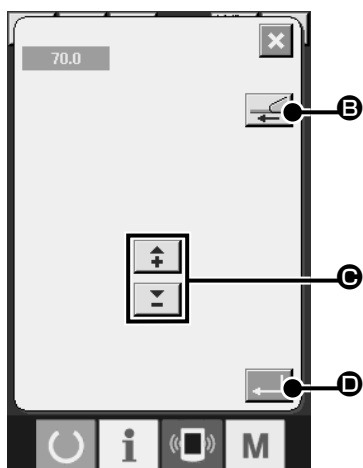
This means that it is necessary to set the tape feeding amount when the type of tape is changed to a different one.

The tape feeding amount is set based on the length of tape that is actually fed.




① Displaying the tape feeding amount setting screen

When TEPE FEEDING AMOUNT SET button  **A** is pressed, the tape feeding amount setting screen is displayed.




② Feeding the tape and measuring the length

When TAPE FEED button  **B** is pressed, the tape is fed. Measure the length of tape fed.



The correction value displayed when you press the TAPE FEED button for the first time on this screen is the initial value of the feed length. It is not the correction value you have set previously.

③ Entering the measured tape length

Press  button **C** to enter the tape length measured.

The tape length is expressed in "mm".

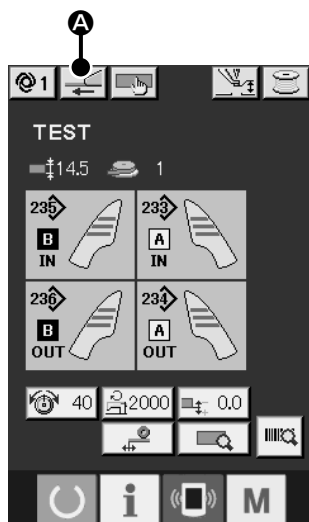
After you have entered the tape length, press TAPE FEED button **B** to feed the tape.

Check to be sure that the length of the tape fed is 70.0 mm.


After you have checked the tape length, press ENTER button

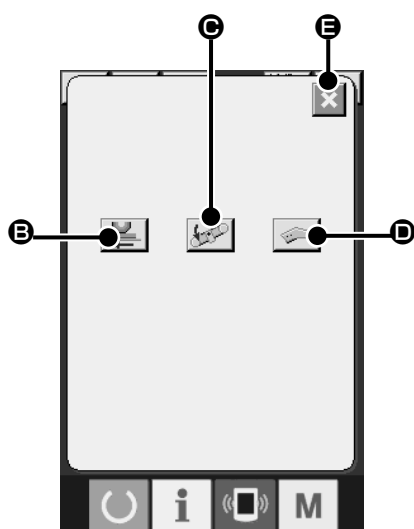
 **D** to confirm the setting.

4-6. Operation of the discrete unit of the feeder






① Displaying the feeder operation screen

When FEEDER OPERATION button  **A** is pressed, the feeder operation screen is displayed.



② Actuating the feeder

When button **B**, **C** or **D** is pressed, the feeder operates.

	Button	Section to be actuated
B		Roller The roller is actuated as long as the button is held pressed
C		Seesaw
D		Knife

③ Closing the feeder operation screen

To stop the operation of the feeder, press CLOSE button  **E**.

The orientation of the seesaw and the knife are returned to the initial position.

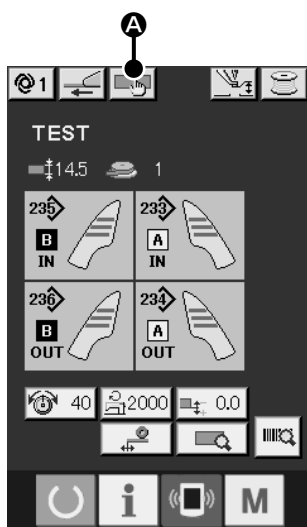
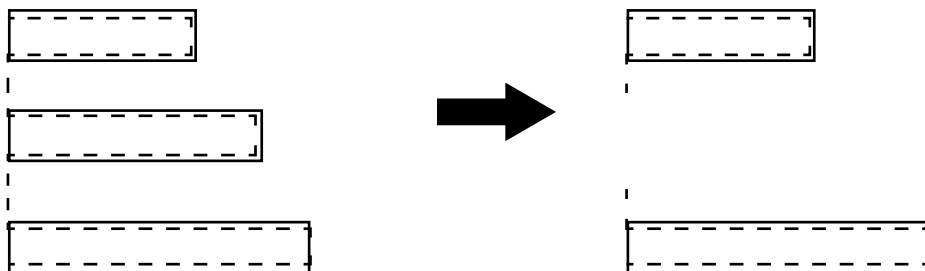


Even when the knife is in its lower position, the tape cannot be fed by pressing the ROLLER button depending on the orientation of the seesaw.


4-7. Selection of the tape to be used

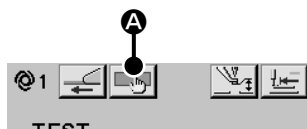
It is possible to sew only the specified location for the pattern which sews two or more tapes.

Example) Only the first and third tapes are sewn for the pattern which sewing three tapes

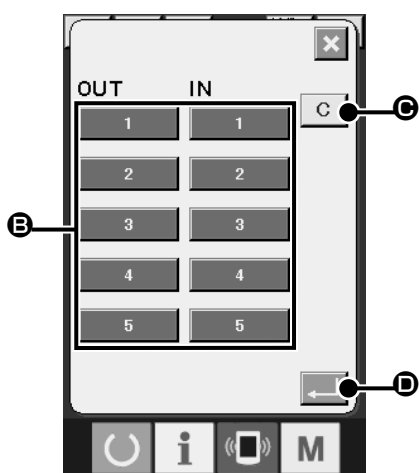


① Displaying the sewing tape selection screen

When SEWING TAPE SELECT button  **A**, the sewing tape selection screen is displayed.





The tape to be sewn can also be selected on the sewing screen.





② Selecting the tape to be sewn


Select the tape(s) to be sewn from **B**. The numerical values 1 to 5 indicate the number of each tape, i.e., 1st, 2nd, 3rd, 4th and 5th.

Separately select the tapes for the OUT and IN.

Buttons **B** are displayed in reverse video every time they are pressed.  means that the 1st tape is to be sewn and  means that the 1st tape is not to be sewn.

When CLEAR button  **C** is pressed, the buttons in

 state are all changed over to .

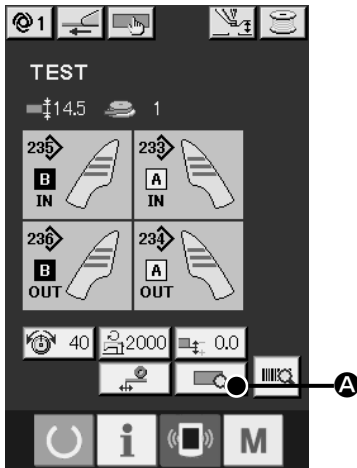
After the completion of selection of the tape to be sewn, press ENTER button  **D**.



The data which you have set will not be automatically returned to the initial setting.

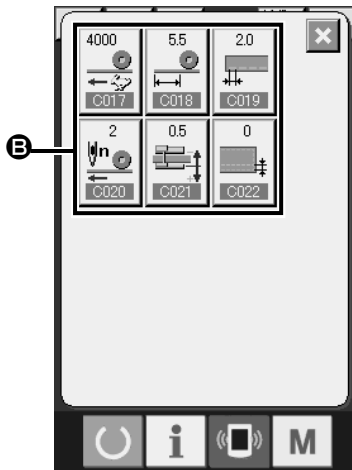
In the case you have selected a special tape for the purpose of re-sewing, return the tape selection setting to the initial setting after you have finished re-sewing.

4-8. How to set the details of the tape



① Opening the tape detail setting screen

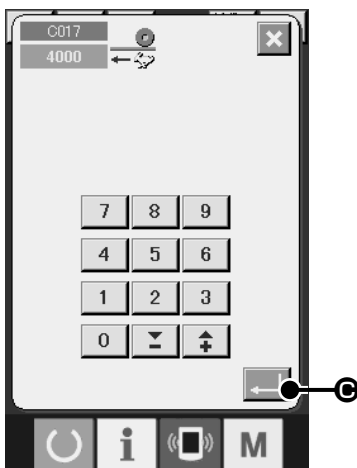
Press TAPE DETAIL SETTING button **A** on the data entry screen to display the tape detail setting screen.



② Opening the parameter entry screen

Select PARAMETER button **B** you want to edit on the tape detail setting screen.

When you press the button, the parameter entry screen is displayed.



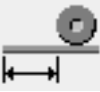
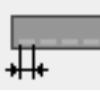

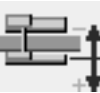
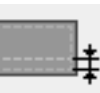


③ Entering the parameter

Enter the parameter. After the completion of entry, press

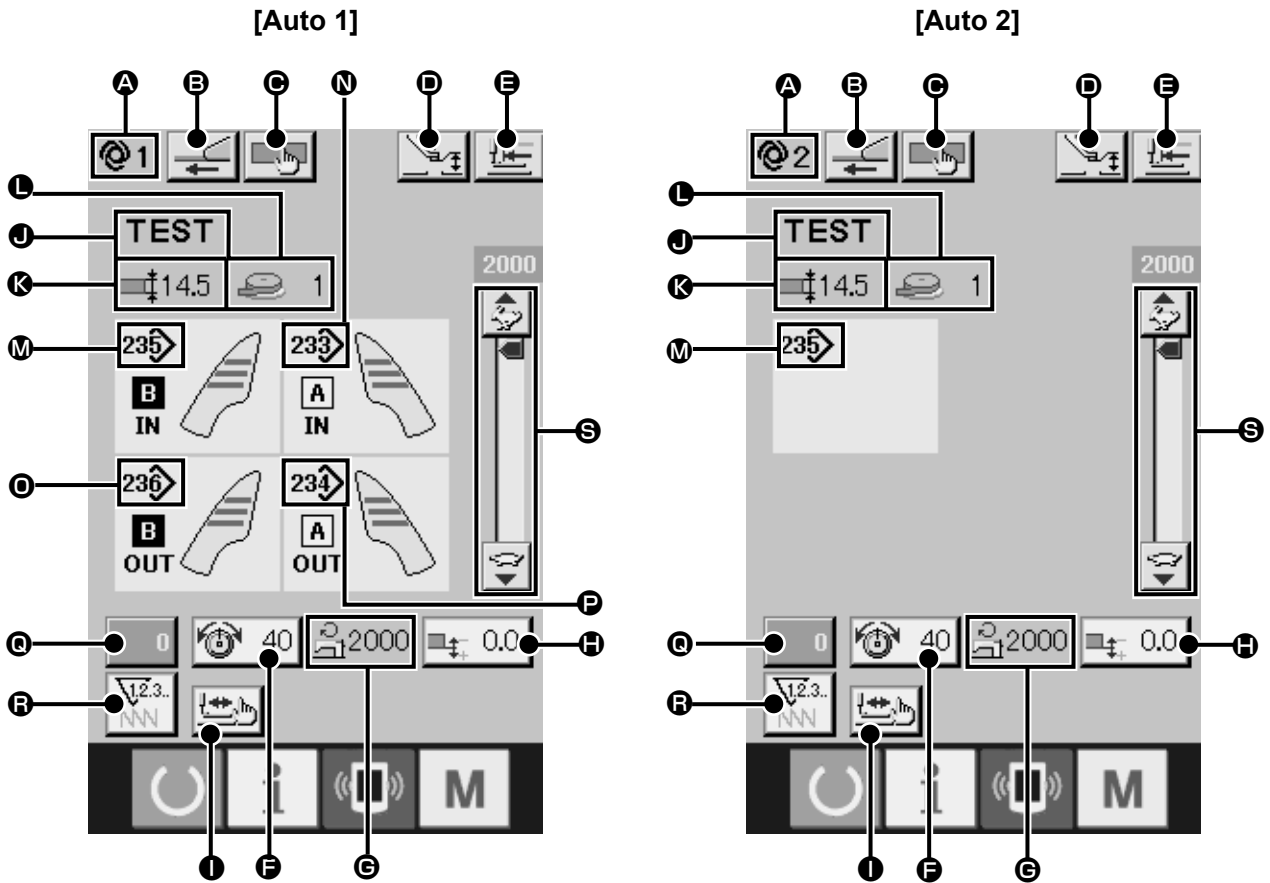
ENTER button **C**. The parameter setting procedure is completed and the parameter screen is closed.

Tape detail setting items

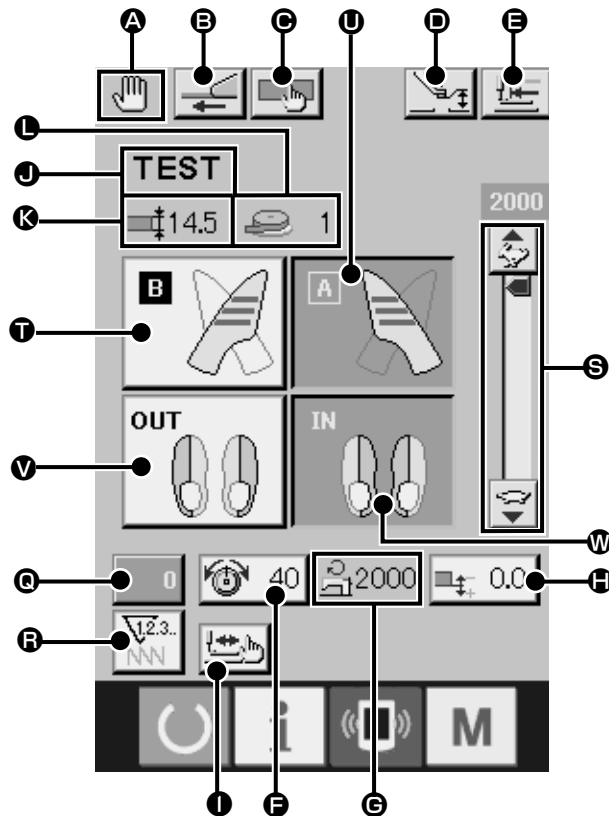
Symbol	Pictograph	Item	Description	Data range	Unit of edit	Initial value
C011		Tape feeding motor resolution	Fine adjustment of the tape feeding amount can be carried out. *1	210 to 840	1	400
C017		Feeding speed at the beginning of sewing	The tape feeding speed at the beginning of sewing is changed.	1000 to 8000	100	4000
C018		Feeding amount at the beginning of sewing	The tape feeding amount can be changed.	0 to 15.0	0.1mm	5.5
C019		Feeding pitch at the beginning of sewing	The tape feeding pitch can be set while the number of stitches for feeding the tape (C020) is sewn.	0 to 15.0	0.1mm	2.0
C020		Number of stitches for feeding tape	The number of stitches to be sewn with the feeding pitch at the beginning of sewing (C019) can be set.	0 to 10	1 stitch	2
C021		Guide extension value	The guide width extension amount excluding the time when the tape is fed (When external output 1 is in the OFF state, the guide width is extended.)	0.0 to 2.0	0.1mm	0.5
C022		Tape sewing width correction	The distance from the tape edge to the seam can be corrected according to the tape width.	-2.0 to 2.0	0.1	0.0




*1 In the initial state, C011 is hidden. It is displayed only when the K554 (tape feeding motor resolution setting display mode) which is categorized under the level 2 of the memory switch is set to "display". Refer to the Engineer's manual for how to set the items categorized under the level 2 of the memory switch.

4-9. LCD display section of sewing screen

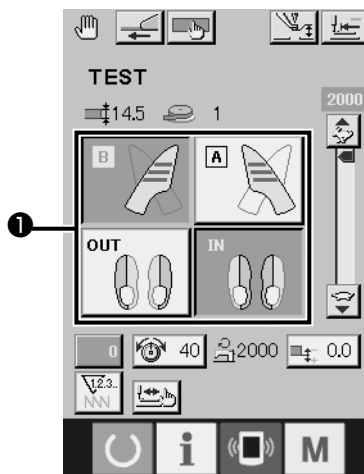


[Manual mode]



	Button name	Description
A	SEWING MODE	Displays the sewing mode currently selected  : Auto 1  : Auto 2  : Manual mode
B	FEEDER OPERATION button	Used to independently operate the feeder. When the button is pressed, the feeder operation screen is displayed. → Refer to “ II-4-6. Operation of the discrete unit of the feeder ” p.62.
C	SEWING TAPE SELECT button	Used to select the tape to be sewn. When the button is pressed, the sewing tape selection screen is displayed. → Refer to “ II-4-7. Selection of the tape to be used ” p.63.
D	INTERMEDIATE PRESSER SETTING button	Used to lower the intermediate presser and the numerical value entry screen is displayed → Refer to “ II-4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit ” p.59.
E	RETURN TO ORIGIN button	Used to return the feeding frame to the starting position of sewing and to lift the feeding frame while the sewing machine is temporarily stopped, in pause state.
F	THREAD TENSION SETTING button	The button displays the needle thread tension value on it. When it is pressed, the numerical value entry screen is displayed. → Refer to “ II-4-3. Setting of the thread tension, intermediate presser height and the max. sewing speed limit ” p.59.
G	MAX. SPEED LIMITATION display	Maximum speed limitation which is registered to the pattern button No. being sewn is displayed.
H	TAPE WIDTH CORRECTION button	Used to display the tape width correction screen → Refer to “ II-4-4. Correction of the tape width ” p.60.
I	STEP SEWING button	Used to display the step sewing screen to allow the operator to check the pattern shape. → Refer to “ II-4-12. Checking pattern shape ” p.69.
J	Code name	Displays the code name of the bar-code record
K	Tape width	Displays the tape width
L	Tape number in use	Displays the number of tape to be used
M	B-IN pattern number	Displays the pattern number registered with B-IN
N	A-IN pattern number	Displays the pattern number registered with A-IN
O	B-OUT pattern number	Displays the pattern number registered with B-OUT
P	A-OUT pattern number	Displays the pattern number registered with A-OUT
Q	COUNTER VALUE CHANGE button	The current value on the counter is displayed on the button. When the button is pressed, the counter value change screen is displayed. → Refer to “ II-4-16. Using counter ” p.78.
R	COUNTER CHANGEOVER button	The counter display can be changed over among the sewing counter and bobbin counter. → Refer to “ II-4-16. Using counter ” p.78.
S	SPEED variable resistor	Number of revolutions of the sewing machine can be changed.
T	B SELECT button	Used to set the sewing pattern to the pattern registered with B. → Refer to “ II-4-10. Selection of pattern under the manual mode ” p.68.
U	A SELECT button	Used to set the sewing pattern to the pattern registered with A. → Refer to “ II-4-10. Selection of pattern under the manual mode ” p.68.
V	OUT SELECT button	Used to set the sewing pattern to the pattern registered with OUT → Refer to “ II-4-10. Selection of pattern under the manual mode ” p.68.
W	IN SELECT button	Used to set the sewing pattern to the pattern registered with IN. → Refer to “ II-4-10. Selection of pattern under the manual mode ” p.68.

4-10. Selection of pattern under the manual mode

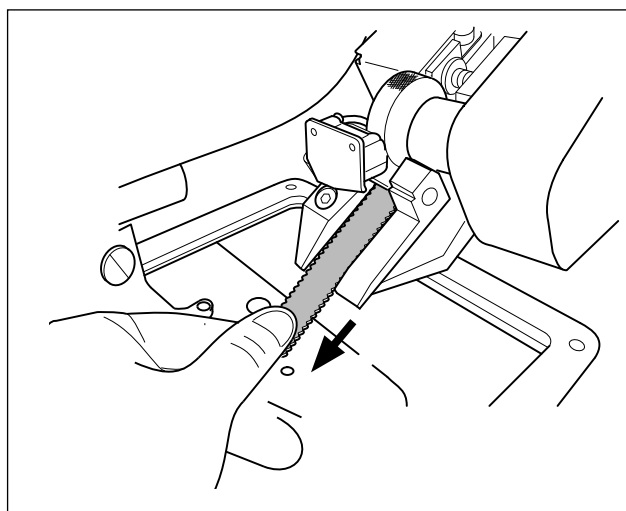


Under the manual mode, one of the patterns registered respectively for the B-IN, A-IN, B-OUT and A-OUT is selected and the selected pattern is sewn.


Select a desired pattern by pressing buttons A or B and OUT or IN from ❶.

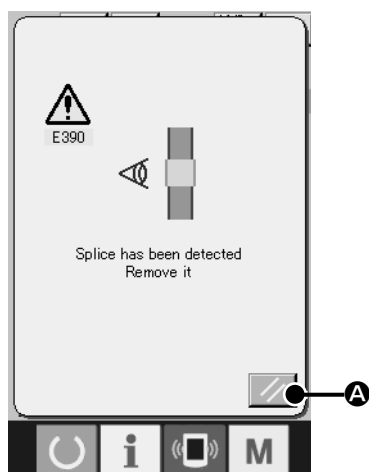
❶ in the figure indicates that the pattern currently selected is a pattern registered with the B-IN.

4-11. In the case a splice is detected



When a splice is detected, the following screen is displayed.

In this case, remove the tape. Then, press RESET button  A. The RESET button does not work until the tape is removed. To re-start sewing after the resetting, press the START switch of the sewing machine.

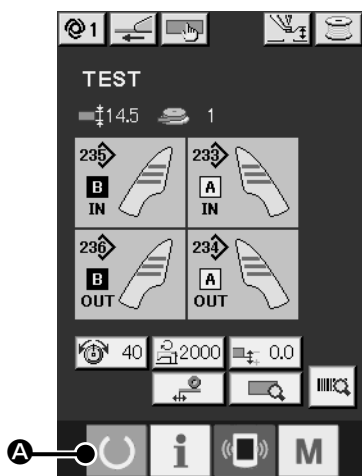


4-12. Checking pattern shape



WARNING :

Make sure without fail of the contour of the sewing pattern after selection of the sewing pattern. If the sewing pattern extends outside the work clamp feet, the needle will interfere with the work clamp.



① Display the sewing screen.

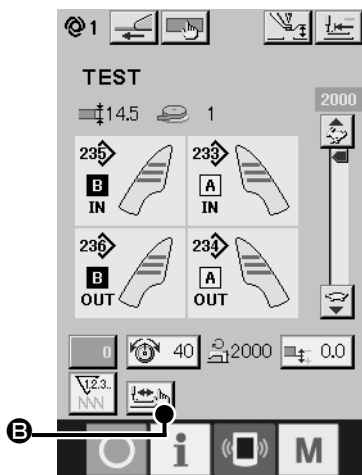
Display the data input screen (blue) and press READY key




Then the back-light of LCD changes to green and sewing is possible. When the work clamp is in its upper position, the work clamp first comes down to its lower position and then moves to the sewing start point.

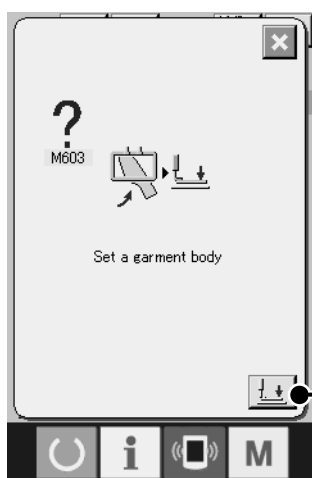


Be careful not to get your fingers caught between the work clamp and the throat plate.




② Display the step sewing screen.

When STEP SEWING button  **B** is pressed, the step sewing screen is displayed.

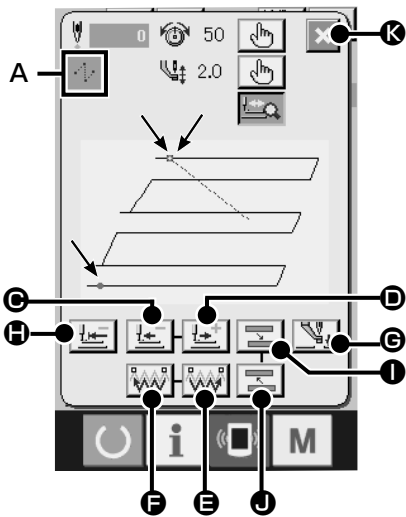


③ Placing the garment body and displaying the step sewing screen

Place the garment body in the garment body setting position.

Press FEEDING FRAME DOWN button  **C**. The feeding frame comes down. In the case the sewing mode is auto 1, the sewing pattern cannot be finalized unless the garment body is placed on the sewing machine.

Under auto 1, the A and B sensors detect the garment body after the feeding frame has come down, and the feed moves to the IN/OUT determination position.



④ **Proceed stitching with the presser lowered.**

The sewing shape is displayed at the center of the screen. The current point, sewing start position and sewing end position are respectively represented by ● (pink circle), ● (blue dot) and ● (pink dot).

Check the sewing shape using ONE-STITCH BACKWARD button (C) and ONE-STITCH FORWARD button (D).

(D). When two or more commands have been entered, the feed position does not change but the command display A is moved forward and backward. When you keep pressing the ONE-STITCH FORWARD or BACKWARD button, the moving speed increases.

When the COMMAND SEARCH FORWARD button (E) is pressed, the feed automatically moves to the sewing end position. When the COMMAND SEARCH BACKWARD button (F) is pressed, the feed automatically moves to the sewing start position.

To stop the feed, press button (C), (D), (E), (F), (G) or (H).

When INTERMEDIATE PRESSER button (G) is pressed, the intermediate presser is raised or lowered. (This button is not displayed when MEMORY switch U103 is set at 0 (zero).)

When TAPE FEED POSITION SEARCH FORWARD button (I) is pressed, the feeding frame moves forward from the current position until the tape feeding position which is found for the first time. When TAPE FEED POSITION SEARCH BACKWARD button (J) is pressed, the feeding frame moves backward from the current position until the tape feeding position which found for the first time.

⑤ **Finish checking the shape.**

When PRESSER INITIAL POSITION button (H) is pressed, the work clamp moves to the sewing start position and the screen is restored to the sewing screen. When CANCEL button (K) is pressed, the screen is also restored to the sewing screen. When the work clamp does not rest at the sewing start or end position, sewing can be started by depressing the foot switch before sewing shape checking is not completed.

CANCEL button (K) is enabled only at the tape feeding position found by the tape feeding position retrieval.

When the screen is restored to the sewing screen by means of CANCEL button (K), sewing can be carried out from that position by pressing the START switch.

At any position other than the tape feeding position, finish the shape checking by pressing the FEEDING FRAME INITIAL POSITION button since the CANCEL button is disabled



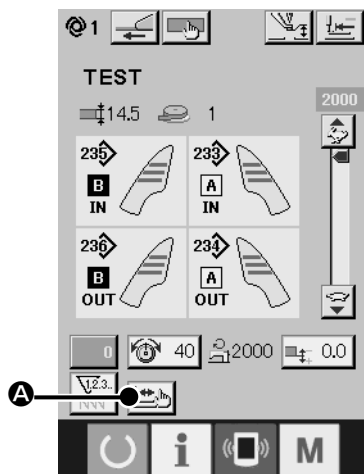
In the case the screen is restored from the shape checking screen to the sewing screen by pressing the CANCEL button at the tape feeding position, sewing can be carried out from that position.

Re-sewing is enabled from the middle of the previous sewing after the tape sewing part.


4-13. Performing modification of needle entry point

(1) Editing the thread tension

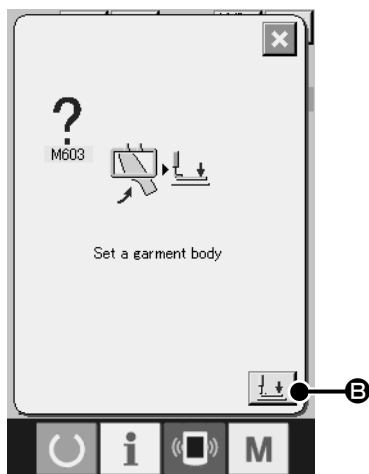
Press STEP SEWING button  **A** on the sewing screen to display the garment body setting screen.






Place the garment body in the garment body setting position.

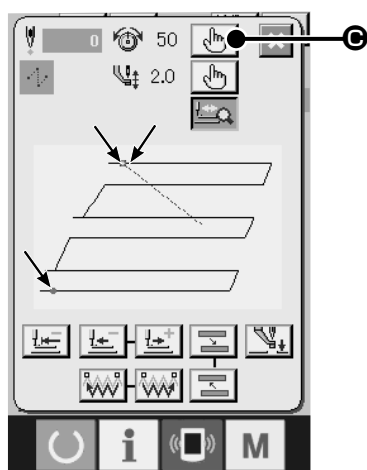
Press FEEDING FRAME DOWN button  **B**. The feeding frame comes down. In the case the sewing mode is auto 1, the sewing pattern cannot be finalized unless the garment body is placed on the sewing machine.

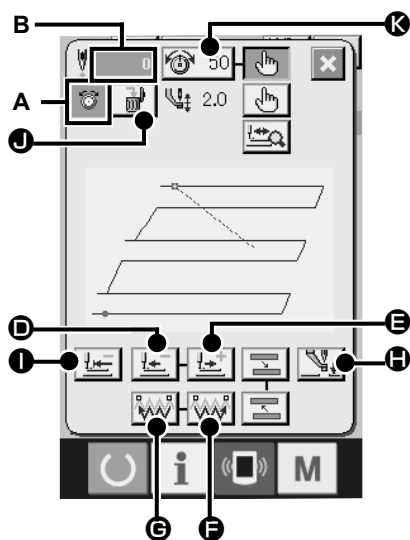
Under auto 1, the A and B sensors detect the garment body after the feeding frame has come down, and the feed moves to the IN/OUT determination position.



The sewing shape is displayed at the center of the screen. The current point, sewing start position and sewing end position are respectively represented by  (pink circle),  (blue dot) and  (pink dot).

Press the MODE SELECT button  **C** to select the thread tension mode.





When ONE-STITCH BACKWARD button **D** or FORWARD button **E** is pressed, the feed (current point) moves backward or forward by one stitch. When two or more commands have been entered, the feed position does not change but the command display **A** is moved forward and backward. When you keep pressing the button **D** or **E**, the moving speed increases.

Indicated value **B** is the absolute value (Thread tension value + Thread tension command value).

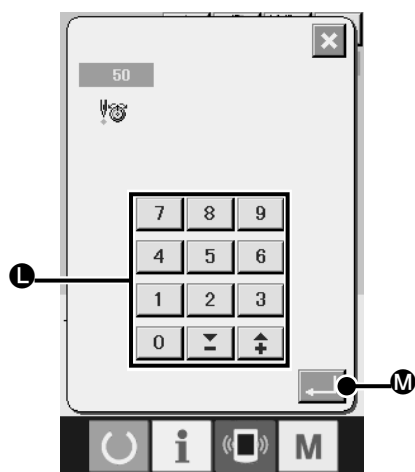
When COMMAND SEARCH FORWARD button **F** or BACKWARD button **G** is pressed, the feed moves forward or backward from the current point to reach the needle entry point where the first thread tension command is found. To stop the feed, press button **D**, **E**, **F**, **G**, **H** or **I**.

When INTERMEDIATE PRESSER button **H** is pressed, the intermediate presser is raised or lowered. (This button is not displayed when MEMORY switch U103 is set at 0 (zero).)

When PRESSER INITIAL POSITION button **I** is pressed, the work clamp moves to its origin and the screen is restored to the sewing screen.

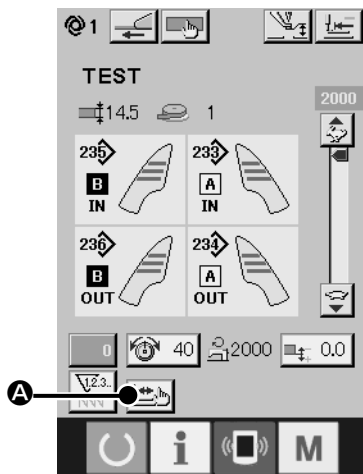
When COMMAND DELETE button **J** is pressed, the screen for deleting the command as shown in **A** is displayed.

When **40** **K** is pressed, the thread tension value increase/decrease input screen is displayed.




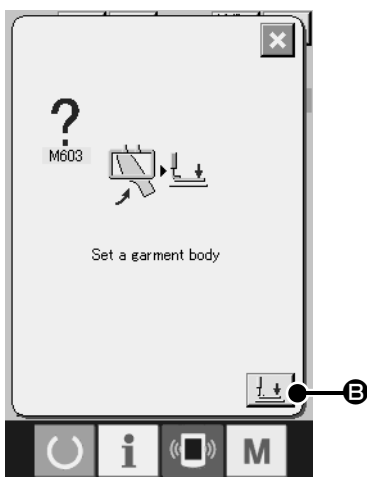
Input a desired value on the thread tension value increase/decrease input screen using numeric keypad and +/- keys **L**.

When ENTER button **M** is pressed, the data is confirmed.




(2) Editing the intermediate presser height

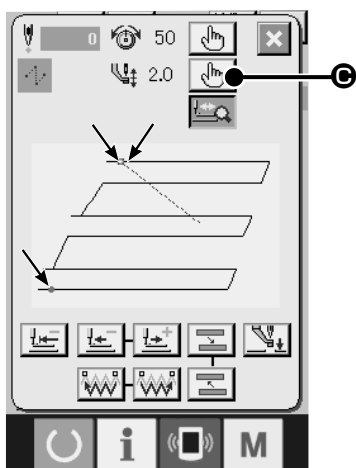
Press STEP SEWING button  **A** on the sewing screen to display the step sewing screen.






Place the garment body in the garment body setting position.

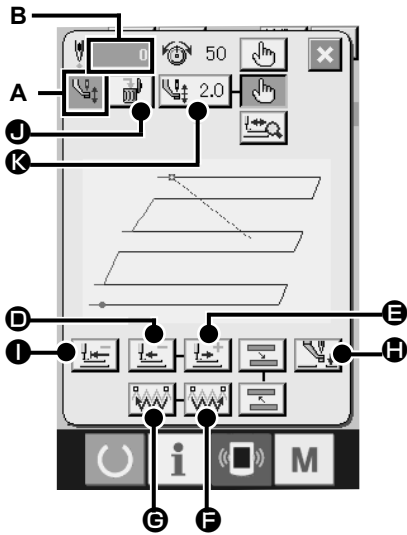
Press FEEDING FRAME DOWN button  **B**. The feeding frame comes down. In the case the sewing mode is auto 1, the sewing pattern cannot be finalized unless the garment body is placed on the sewing machine.




Under auto 1, the A and B sensors detect the garment body after the feeding frame has come down, and the feed moves to the IN/OUT determination position.





The sewing shape is displayed at the center of the screen. The current point, sewing start position and sewing end position are respectively represented by  (pink circle),  (blue dot) and  (pink dot).


Press MODE SELECT button  **C** to select the intermediate presser mode.





When ONE-STITCH BACKWARD button  **D** or FORWARD button  **E** is pressed, the feed (current point ) moves backward or forward by one stitch. When two or more commands have been entered, the feed position does not change but the command display **A** is moved forward and backward. When you keep pressing the button **D** or **E**, the moving speed increases.


Indicated value **B** is the absolute value (Intermediate presser height value + Intermediate presser height increased/decreased value).

When COMMAND SEARCH FORWARD button  **F** or BACKWARD button  **G** is pressed, the feed moves forward or backward from the current point to reach the needle entry point where the first intermediate presser command is found. To stop the feed, press button **D**, **E**, **F**, **G**, **H** or **I**.


When INTERMEDIATE PRESSER button  **H** is pressed, the intermediate presser is raised or lowered. (This button is not displayed when MEMORY switch U103 is set at 0 (zero).)

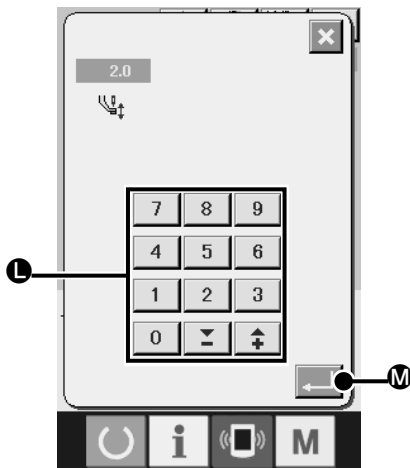
When PRESSER INITIAL POSITION button  **I** is pressed, the work clamp moves to its origin and the screen is restored to the sewing screen.

When COMMAND DELETE button  **J** is pressed, the screen for deleting the command as shown in **A** is displayed.

When  **K** is pressed, the intermediate presser height increase/decrease input screen is displayed.

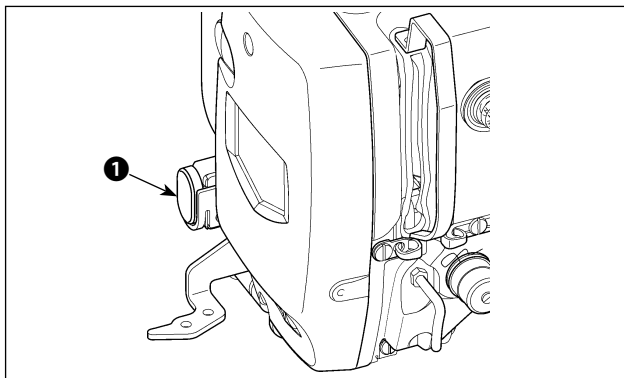
Input a desired value on this screen using numeric keypad and +/- keys **L**.

When ENTER button  **M** is pressed, the data is confirmed.



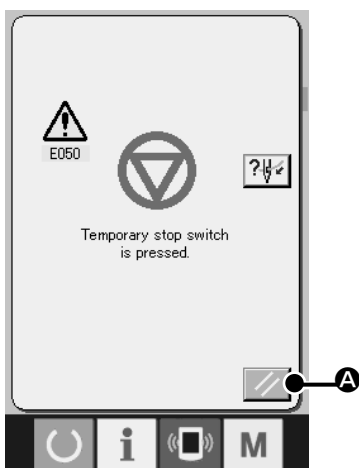
1. When the intermediate presser rests at its lower position, the movement of the intermediate presser and needle differ depending on the setting of MEMORY switch U103.
2. When increasing the height of intermediate presser or making the needle size thicker, confirm the clearance between the wiper and the components. Wiper cannot be used unless the clearance is secured. In this case, turn OFF the wiper switch, or change the set value of memory switch U105. Refer to "II-3. MEMORY SWITCH DATA LIST" p.95 for the memory switch settings.

4-14. How to use temporary stop



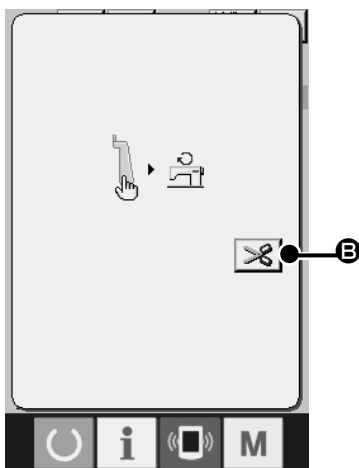
When TEMPORARY STOP switch ① is pressed during sewing, the sewing machine can be stopped. At this time, the error screen is displayed to inform that the stop switch has been pressed.

(1) To continue performing sewing from some point in sewing




① **Release the error.**

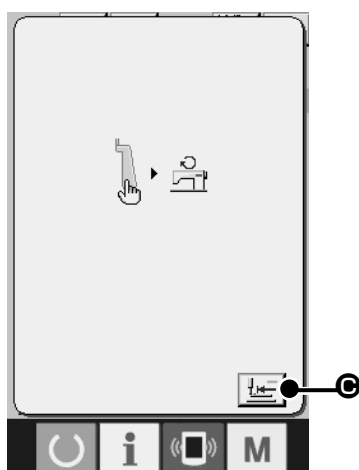
Press RESET button  **A** to release the error.




② **Re-starting the sewing machine or carrying out thread trimming**

On this screen, sewing can be re-started or thread trimming can be carried out. When the START switch is pressed, sewing is re-started.

When THREAD TRIMMING button  **B** is pressed, the thread trimming is carried out.

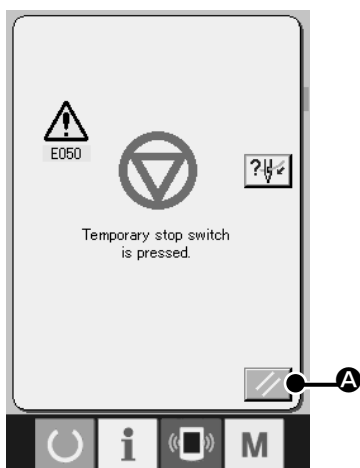


After the completion of thread trimming, RETURN TO ORIGIN button  **C** is displayed on the screen.

③ **Re-start the sewing.**

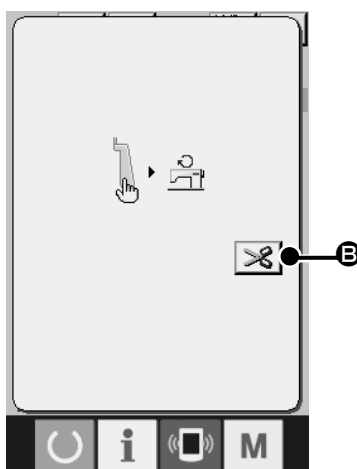
On this screen, sewing can be re-started or returning to the sewing starting position can be carried out. When the START switch is pressed, sewing is re-started.

(2) To perform re-sewing from the start




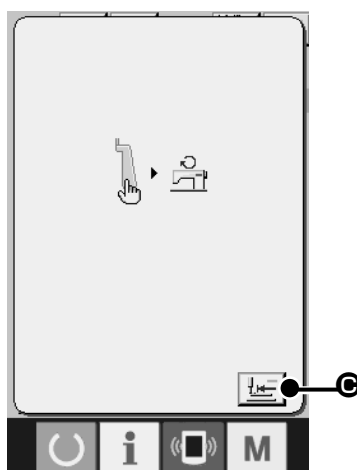
① Release the error.


Press RESET button  **A** to release the error.




② Perform thread trimming.

Press THREAD TRIM button  **B** to perform thread trimming.



After the completion of thread trimming, RETURN TO ORIGIN button  **C** is displayed on the screen.

③ Return to the origin.

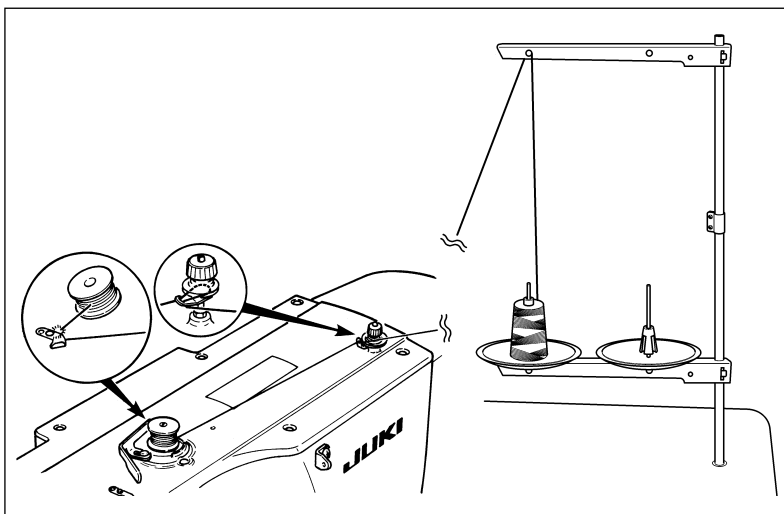
When RETURN TO ORIGIN button  **C** is pressed, the pop-up is closed, the sewing screen is displayed and the machine returns to the position of the start of sewing.

④ Perform again the sewing work from the start.

Re-place the garment body on the sewing machine. When you press the START switch, the sewing machine re-starts sewing.

4-15. Winding bobbin thread

(1) When performing winding bobbin thread while performing sewing




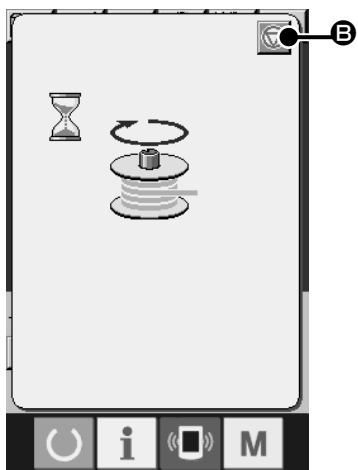
Thread the bobbin winder and wind the bobbin thread onto the bobbin as illustrated in the figure.

(2) When performing winding bobbin thread only



① Display the bobbin winding screen.


Press BOBBIN WINDER button  **A** in the data input screen (blue) and the presser comes down. Then the bobbin winding screen is displayed.




② Start bobbin winding.

When the START switch is pressed, the sewing machine rotates to start bobbin winding.

③ Stop the sewing machine.

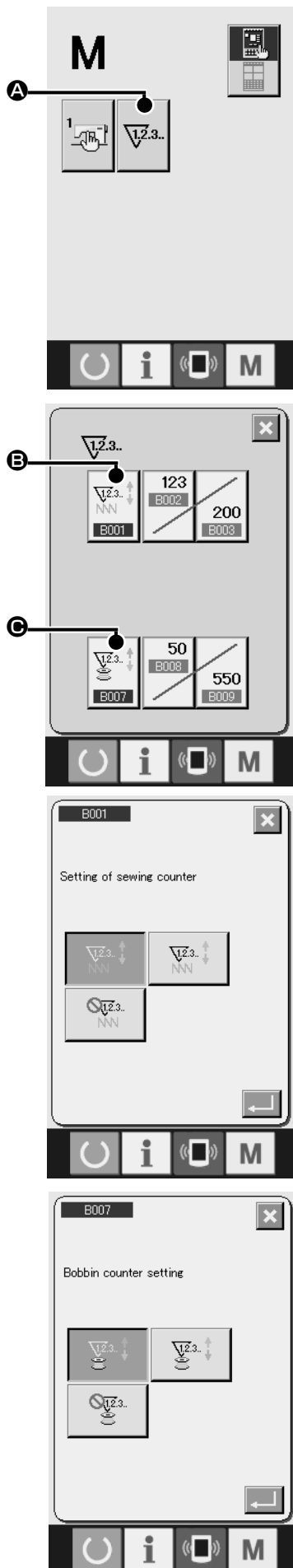
Press STOP button  **B** and the sewing machine stops and returns to the normal mode. When the START switch is pressed during bobbin winding, the sewing machine stops while remaining in the bobbin winding mode. This means that the sewing machine re-starts bobbin winding when the START switch is pressed again. Use this way when winding bobbin thread around plural bobbins.



The bobbin winding will not start immediately after turning the power on. To activate the bobbin winding function, set a pattern number or the like first, then press the set ready key  to invoke the sewing screen. In this state, the bobbin winding function is enabled.

4-16. Using counter

(1) Setting procedure of the counter




① Display the counter setting screen.


Press **M** switch and the COUNTER SETTING button .

A is displayed on the screen. When this button is pressed, the counter setting screen is displayed.

② Selection of kinds of counters




The sewing machine has two different types of the counters, i.e., the sewing counter and bobbin counter. Display the counter type selection screen by pressing SEWING COUNTER TYPE

SELECT button  **B** or BOBBIN COUNTER TYPE SE-




LECT button  **C**. On the counter type selection screen,

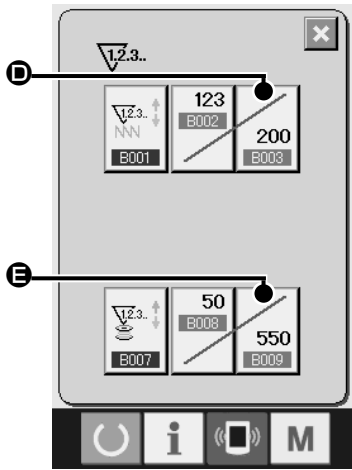
the counter type can be set individually.

[Sewing counter]


	UP counter : Every time the sewing of one shape is performed, the existing value is counted up. When the existing value is equal to the set value, the count-up screen is displayed.
	DOWN counter : Every time the sewing of one shape is performed, the existing value is counted down. When the existing value is reached to "0", the count-up screen is displayed.
	Counter disuse: The sewing counter does not count a finished shape even when the machine has sewn the shape. The counter screen of the sewing counter is not displayed.


[Bobbin counter]

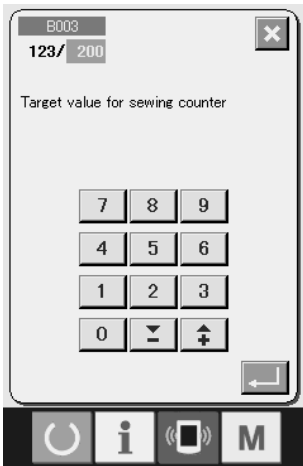
	UP counter : The counter increases the existing value by one every time the machine has sewn 10 stitches. When the existing value is equal to the set value, the count-up screen is displayed.
	DOWN counter : The counter decreases from the existing value by one every time the machine has sewn 10 stitches. When the existing value is reached to "0", the count-up screen is displayed.
	Counter disuse: The bobbin counter does not perform counting. The counter screen of the bobbin counter is not displayed.



③ Change of counter set value

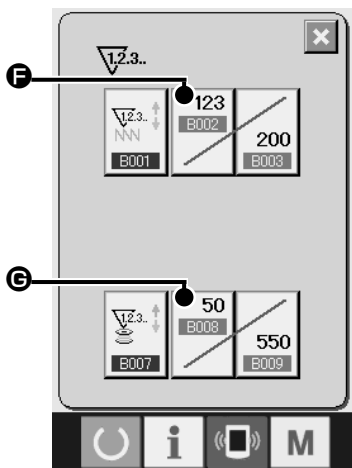
Press button  **D** for the sewing counter, counter of button

 **E** for the bobbin counter to display the corresponding counter set value input screen.





Here, input the set value.

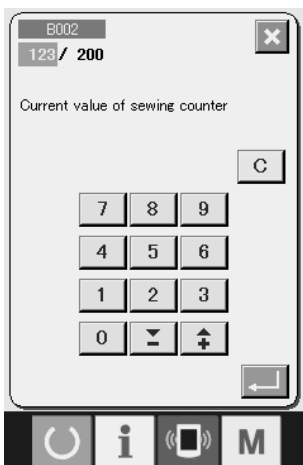
When "0" is inputted in the set value, the display of count-up screen is not performed.



④ Change of counter existing value

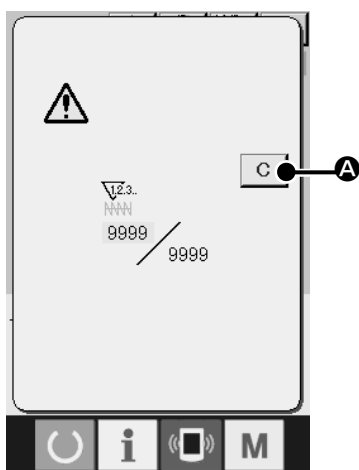
Press button  **F** for the sewing counter, counter of but-

ton  **G** for the bobbin counter to display the corresponding counter current value input screen.



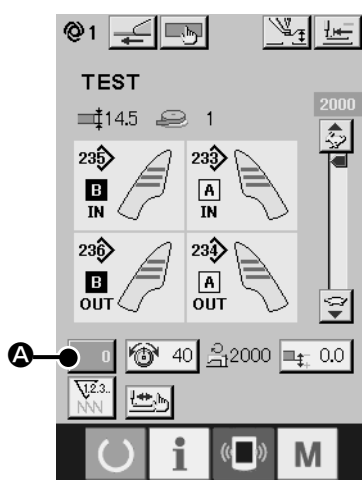
Here, input the existing value.

(2) Count-up releasing procedure



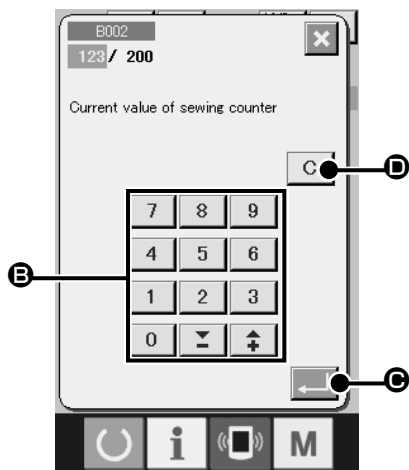
When the count-up condition is reached during sewing work, the count-up screen is displayed and the buzzer beeps. Press CLEAR button **C** **A** to reset the counter and the screen returns to the sewing screen. Then the counter starts counting again.

(3) How to change the counter value during sewing



① Display the counter value change screen.

When you desire to revise the counter value during sewing work due to the mistake or the like, press COUNTER VALUE CHANGE button **0** **A** on the sewing screen. The counter value change screen is displayed.



② Change the counter value.

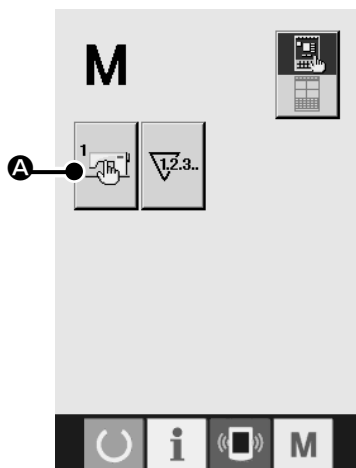
Input the value you desire with ten keys, or “+” or “-” key **B**.

③ Determine the counter value.

When ENTER button **C** is pressed, the data is determined.

When you desire to clear the counter value, press CLEAR button **C** **D**.

4-17. Changing memory switch data

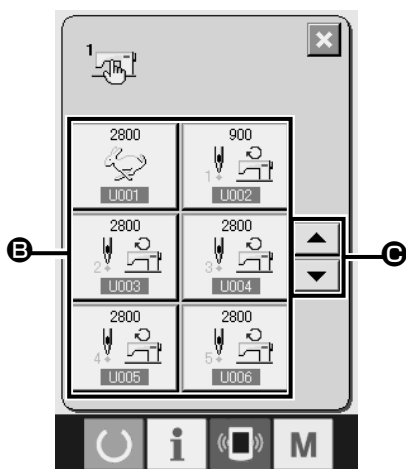


① **Display the memory switch data list screen.**

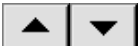
When MODE key **M** is pressed, memory switch button



A is displayed on the screen. When this button is pressed, the memory switch data list screen is displayed.

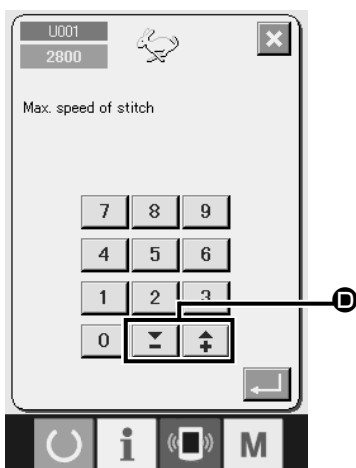



② **Select the memory switch button you desire to change.**

Press UP/DOWN SCROLL button  **C** and select the data item button **B** you desire to change.

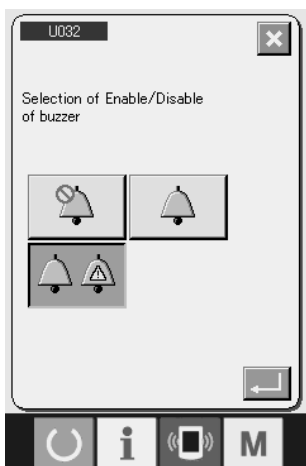
③ **Change the memory switch data.**

There are data items to change numerals and those to select pictographs in the memory switch data.



No. in pink color such as **U001** is put on the data items to change numerals and the set value can be changed with 

 **D** buttons displayed in the change screen.



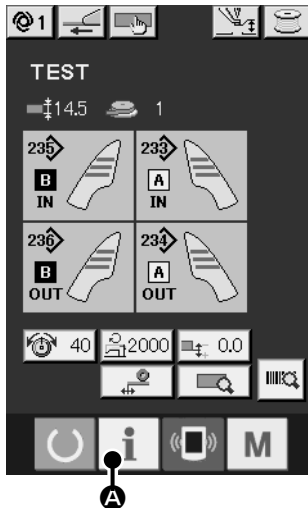
No. in blue color such as **U032** is put on the data items to select pictographs and the pictographs displayed in the change screen can be selected.

→ For the details of memory switch data, refer to "II-5. MEMORY SWITCH DATA LIST" p.95.

4-18. Using information

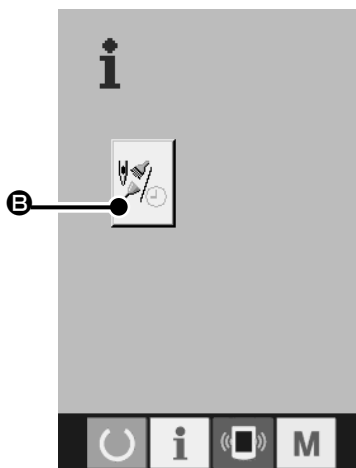
Oil replacement (grease-up) time, needle replacement time, cleaning time, etc. can be specified and the warning notice can be performed after the lapse of the specified time.

(1) Observing the maintenance and inspection information



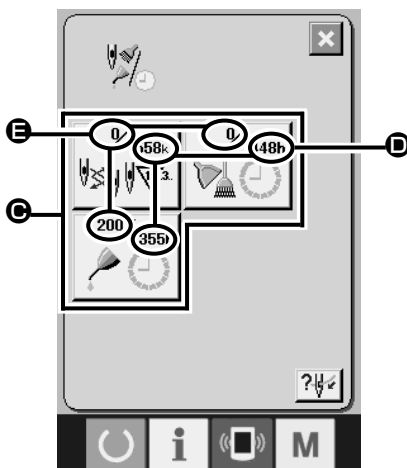
① Display the information screen.

When information key **i** **A** of the switch seat section is pressed in the data input screen, the information screen is displayed.

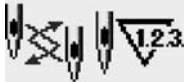




② Display the maintenance and inspection information screen.

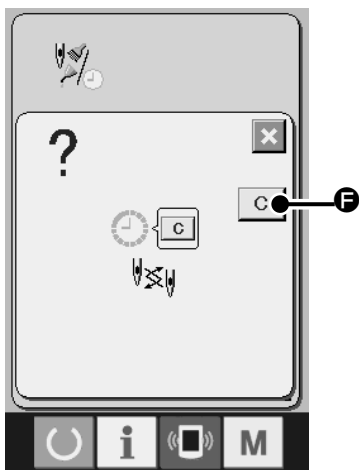
Press maintenance and inspection information screen display button **B** in the information screen.



Information on the following three items is displayed in the maintenance and inspection information screen.

- Needle replacement (1,000 stitches) : 
- Cleaning time (hour) : 
- Oil replacement time (hour) : 

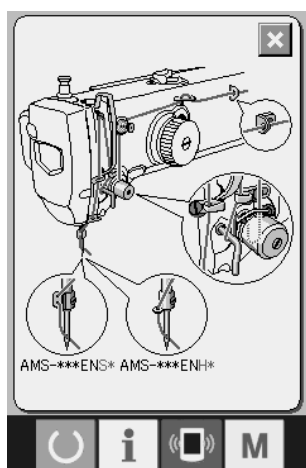
The interval to inform of the inspection for each item in button **C** is displayed at **D**, and remaining time up to the replacement is displayed at **E**. In addition, remaining time up to the replacement can be cleared.



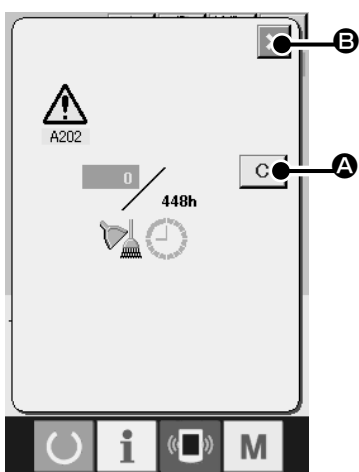
- ③ **Perform clearing remaining time up to the replacement.**
 When button **C** of the item you desire to clear is pressed, the time of replacement clear screen is displayed. When CLEAR button **C** **F** is pressed, the remaining time up to the replacement is cleared.




- ④ **Display the threading diagram.**
 When threading button **?H** **E** displayed in the maintenance and inspection screen is pressed, the needle thread threading diagram is displayed.
 Observe it when performing threading.



(2) Releasing procedure of the warning



- When the designated inspection time is reached, the warning screen is displayed.
 In case of clearing the inspection time, press CLEAR button **C** **A**. The inspection time is cleared and the pop-up is closed. In case of not clearing the inspection time, press CANCEL button **X** **B** and close the pop-up. Every time one sewing is completed, the warning screen is displayed until the inspection time is cleared.
 Warning Nos. of the respective items are as follows.
- Needle replacement : A201
 - Cleaning time : A202
 - Oil replacement time : A203

 **For the grease-up portion, refer to the item of "III-1-15. Replenishing the designated places with grease" p.124.**

(3) Upload and download of the bar-code record data

It is possible to upload the bar-code record data stored in the sewing machine to a medium by means of the communication function. It is also possible to download the bar-code record data from the medium to the sewing machine.



When uploading/downloading the bar-code record data, the vector data registered with the bar-code record data are also uploaded/downloaded.

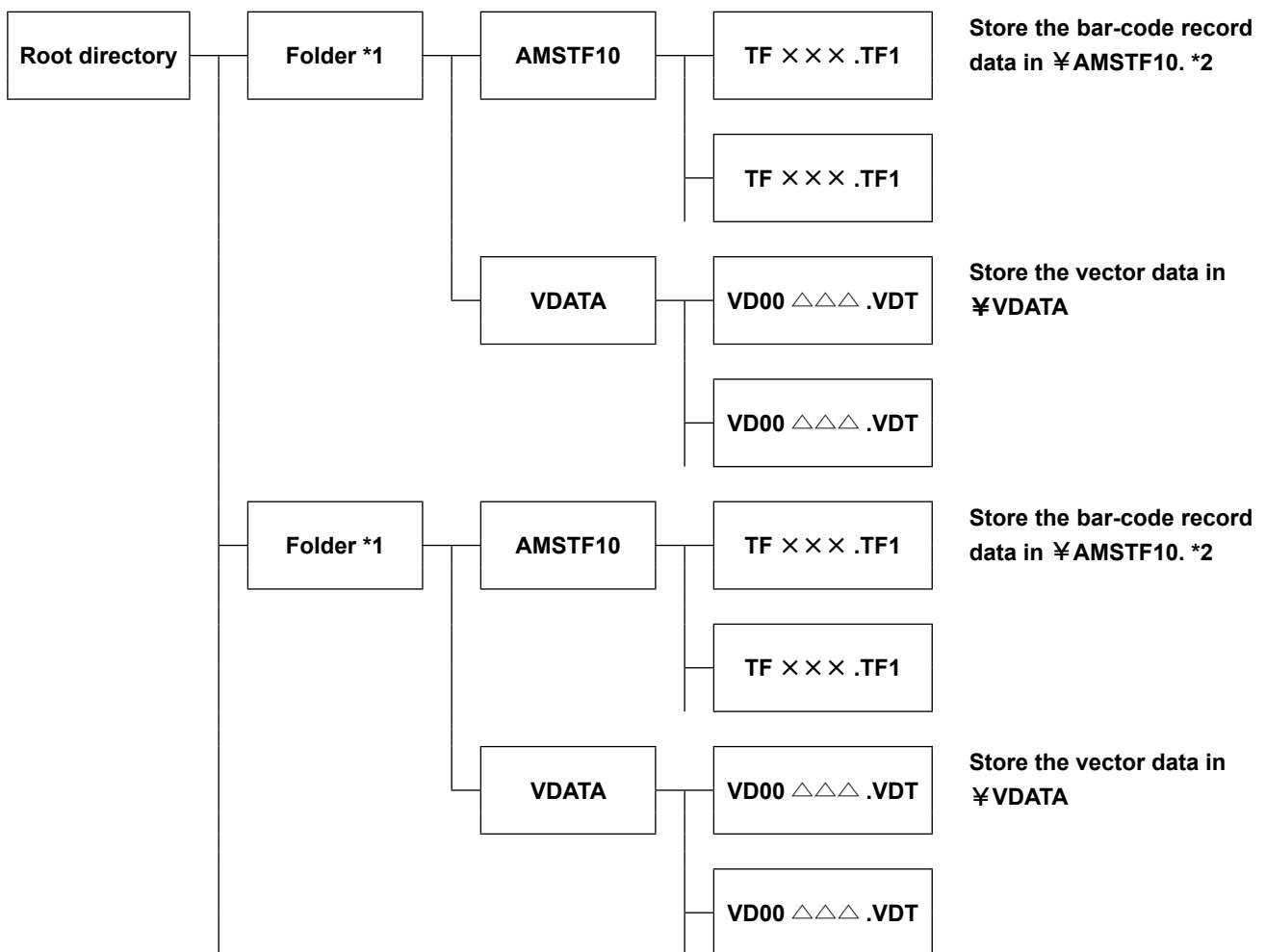
■ File name of the bar-code record data

TF XXX.TF1

XXX: Code name

■ Structure of folders in a medium

Files should be stored in the following directories of the medium.



*1 A folder name must consists of 14 characters or less.

The characters that can be used to name a folder are limited to a to z, A to Z, 0 to 9 and +, - and #. Characters a to z are displayed in capital letters such as A to Z on the operation panel.

The number of folders directly under the root directory should be 100 or less.

*2 The number of pieces of bar-code record data to be stored in one AMSTF10 folder should be 200 or less.

■ Batch communication and individual communication

Two different communication methods are available to communicate the bar-code record data. For each communication method, uploading and downloading are separately carried out. This means that totally four different communication modes are available.

① Batch communication

Uploading (writing data stored in the sewing machine on a medium)

All pieces of the bar-code record data stored in the sewing machine are uploaded in the specified folder in a medium. Only a folder directly under the root directory of the medium can be specified. Refer to " ■ Structure of folders in a medium" p.84.



Uploading process is started after all pieces of the bar-code record data and all pieces of vector data stored in the uploading destination folder have been deleted.

Downloading (writing of data stored in a medium in the sewing machine)

All pieces of the bar-code record data stored in the specified folder in a medium are downloaded to the sewing machine.

Only a folder directly under the root directory can be specified.

Refer to " ■ Structure of folders in a medium" p.84.



Downloading process is started after all pieces of the bar-code record data and all pieces of vector data stored in the sewing machine have been deleted.

② Individual communication

Uploading (writing data stored in the sewing machine on a medium)

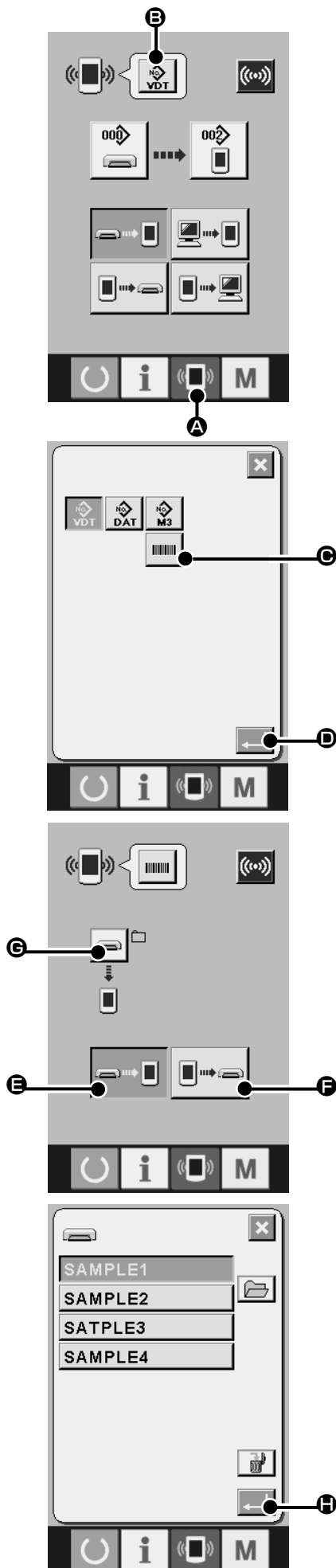
In the case of the batch communication method, all pieces of the bar-code record data stored in the sewing machine are uploaded. On the other hand, for the individual communication method, the bar-code record to be uploaded can be specified as desired.

Downloading (writing of data stored in a medium on the sewing machine)


In the case of the batch communication method, all pieces of the bar-code record data stored in the specified folder in a medium are downloaded. On the other hand, for the individual communication method, the bar-code record to be downloaded can be specified as desired. It should be noted, however, the only the bar code record data in the specified folder can be specified.

The bar-code record data in two or more different folders cannot be specified.

■ Batch communication operation procedure




① Display the communication screen.

When communication switch  **A** of switch seat section is pressed in the data input screen, the communication screen is displayed.

② Selecting the bar-code record.

When DATA TYPE button  **B** is pressed, the data type selection screen is displayed.

Press BAR-CODE RECORD DATA button  **C** and then press ENTER button  **D**.



③ Selecting the communication method.

Two different communication methods are available.

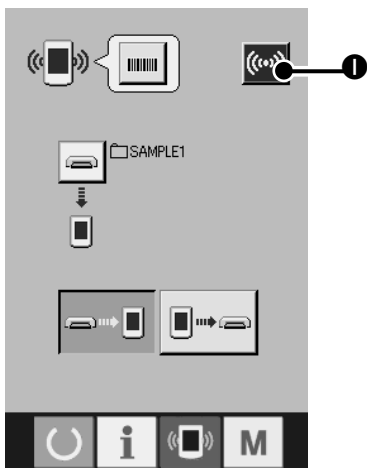
- E** Download (writing data stored in a medium on the sewing machine)
- F** Upload (writing data stored in the sewing machine on a medium)

Select the desired one from the above.


④ Selecting the folder.

When FOLDER SELECT button  **G** is pressed, the folder selection screen is opened. For downloading, select the source folder for downloading. For uploading, select the destination folder for uploading. Then, press ENTER button  **H**.

For uploading, a new folder can be created directly under the root directory of the medium. Refer to "■ Creating a new folder" p.91.



⑤ Starting the communication.

When COMMUNICATION START button  is pressed, the communication is started.

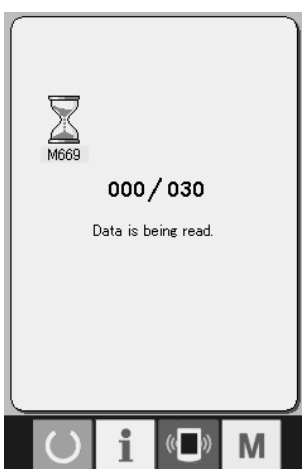
When the communication is started, uploading/downloading is carried out after the following data have been deleted.

(a) For downloading:

All pieces of the bar-code record data and all pieces of the vector data stored in the sewing machine

(b) For uploading:

All pieces of the bar-code record data and all pieces of the vector data stored in the destination folder for uploading



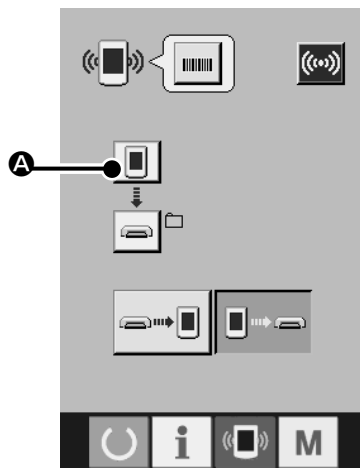
During the communication, the during-communication screen is displayed.

On the during-communication screen, the total number of pieces of the bar-code record data for communication and the number of pieces of data which have been communicated are displayed.

After the completion of communication of all pieces of the bar-code record data, the communication of the vector data is started. On the during-communication screen, the total number of pieces of the vector data for communication and the number of pieces of vector data which have been communicated are displayed. After the completion of the vector data communication, the during-communication screen is closed.

Individual communication operation procedure

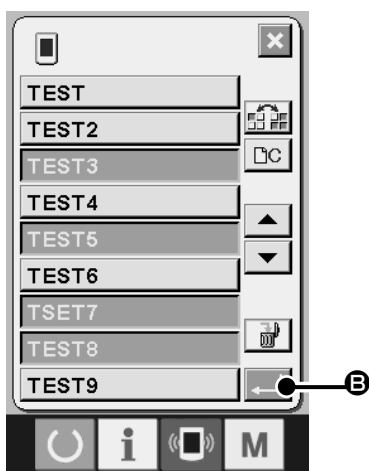
1. For uploading



① Displaying the bar-code record data list screen.

When SEWING MACHINE BAR-CODE RECORD button  is pressed,


the bar-code list screen is displayed.

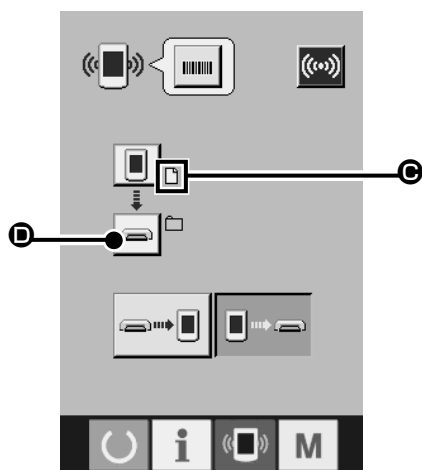


② Selecting the bar-code record data to be uploaded.



Select the bar-code record data to be uploaded and press

ENTER button  (B).

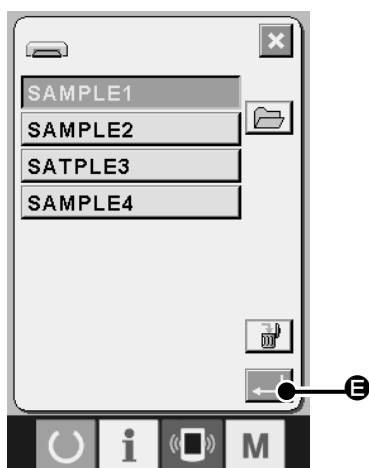
Mark  (C) which indicates the individual communication state is displayed on the communication screen.

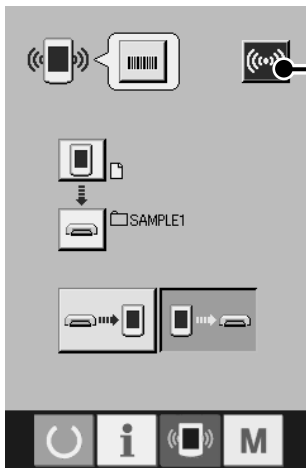


③ Selecting the destination folder for uploading.


When FOLDER SELECT button  (D) is pressed, the folder selection screen is opened. Select the destination folder for uploading and press ENTER button  (E).

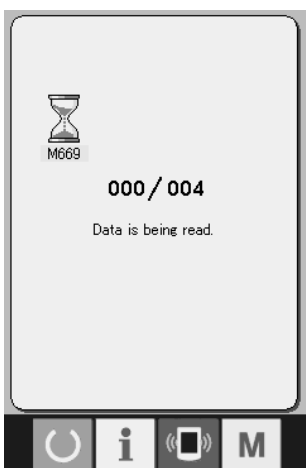
At this time, a new folder can be created directly under the root directory. Refer to " ■ Creating a new folder" p.91.





④ **Start the communication.**

When COMMUNICATION START button  **F** is pressed, the data communication starts.




During the communication, the during-communication screen is displayed.

On the during-communication screen, the total number of pieces of the bar-code record data for communication and the number of pieces of data which have been communicated are displayed.


After the completion of communication of all pieces of the bar-code record data, the communication of the vector data is started. On the during-communication screen, the total number of pieces of the vector data for communication and the number of pieces of vector data which have been communicated are displayed. After the completion of the vector data communication, the during-communication screen is closed.



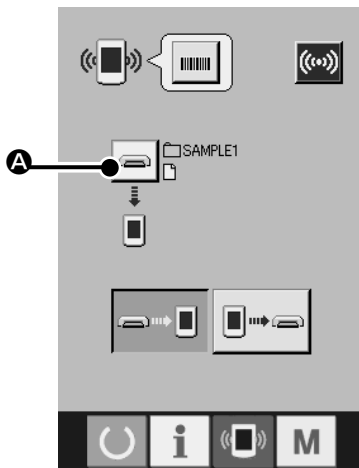
For uploading the bar-code record data existing in the medium, the overwrite confirmation screen is displayed.

When performing overwriting, press ENTER button  **G**.


When performing overwriting all without displaying the overwriting confirmation screen, press OVERWRITING button

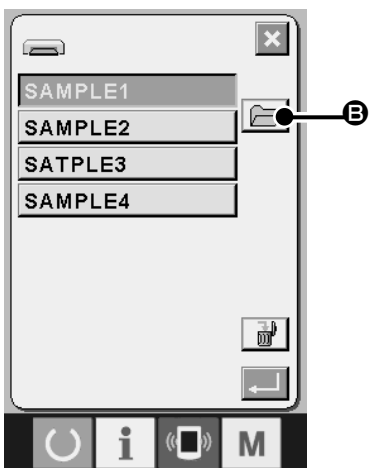
 **H** in all cases.


2. For downloading




① Selecting the folder.


When FOLDER SELECT button  **A** is pressed, the folder selection screen is displayed.

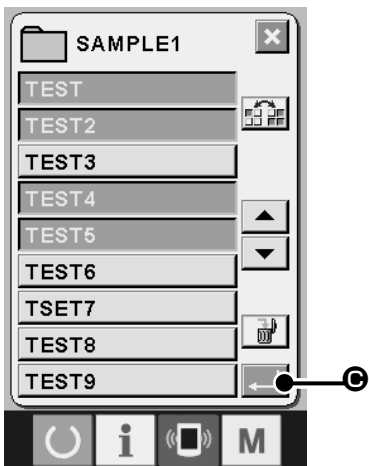


Select the folder in which the bar-code record data to be downloaded is stored and press FOLDER OPEN  **B**. The bar-code record list screen is displayed.


② Selecting the bar-code record data to be downloaded

Select the bar-code record data to be downloaded and press ENTER button  **C**.

Mark  **D** which indicates the individual communication state is displayed on the communication screen.



③ Start the communication.


When COMMUNICATION START button  **E** is pressed, the data communication starts.

During the communication, the during-communication screen is displayed.


On the during-communication screen, the total number of pieces of the bar-code record data for communication and the number of pieces of data which have been communicated are displayed.

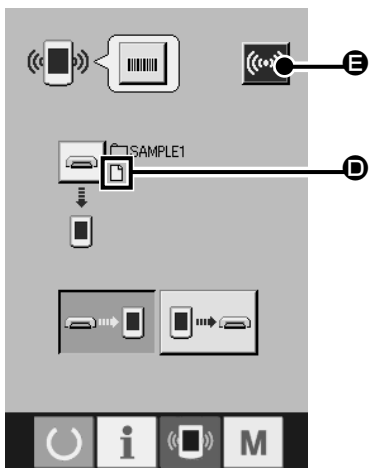
After the completion of communication of all pieces of the bar-code record data, the communication of the vector data is started. On the during-communication screen, the total number of pieces of the vector data for communication and the number of pieces of vector data which have been communicated are displayed. After the completion of the vector data communication, the during-communication screen is closed.

For downloading the bar-code record data existing in the sewing machine, the overwrite confirmation screen is displayed.

When performing overwriting, press ENTER button .

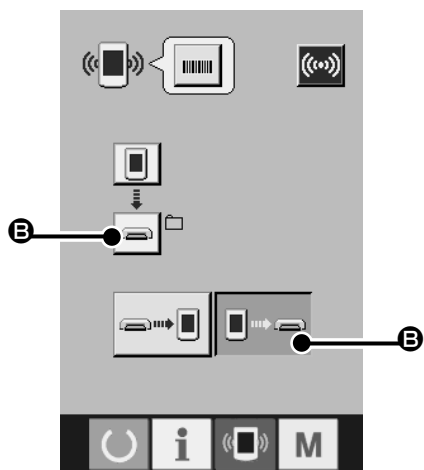
When performing overwriting all without displaying the overwriting confirmation screen, press OVERWRITING button

 in all cases.



■ Creating a new folder


A new folder can be created directly under the root directory of a medium.

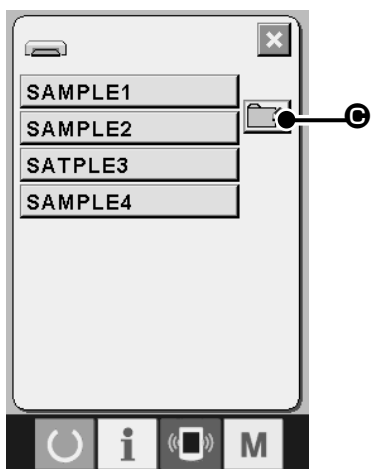


① **Bringing the device into the uploading state.**


Press UPLOAD button  **A** to bring the device into the uploading state.

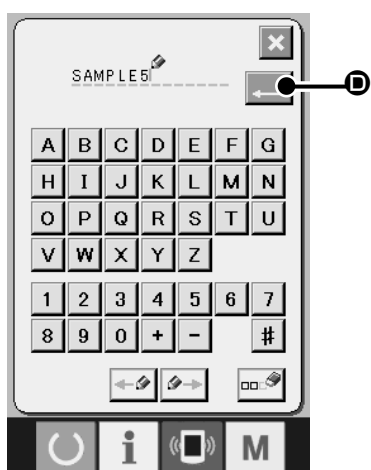
② **Opening the folder selection screen**

When FOLDER SELECT button  **B** is pressed, the folder selection screen is displayed.



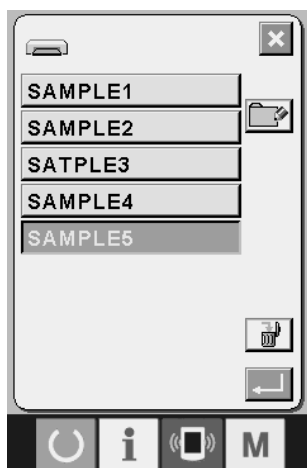
③ **Opening the folder name entry screen.**

When NEW FOLDER CREATE button  **C** is pressed, the folder name entry screen is displayed.



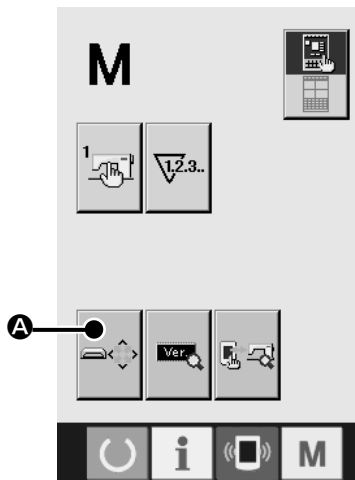
Enter the folder name and press ENTER button  **D**. A

folder is created and the screen is restored to the folder selection screen.




4-19. Performing formatting of the media

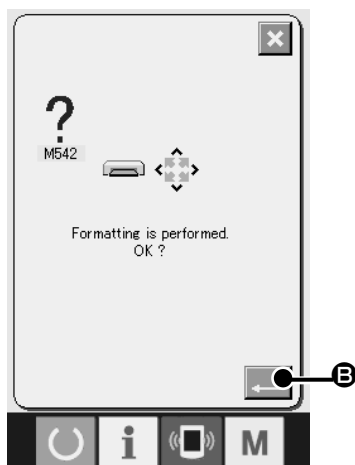
To re-format a medium, the IP-420 has to be used. The IP-420 is not able to read any medium which is formatted on a personal computer.




① Display the media format screen.

When **M** switch is held pressed for three seconds, MEDIA

FORMAT button  **A** is displayed on the screen. When this button is pressed, the media format screen is displayed.



② Start formatting of the media.

Set the media you desire to format to the media slot, close the cover, press ENTER button  **B** and formatting starts.

Save necessary data in the media to the other media before formatting. When formatting is performed, the inside data are deleted.

When two or more media are connected to the sewing machine, the medium to be formatted is determined by the predetermined priority order.

High ← Low

CF(TM) slot , USB device 1 , USB device 2 ,

When a CompactFlash (TM) is inserted in the CF(TM) slot, the CompactFlash (TM) will be formatted according to the priority order as shown above.

Refer to the USB specifications for the priority order of access.

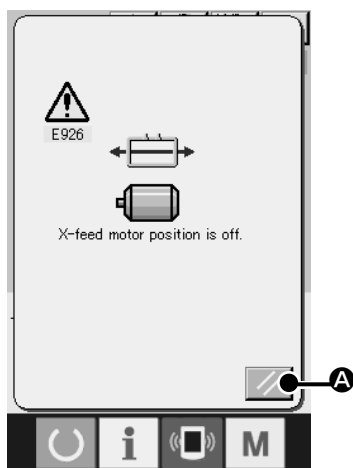


4-20. Operation at the time of X/Y motor position slip

When X/Y motor detects the position slip, the error screen is displayed.

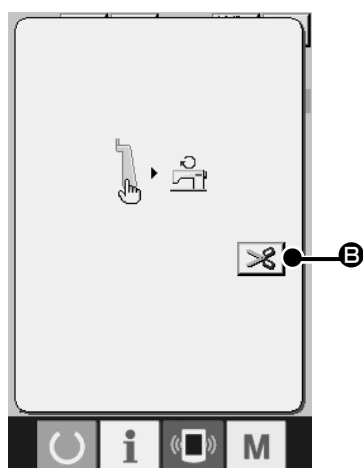
Timing of error display can be changed with the selection of memory switch. For the details, refer to the Engineer's Manual.

(1) When the error is displayed during sewing




① Release the error.

Press RESET button  (A) to release the error and the thread trimming pop-up is displayed.

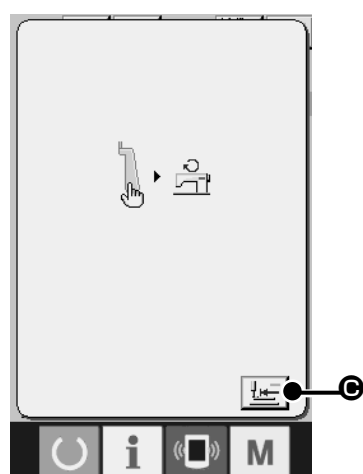


② Perform thread trimming.


Check the seam. If you find no problem, press the START switch to re-start sewing.

If not, press THREAD TRIM button  (B) and perform thread trimming.

When performing thread trimming, the feed forward/back pop-up is displayed.



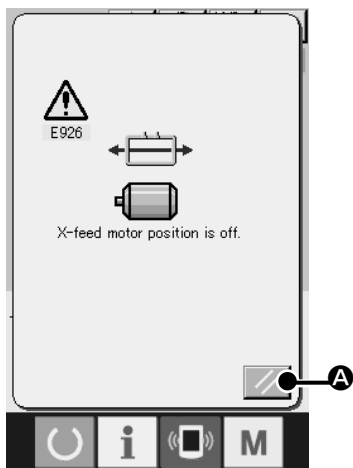
③ Adjust the presser to the re-sewing position.

In addition, when RETURN TO ORIGIN button  (C) is pressed, the pop-up is closed, the sewing screen is displayed, and the presser returns to the sewing start position.


④ Re-start sewing.

When the START switch is pressed, the sewing machine re-starts sewing.

(2) When the error is displayed after end of sewing



① Release the error.

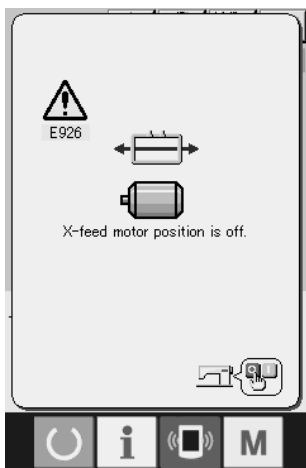
When RESET button  **A** is pressed, and the error is released, the sewing screen is displayed.

② Perform sewing work again from the start.

When the START switch is pressed, the sewing machine starts sewing.

(3) When the rest switch is not displayed

When a large slip is detected, the reset switch is not displayed.



① Turn OFF the power.

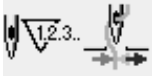




















5. MEMORY SWITCH DATA LIST







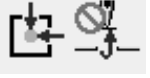
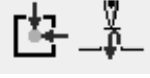








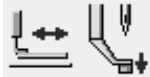







Memory switch data are the motion data that the sewing machine has in common and the data that operate on all sewing patterns in common.


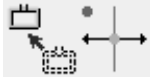














5-1. Data list

No.	Item		Setting range	Edit unit
U001	Maximum sewing speed		200 to 2800	100 sti/min
U002	Sewing speed of 1st stitch In case of with thread clamp		200 to 900	100 sti/min
U003	Sewing speed of 2nd stitch In case of with thread clamp		200 to 2800	100 sti/min
U004	Sewing speed of 3rd stitch In case of with thread clamp		200 to 2800	100 sti/min
U005	Sewing speed of 4th stitch In case of with thread clamp		200 to 2800	100 sti/min
U006	Sewing speed of 5th stitch In case of with thread clamp		200 to 2800	100 sti/min
U007	Thread tension of 1st stitch In case of with thread clamp		0 to 200	1
U008	Thread tension setting at the time of thread trimming		0 to 200	1
U009	Thread tension changeover timing at the time of thread trimming		- 6 to 4	1
U010	Sewing speed of 1st stitch In case of without thread clamp		200 to 1500	100 sti/min
U011	Sewing speed of 2nd stitch In case of without thread clamp		200 to 2800	100 sti/min
U012	Sewing speed of 3rd stitch In case of without thread clamp		200 to 2800	100 sti/min
U013	Sewing speed of 4th stitch In case of without thread clamp		200 to 2800	100 sti/min
U014	Sewing speed of 5th stitch In case of without thread clamp		200 to 2800	100 sti/min
U015	Thread tension of 1st stitch In case of without thread clamp		0 to 200	1
U016	Thread tension changeover timing at the time of sewing start In case of without thread clamp		- 5 to 2	1
U032	Buzzer sound can be prohibited.		---	---









Without buzzer sound Panel operating sound Panel operating sound + error




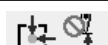




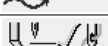





No.	Item	Setting range	Edit unit
U033	Number of stitches of thread clamp release is set. 	1 to 7	1
U034	Clamping timing of thread clamp can be delayed. 	- 10 to 0	1
U035	Thread clamp control can be prohibited.   Normal Prohibited	---	---
U036	Feed motion timing is selected. Set the timing in “-” direction when stitch is not well-tightened. 	- 8 to 16	1
U039	Origin retrieval can be performed every time after end of sewing   Without origin retrieval With origin retrieval	---	---
U042	Needle stop position is set.   UP position Upper dead point	---	---
U046	Thread trimming can be prohibited.   Normal Thread trimming prohibited	---	---
U048	Route of return to origin by return to origin button can be selected.    Linear return Reverse return of pattern Origin retrieval → Sewing start point	---	---
U049	Bobbin winding speed can be set. 	800 to 2000	100 sti/min
U051	Motion method of wiper can be selected.   Invalid Magnet typewiper	---	---
U068	Thread tension output time when setting thread tension can be set. 	0 to 20	1
U069	Bend position of thread clamp is selected. 1 : H type thin thread (#50 to #8) 2 : H type intermediate 3 : H type thick thread (#20 to #5) 	---	---
U070	Thread clamp and thread clamp position selection   Front position Rear position	---	---

No.	Item	Setting range	Edit unit
U071	Thread breakage detection selection   Thread breakage detection invalid Thread breakage detection valid	---	---
U072	Number of invalid stitches at the start of sewing of thread breakage detection 	0 to 15 stitches	1 stitch
U073	Number of invalid stitches during sewing of thread breakage detection 	0 to 15 stitches	1 stitch
U091	Retainer compensation motion : selection of motion   Without motion With motion	---	---
U094	Selection of needle upper dead point at the time of origin retrieval/return to origin   Without With	---	---
U097	Temporary stop : thread trimming operation   Automatic thread trimming Manual (Thread trimming by turning Stop SW ON again)	---	---
U101	Main motor X/Y feed synchronized control : speed/pitch     2800 sti/min/4.0mm 2200 sti/min/4.0mm 1800 sti/min/4.0mm 1400 sti/min/4.0mm	---	---
U103	Intermediate presser with/without control    Without (Lowering fixed) With (Lowering with sewing data at the time of operation) With (Lowering even at the time of feed forward/backward)	---	---
U104	Intermediate presser lowering timing   Immediately before start-up of machine head Synchronized with the last feeding frame	---	---
U105	Intermediate presser : wiper sweeping position    Sweeping above intermediate presser Sweeping above intermediate presser (position where intermediate presser lowers most) Sweeping below intermediate presser	---	---
U108	With/without air pressure detection   Without With	---	---

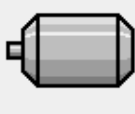





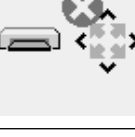



No.	Item	Setting range	Edit unit
U112	Intermediate presser DOWN position setting → Refer to "I-4-1.(7) Intermediate presser height" p.14.		0 to 7.0mm 0.1
U117	Fixed retraction position, X coordinate		-800 to 800 mm 0.1 mm
U118	Fixed retraction position, Y coordinate		-800 to 800 mm 0.1 mm
U129	With/without needle cooler control  Without  With	---	---
U245	Grease-up error Clearing of number of stitches of grease-up is performed. → Refer to "III-1-15. Replenishing the designated places with grease" p.124.		---
U500	Language selection 日本語 Japanese English English 中文繁體字 Chinese (traditional) 中文简体字 Chinese (simplified) Español Spanish Italiano Italian Français French Deutsch German Português Portuguese Türkçe Turkish Tiếng Việt Vietnamese 한국어 Korean Indonesia Indonesian Русский Russian		
U501	Splice tape width		10 to 50 1mm
U502	Splice tape detection active  Standard  Reverse video	---	---
U503	Splice sensor enable/disable  Enable  Disable	---	---
U504	Sewing speed limit when feeding a long tape		200 to 2000 100 sti/min
U505	Feed sensor enable/disable  Enable  Disable	---	---
U506	Tape rack sensor enable/disable  Enable  Disable	---	---




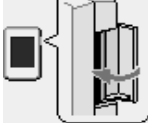
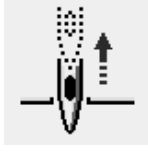


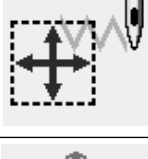



5-2. Initial value list

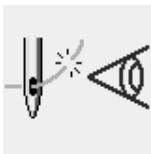





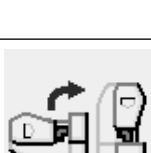
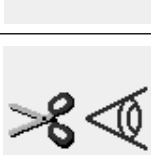

No.	Item	Initial value
U001	Maximum sewing speed	2000
U002	Sewing speed of 1st stitch (In case of with thread clamp)	900
U003	Sewing speed of 2nd stitch (In case of with thread clamp)	2000
U004	Sewing speed of 3rd stitch (In case of with thread clamp)	2000
U005	Sewing speed of 4th stitch (In case of with thread clamp)	2000
U006	Sewing speed of 5th stitch (In case of with thread clamp)	2000
U007	Thread tension of 1st stitch (In case of with thread clamp)	200
U008	Thread tension setting at the time of thread trimming	0
U009	Thread tension changeover timing at the time of thread trimming	0
U010	Sewing speed of 1st stitch (In case of without thread clamp)	300
U011	Sewing speed of 2nd stitch (In case of without thread clamp)	400
U012	Sewing speed of 3rd stitch (In case of without thread clamp)	600
U013	Sewing speed of 4th stitch (In case of without thread clamp)	1500
U014	Sewing speed of 5th stitch (In case of without thread clamp)	2000
U015	Thread tension of 1st stitch (In case of without thread clamp)	0
U016	Thread tension changeover timing at the time of sewing start (In case of without thread clamp)	-5
U032	Buzzer sound can be prohibited.	
U033	Number of stitches of thread clamp release is set.	2
U034	Clamping timing of thread clamp can be delayed.	0
U035	Thread clamp control can be prohibited.	
U036	Feed motion timing is selected.	3
U039	Origin retrieval can be performed every time after end of sewing (other than combination sewing).	
U042	Needle stop position is set.	
U046	Thread trimming can be prohibited.	
U048	Route of return to origin by return to origin button can be selected.	
U049	Bobbin winding speed can be set.	1600
U051	Motion method of wiper can be selected.	
U068	Thread tension output time when setting thread tension can be set.	20
U069	Bend position of thread clamp is selected.	H type : 1
U070	Thread clamp and thread clamp position selection	





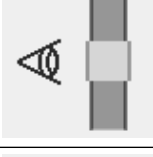
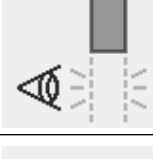
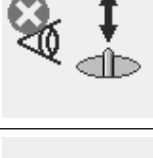


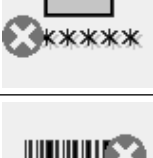

No.	Item	Initial value
U071	Thread breakage detection selection	
U072	Number of invalid stitches at the start of sewing of thread breakage detection	8
U073	Number of invalid stitches during sewing of thread breakage detection	3
U088	Enlarging/reducing function mode	
U091	Retainer compensation motion : selection of motion	
U094	Selection of needle upper dead point at the time of origin retrieval/return to origin	
U097	Temporary stop : thread trimming operation	
U101	Main motor X/Y feed synchronized control : speed/pitch	
U103	Intermediate presser with/without control	
U104	Intermediate presser lowering timing	
U105	Intermediate presser : wiper sweeping position	
U108	With/without air pressure detection	
U112	Intermediate presser DOWN position setting	3.5
U117	Fixed retraction position, X coordinate	107.0
U118	Fixed retraction position, Y coordinate	46.0
U129	With/without needle cooler control	
U245	Grease-up error	-
U500	Language selection	Not set
U501	Splice tape length	18 mm
U502	Splice tape detection active	
U503	Splice sensor enable/disable	
U504	Sewing speed limit when feeding a long tape	200
U505	Feed sensor enable/disable	
U506	Tape rack sensor enable/disable	


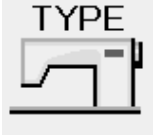



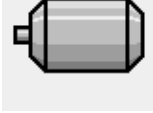



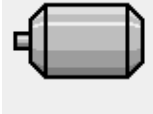
6. ERROR CODE LIST


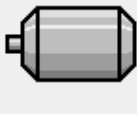





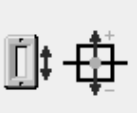
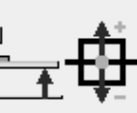

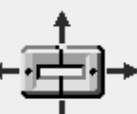
Error code	Display	Description of error	Display message	How to recover
E007		Machine lock Main shaft of the sewing machine fails to rotate due to some trouble	Machine is locked.	Turn OFF the power
E008		Head connector abnormality Memory of machine head cannot be read.	Undefined head is selected.	Turn OFF the power
E010		Pattern No. error Pattern No. which is backed up is not registered to data ROM, or setting of reading inoperative is performed.	Specified pattern does not exist.	Possible to re-enter after reset.
E011		External media not inserted External media is not inserted.	Media is not inserted.	Possible to re-enter after reset.
E012		Read error Data read from external media cannot be performed.	Data cannot be read.	Possible to re-start after reset.
E013		Write error Data write from external media cannot be performed.	Data cannot be written.	Possible to re-start after reset.
E015		Format error Format cannot be performed.	Formatting is impossible.	Possible to re-start after reset.
E016		External media capacity over Capacity of external media is short.	Capacity is insufficient. (media)	Possible to re-start after reset.
E017		Machine memory capacity over Machine memory capacity is insufficient.	Capacity is insufficient. (Machine)	Possible to re-start after reset.
E019		File size over File is too large.	Pattern data is too large. (Approx. 50000 stitches)	Possible to re-start after reset.






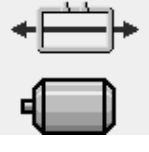
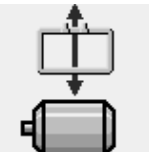

Error code	Display	Description of error	Display message	How to recover
E024		Pattern data size over Memory size is over.	Memory capacity has run out.	Possible to re-start after reset.
E027		Read error Data read from server cannot be performed.	Data cannot be read.	Possible to re-start after reset.
E028		Write error Data write from server cannot be performed.	Data cannot be written.	Possible to re-start after reset.
E029		Media slot release error Lid of media slot is open.	Cover of media slot is open.	Possible to re-start after reset.
E030		Needle bar position missing error Needle bar is not in the predetermined position.	Needle is not in a proper position.	Turn hand pulley to bring needle bar to its predetermined position.
E031		Air pressure drop Air pressure is dropped.	Low air pressure.	Possible to re-start after reset.
E032		File interchanging error File cannot be read.	File cannot be read.	Possible to re-start after reset.
E040		Sewing area over	Move limit is exceeded.	Possible to re-start after reset.
E043		Enlarging error Sewing pitch exceeds Max. pitch.	Max. Pitch is exceeded.	Possible to re-start after reset.
E045		Pattern data error	Pattern data no good.	Possible to re-start after reset.
E050		Stop switch When stop switch is pressed during machine running.	Temporary stop switch is pressed.	Possible to re-start after reset.

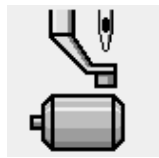
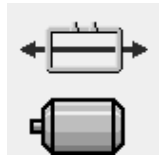
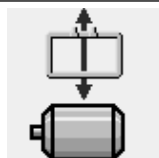
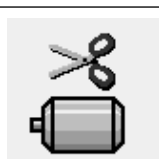

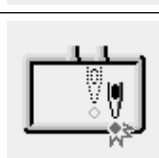


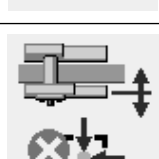
Error code	Display	Description of error	Display message	How to recover
E052		Thread breakage detection error When thread breakage is detected.	Thread breakage is detected.	Possible to re-start after reset.
E061		Memory switch data error Memory switch data is broken or revision is old.	Memory switch data error.	Turn OFF the power
E204		USB connection error With the number of times of sewing has reached 10 or more, with a USB device connected to the sewing machine	Never connect USB storage device to the machine during sewing.	Possible to re-start after reset.
E220		Grease-up warning At the time of operation of 100 million stitches → Refer to "III-1-15. Replenishing the designated places with grease" p.124.	Important: Grease is running out. Add grease.	Possible to re-start after reset.
E221		Grease-up error At the time of operation of 120 million stitches The sewing machine is put in the sewing-impossible status. It is possible to clear with memoryswitch U245 . → Refer to "III-1-15. Replenishing the designated places with grease" p.124.	Important: Grease has run out. Add grease.	Possible to re-start after reset.
E302		Head tilt confirmation When head tilt sensor is OFF.	Head is tilted.	Possible to re-start after reset.
E305		Cloth cutting knife position error Cloth cutting knife is in the regular position.	Thread trimmer knife sensor cannot be detected.	Turn OFF the power
E306		Thread clamp position error Thread clamp unit is not in the regular position.	Thread clamp sensor cannot be detected.	Turn OFF the power
E307		External input command time out error Input is not performed for a fixed period of time with the external input command of vector data.	There is no input for a certain period of time with external input command of vector data.	Possible to re-start after reset.

Error code	Display	Description of error	Display message	How to recover
E308		Time-out error of wait terminal There is no input to wait terminal for a certain period of time.	There is no input from wait terminal for a certain period of time.	Turn OFF the power
E387		The pattern is not recognized Garment body is not placed on the sewing machine or the garment detection sensors fail to detect the garment body when the START switch is pressed under the auto 1 mode.	Garment body cannot be recognized	Reset
E388		Tape presence error Tape is present in the feeder when feeding the tape or at the end of tape sewing.	Tape is present on the tape feeder	Reset
E389		Error due to the absence of tape at the start of sewing No tape is present in the feeder at the start of tape sewing.	Tape is not present on the tape feeder	Reset
E390		Error due to splice detection Splice is detected. Remove the splice.	Splice has been detected Remove it	Reset
E391		Error due to absence of tape There is no tape on the specified tape rack at the start of sewing.	No tape is present on the tape rack	Reset
E392		Positioning pin sensor error The sensor fails to work properly when the positioning pin operates.	Positioning pin sensor error	Turn OFF the power
E393		Tape feeder sensor error The sensor fails to react properly when the tape feeder travels forward or retracts.	Tape feeder sensor error	Turn OFF the power
E395		The number and order of patterns which are external output are abnormal.	Tape feeder sensor error	Reset
E497		Error due to folder name duplication The folder name entered already exists.	Folder name entered already exists	Reset
E498		Error due to code name change disabled This code name already exists and cannot be changed.	This code name already exists and cannot be changed	Reset


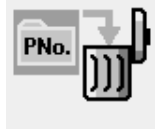








Error code	Display	Description of error	Display message	How to recover
E499		Error due to unregistered bar code Bar code is not yet registered.	Bar-code has not been registered	Reset
E703		Panel is connected to the sewing machine which is not supposed. (Machine type error) When the machine type code of system is not proper in the initial communication.	Model of sewing machine is different from that of panel.	Possible to rewrite program after pressing down communication switch.
E704		Inconsistency of system version System software version is inconsistent in the initial communication.	Version of program incompatible.	Possible to rewrite program after pressing down communication switch.
E730		Main shaft motor encoder defectiveness When encoder of the sewing machine motor is abnormal.	Sewing machine motor is defective. (Encoder A and B phases)	Turn OFF the power
E731		Main motor hole sensor is defective or position sensor is defective. Hole sensor or position sensor of the sewing machine motor is defective.	Sewing machine motor is defective. (Encoder U V and W phases)	Turn OFF the power
E733		Reverse rotation of main shaft motor When sewing machine motor rotates in reverse direction.	Sewing machine motor runs in the reverse direction.	Turn OFF the power
E797		SUB PCB initialization error	SUB PCB initialization error	Turn OFF the power
E798		SUB status error	SUB status fault	Turn OFF the power
E799		MAIN status error	MAIN status fault	Turn OFF the power
E802		Power electrical discontinuity detection	Power instantaneously lost.	Turn OFF the power

Error code	Display	Description of error	Display message	How to recover
E811		Overvoltage When input power is more than the specified value.	Input voltage is too high. (Check input voltage.)	Turn OFF the power
E813		Low voltage When input power is less than the specified value.	Input voltage is too low. (Check input voltage.)	Turn OFF the power
E901		Main shaft motor IPM abnormality When IPM of servo control p.c.b. is abnormal.	SDC P.C.B. is defective. (IPM)	Turn OFF the power
E903		Stepping motor power abnormality When stepping motor power of SERVO CONTROL p. c. b. fluctuates more than $\pm 15\%$.	Power of SDC P.C.B. is defective. (Stepping motor power 85 V)	Turn OFF the power
E904		Solenoid power abnormality When solenoid power of SERVO CONTROL p. c. b. fluctuates more than $\pm 15\%$.	Power of SDC P.C.B. is defective. (Solenoid power 33 V)	Turn OFF the power
E905		Heat sink temperature for SERVO CONTROL p. c. b. abnormality Turn ON the power again after taking overheat time of SERVO CONTROL p. c. b.	Temperature of SDC P.C.B. is too high.	Turn OFF the power
E907		X feed motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Origin of X motor cannot be found. (X origin sensor)	Turn OFF the power
E908		Y feed motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Origin of Y motor cannot be found. (Y origin sensor)	Turn OFF the power
E910		Presser motor origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Origin of presser thread trimmer motor cannot be found. (Presser thread trimmer origin sensor)	Turn OFF the power
E913		Thread clamp origin retrieval error When origin sensor signal is not inputted at the time of origin retrieval motion.	Origin of thread clamp motor cannot be found. (Thread clamp origin sensor)	Turn OFF the power
E914		Feed defective error Timing lag between feed and main shaft occurs.	X/Y feed trouble is detected.	Turn OFF the power




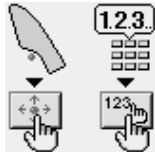

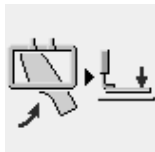
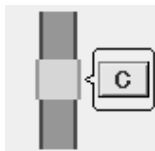



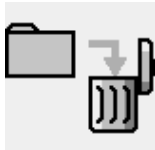
Error code	Display	Description of error	Display message	How to recover
E915		Communication abnormality between operation panel and MAIN CPU When abnormality occurs in data communication.	Communication is impossible. (Panel – MAIN P.C.B.)	Turn OFF the power
E916		Communication abnormality between MAIN CPU and main shaft CPU When abnormality occurs in data communication.	Communication is impossible. (MAIN P.C.B. – SDC P.C.B.)	Turn OFF the power
E917		Communication failure between operation panel and personal computer When abnormality occurs in data communication.	Communication is impossible. (Panel – PC)	Possible to re-start after reset.
E918		MAIN p. c. b. overheat Overheat of MAIN p. c. b. Turn ON the power again after taking time.	Main P.C.B. temperature is too high.	Turn OFF the power
E925		Intermediate presser motor origin retrieval error Origin sensor of intermediate presser motor does not change at the time of origin retrieval.	Origin of intermediate presser cannot be found. (Intermediate presser origin sensor)	Turn OFF the power
E926		X motor position slip error	X-feed motor position is off.	<ol style="list-style-type: none"> 1. In case of error display during sewing Possible to re-start after reset 2. In case of error display after end of sewing Possible to re-start after reset 3. In case of others Turn OFF the power.
E927		Y motor position slip error	Y-feed motor position is off.	<ol style="list-style-type: none"> 1. In case of error display during sewing Possible to re-start after reset 2. In case of error display after end of sewing Possible to re-start after reset 3. In case of others Turn OFF the power.
E928		Thread trimming motor position slip error	Thread trimming motor position is off.	Turn OFF the power






Error code	Display	Description of error	Display message	How to recover
E930		Intermediate presser motor position slip error	Intermdiate presser motor position is off.	Turn OFF the power
E931		X motor overload error	X-feed motor overload is excessive.	Turn OFF the power
E932		Y motor overload error	Y-feed motor overload is excessive.	Turn OFF the power
E933		Thread trimming motor overload error	Thread trimming motor overload is excessive.	Turn OFF the power
E935		Intermediate presser motor overload error	Intermediate presser motor overload is excessive.	Turn OFF the power
E936		X/Y motor out of range error	Feed motor position has exceeded the sewing area.	Turn OFF the power
E943		MAIN CONTROL p.c.b trouble When data writing to MAIN CONTROL p.c.b. cannot be performed	MAIN P.C.B. is defective.	Turn OFF the power
E946		HEAD RELAY p.c.b. trouble When data writing to HEAD RELAY p.c.b. cannot be performed	Head P.C.B. is defective.	Turn OFF the power
E998		Guide width motor origin retrieval error	Guide width motor origin retrieval error	Turn OFF the power

7. MESSAGE LIST

Message No.	Display	Display message	Description
M520		Erasing is performed. OK ?	Erase confirmation of Users' pattern Erase is performed. OK ?
M521		Erasing is performed. OK ?	Erase confirmation of pattern button Erase is performed. OK ?
M522		Erasing is performed. OK ?	Erase confirmation cycle pattern Erase is performed. OK ?
M523		Pattern data is not stored. Erasing is OK?	Erase confirmation of backup data Pattern data is not stored in memory. Erase is OK ?
M528		Overwriting is performed. OK ?	Overwriting confirmation of users' pattern Overwriting is performed. OK ?
M529		Overwriting is performed. OK ?	Overwriting confirmation of media Overwriting is performed. OK ?
M530		Overwriting is performed. OK ?	Overwriting confirmation of vector data of panel/M3 data/sewing standard format data/simplified program data Overwriting is performed. OK ?
M531		Overwriting is performed. OK ?	Overwriting confirmation of vector data of media/M3 data/sewing standard format data/simplified program data Overwriting is performed. OK ?
M532		Overwriting is performed. OK ?	Overwriting confirmation of vector data on personal computer/M3 data/sewing standard format data/simplified program data Overwriting is performed. OK ?
M534		Overwriting is performed. OK ?	Overwriting confirmation of adjustment data of media and all machine data Overwriting is performed. OK ?

Message No.	Display	Display message	Description
M535		Overwriting is performed. OK ?	Overwriting confirmation of adjustment data on personal computer and all machine data Overwriting is performed. OK ?
M537		Deleting is performed. OK ?	Deletion confirmation of thread tension command Deleting is performed. OK ?
M538		Deleting is performed. OK ?	Deletion confirmation of intermediate presser increase/decrease value Deleting is performed. OK ?
M542		Formatting is performed. OK ?	Format confirmation Formatting is performed. OK ?
M544		Data does not exist.	Data corresponding to panel does not exist. Data does not exist.
M545		Data does not exist.	Data corresponding to media does not exist. Data does not exist.
M546		Data does not exist.	Data corresponding to personal computer does not exist. Data does not exist.
M547		Overwriting cannot be performed since data exists.	Overwriting prohibition on pattern data Overwriting cannot be performed since data exists.
M548		Overwriting cannot be performed since data exists.	Overwriting prohibition on media data Overwriting cannot be performed since data exists.
M549		Overwriting cannot be performed since data exists.	Overwriting prohibition on data on personal computer Overwriting cannot be performed since data exists.
M550		There is back-up data of body input.	Backup data information on main body input There is back-up data of body input.

Message No.	Display	Display message	Description
M554		Key-lock customization data have been initialized.	Customized data initialization notice Customized key-lock data has been initialized.
M555		Key-lock customization data are broken. Initializing is OK?	Customized data breakage Customized key-lock data has broken. Initialization is performed. OK?
M556		Key-lock customization data are to be initialized. OK?	Initialization confirmation of customized data Customized key-lock data is initialized. OK?
M601		Select the data entry method	Selection of the sensor position input method Select the input method.
M602		Already-registered data	Bar-code record registration disabled Already registered data
M603		Set a garment body	Display of the instruction to place the garment body at the time of shape checking Place the garment body on the sewing machine.
M604		Clears splice information Yes or No?	Confirmation of clearing of splice information Splice information is cleared. Are you sure?
M605		Enter bar-code	Creation of a new bar-code record Enter a bar code.
M606		Overwriting is performed. OK ?	Confirmation of overwriting of a bar-code record Bar-code record is overwritten. Are you sure?
M607		Deleting is performed. OK ?	Confirmation of deletion of a bar-code record Bar-code record is deleted. Are you sure?
M608		Deleting is performed. OK ?	Confirmation of deletion of a folder Bar-code record is deleted. Are you sure?

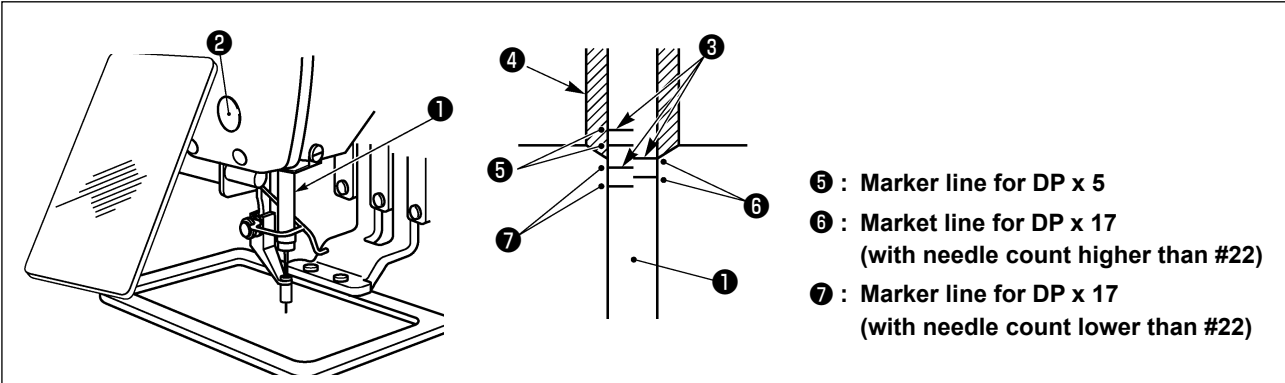
Message No.	Display	Display message	Description
M609		Overwriting is performed. OK ?	Confirmation of overwriting of a bar-code record Bar-code record is overwritten. Are you sure?
M653		Formatting is performed.	During formatting Formatting is performed.
M669		Data is being read.	During data reading Data is being read.
M670		Data is being written.	During data writing Data is being written.
M671		Data is being converted.	During data converting Data is being converted.

III. MAINTENANCE OF SAWING MACHINE

1. MAINTENANCE

1-1. Adjusting the height of the needle bar (Changing the length of the needle)

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



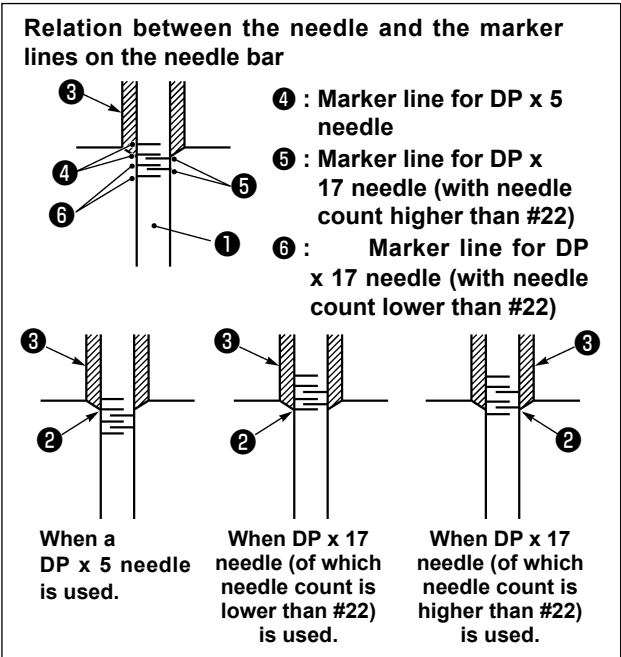
* Turn ON the power once, and turn OFF the power again after making the intermediate presser in the lowered state.

- 1) Bring needle bar ① down to the lowest position of its stroke. Loosen needle bar connection screw ② and adjust so that the upper marker line ③ engraved on the needle bar aligns with the bottom end of the needle bar bushing lower ④.
- 2) As illustrated in the above figure, change the adjusting position in accordance with the needle count.

Important After the adjustment, turn the pulley to check for an extra load.

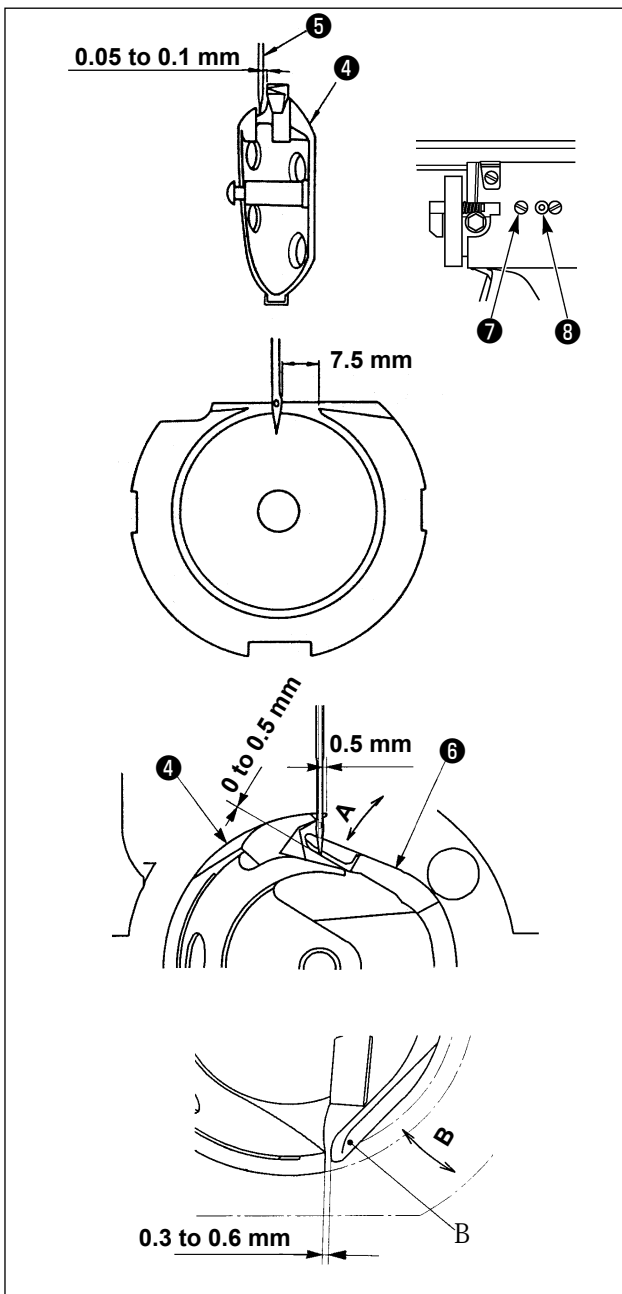
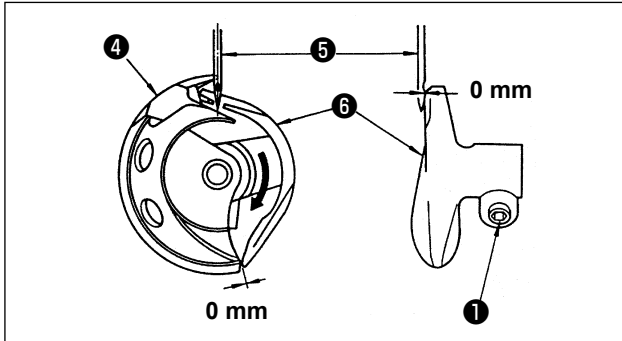
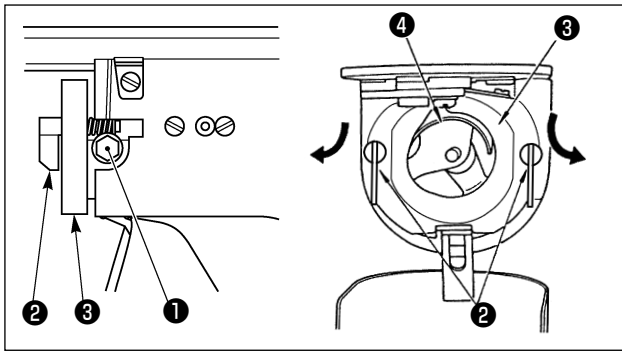
1-2. Adjusting the needle-to-shuttle relation

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



* Turn ON the power once, and turn OFF the power again after making the intermediate presser in the lowered state.

- 1) Turn handwheel by hand to ascend the needle bar ①. Adjust so that lower marker line ② on the ascending needle bar aligns with the bottom end of the needle bar bushing lower.



- Loosen setscrew ① in the driver. Drawing bobbin case opening lever hook ② toward you, open it to the right and left until bobbin case opening lever ③ comes off.

Caution At this time, be careful not to let shuttle ④ come off and fall.

- Adjust so that the point of shuttle ④ meets the center of needle ⑤, and that a clearance of 0 mm is provided between the front end face of driver ⑥ and needle as the front end face of driver receives needle to prevent the needle from being bent. Then tighten setscrew ①.
- Loosen shuttle race screw ⑦, and adjust the longitudinal position of the shuttle race. To do this adjustment, turn shuttle race adjusting shaft ⑧ clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between needle ⑤ and the blade point of shuttle ④.
- After adjusting the longitudinal position of shuttle race, further adjust to provide a 7.5 mm clearance between the needle and the shuttle race. Then, tighten screw ⑦ of shuttle race.
- When changing the number of needle from the number at the time of standard delivery or using a new driver, perform the adjustment of the height of driver.

[Adjustment of height of driver]

- Adjust so that the blade point of inner hook ④ meets the center of needle ⑤ and tighten setscrew ①.
- Bend the needle guard section of driver ⑥ in the direction of arrow A so that the protruding amount from the bottom end of the needle guard section of driver ⑥ to the tip of needle ⑤ is 0 to 0.5 mm when the blade point of inner hook ④ is out by 0.5 mm from the right end of needle ⑤.
- Bend rear end B of driver ⑥ in the direction B so that the clearance between rear end B of driver ⑥ and inner hook ④ is 0.3 to 0.6 mm.
- Perform adjustment of steps 3) to 5) above.

1. When making the needle size thicker, confirm the clearance between the needle tip or the intermediate presser and the wiper. Wiper cannot be used unless the clearance is secured. In this case, turn OFF the wiper switch, or change the set value of memory switch U105.

2. When the height of the needle guard of the driver is not proper, abrasion of the blade point of inner hook or stitch skipping will be caused.

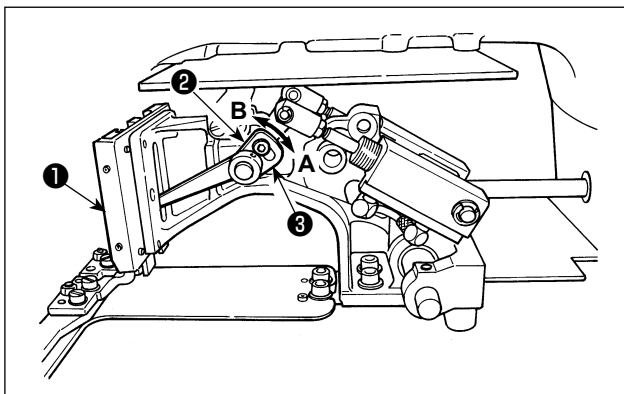
1-3. Height and angle of the work clamp



WARNING :

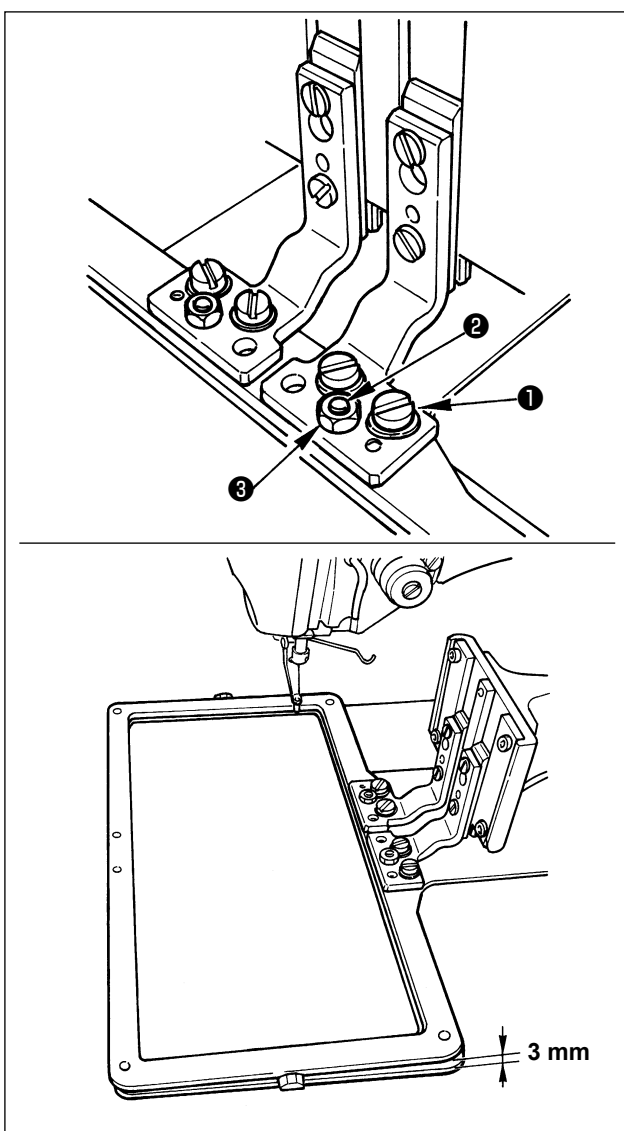
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start or the sewing machine.

(1) Height of the work clamp



- 1) Loosen screws ② located on the right and left sides of feed bracket ① . Moving cloth presser stopper ③ to the direction B will increase the height of feeding frame.
- 2) After the adjustment of the height of the feeding frame, securely tighten the screws ② .

(2) Angle of the work clamp



If the feeding frame is in parallel to the throat plate, the pressure of the front side of the feeding frame is likely to drop. Consequently, be sure to adjust the inclination of the feeding frame so that the front side of the feeding frame is slightly lower than its rear side.

- 1) Loosen screw ① and nut ③ . Turning adjustment screw ② clockwise will lower the front side of the feeding frame.
- 2) After the adjustment of the degree of angle, tighten screw ① and nut ③ .

If the feeding frame is excessively tilted, troubles may result such as the feeding frame fails to go up.



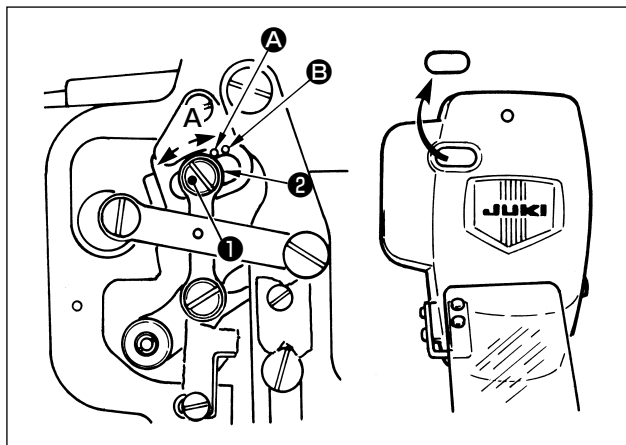
As reference of the adjustment, the rear end of the feeding frame should be approximately 3 mm above the throat plate surface when the front end of the feeding frame meets the throat plate surface.

1-4. Adjusting the vertical stroke of the intermediate presser



WARNING :

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



* Turn ON the power once, and turn OFF the power again after making the intermediate presser in the lowered state.

- 1) Remove face cover.
- 2) Turn handwheel to make the needle bar come down to its lowest point.
- 3) Loosen hinge screw ① and move it to the direction A to increase the stroke.
- 4) When marker dot A is aligned with the right side of the outer periphery of washer ②, the vertical stroke of the intermediate presser becomes 4 mm. And, when marker dot B is aligned with the right side of the outer periphery of the washer, it becomes 7 mm. (The vertical stroke of the intermediate presser is factory-set to 4 mm at the time of delivery.)



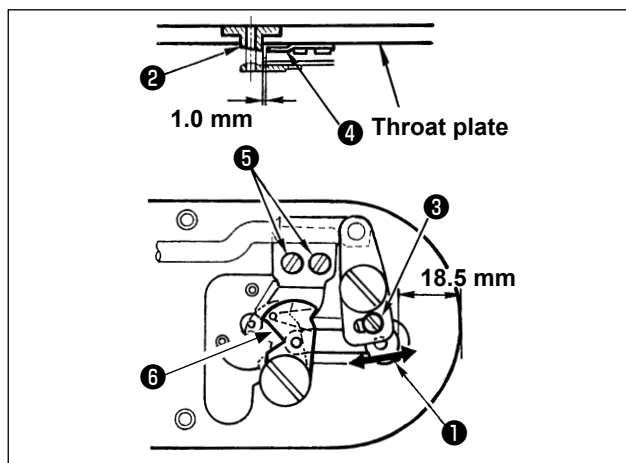
By removing the rubber plug in the face plate cover, adjustment can be performed without removing the face plate cover.

1-5. The moving knife and counter knife

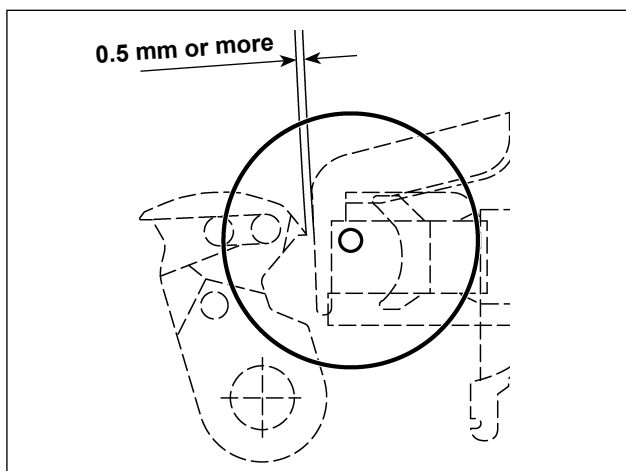


WARNING :

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



- 1) Loosen adjusting screw ① so that a clearance of 18.5 mm is provided between the front end of the throat plate and the top end of thread trimmer lever, small ③. To adjust, move the moving knife in the direction of arrow.
- 2) Loosen setscrew ⑤ so that a clearance of 1.0 mm is provided between needle hole guide ② and counter knife ④. To adjust, move the counter knife.



After the origin retrieval, press the SET READY key on the IP panel to verify that a clearance of 0.5 mm or more is provided between the top end of moving knife and the top end of needle thread clamp. If a clearance of 0.5 mm or more cannot be secured, adjust the position of moving knife within 18.5 ± 0.5 mm to secure the specified clearance.

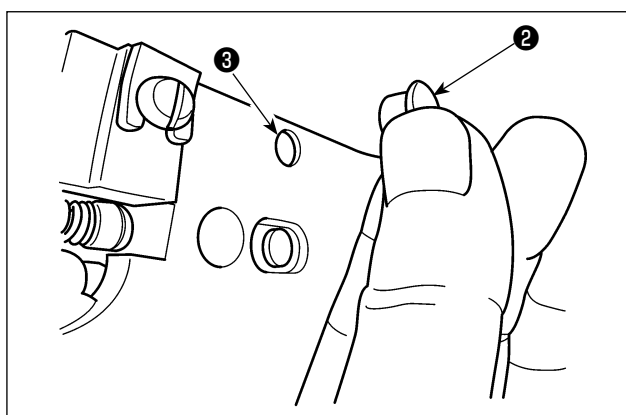
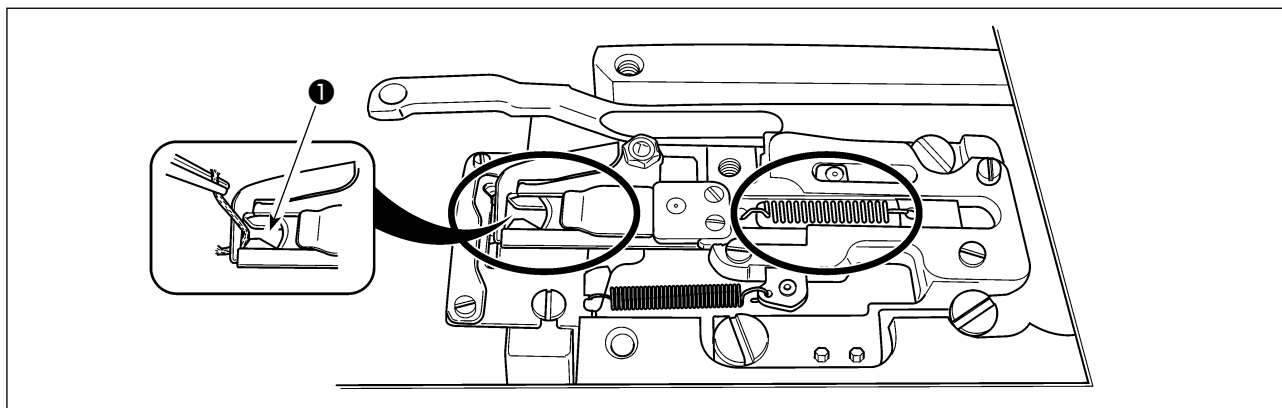


1-6. Needle thread clamp device



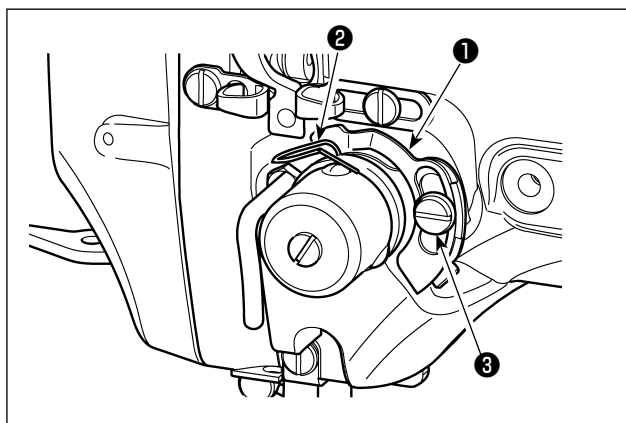
WARNING :

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



When thread is caught at top end ① of the thread clamp, thread clamp becomes incomplete and sewing trouble at the sewing start will be caused. Thread waste and lint are likely to accumulate in the sections which are shown in the circles. The sections should therefore be periodically cleaned by removing the throat plate and by blowing air through hole ③ by removing rubber plug ② .

1-7. Thread breakage detector plate

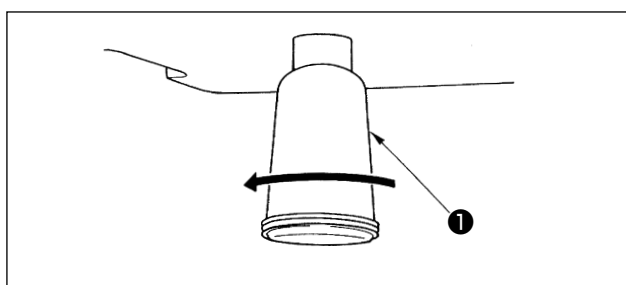


- 1) Adjust so that thread breakage detector plate ① is always in contact with thread take-up spring ② in the absence of needle thread. (Slack : approx. 0.5 mm)
- 2) Whenever the stroke of thread take-up spring ② has been changed, be sure to readjust thread breakage detector plate ① . To make this adjustment,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



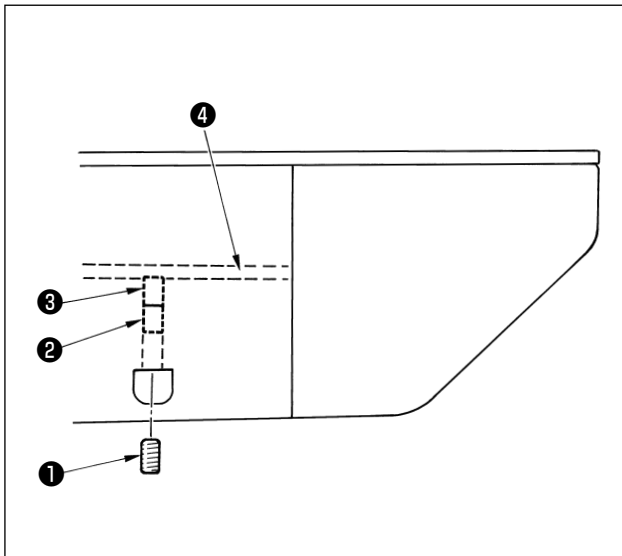
Adjust so that thread breakage detector plate ① does not touch any adjacent metallic parts other than thread take-up spring ② .

1-8. Draining waste oil



When polyethylene oiler ① becomes filled with oil, remove polyethylene oiler ① and drain the oil.

1-9. Amount of oil supplied to the hook



- 1) Loosen setscrew ❶ and remove setscrew ❶.
- 2) When screwing in adjustment screw ❷, the amount of oil of oil pipe, left ❹ can be reduced.
- 3) After the adjustment, screw in setscrew ❶ and fix it.



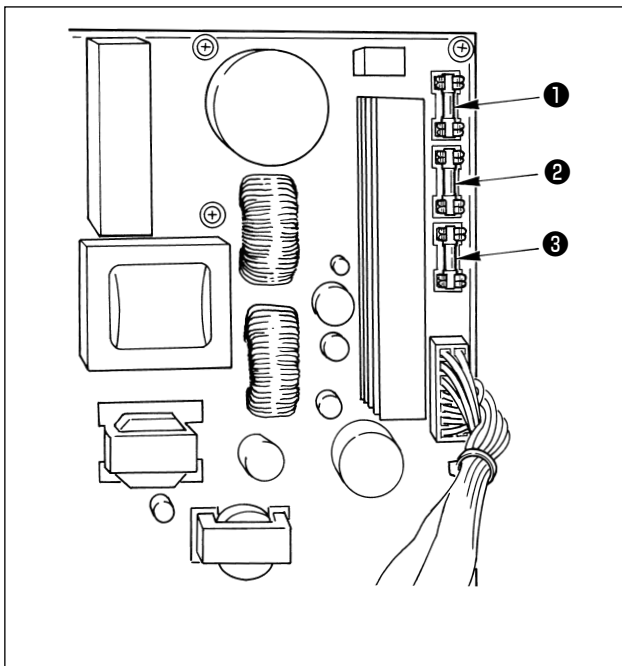
1. The state of standard delivery is the position where ❸ is lightly screwed in and returned by 4 turns.
2. When reducing the amount of oil, do not screw in the screw at once. Observe the state for approximately half a day at the position where ❸ is screwed in and returned by 2 turns. If reducing is excessive, worn-out of the hook will result.

1-10. Replacing the fuse

WARNING :



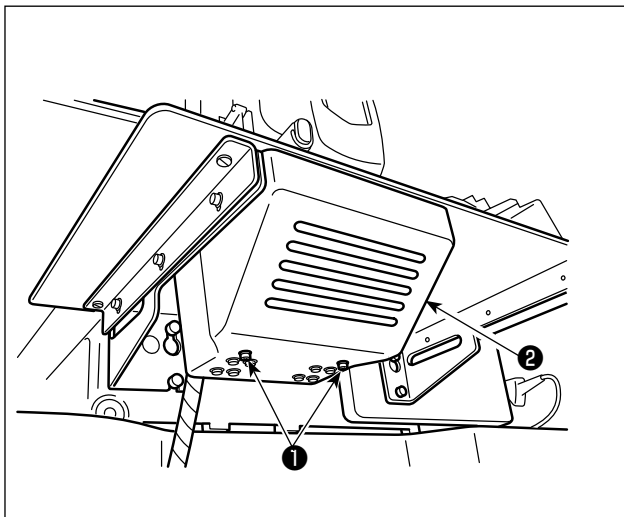
1. To avoid electrical shock hazards, turn OFF the power and open the control box cover after about five minutes have passed.
2. Open the control box cover after turning OFF the power without fail. Then, replace with a new fuse with the specified capacity.



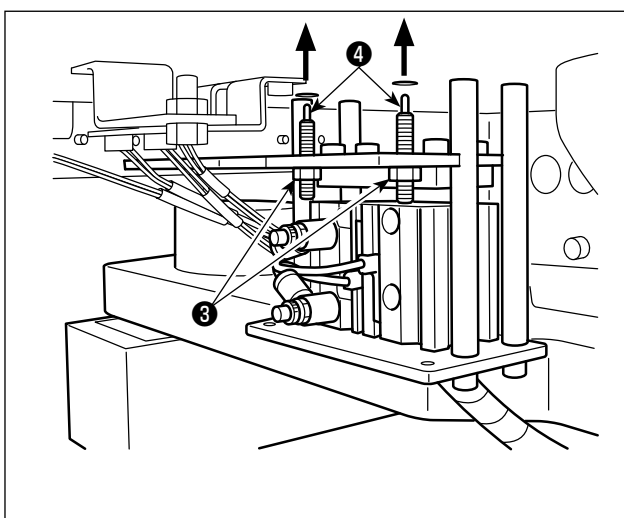
The machine uses the following three fuses :

- ❶ For pulse motor power supply protection
5A (time-lag fuse)
- ❷ For solenoid and pulse motor power supply protection
3.15A (time-lag fuse)
- ❸ For control power supply protection
2A (fast-blow type fuse)

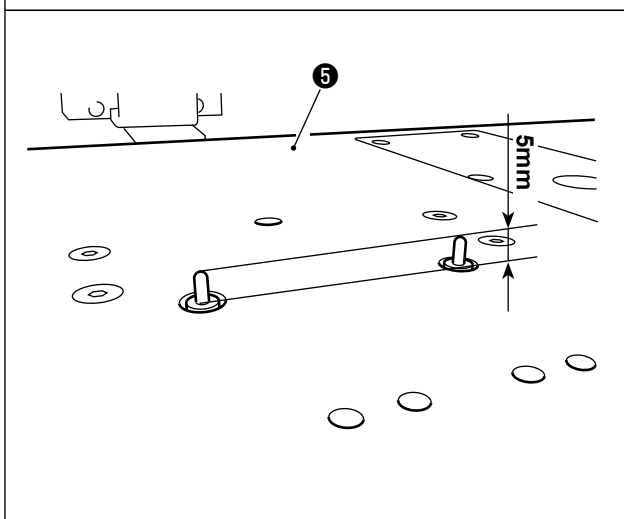
1-11. How to replace the positioning pin



- 1) Remove the power supply cable and the air supply cable before starting the replacement procedure.
- 2) Remove screws **1** . Remove cover **2** .



- 3) Loosen nuts **3** . Pull up positioning pins **4** until they come off. Then, lift the cylinder.
- 4) Adjust the height of positioning pins **4** so that the position of the pin at its top end is 5 mm above top face **5** of the table.
- 5) When the position of positioning pins is determined, fix positioning pins **4** with nuts **3** .

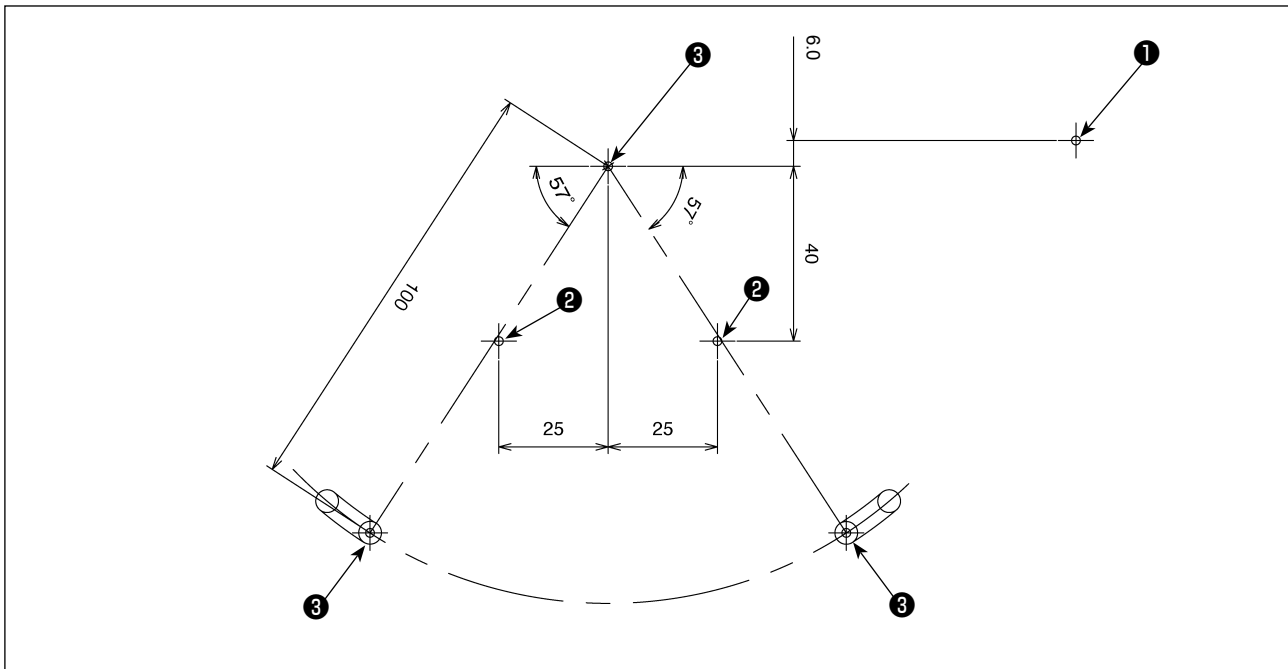


1. In the case 50° to 57° slot is used, use two nuts **3** to fix positioning pins **4** .



2. Positioning pins **4** can interfere with the marker if they are removed by being pulled downward. Be sure to remove the positioning pins by pulling them upward.

1-12. Checking the position of the positioning pins

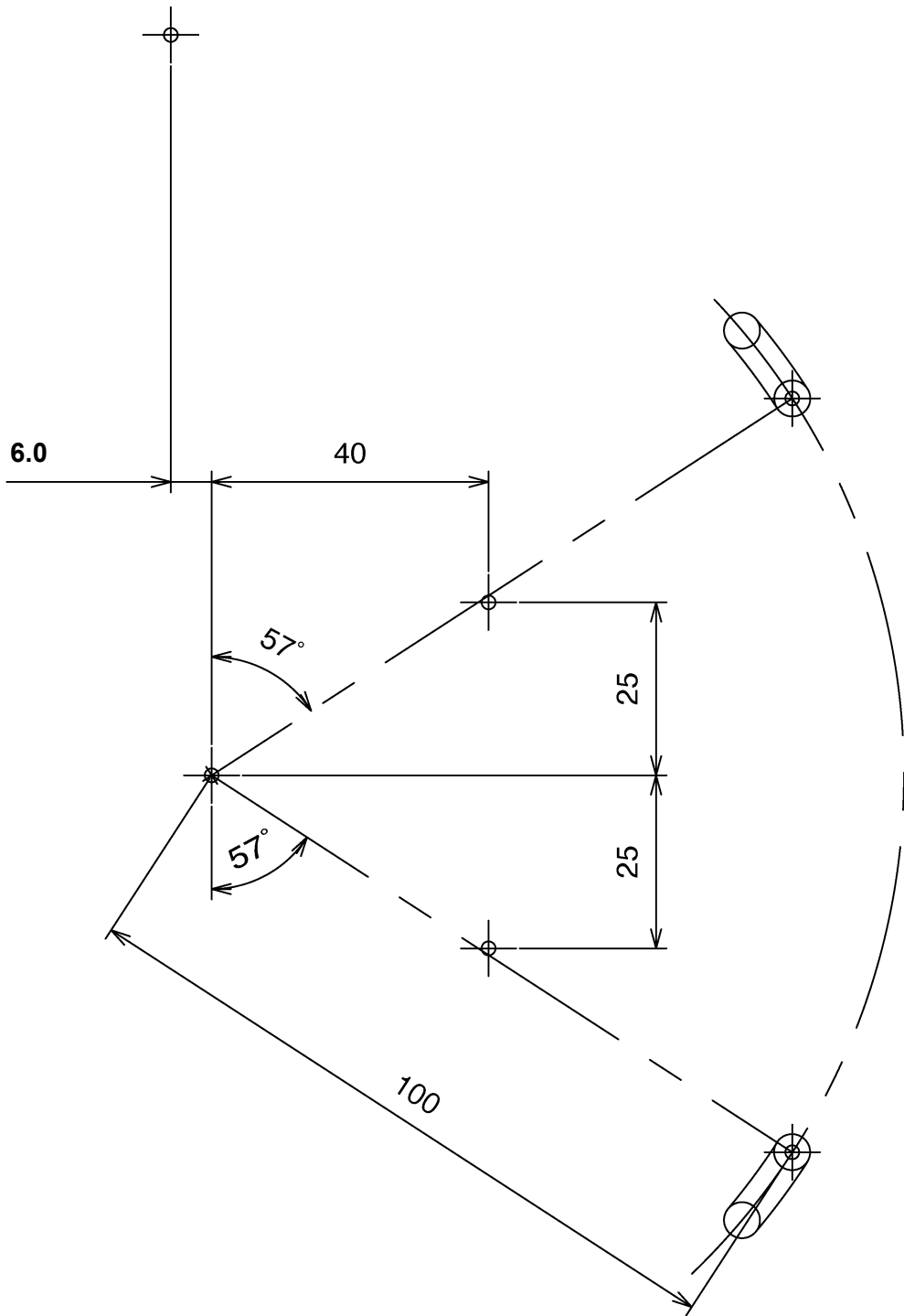


- 1) Make a hole in the positioning pin origin sheet at points (refer to p.121) ① , ② and ③ . Place the sheet on the throat plate.
- 2) Lower the needle to its needle entry point origin ① .
- 3) To check two positioning pins, check that the positioning pins enter the two pin holes ② . To check three positioning pins, check that the positioning pins enter three pin holes ③ .
- 4) In the case the positioning pins are not correctly positioned, re-adjust the position of the positioning pins referring to the procedure described in "III-1-11. How to replace the positioning pins" p. 119.



The positioning pin origin sheet can be used as a jig by sticking it on a plastic plate and making holes at the given positions.

■ The positioning pin origin sheet at points

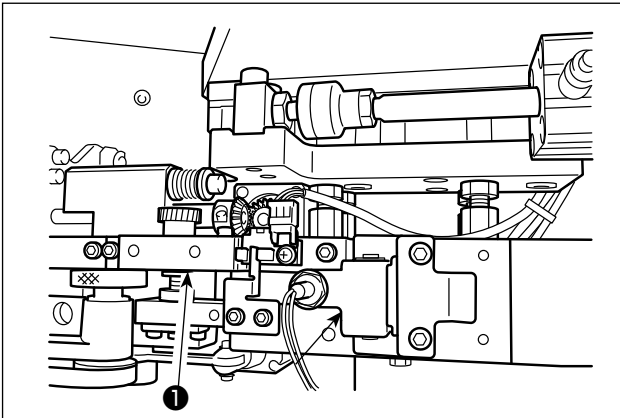


1-13. How to adjust the edge width

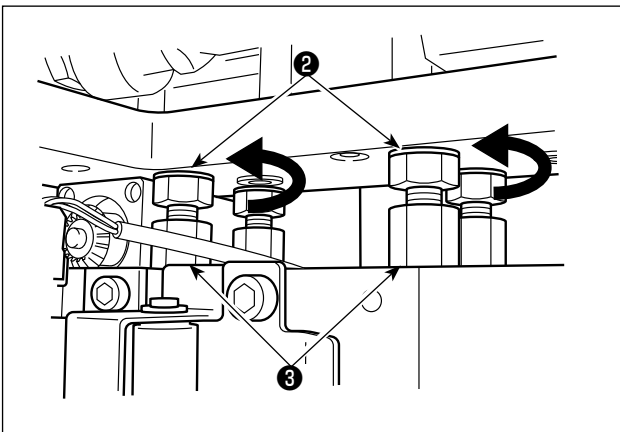


WARNING :

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

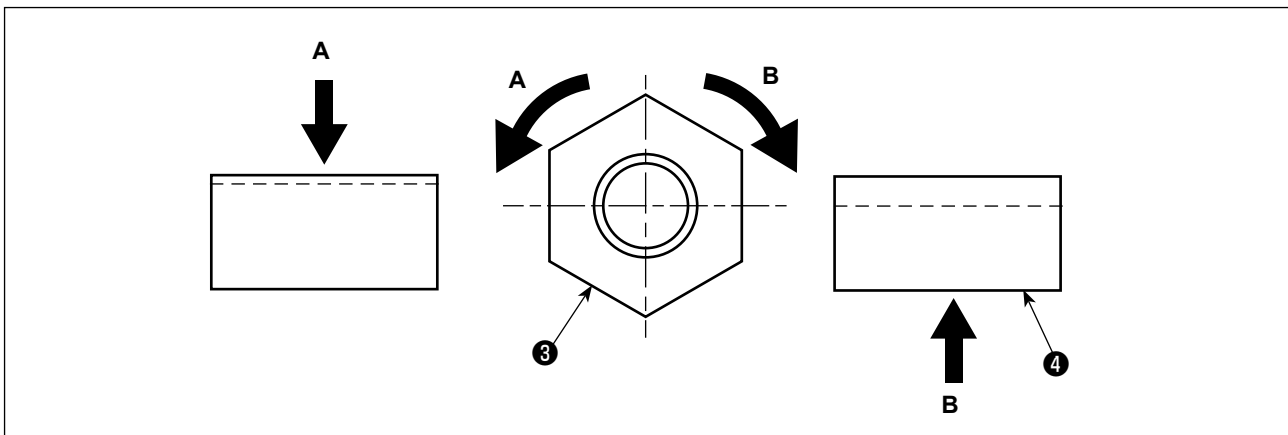


1) Remove cover B ① .



2) Turn four fixing nuts ② counterclockwise to loosen them.

Turn four probes ③ to adjust the guide width.



3) Tape ④ is moved toward you by turning four probes ③ in direction **A** as observed from you to decrease the edge width.

Tape ④ is moved backward by turning them in direction **B** to increase the edge width.

* The edge width has been factory-set at 2.5 mm at the time of shipment. To change the width to 3.0 mm, turn the probes in direction **B** to adjust the edge width appropriately.

4) After the completion of the adjustment, tighten nuts ② to fix the probes.



1. Be sure to turn all of the four probes by the same amount.

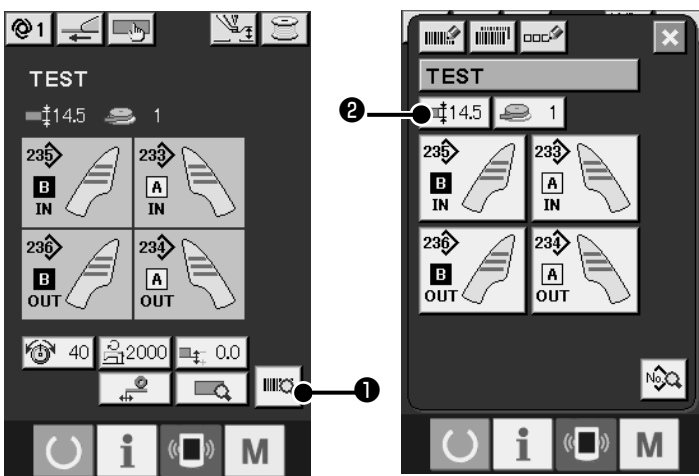
2. Take care to prevent the cables from being pinched under the probes and nuts.


1-14. How to adjust the knife

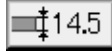
WARNING :

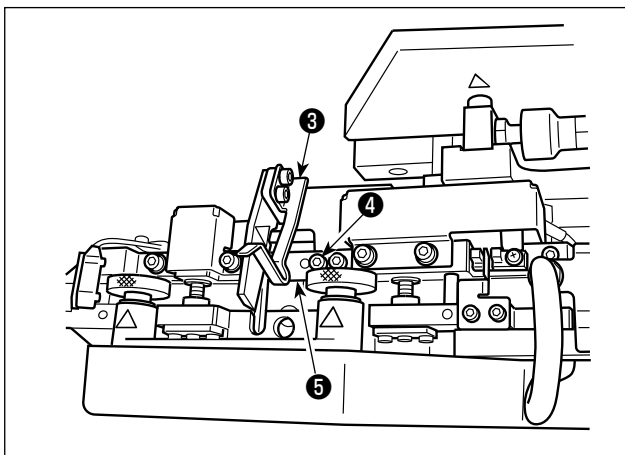


1. In order to prevent accidents due to abrupt start of the sewing machine, be sure to turn OFF the power supply and air supply after having set the tape width at the minimum value. Then, carry out the adjustment of the knife.
2. Do not place fingers between the upper and lower knives to prevent injury.

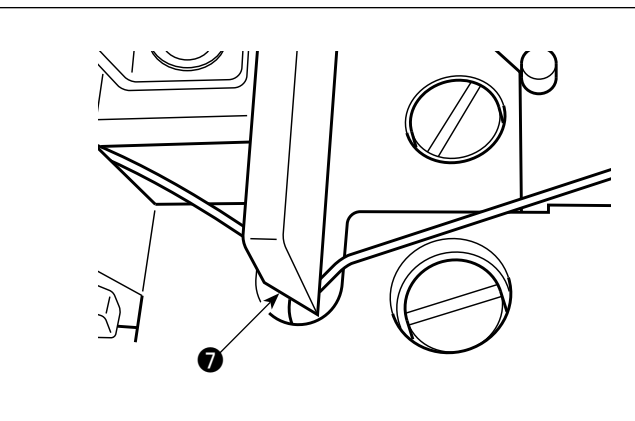
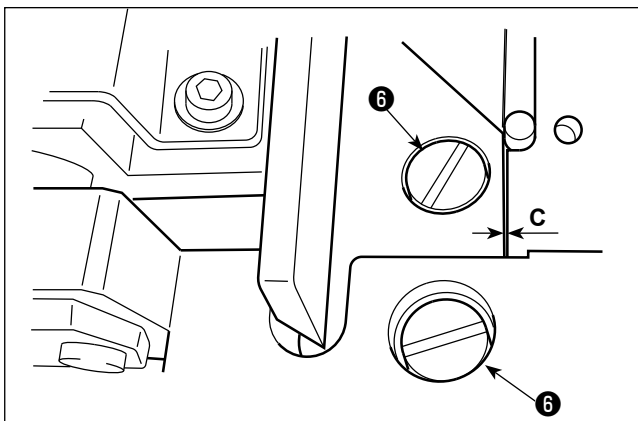


1) Turn the power ON. Keep tape edit button  ① held pressed until the data edit screen appears.

Press tape width setting button  ② to set the tape width at "10 mm".



2) Remove tape clamp spring ③ Remove fixing guide setscrew ④ Then, remove fixing guide ⑤ .



- 3) Loosen two lower knife setscrews ⑥ to adjust clearance C to 0.1 to 0.2 mm. After the adjustment, tighten lower knife setscrews ⑥ and attempt to trim spun thread 60 by the top end of knife ⑦ .
* If the thread cannot be trimmed, increase clearance C.
- 4) After the adjustment, assemble fixing guide ⑤ with fixing guide setscrew ④ .

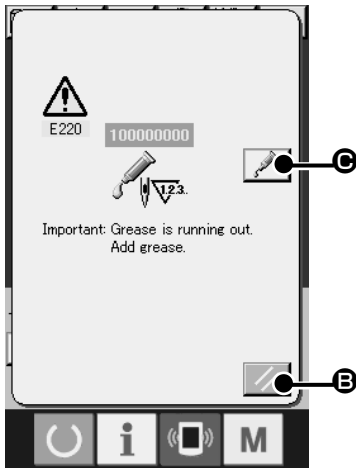



1. The contact pressure between the upper and lower knives will be increased by widening clearance C. Do not increase clearance C to 0.2 mm or more since the excessive contact pressure can cause a nicked edge of the knives.
2. Securely tighten lower knife setscrew ⑥ . If not, the sharpness of the knife will be adversely affected. In addition, the tape will be clogged if the screw head protrudes the guide.


1-15. Replenishing the designated places with grease

* Perform grease supplement when the errors below are displayed or once a year (either one which is earlier).

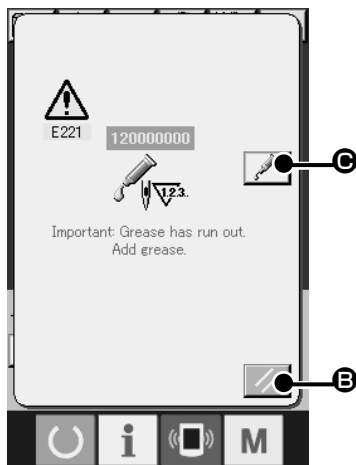
If grease has decreased due to cleaning of the sewing machine or any other reasons, be sure to immediately add grease.





When the sewing machine has been used for a certain number of stitches, error "E220 Grease-up warning" is displayed. This display informs the operator of the time of replenishing the designated places with grease. Be sure to replenish the places with the grease below. Then call the memory switch U245, press CLEAR button  **A** and set NUMBER OF STITCHES **D** to "0".

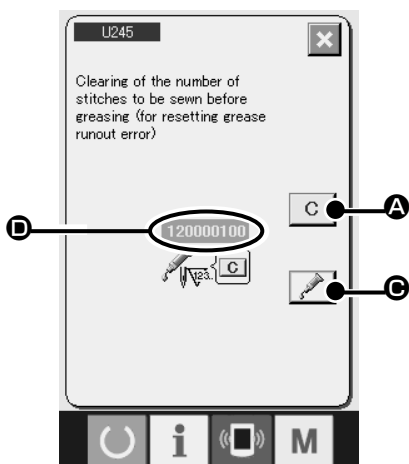
Even after the display of the error "E220 Grease-up warning", when RESET key  **B** is pressed, the error is released, and the sewing machine can be continuously used. Afterwards, however, error code "E220 Grease-up warning" is displayed every time the power is re-turning ON.

In addition, when the sewing machine is used further for a certain period of time without replenishing the places with grease after the display of error No. E220, error "E221 Grease-up error" is displayed and the sewing machine fails to operate since the error cannot be released even when the RESET key is pressed.




When error "E221 Grease-up error" is displayed, be sure to replenish the designated places below with grease. Then call the memory switch U245, press CLEAR button  **A** and set NUMBER OF STITCHES **D** to "0".

When RESET key  **B** is pressed without replenishing the designated places with grease, error code "E221 Grease-up warning" is displayed every time the power is re-turning ON afterwards and the sewing machine fails to operate. So, be careful.



1. Error code E220 or E221 is displayed again unless NUMBER OF STITCHES **D** is changed to "0" after replenishing the designated places with grease. When E221 is displayed, the sewing machine fails to operate. So, be careful.



2. When GREASE APPLYING POSITION DISPLAY button  **C** is pressed in each screen, the grease applying position can be confirmed in the panel display. Be sure, however, to perform the grease applying after turning OFF the power.

(1) Location where exclusive grease is provided

Two different types of JUKI Grease A ❶ and B ❷ and an exclusive coupling and setscrew for JUKI Grease B are provided at the location as shown in the illustration. Add grease periodically (when the grease runout warning No. E220 is displayed on the panel or once a year) to points to be applied with grease.

If grease has decreased due to cleaning of the sewing machine or any other reasons, be sure to immediately add grease.



Do not use Grease A and Grease B with mixed. Be sure to use the specified grease without fail. The grease filling coupling and setscrew should be used when applying JUKI Grease B. They should not be used for JUKI Grease A.

JUKI Grease B ❷ JUKI Grease A ❶

When the grease runs short, be sure to purchase new grease.

		Spare parts No.
JUKI Grease A	10g tube	40006323
	100g tube	23640204
JUKI Grease B	10g tube	40013640



WARNING :

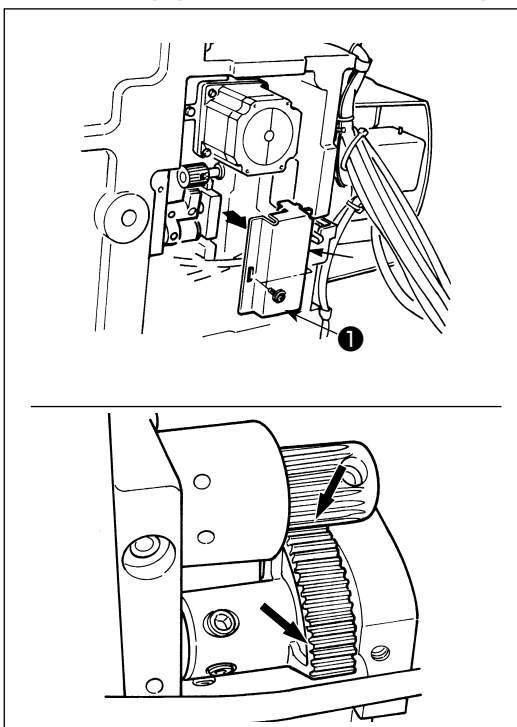
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start or the sewing machine. In addition, attach the covers which have been removed before operation back in place.

(2) Points to be applied with JUKI Grease A

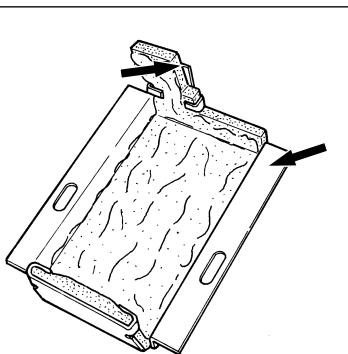


Use grease tube A (part number: 40006323) (in light blue) supplied with the unit for adding grease to any points other than the points specified below. If any grease other than the specified one is used, the related components can be damaged.

■ Adding grease to the oscillating rock shaft gear section

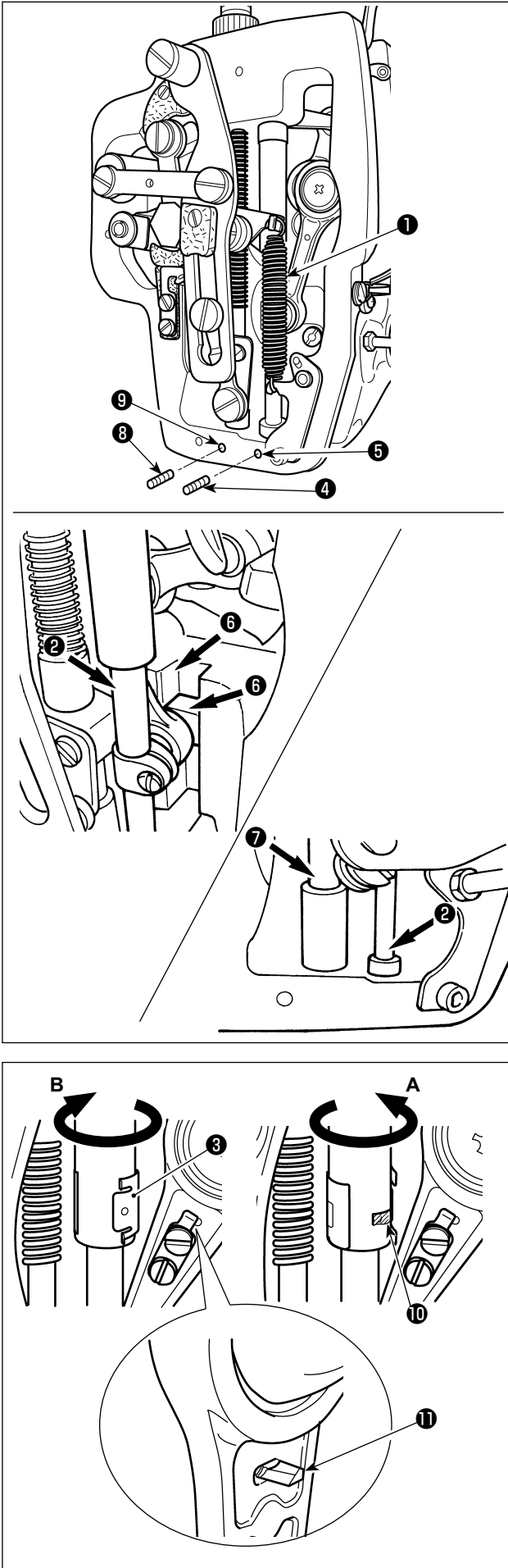


- 1) Tilt the sewing machine and remove grease cover ❶.
- 2) Apply JUKI Grease A onto the gear section of oscillating rock shaft and the periphery of the hook driving shaft.
- 3) Apply JUKI Grease A also onto the felt surface of grease cover ❶.



If the grease has decreased due to cleaning, air blow or other reasons, apply grease again without exceptions.

■ Adding grease to the needle bar upper and lower bushings section, slide block section and intermediate presser bar lower bushing section



- 1) Open the frame cover to remove intermediate presser auxiliary spring B ① .
- 2) Apply JUKI Grease A onto periphery of needle bar ② . Turn the sewing machine by hand to apply grease onto the entire periphery of the needle bar.
Turn needle bar upper bushing grease cover ③ in the direction of arrow A to add grease through the grease inlet. After completion of the procedure, turn the needle bar upper bushing grease cover in the direction of arrow B to return to its home position.
Remove setscrew ④ from the needle bar lower bushing grease hole. Put JUKI Grease A through hole ⑤ and tighten setscrew ④ to fill inside the bushing with the grease.
- 3) Apply JUKI Grease A also onto groove section ⑥ of the slide block.
- 4) Apply JUKI Grease A onto periphery of intermediate presser bar ⑦ .
Remove setscrew ⑧ from the intermediate presser bar bushing grease hole. Put JUKI Grease A through inlet ⑨ . Tighten screw ⑧ to fill inside the bushing with JUKI Grease A.

1. Do not wipe off the grease applied onto the periphery of needle bar inside the frame. If the grease has decreased due to cleaning, air blow or other reasons, apply grease again without exceptions.

2. When operating the sewing machine, turn the needle bar upper bushing grease cover in direction B to close grease inlet ⑩ .

3. The rear face of the needle bar crank rod has projection ⑪ with a sharp edge. So, care should be taken to the projection. Never put your finger to the rear face of the needle bar crank rod during greasing procedure.

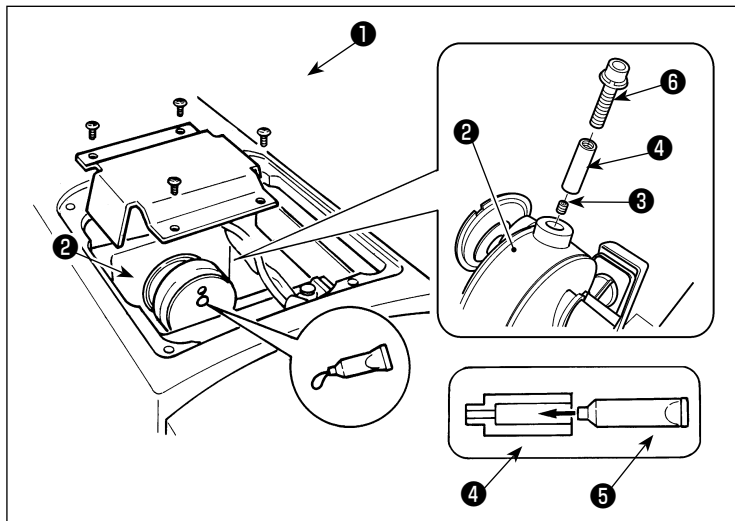


(3) Points to be applied with JUKI Grease B



Use grease tube B (part number: 40013640) (in light violet) supplied with the unit for adding grease to any points other than the points specified below. If any grease other than the specified one is used, the related components can be damaged.

■ Adding grease onto the eccentric cam section

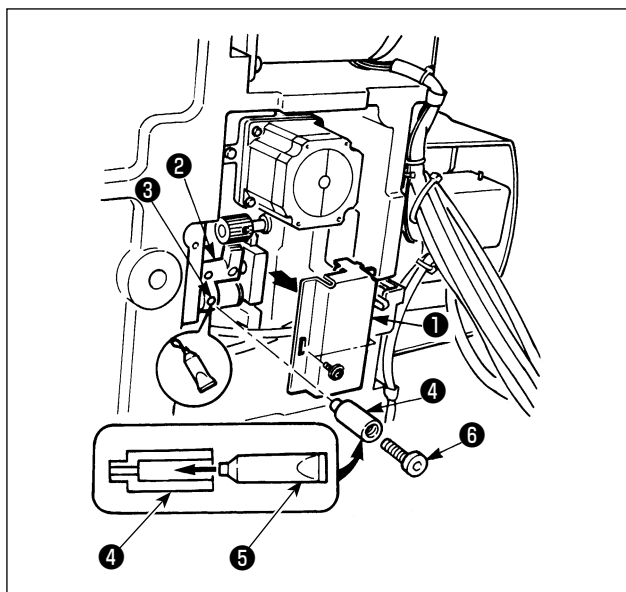


- 1) Open crank rod cover **1** .
- 2) Remove setscrew **3** from the grease inlet cover located at periphery of crank rod **2** .
- 3) Fill coupling **4** with grease through JUKI Grease B tube **5** .
- 4) Sink screw **6** supplied with the unit into the coupling to add the grease.
- 5) After adding the grease, securely tighten setscrew **3** which has been removed.



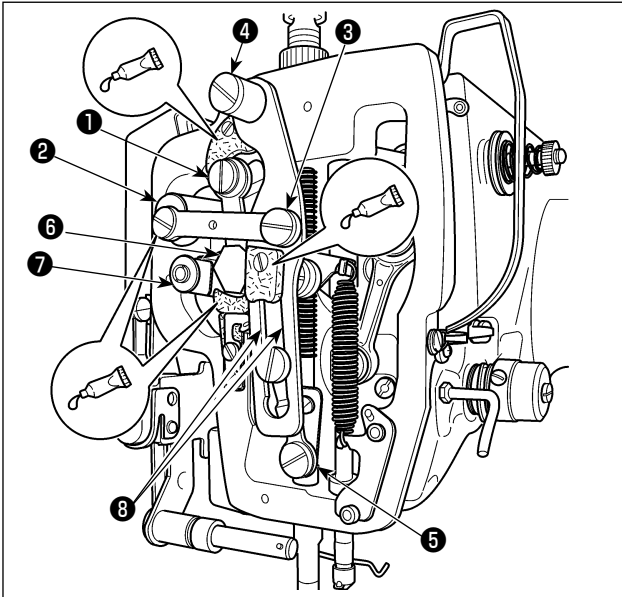
The eccentric cam section can be sufficiently filled with grease by adding the grease while turning the main shaft of sewing machine.

■ Adding grease onto the oscillating rock shaft pin section



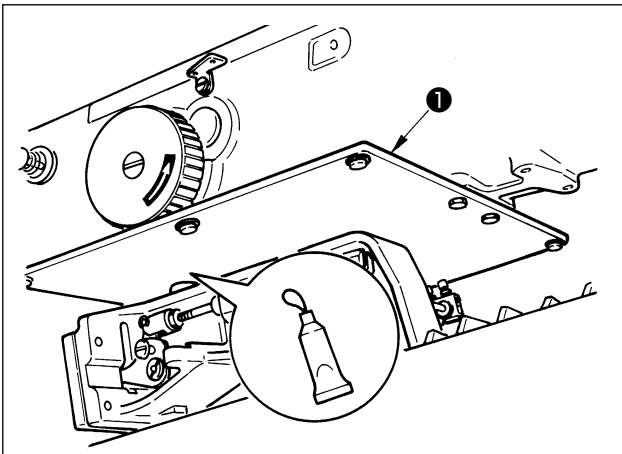
- 1) Tilt the machine head and remove the grease cover **1** .
- 2) Fill coupling **4** supplied with the unit with grease through JUKI Grease B tube **5** .
- 3) Remove setscrew **3** in oscillator gear **2** and screw in joint **4** into the screw hole.
- 4) Sink screw **6** supplied with the unit into the coupling to add the JUKI Grease B.
- 5) Securely tighten setscrew **3** which has been removed after replenishing with the grease.

■ Grease supplement to the face plate section



- 1) Open the face plate cover.
- 2) Add the JUKI Grease B onto the felt sections (3 locations), peripheral shoulder screw, fulcrums ① to ⑦ and guide groove section ⑧ .

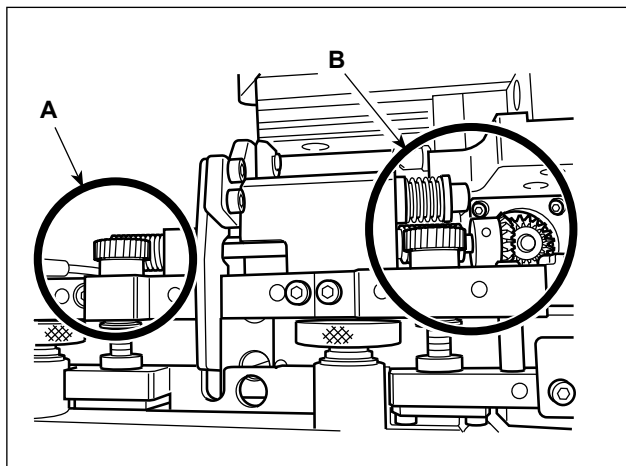
■ Replenishing the presser plate with grease



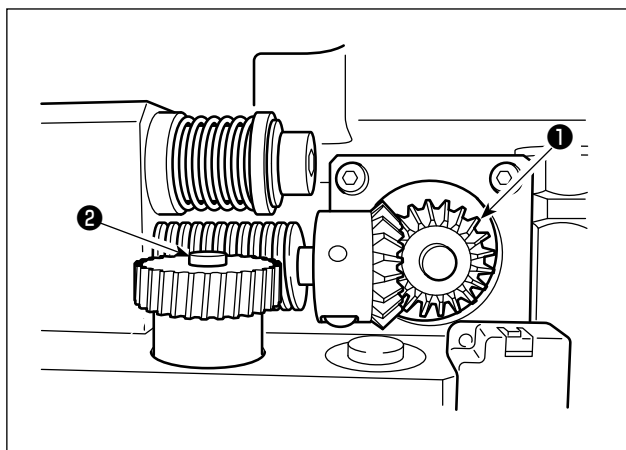
- 1) Apply grease to the rear of presser plate ① .

(4) Application of grease to other parts

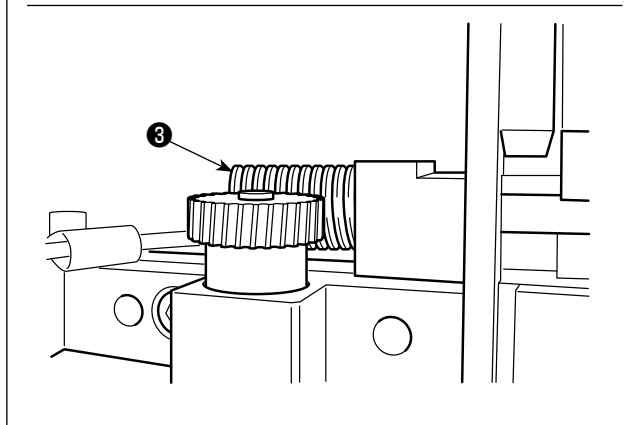
■ Applying grease to the gear section of the tape feeding roller



1) Remove covers **A** and **B**.



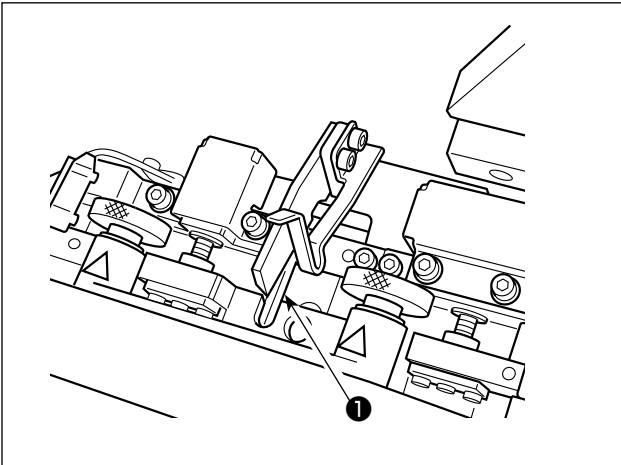
2) Apply JUKI-recommended Templex N2 (JUKI part number: 13525506) to the periphery of bevel gear **1** and worms **2** and **3** of the gear section periodically once a month.



3) Before turning the power ON, turn bevel gear **1** by hand to rotate the tape feeding roller by one revolution to spread the grease film over the tooth surfaces.

1-16. Cleaning

(1) Removing dust from the knife section

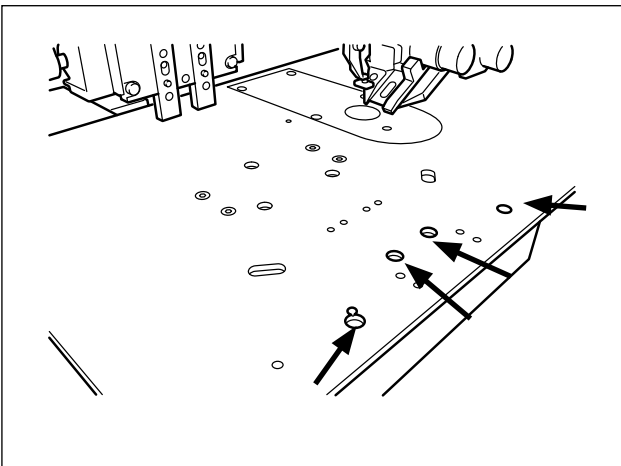


- 1) Turn the power OFF. Remove tape chips accumulated in knife groove section ❶ by means of an air gun.

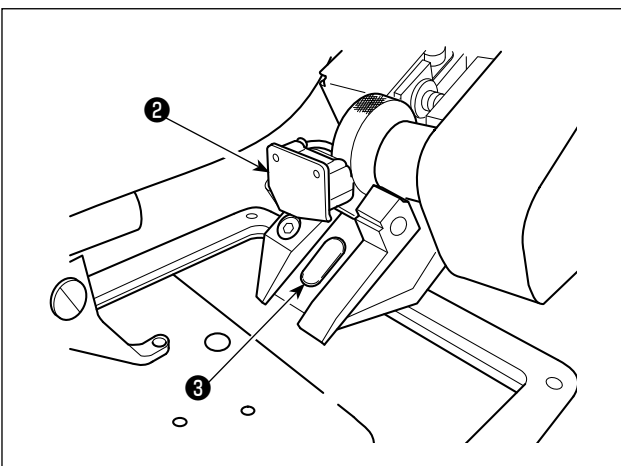


In order to prevent accidents caused by abrupt start of the sewing machine, turn the power OFF and remove dust with an air gun.

(2) Removing dust from the sensor section

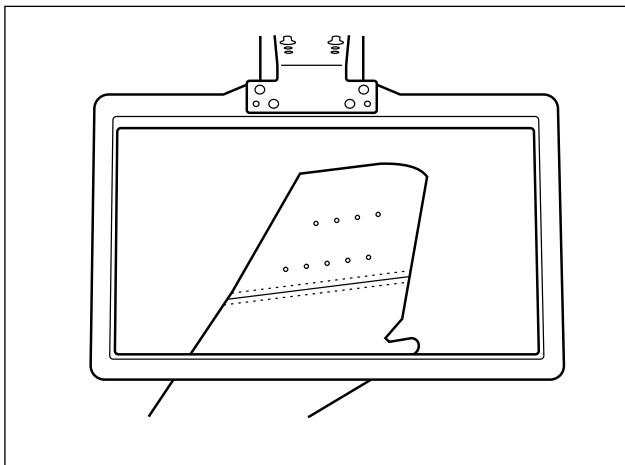


- 1) Remove dust accumulated in the garment body detection sensor holes (four locations indicated with an arrow) in the throat plate auxiliary cover.
When dust accumulates in those holes, false detection of the garment body detection sensor can be caused.

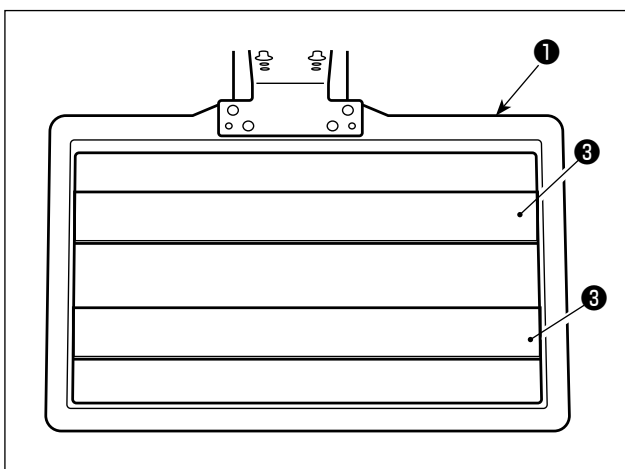


- 2) Remove dust accumulated on reflective tape ❸ section of the tape presence/absence sensor ❷. When dust accumulates on the reflective tape, false detection of the tape presence/absence sensor ❷ can be caused.

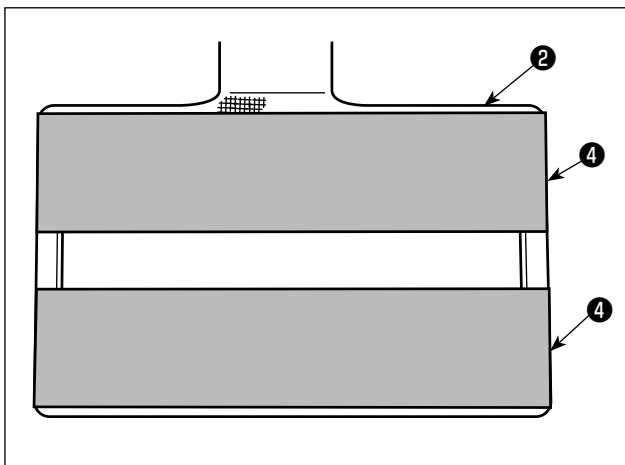
1-17. Handling of small garment bodies



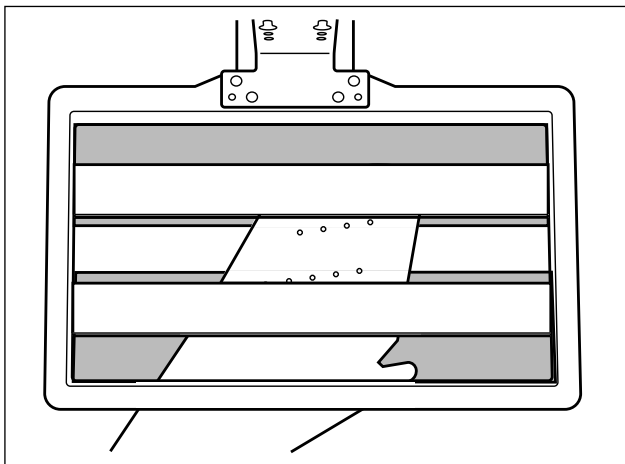
- 1) In the case the garment body is smaller than the feeding frame range as illustrated in the figure, put a plate material and sheet material on the feeding frame to handle the small garment body.



- 2) Put plate material ③ on the undersurface of upper feeding frame ① . Put two pieces of sheet materials ④ on the top surface of lower feeding frame ② . The sheet position should be as close as possible to the sewing position.



1. Put plate material ③ so that it does not overlap the sewing range.
2. For sheet materials ④ which are put on the lower feeding frame ② , use thin sheet materials which are approximately 0.5 mm in thickness. If thicker sheet materials are used, the cloth can rise from the throat plate to adversely affect the stitching accuracy.



1-18. Bar code reader



WARNING :

- Do not look directly into the laser beam of the bar code reader. The laser beam can damage eyes.
- Do not emit laser beam toward human eyes. The laser beam can damage eyes.
- Do not look into the laser beam directly using an optical device. The laser beam can damage eyes.



CAUTION :

- Be sure to use the sewing machine within the specified temperature range and the specified humidity range.
- Do not connect/remove connectors with the power supplied to the sewing machine.

The bar-code reader is a device for reading bar-codes and selecting bar-code records or entering code names.

Specifications for the barcode reader

Class 1 laser product

Maximum output: 850mW

Wave length: 630nm

Safety standard

IEC62471

IEC60825-1

2. TROUBLES AND CORRECTIVE MEASURES (SEWING CINDITIONS)

Trouble	Cause	Corrective measures	Page
1. The needle thread slips off at the start of bartacking.	① Stitches are slipped at the start.	○ Adjust the clearance between the needle and the shuttle to 0.05 to 0.1 mm.	114
	② The needle thread remaining on the needle after thread trimming is too short.	○ Set soft-start sewing at the start of bartacking.	99
		○ Correct the thread tension release timing of the thread tension controller No. 2.	13,14
	③ The bobbin thread is too short.	○ Increase the tension of the thread take-up spring, or decrease the tension of the thread tension controller No. 1.	
		○ Decrease the tension of the bobbin thread.	116
	④ Needle thread tension at 1st stitch is too high.	○ Increase the clearance between the needle hole guide and the counter knife.	
⑤ Thread clamp is unstable (material is apt to be expanded, thread is hard to slide, thread is thick, etc.).	○ Decrease the tension at 1st stitch.	13	
	⑥ Pitch at 1st stitch is too small.		○ Decrease the number of rotation at 1st stitch at the sewing start. (Extent of 600 to 1,000 sti/min)
2. Thread often breaks or synthetic fiber thread splits finely.	① The shuttle or the driver has scratches.	○ Increase the number of stitches of thread clamp to 3 to 4 stitches.	14
		○ Make the pitch at 1st stitch longer.	
	② The needle hole guide has scratches.	○ Decrease the needle thread tension at 1st stitch.	13
		○ Correct the position of the intermediate presser foot.	
	③ The needle strikes the intermediate presser foot.	○ Take out the shuttle and remove the fibrous dust from the shuttle race.	14
		○ Reduce the needle thread tension.	
	④ Fibrous dust is in the groove of the shuttle race.	○ Reduce the tension.	113
○ Lower the needle bar height from the engraved marker line by a half of the line to as much as the line.			
⑤ The needle thread tension is too high.	○ Check the rough state of needle tip.	11	
	○ Use the ball-pointed needle.		
	○ Replace the bent needle.		
3. The needle often breaks.	② The needle strikes the intermediate presser foot.	○ Correct the position of the intermediate presser foot.	14
		○ Replace it with a thicker needle according to the material.	
	③ The needle is too thin for the material.	○ Correctly position the needle and the shuttle.	114
		○ The driver excessively bends the needle.	
4. Threads are not trimmed. (Bobbin thread only)	① The counter knife is dull.	○ Replace the counter knife.	116
	② The difference in level between the needle hole guide and the counter knife is not enough.	○ Increase the bend of the counter knife.	
	③ The moving knife has been improperly positioned.	○ Correct the position of the moving knife.	114
	④ The last stitch is skipped.	○ Correct the timing between the needle and the shuttle.	
	⑤ Bobbin thread tension is too low.	○ Increase the bobbin thread tension.	114
		⑥ Flopping of cloth	

Trouble	Cause	Corrective measures	Page
5. Stitch skipping often occurs.	<ul style="list-style-type: none"> ① The motions of the needle and shuttle are not properly synchronized. ② The clearance between the needle and shuttle is too large. ③ The needle is bent. ④ The driver excessively bends the needle. ⑤ Length of needle thread remaining after thread trimming is too long. (In the case of stitch skipping within the 2nd to 10th stitch from the beginning of sewing) 	<ul style="list-style-type: none"> ○ Correct the positions of the needle and shuttle. ○ Correct the positions of the needle and shuttle. ○ Replace the bent needle. ○ Correctly position the driver. ○ Reduce the thread take-up spring pressure or increase the thread tension applied by the thread tension controller No. 1. 	<p>114</p> <p>114</p> <p>11</p> <p>114</p> <p>13,14</p>
6. The needle thread comes out on the wrong side of the material.	<ul style="list-style-type: none"> ① The needle thread tension is not high enough. ② The tension release mechanism fails to work properly. ③ The needle thread after thread trimming is too long. ④ Number of stitches is too few. ⑤ When sewing length is short (End of needle thread protrudes on the wrong side of sewing product.) ⑥ Number of stitches is too few. 	<ul style="list-style-type: none"> ○ Increase the needle thread tension. ○ Check whether or not the tension disc No. 2 is released during bar-tracking. ○ Increase the tension of the thread tension controller No. 1. ○ Correct the position of the moving knife. ○ Turn OFF the thread clamp. ○ Turn OFF the thread clamp. ○ Use the lower plate, the hole of which is larger than the presser. 	<p>13</p> <p>13</p>
7. Thread end of the 1st stitch comes out on the right side of the material.	<ul style="list-style-type: none"> ① Stitch skipping at the 1st stitch ② Needle used and thread used are thick in terms of the inner diameter of the intermediate presser. ③ Intermediate presser is not properly positioned in terms of the needle. 	<ul style="list-style-type: none"> ○ Adjust the hook timing faster by a 1/2 stitch. ○ Increase the inner diameter of intermediate presser. ○ Adjust the eccentricity between intermediate presser and needle so that needle enters in the center of intermediate presser. 	
8. Threads break at time of thread trimming.	<ul style="list-style-type: none"> ① The moving knife has been improperly position. 	<ul style="list-style-type: none"> ○ Correct the position of the moving knife. 	116
9. The thread clamp is entangled with needle thread.	<ul style="list-style-type: none"> ① The needle thread at the sewing start is too long. 	<ul style="list-style-type: none"> ○ Tighten thread tension controller No. 1 and make the length of needle thread 40 to 50 mm. 	22
10. Uneven length of the needle thread	<ul style="list-style-type: none"> ① The tension of thread take-up spring is too low. 	<ul style="list-style-type: none"> ○ Increase the tension of the thread take-up spring. 	14
11. The length of needle thread does not become short.	<ul style="list-style-type: none"> ① The tension of thread tension controller No. 1 is too low. ② The tension of thread take-up spring is too high. ③ The tension of thread take-up spring is too low and motion is unstable. 	<ul style="list-style-type: none"> ○ Increase the tension of thread tension controller No. 1. ○ Decrease the tension of thread take-up spring. ○ Increase the tension of thread take-up spring and lengthen the stroke as well. 	<p>13</p> <p>14</p>
12. The knotting section of bobbin thread at 2nd stitch at the sewing start appears on the right side.	<ul style="list-style-type: none"> ① Idling of bobbin is large. ② The bobbin thread tension is too low. ③ The needle thread tension at 1st stitch is too high. 	<ul style="list-style-type: none"> ○ Adjust the position of the moving knife. ○ Increase the bobbin thread tension. ○ Decrease the needle thread tension at 1st stitch. ○ Turn OFF the thread clamp. 	<p>116</p> <p>13</p>
13. Wiper fails to work. (Return is defective.)	<ul style="list-style-type: none"> ① Needle entry of the last needle is the same as that of the sewing start, and the resistance of thread and cloth is large. 	<ul style="list-style-type: none"> ○ Shift the needle entry point of the last needle. 	

中文




中文

为了安全地使用缝纫机

由于缝制作业的具体情况，有时不得不靠近机器转动的零部件进行操作而有可能接触到转动零部件，因此实际操作机器的操作员和维修保养的维修人员，必须在事前仔细阅读「有关安全的注意事项」，充分理解内容之后再进行操作。此「有关安全的注意事项」中记述的内容有的不是用户购买的商品规格的内容。

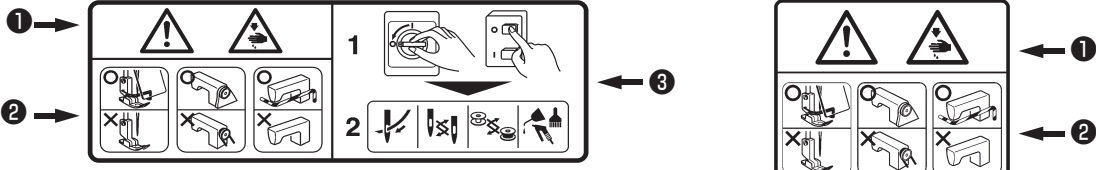
另外，为了能让用户充分地理解使用说明书以及产品的警报标签，特将警报表示分为如下种类。请充分了解这些内容，并遵守指示的要求。




(I) 危险等级的说明

 危険	操作或维修保养机器时，如果当事人、第3者操作错误或没有避免该情况，有发生死亡或造成重伤的危险。
 警告	操作或维修保养机器时，如果当事人、第3者操作错误或没有避免该情况，有发生死亡或造成重伤的潜在可能。
 注意	操作或维修保养机器时，如果当事人、第3者操作错误或没有避免该情况，有造成中轻伤的可能。

(II) 警告图标表示和指示标签的说明

警告图标表示		有接触转动部，造成负伤的危险。	警告图标表示		作业时拿缝纫机的话，有让手受伤的危险。
		有接触高电压部，造成触电的危险。			有卷入皮带，造成负伤的危险。
		有接触高温部，造成烫伤的危险。			触摸了纽扣传送器，有受伤的危险。
		如果直接目视激光的话，有伤害眼睛的危险。	指示标签		指示正确的转动方向。
		有头部接触到缝纫机的危险。			指示地线的连接。

警告标签	
	<ul style="list-style-type: none"> ① · 有发生中轻度伤害、重伤、死亡的危险。 · 触摸了活动部分的话，有发生负伤的危险。 ② · 应安装安全防护器，然后再进行缝制。 · 应安装安全护罩，然后再进行缝制。 · 应安装保护装置，然后再进行缝制。 ③ · 必须切断电源之后，再进行「穿线」、「换针」、「更换梭芯」以及「加油、清扫」的操作。

触电危险标签	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"> 危険 高電圧部分に触れて、大けがをすることがある。 電源を切って、5分以上たってからカバーをはずすこと。 </td> <td style="text-align: center;"> DANGER Hazardous voltage will cause injury. Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover. </td> </tr> </table>		危険 高電圧部分に触れて、大けがをすることがある。 電源を切って、5分以上たってからカバーをはずすこと。	DANGER Hazardous voltage will cause injury. Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover.
	危険 高電圧部分に触れて、大けがをすることがある。 電源を切って、5分以上たってからカバーをはずすこと。	DANGER Hazardous voltage will cause injury. Turn off main switch and unplug power cord and wait at least 5 minutes before opening this cover.		

有关安全的注意事项

事故：是指给与人身以及财产带来损害。

⚠ 危险

1. 需要打开电气箱时，为了防止触电事故，请关闭电源，经过 5 分钟以上的时间之后再打开电气箱盖。

⚠ 注意

基本注意事项

1. 使用之前，请您一定阅读使用说明书以及附属的所有说明资料。
另外，请您妥善保管本使用说明书，以便随时可以立即查阅。
2. 本注意事项中有部分内容可能不是您所购买的机器规格的内容。
3. 为了防止断针造成的事故，请戴上安全防护眼镜进行操作。
4. 使用心脏起搏器的人，请一定与专门医生咨询之后再使用。

安全装置、警告标签

1. 为了防止由于没有安装安全装置而造成的事故，操作本机器时，请确认安全装置是否正确地安装到规定位置之后再进行操作。
2. 为了防止人身事故，卸下了安全装置后，请一定再安装到原来的位置，并确认功能是否正常。
3. 为了防止人身事故，请把警告标签时常地粘贴到可以明显看到的机器上。如果脱落或发生污损，请立即更换成新的标签。

用途、改装

1. 为了防止人身事故，请不要将本机器使用于本来的用途和使用说明书规定的使用方法以外的用处。
如果使用于规定用途以外时，本公司一概不负任何责任。
2. 为了防止人身事故，请不要改装机器。对于因改装而发生的事故，本公司一概不负任何责任。

教育培训

1. 为了防止由于不熟练而造成的事故，雇用单位应就有关本机器的操作和安全注意事项，对操作人员进行教育，而且只让具有专业知识和操作技能的操作人员使用本机器。同时，雇用单位一定事前编制操作人员的教育培训计划，并切实地实施。

必须关闭电源的事项

关闭电源：是指关闭电源开关之后，并且把电源插头从电源插座上拔下来。以下相同。

1. 为了防止人身事故，当确认了异常、故障后以及停电时，请立即关闭电源。
2. 为了防止因机器突然起动造成的事故，在如下情况时，请一定关闭电源之后再进行操作。特别是使用离合马达时，关闭电源后，一定确认了缝纫机完全停止转动之后再进行操作。
 - 2-1. 例如，向机针、弯针、分线器等需要穿线的零件进行穿线或更换梭芯时。
 - 2-2. 例如，更换或调整组成机器的所有零部件时。
 - 2-3. 例如，检查、修理、清扫机器时，或离开机器时。
3. 为了防止触电、漏电、火灾事故，拔电源插头时，一定要手持插头拔电线，而不能拉着电线拔。
4. 不使用缝纫机闲放时，一定要关闭电源。
5. 为了防止因电气零部件的损坏造成的事故，停电后请一定关闭电源。

在各使用阶段的注意事项

搬 运

1. 为了防止人身事故，抬起缝纫机移动时，请一定根据机器的重量采用确保安全的方法进行搬运。另外，有关机器重量，请确认使用说明书的说明。
2. 为了防止人身事故，抬起缝纫机移动时，请采取确保安全的措施防止翻倒、掉落。
3. 为了防止不可预想的事故、掉落事故、机器损坏，请不要再次包装已经开箱的机器进行搬运。

开 箱

1. 为了防止人身事故，开箱时请按照从上方开始的顺序进行开箱。木框包装时，请一定要小心不要被钉子扎破。请把钉子从木板上拔下来。
2. 为了防止人身事故，取出机器时，请一定首先确认机器的重心位置然后小心地取出。

安 装

(I) 机台、台脚

1. 为了防止人身事故，请一定使用纯正的机台、台脚。不得以使用非纯正的零件时，请一定使用可以充分承受机器重量、运转时的反作用力的机台、台脚。
2. 为了防止人身事故，在台脚上安装脚轮时，请使用具有充分强度的带锁定装置脚轮，操作机器时、维修保养、检查、修理时进行锁定不要机器晃动。

(II) 电缆、布线

1. 为了防止触电、漏电、火灾事故，使用电缆时请不要向电缆施加过大的力量。另外，在 V 形皮带等转动零部件附近布设电缆时，已经让电缆距离它们 30mm 以上。
2. 为了防止触电、漏电、火灾事故，请不要进行分岔布线。
3. 为了防止触电、漏电、火灾事故，请一定牢固地固定连接器。另外，拔连接器时，请一定手持连接器拔线。

(III) 接地

1. 为了防止因漏电、绝缘耐压而造成的事故，一定请具有电气专门知识的人安装电源插头。另外，请一定把电源插头连接到接地的电源插座上。
2. 为了防止因漏电造成的事故，请一定把地线接地。

(IV) 马达

1. 为了防止马达烧毁而造成的事故，请一定使用规定的额定马达（纯正品）。
2. 使用市场出售的离合马达时，因被卷入 V 形皮带而造成的事故，请一定选用安装有防止卷入功能的皮带护罩的离合马达。

操 作 前

1. 为了防止人身事故，接通电源之前，请一定确认连接器、电缆等确实没有损伤、脱落、松动。
2. 为了防止人身事故，请不要把手伸到活动的部位。另外，请确认皮带轮的转动方向是否与箭头标记一致。
3. 使用带脚轮的机台脚时，为了防止突然的起动造成的事故，请一定锁定脚轮，带有调节器时，请调节台脚把脚固定好。

操 作 中

1. 为了防止卷入而造成的事故，操作机器时，请注意不要让手指、头发、衣服靠近皮带轮、手动飞轮、马达等转动部位，也不要把手放到上面。
2. 为了防止人身事故，接通电源时或机器操作中，请不要把手指靠近机针，也不要把手指伸到挑线杆护罩里。
3. 缝纫机以高速在进行转动。为了防止弄伤手，操作中绝对不能让手靠近弯针、分线器、针杆、旋梭、布切刀等活动部位。另外，更换缝纫机机线时，请关闭电源，确认了缝纫机和马达均完全停止之后再行更换。
4. 为了防止人身事故，从机台上拆卸缝纫机时，或者返回安装到原来的位置时，请注意不要夹到手指。
5. 为了防止因突然的起动造成的事故，拆卸皮带护罩以及 V 形皮带时，请一定关闭电源，确认了缝纫机和马达均完全停止之后再行拆卸。
6. 使用伺服马达时，机器停止时马达不发出声音。为了防止因突然的起动造成的事故，请注意不要忘记关闭电源。
7. 为了防止因过热造成的火灾事故，使用时请不要堵住马达电源箱的冷却口。

加 油

1. 请使用 JUKI 纯正的机油和 JUKI 纯正的润滑脂向规定部位进行加油和涂抹润滑脂。
2. 为了防止炎症和脓肿，眼睛、身体上粘附了油时，请立即进行清洗。
3. 为了防止腹泻、呕吐，如果误饮了机油，请立即让医生治疗。



维修保养

1. 为了防止因不熟练而造成的事故，有关修理、调整，请一定让熟悉机器的维修保养技术人员按照使用说明书的说明进行修理和调整。另外，更换零部件时，请一定使用本公司的纯正零部件。对于不适当的修理和调整以及使用非纯正零部件造成的事故，本公司一概不负任何责任。
2. 为了防止因不熟练而造成的事故以及防止触电事故，请一定让具有电气专门知识的人或委托本公司、代理店的技术人员进行有关电气的修理和维修（包括布线）。
3. 为了防止因突然的起动造成的事故，修理和维修保养使用气缸等高压空气的机器时，请一定卸下空气供给源的管子，排放出残留的空气之后再行修理和维修保养。
4. 为了防止人身事故，修理调整和更换零部件后，请一定确认螺丝螺母等没有松动。
5. 机器的使用期间中，请一定定期地进行清扫。此时，为了防止因突然的起动而造成的事故，请一定关闭电源，确认了缝纫机和马达均完全停止之后再行清扫。
6. 进行维修保养、检查、修理时，请一定关闭电源，确认了缝纫机和马达均完全停止之后再行操作。（离合马达时，请注意关闭电源后马达由于惯性仍然回继续转动一定时间。）
7. 为了防止人身事故，经过修理调整，机器不能正常操作时，请立即停止操作，与本公司或代理店联系，委托有关技术人员修理。
8. 为了防止人身事故，保险丝熔断后，请一定切断电源，排除了保险丝熔断的原因之后，更换相同规格的新保险丝。
9. 为了防止马达的火灾事故，请定期地进行风扇通气口的清扫和配线四周的检查。

使用环境

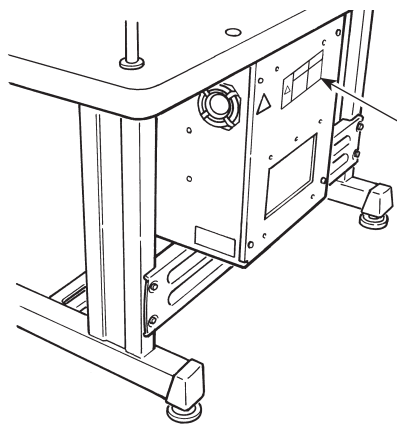
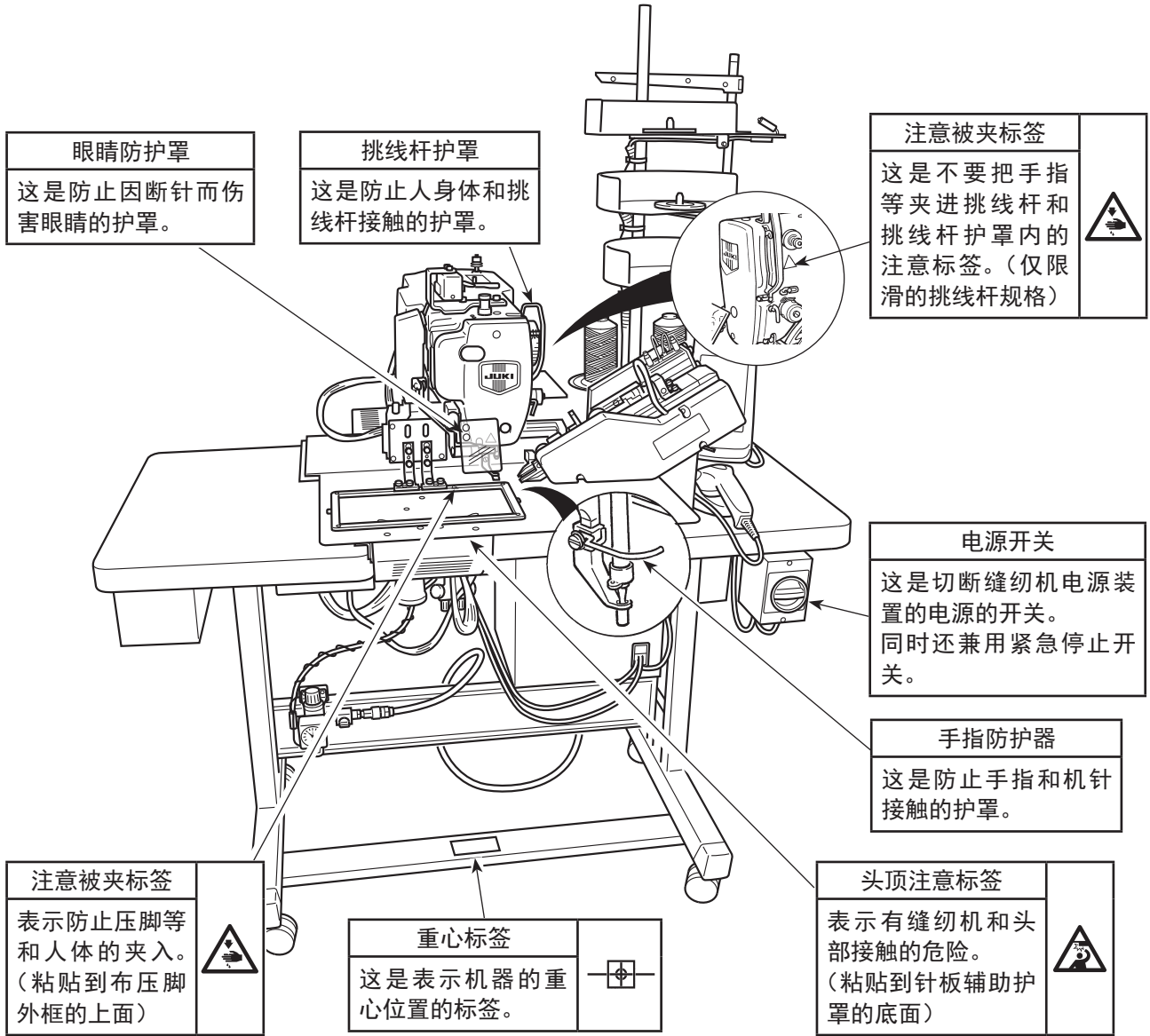
1. 为了防止因误动作造成的事故，请在没有高频电焊机等强噪音源（电磁波）影响的环境下使用缝纫机。
2. 为了防止因误动作造成的事故，在超过额定电压 $\pm 10\%$ 的地方，请不要使用缝纫机。
3. 为了防止因误动作造成的事故，对于使用气缸等高压空气的装置，请确认了压力符合规定之后再行使用。
4. 为了安全地使用缝纫机，请一定在下列环境下进行使用。
动作时的周围温度 $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$
动作时的相对湿度 $35\% \sim 85\%$
5. 为了防止因电气零部件的损坏和误动作造成的事故，从寒冷的环境急速地变到温暖的地方后容易产生结露现象，请等待水滴完全干燥之后再接通电源。
6. 为了防止因电气零部件的损坏和误动作造成的事故，打雷时为了安全，请停止操作，并拔下电源插头。
7. 有的电波状态下，可能会给予附近的电视机、收音机带来噪音。此时，请在稍稍离开缝纫机的地方使用电视机、收音机。
8. 为了确保作业环境，请遵守各国的有关法令。
需要对应噪音时，请穿戴有关法令规定的防音防护用具等。
9. 有关产品、包装的废弃，使用完的润滑油等的处理，请按照各国的法律法规进行适当的处理。

为了安全地使用 AMS-210ENHL2210/TF10S 缝纫机的注意事项

 危险	<ol style="list-style-type: none"> 1. 为了防止触电事故，打开电源时，请不要打开马达电气箱盖，也不要触摸电气箱内的零件。 2. 变更图案后，请确认落针位置。万一压脚超越图案范围，缝制中有可能机针与压脚相碰，发生断针的危险。另外，请确认被设定的压脚和安装到缝纫机的压脚是否一致。
 注意	<ol style="list-style-type: none"> 1. 打开（ON）电源开关后，操作盘上什么也不显示时，请关闭（OFF）电源开关，然后确认电源电压和电源规格。 2. 为了防止对人身伤害，打开电源开关时和缝纫机运转中，请不要把手指放到挑线杆、布压脚、布压脚机构部、挑线杆护罩中以及机针下附近。 3. 为了防止突然的起动造成人身事故，放倒缝纫机时，拆卸马达外罩时，请关掉电源。 4. 为了防止被卷入的人身事故的发生，绕线时请确认了机针下没有障碍物之后再踩起动开关。另外，缝纫机在绕线动作中，请注意不要让头发靠近机器。 5. 变更图案、准备键 ON、压脚开关 ON、中压脚按钮 ON、绕线按钮 ON 时，压脚自动地下降，为了防止突然的启动发生的事故，请绝对不要把手指放到压脚下面。 6. 为了防止卷入机器的人身事故，缝纫机运转中请不要把手指、头发、衣服靠近马达、切刀等驱动部分，也不要物品放到机器的上面。 7. 为了防止对人身伤害，请不要在卸下马达外罩、眼睛保护罩等安全装置的状态下运转缝纫机。 8. 为了防止人身伤害，卸下缝纫机各部的护罩的状态下，请不要运转缝纫机。 9. 操作盘上也进行有关安全的警告，打开（ON）电源后请确认了机器正常之后再运转缝纫机。 10. 为了防止人身伤害，缝纫机运转中请不要用手按推皮带飞轮。 11. 为了防止对人身伤害，放倒缝纫机时和返回原来位置时，请注意不要夹到手指等。 12. 为了防止触电和损坏电气零件的事故，插拔电源插头之前请一定关掉电源开关。 13. 为了防止损坏电气零件的事故，打雷时，请停止作业，拔下电源插头，以保证安全。 14. 为了防止损坏电气零件的事故，从寒冷的地方移动到暖和的地方等时，容易发生结露现象，所以请待水滴完全干燥之后再打开电源。 15. 为了防止损坏电气零件的事故，停电时，请一定关掉电源。 16. 本装置请在工业用环境下使用。在一般家庭里使用时如果靠近电视机或收音机使用的话，有发生接收不良的故障。 17. 长时间连续使用缝纫机的话，缝纫机主机的一部分、操作盘背面等有可能有温度上升到 15°C 左右，感觉到发热，但是这不是异常，对零部件等没有影响。 18. 请不要往机油槽和旋梭以外加缝纫机油。因为本机除旋梭以外采用润滑脂润滑，如果加了缝纫机油的话，润滑脂就会漏泻出来，造成磨损。 19. 因为本产品属于精密机器，所以操作时请充分注意，不要把水、油溅到机器上面，也不要让机器掉落给与机器冲击。 20. 本机器是 A 级工业用机器。在家庭环境下使用此机器的话，有可能发生电波干扰的现象。此时，请使用人采取适当的措施解决电波干扰问题。 21. 为了防止因漏电、绝缘耐压问题造成的事故，请让具有电气专门知识的人正确地安装电源插头。另外，请一定把电源插头插到连接地线的电源插座上。 22. 为了防止因漏电造成的事故，请一定将地线接地。

·「CompactFlash (TM)」是美国 SanDisk 公司的注册商标。

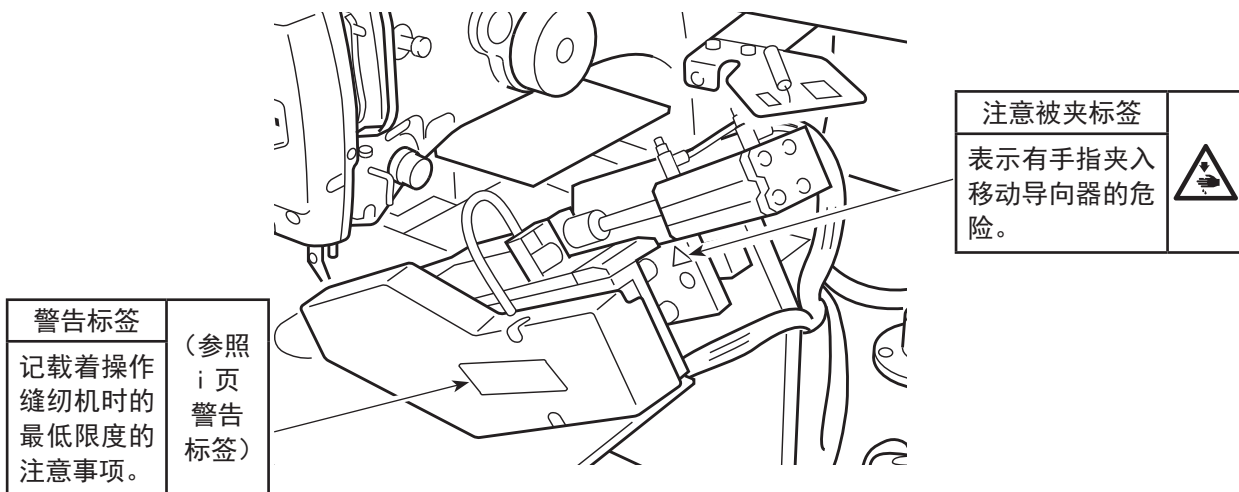
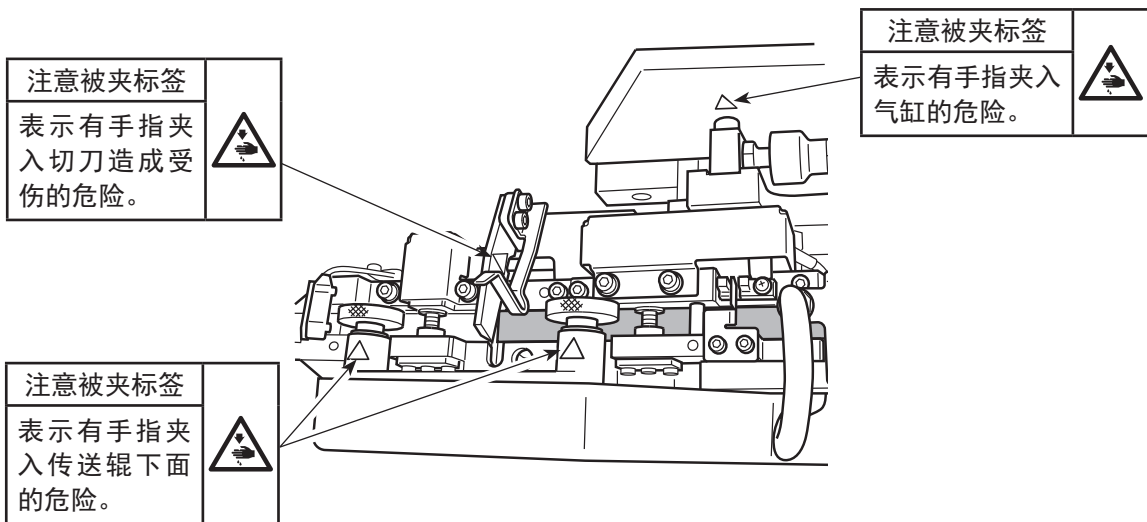
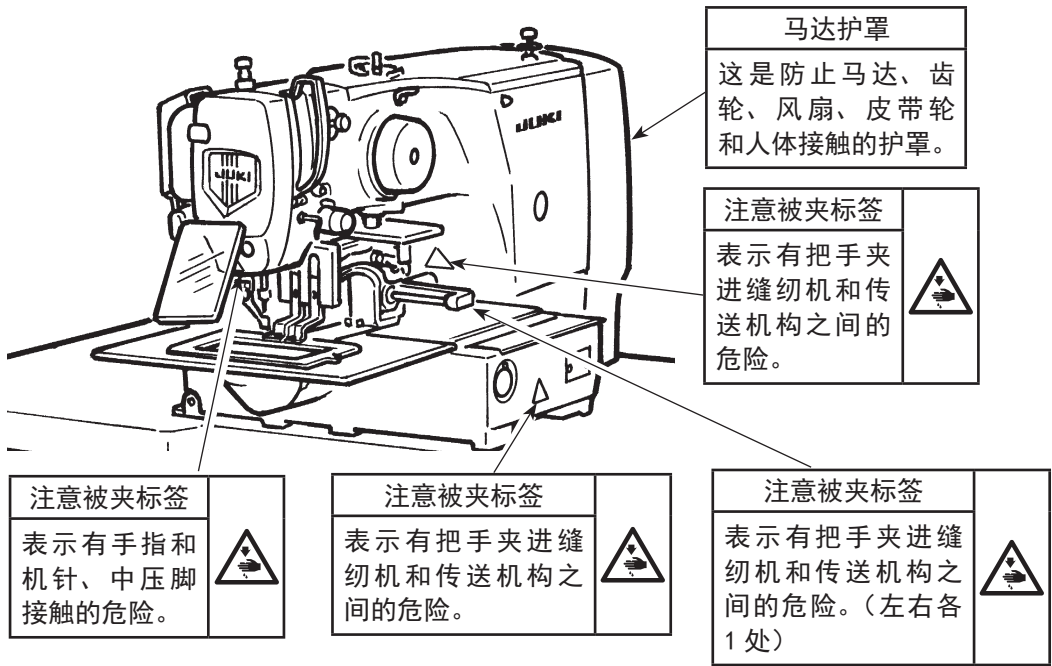
关于安全装置和警告标签



触电危险标签 记载着为了防止触电，避免危险的安全注意事项。	 (EU 规格)	(参照 i 页 触电危险标签)
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注意

另外，在使用说明书中为了突出说明的重点，有的地方省略显示了「眼睛防护罩」、「手指防护器」等安全装置，请了解。
但是实际使用时，请绝对不要卸下这些安全装置。



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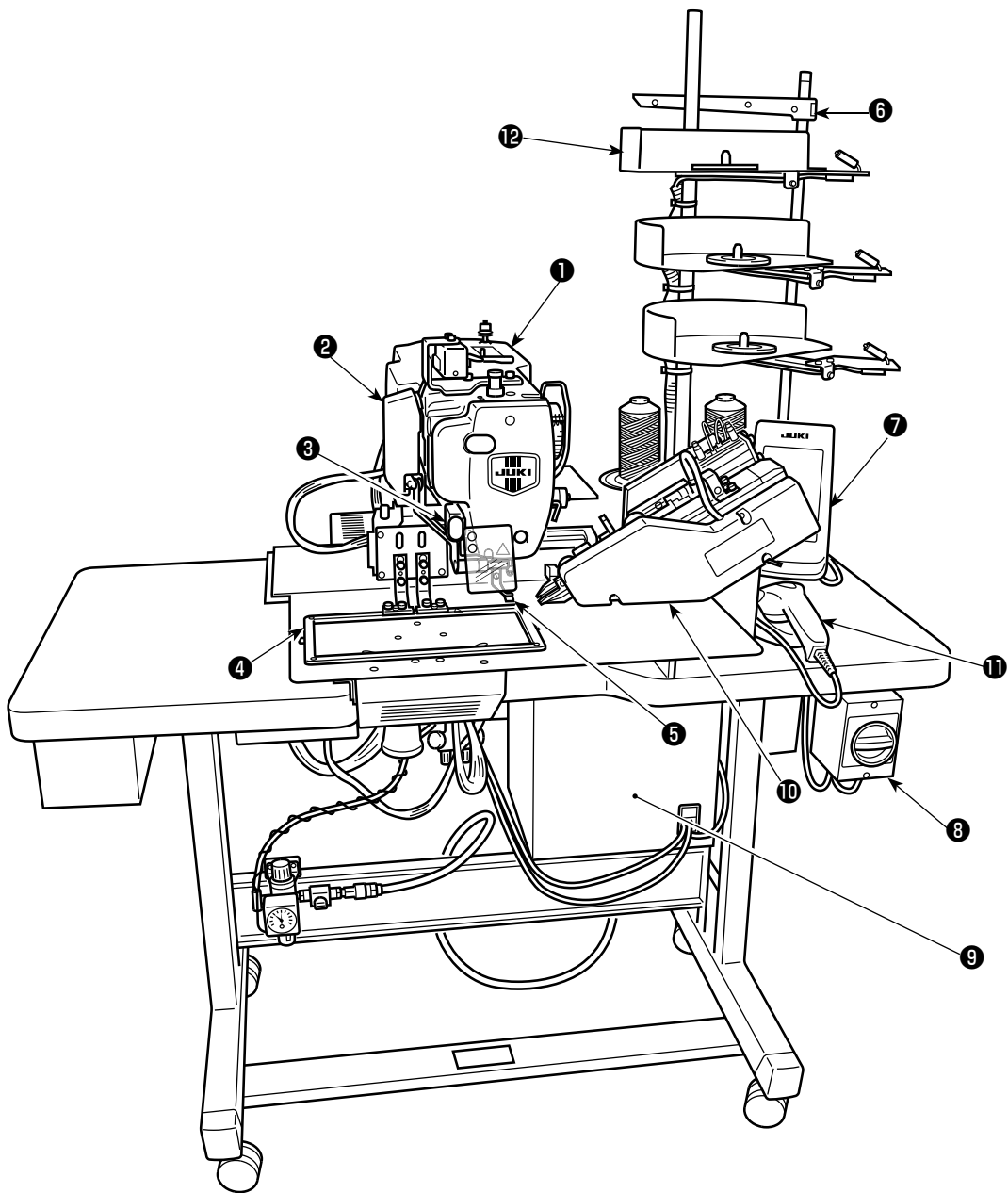
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I. 机械篇（关于缝纫机）

1. 规格

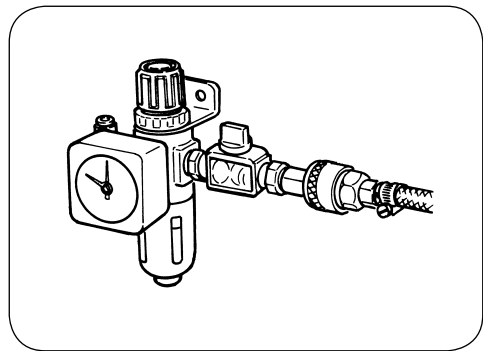
1	缝制范围	X（左右）方向 220 mm 带对应宽度：10 ~ 16.7mm 带长度：55 ~ 130mm	Y（前后）方向 100 mm
2	最高缝纫速度	2,800 sti/min（间距 3.5 mm 以下时） 出货时设定缝纫速度：2000sti/min	
3	缝迹长度	0.1 ~ 12.7 mm（最小分辨率 0.05mm）	
4	压脚送布	间断送布（脉冲马达双轴驱动方式）	
5	针杆行程	41.2 mm	
6	使用机针	ORGAN 针 DP×17	
7	外压脚上升量	最大 30 mm	
8	中压脚行程	标准 4 mm（0 ~ 10 mm）	
9	中压脚上升量	20 mm	
10	可以变更中压脚下位置	标准 0 ~ 3.5 mm（最大 0 ~ 7.0 mm）	
11	旋梭	半旋转倍旋梭	
12	使用机油	New Defrix Oil No. 2（加油方式）	
13	暂停功能	在缝制途中可以让缝纫机停止	
14	缝纫速度限制	200 ~ 2,800 sti/min（100sti/min 单位）	
15	花样选择功能	图案 No. 选择方式（主机：1 ~ 999，外部媒体：1 ~ 999）	
16	底线计数器	加数计数 / 减数计数方式（0 ~ 9,999）	
17	缝制计数器	加数计数 / 减数计数方式（0 ~ 9,999）	
18	缝纫机马达	伺服马达	
19	外形尺寸	W:1,200mm L:780mm H:1,600mm（不包括线架装置）	
20	质量（总质量）	120kg	
21	消费电力	360VA	
22	使用温度范围	5℃ ~ 35℃	
23	使用湿度范围	35% ~ 85%（无结露）	
24	电源电压	额定电压 ±10% 50 / 60 Hz	
25	使用空气压力	0.5 ~ 0.55 MPa（最大 0.55 MPa）	
26	空气消费量	1.8dm ³ /min（ANR）	
27	针杆上死点停止功能	缝制后，可以让针杆返回倒上死点位置。	

2. 各部的名称



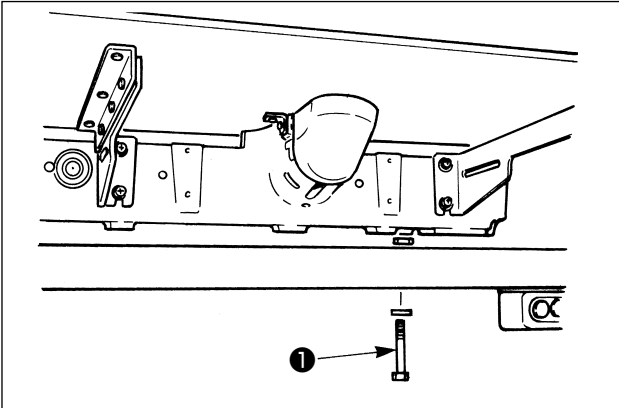
- ① 缝纫机机头
- ② 拨线开关
- ③ 暂停开关
- ④ 外压脚
- ⑤ 中压脚
- ⑥ 线架装置
- ⑦ 操作盘 (IP-420)
- ⑧ 电源开关 (兼用紧急停止开关)
- ⑨ 控制箱
- ⑩ 带供料装置
- ⑪ 条形码阅读器
- ⑫ 带放置台

空气控制装置



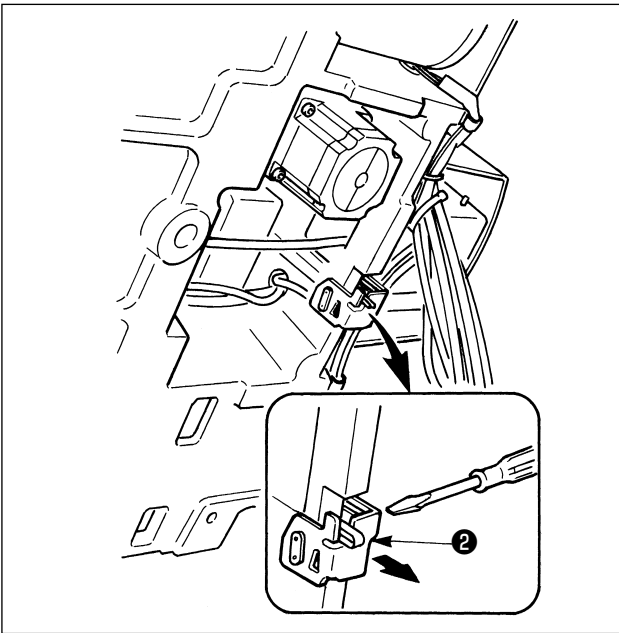
3. 安装

3-1. 机台固定螺栓的拆卸



请卸下机台固定螺栓①。
运送缝纫机时需要此螺栓。

3-2. 安全开关的调整



安装后，缝纫机动作时如果发生异常 302，请用螺丝刀拧松安全开关安装螺丝，向缝纫机的下方调整安全开关②的位置。

3-3. 条形码阅读器的安装方法



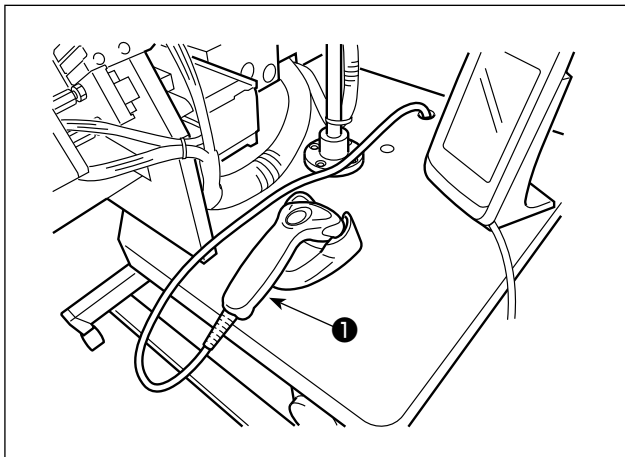
警告

- 请不要直接用眼睛去看条码阅读器的激光光线。有可能伤害眼睛。
- 请不要对着人的眼睛放射激光。有可能伤害眼睛。
- 请不要用光学仪器直接窥看激光光线。有可能伤害眼睛。

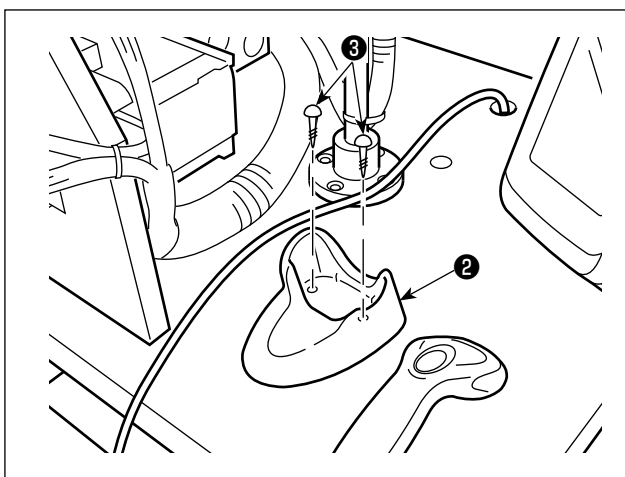


注意

- 请在缝纫机的使用温度范围内以及使用温度湿度内使用。
- 在供给了电源的状态下，请不要拔插连接器。



1) 请把条形码阅读器①连接到机台上面。

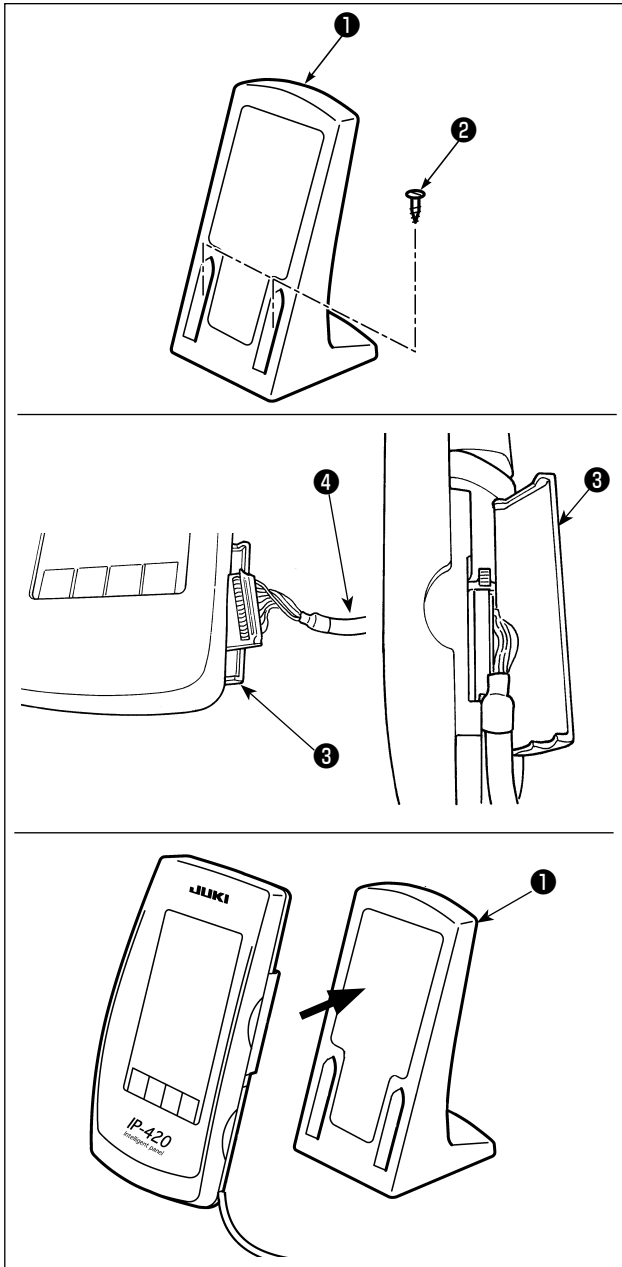


2) 请用 2 个木螺丝③把条形码阅读器安装板②固定到机台上的任意位置。



为了防止条形码破损，请把 X 移动护罩和机头夹安装在不发生碰撞的位置。

3-4. 操作盘的安装



1) 用 2 个木螺丝②把操作箱安装板①固定到机台上的任意部位。

2) 打开 IP-420 的护罩③，然后插入中继电缆④。

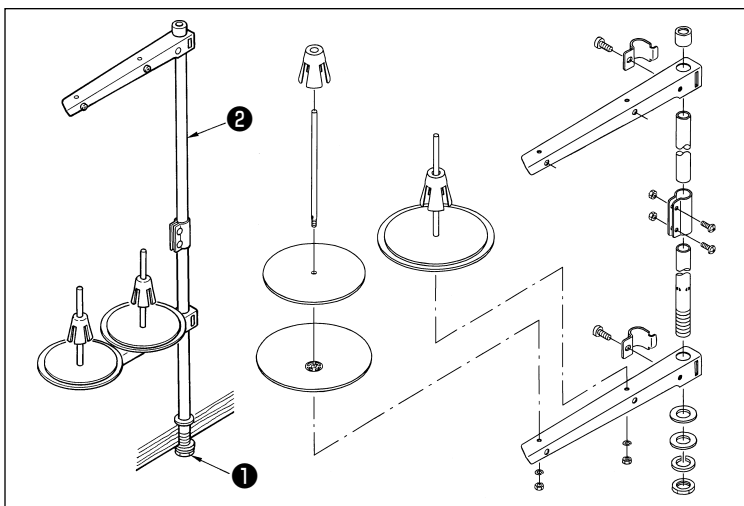
3) 沿着下侧布线中继电缆，关闭护罩③。

4) 把 IP-420 安放到安装板①上。



为了防止操作盘破损，请安装到碰不到 X 移动护罩、机头夹的位置。

3-5. 线架装置的安装方法



1) 组装线架装置，把它安装到机台左上方的孔上。

2) 拧紧固定螺母①，不让线架装置松动。

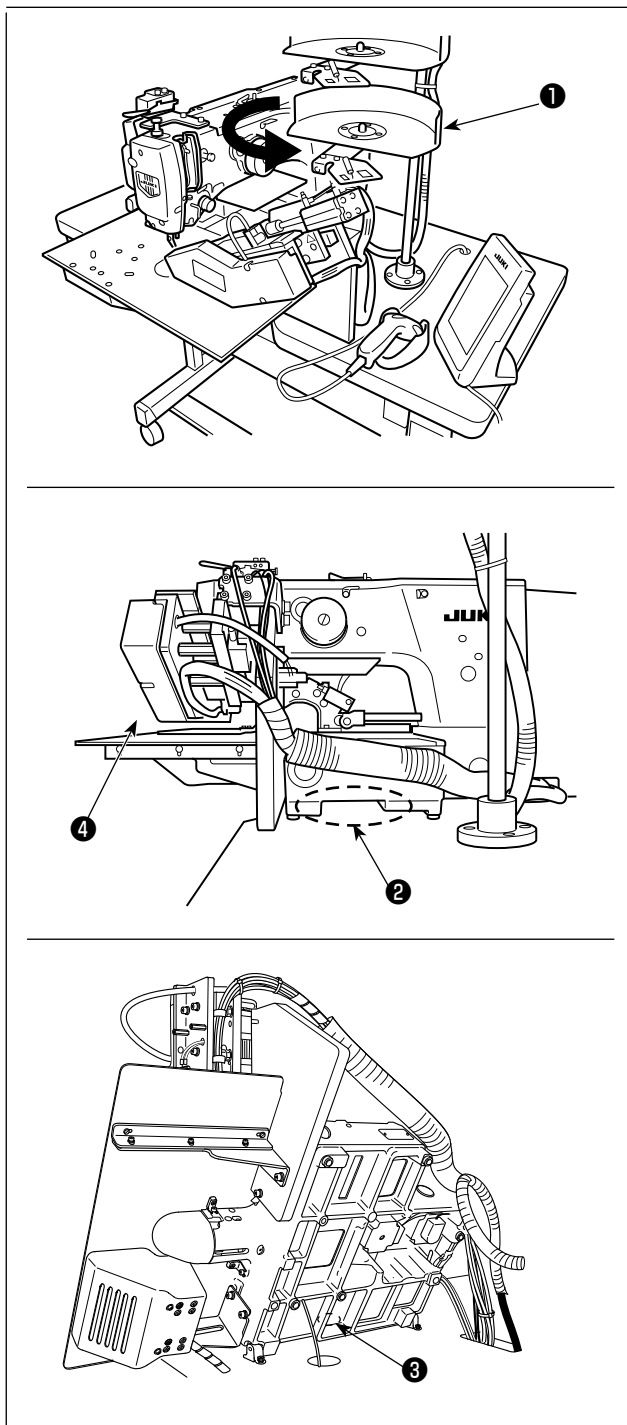
3) 可以进行天井配线时，请把电源线从线架立杆②中穿过。

3-6. 缝纫机的抬起方法



注意

放倒缝纫机和抬起缝纫机时，请注意不要让缝纫机夹住手指。同时，为了防止突然的起动发生意外事故，请把电源关掉之后再进行操作。

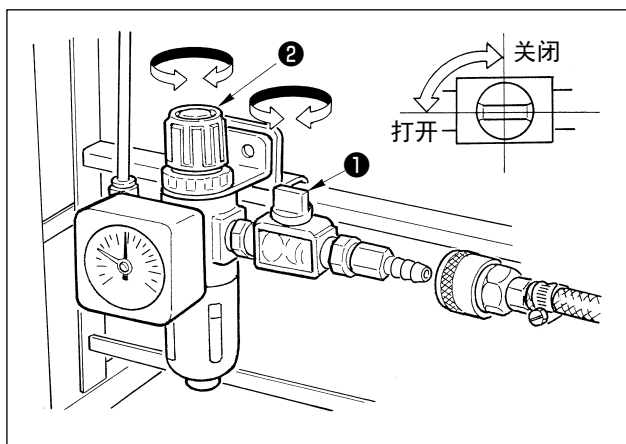


- 1) 向离开缝纫机机头的方向转动带放置台**①**。
- 2) 请用手拿着缝纫机台的插入部**②**，轻轻地抬起直到机台橡胶座**③**顶到机台。

1. 为了防止缝纫机翻倒，请一定在水平的地方抬起缝纫机。
2. 抬起缝纫机时，首先把压脚**④**向右侧移动到移动限位，然后用胶带等进行固定。如果在移动或固定不充分稳定的状态下抬起缝纫机的话，有可能损坏 X 移动护罩和 X 移动轨，而且还有可能碰到由于自重向左倾斜的压脚**④**和中压脚等，而造成零部件损坏。
3. 抬起缝纫机时，请不要手持台座向上抬。否则会对带供料装置的精度产生恶劣影响。
4. 抬起机头时，请一定使用 2 个人以上来操作。

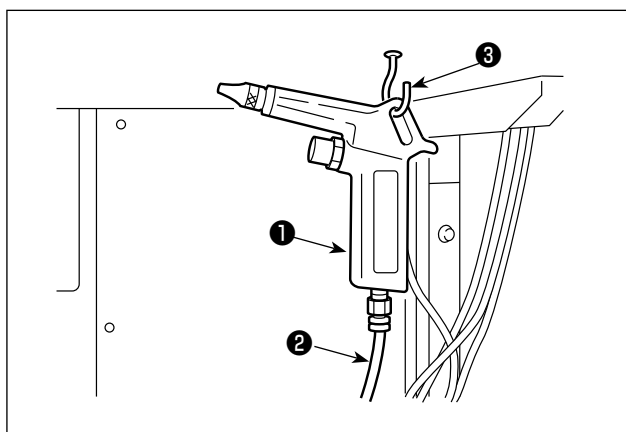


3-7. 空气软管的安装（仅气动式规格）

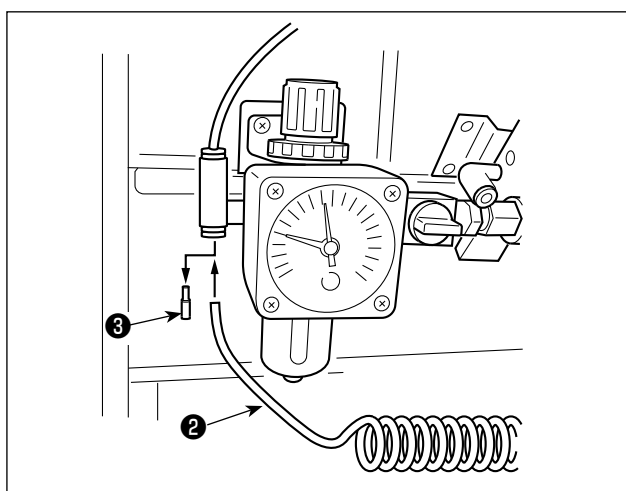


- 1) 空气软管的配管
使用附属的软管扎带和插头，把空气软管连接到调节器上。
- 2) 空气压力的调整
打开空气栓①，向上拉起并转动空气调整钮②，把空气压力调整为 0.5 ~ 0.55MPa (最大 0.55 MPa)，然后拧紧固定调整钮。
* 关闭空气栓①之后可以排出空气。

3-8. 空气枪的安装

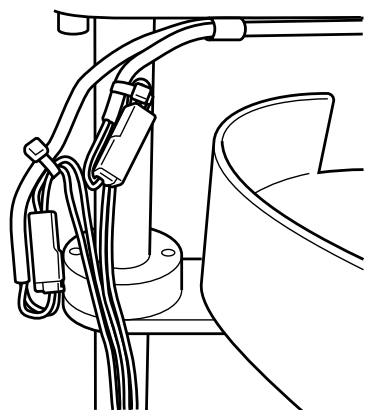


- 1) 把螺旋软管②插入空气枪①。

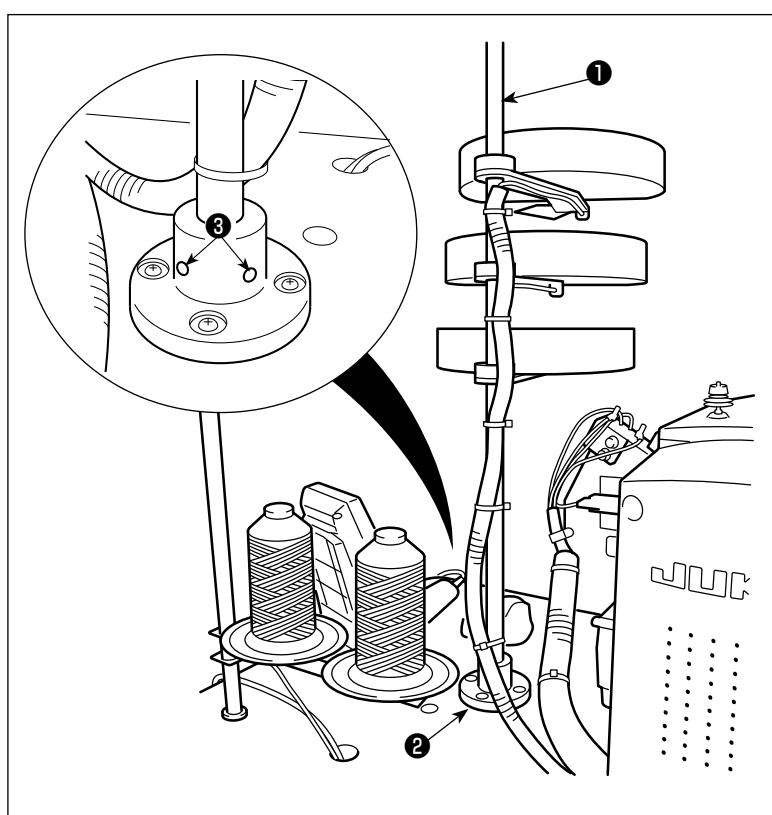


- 2) 请拔掉连接在调节器上的固定栓③，然后在连接螺旋软管②。
- 3) 请把挂钩④安装到机台下面的任意的的位置，然后把空气枪①挂到钩上。

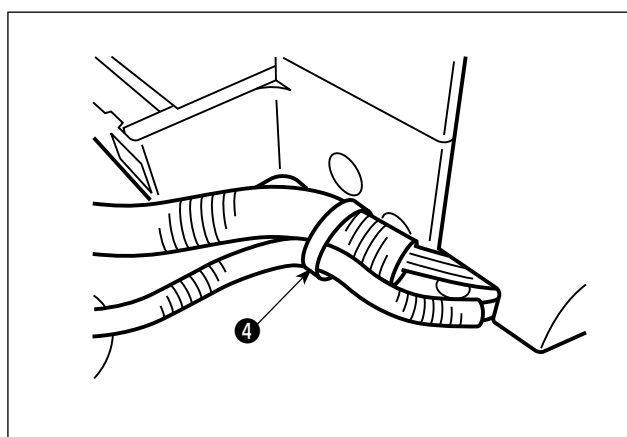
3-9. 带放置台的安装



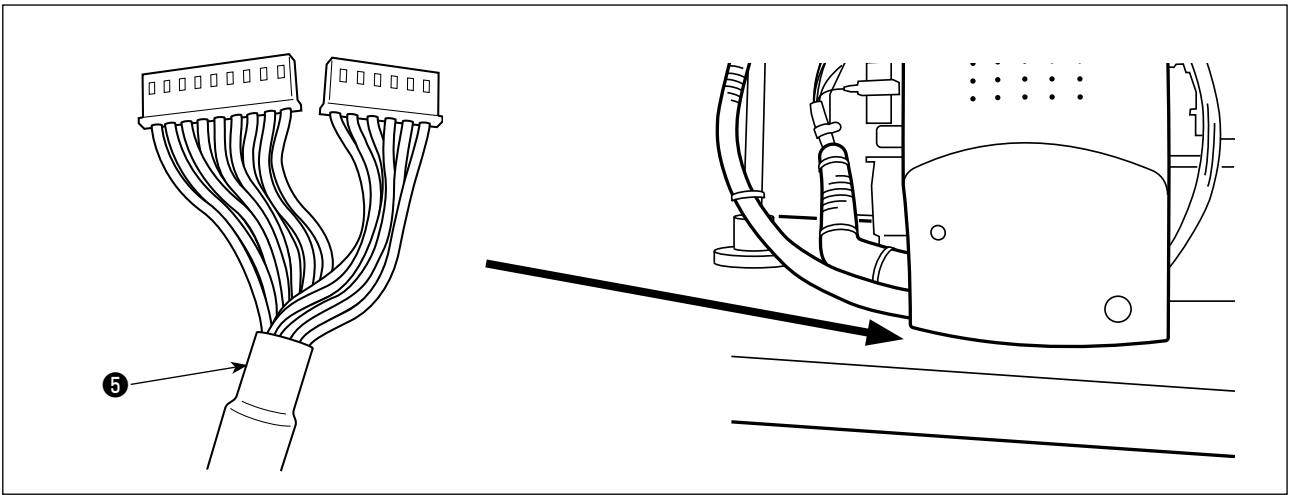
设置带放置台时，请确认连接器是否没有脱落。



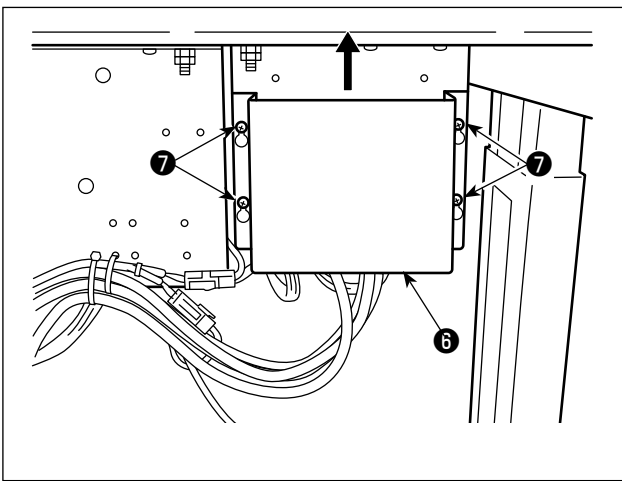
- 1) 把带放置台**①**插入到台座**②**上。
- 2) 拧紧 2 处的台座螺丝**③**，然后固定好带放置台**①**。



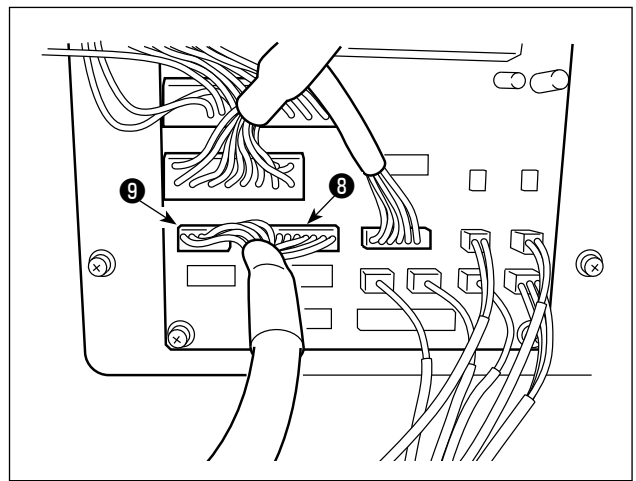
- 3) 穿固定着带供料装置的配线的电缆夹**④**



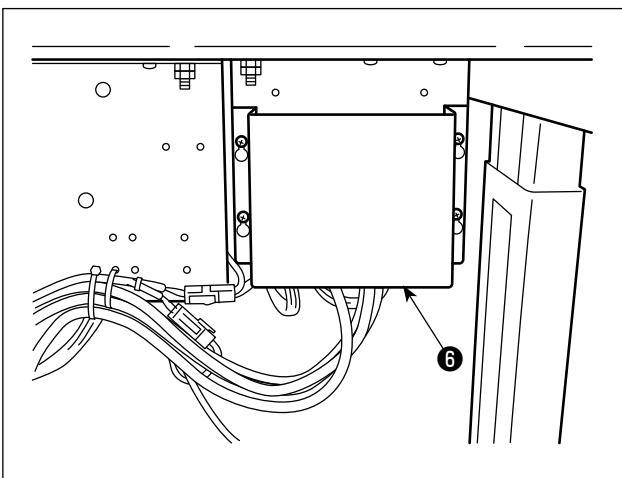
- 4) 把电缆**5**从马达护罩和机台之间穿过，然后拉到机台下面。（如果连接器插不进间隙时，请稍稍抬起机头，整理好电缆**5**。请参阅“11-3-6. 缝纫机的抬起方法” p. 6。）



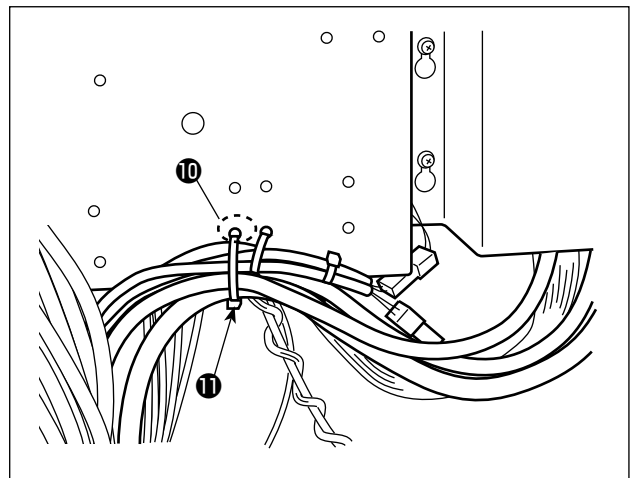
- 5) 拧松 4 处的 TAPE_INT 电路板的护罩**6**的固定螺丝**7**，卸下上部的抬起护罩。



- 6) 把连接器插入到 TAPE_INT 电路板上的连接器 CN150（白色、9 针）**8**和 CN160（白色、6 针）**9**。

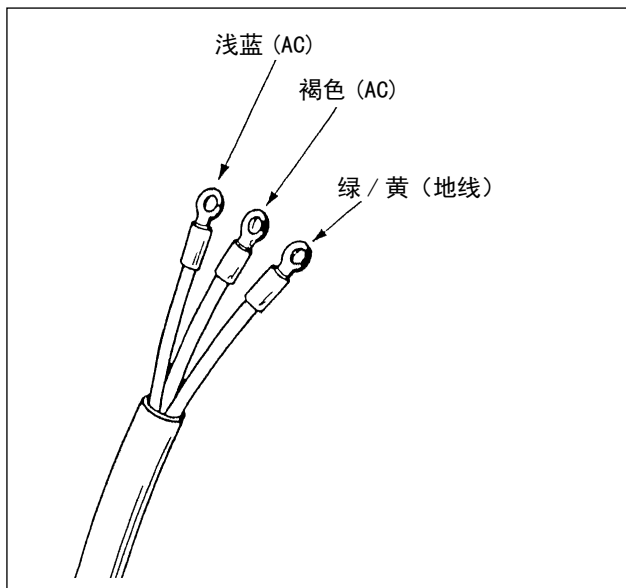


- 7) 返回 TAPE_INT 电路板的护罩**6**。



- 8) 使用电磁阀安装板的孔**10**，用扎线带**11**固定好放置台的配线。

3-10. 电源的连接



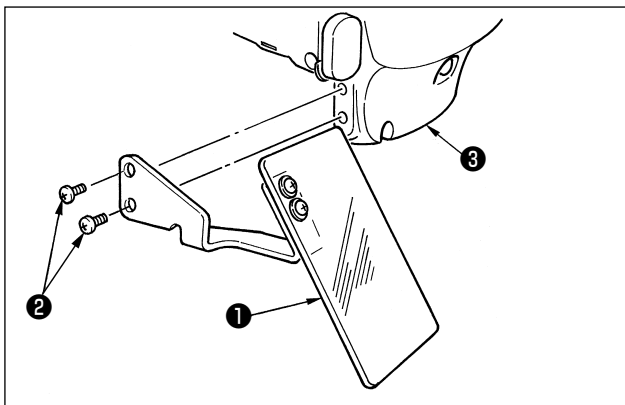
- 1) 因为本机交货时没有复数电源插头，因此连接电源时请根据使用环境的电源座的形状，安装使用电源线。
- 2) 本缝纫机是单相电源。请使用符合电压规格的单相电源。

3-11. 眼睛保护罩的安装



危险

为了保护断针飞起弄伤眼睛，请一定安装起来。



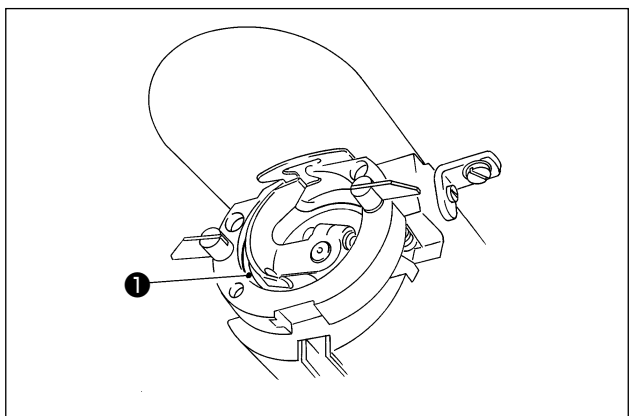
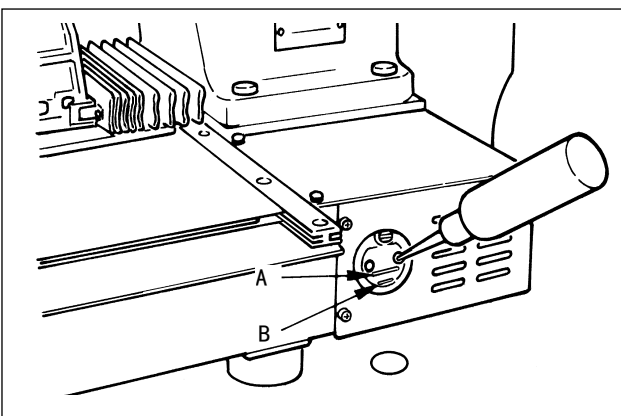
请一定用螺丝②把眼睛保护罩①安装到缝纫机面罩③上之后再使用缝纫机。

4. 各部的操作和调节

4-1. 缝纫机的准备

(1) 加油方法

警告 为了防止突然的启动造成人身事故，请关掉电源后再进行。



- 1) 请确认机油在下线 B 和上线 A 之间。如果机油过少时，请用附属的加油器进行加油。
- 2) 往旋梭滑动面①滴一滴机油让其润滑。

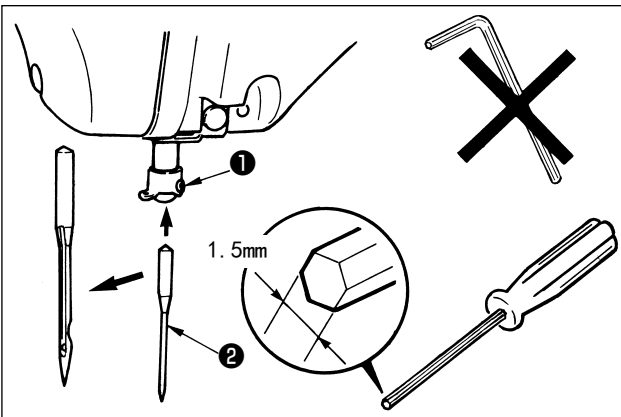
参考 加油的油槽仅是向旋梭加油的。使用转速低时，如果旋梭的油量过多，可以把油量调小。（请参照“III-1-9. 旋梭的加油量” p.118。）

注意

1. 请注意不要向油槽和下列注意 2 的旋梭以外的部位加油。否则会发生零件故障。
2. 初次使用缝纫机或较长时间没有使用缝纫机时，请向旋梭加少量的机油后在使用缝纫机。（有关旋梭的拆卸，请参照“III-1-2. 机针与旋梭” p.113。）

(2) 机针的安装方法

警告 为了防止突然的启动造成人身事故，请关掉电源后再进行。



拧松固定螺丝①，把机针②的长沟朝向面前，插进针杆的深处，然后拧紧固定螺丝①。

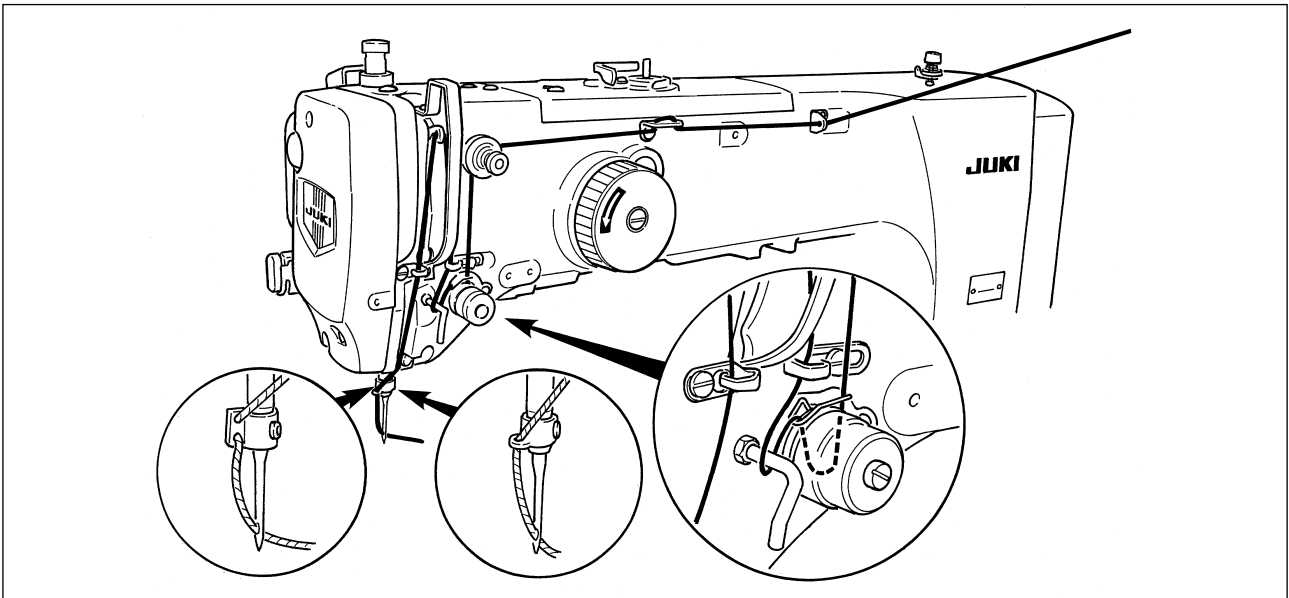
注意 拧紧固定螺丝①时，请一定使用附属的六角螺丝刀（货号：40032763）。请不要使用 L 型的六角杆扳手。否则有可能损坏固定螺丝①。

(3) 上线的穿线方法



警告

为了防止突然的启动造成人身事故，请关掉电源后再进行。

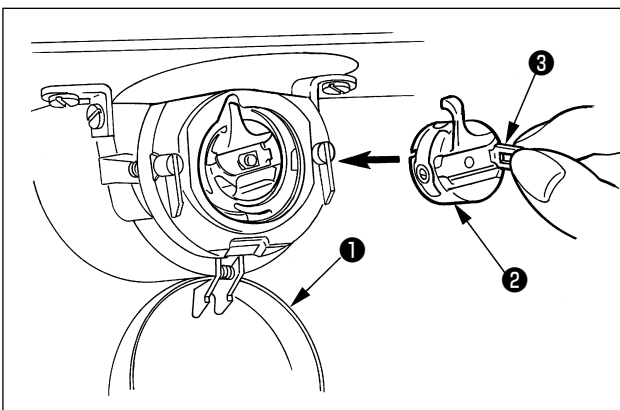


(4) 梭壳的取下插入



警告

为了防止突然的启动造成人身事故，请关掉电源后再进行。



- 1) 打开旋梭外罩①。
- 2) 拨起旋梭壳②的抓脚③，取出梭壳。
- 3) 放入时，请再放倒旋钮的状态，插到发出「卡嚓」的声音。



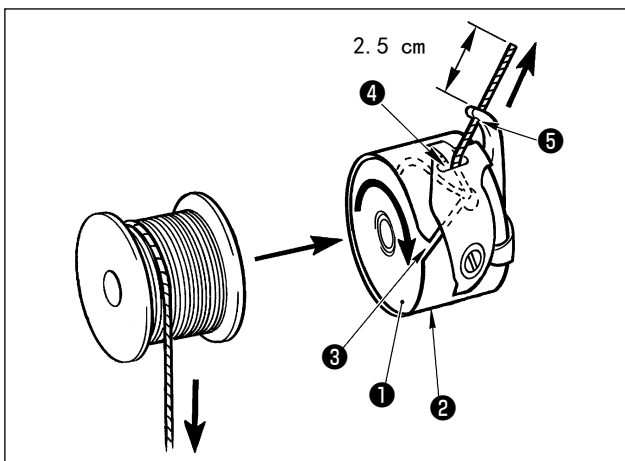
如果没有插到底，缝制途中梭壳②就可能脱落。

(5) 旋梭的插入方法



警告

为了防止突然的启动造成人身事故，请关掉电源后再进行。

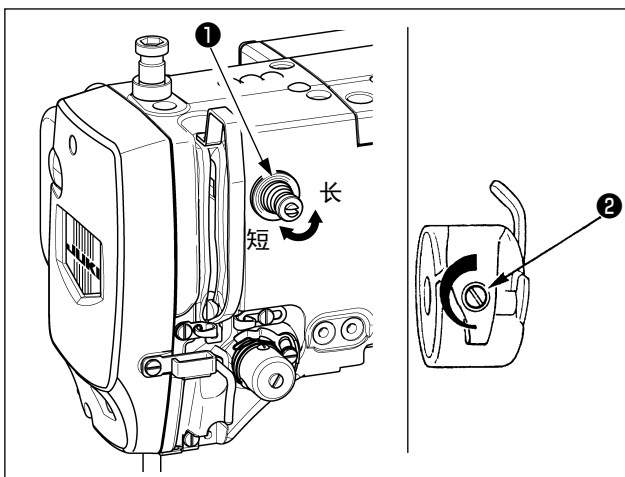


- 1) 把旋梭①按图示的方向插入梭壳②。
- 2) 把线穿过梭壳②的穿线口③，然后拉线，把线从线张力弹簧下面的穿线口④拉出来。
- 3) 把线从角部的线孔⑤穿出，从线孔约拉出 2.5cm。



注意 旋梭的旋转方向相反的话，底线拉不穩定。

(6) 线张力的调整方法

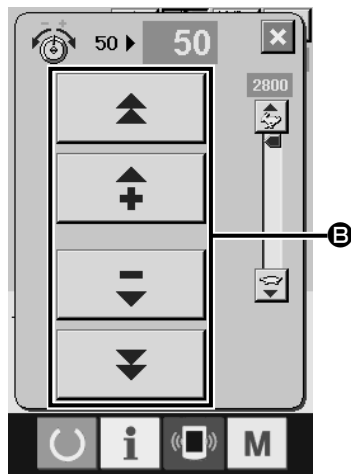
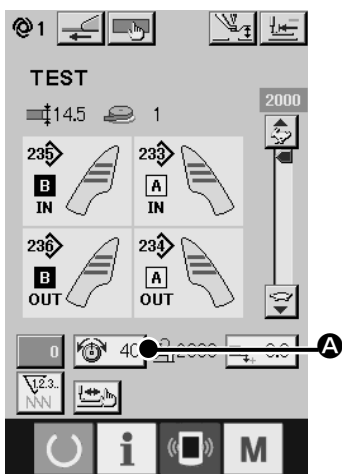



把第一线张力旋钮①向右转动，切线后针尖上的残线长度变短，向左转动后变长。

请尽量在不脱线的情况下弄短残线。

在操作盘上调整上线张力，用②调整底线张力。

上线张力的调整




- 1) 在缝制画面，选择线张力按钮  40 **A**。
- 2) 用+ / -键 **B** 设定上线张力。设定范围是0~200。设定值越大，张力也越大。
* 标准出货时，设定值为50时，H规格应调整为2.35N。（第1线张力盘开放时）

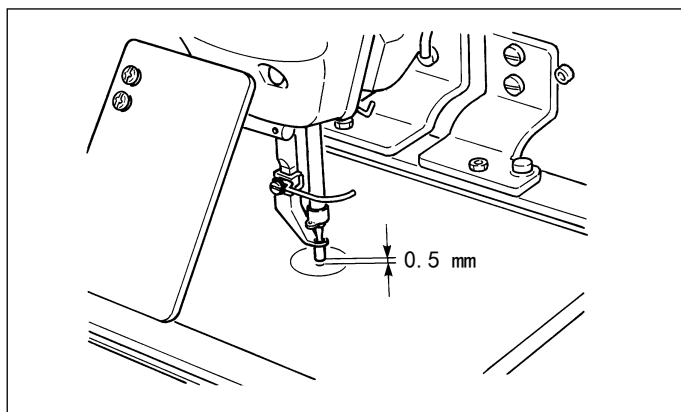
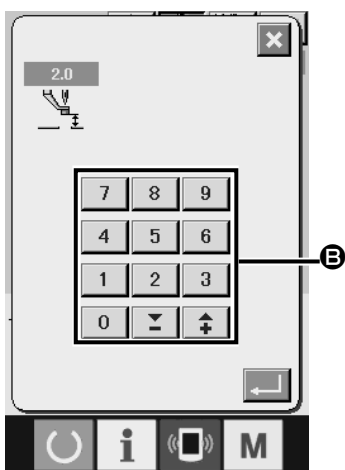
(7) 中压脚的高度



1. 提升中压脚高度后，请用手转动飞轮下降针杆，确认是否不与中压脚相碰。
2. 请注意不要让外压脚、中压脚夹到手或手指。

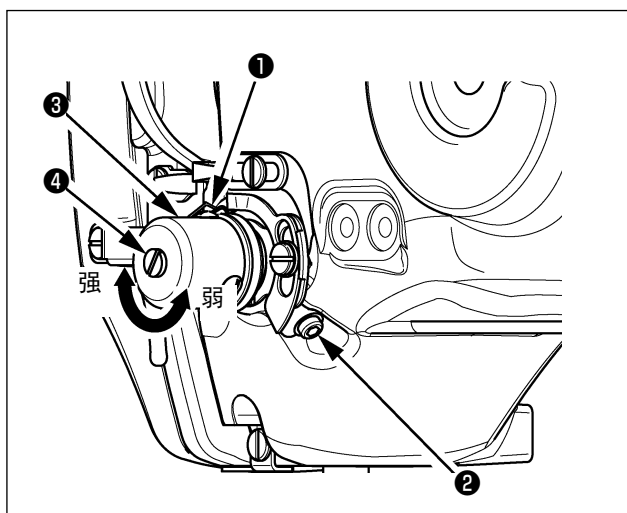


按中压脚设定按钮  **A**，在机针最下点时，请用十数字键 **B** 把中压脚下端和布料的间隙调整为 0.5mm(使用线的粗细)。



提高中压脚高度之后，或把机针号换成较粗的机针后，请确认与挑线杆的间隙。不能确保间隙时，就不能使用挑线杆。请关闭 (OFF) 电源开关。另外，出货时，不管是否设定中压脚高度，挑线杆设定在中压脚最下降位置挑线。(存储器开关 U105)

(8) 挑线弹簧的调节



1) 移动量的调节

拧松固定螺丝 **2**，转动线张力结合体 **3**。向右转动之后，动作量变大，拉线量变多。

2) 强度的调节

改变挑线弹簧 **1** 的强度时，请在螺丝 **2** 拧紧的状态下，把细螺丝刀插到线张力杆 **4** 的缺口部转动调节。向右转动之后，挑线弹簧的强度变强，向左转动之后，强度变弱。

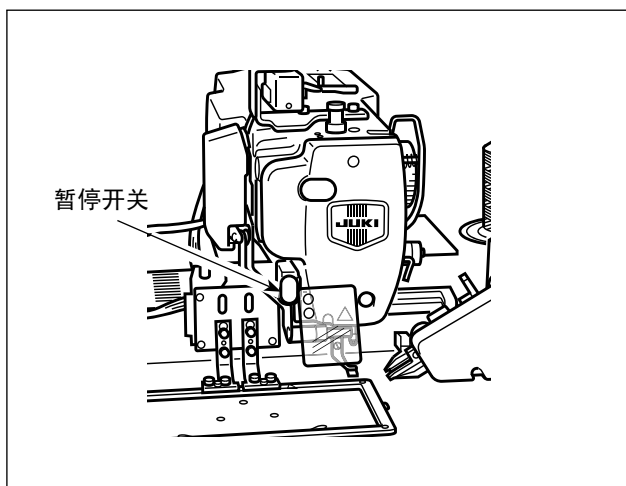
4-2. 传感器类的操作和空气关系的调整

(1) 电源开关



ON、OFF 装置的电源时使用。

(2) 暂停开关



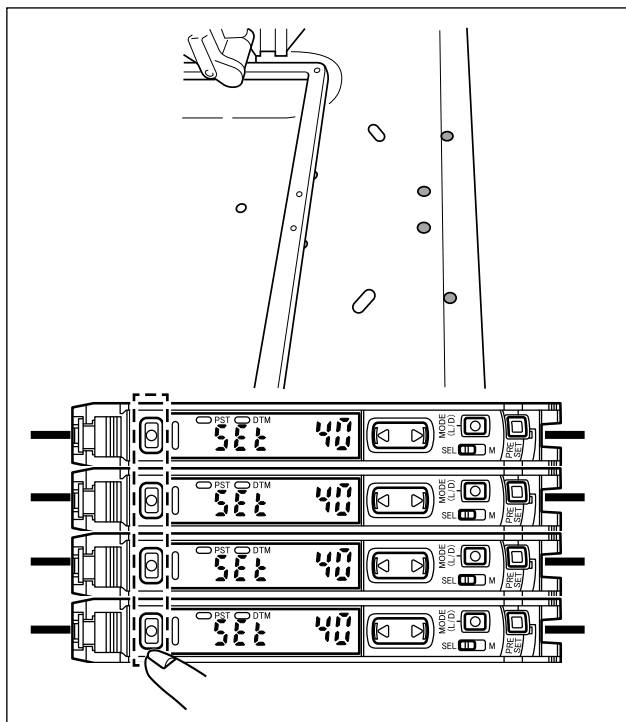
想停止装置的动作时使用。

(3) 衣身检测传感器

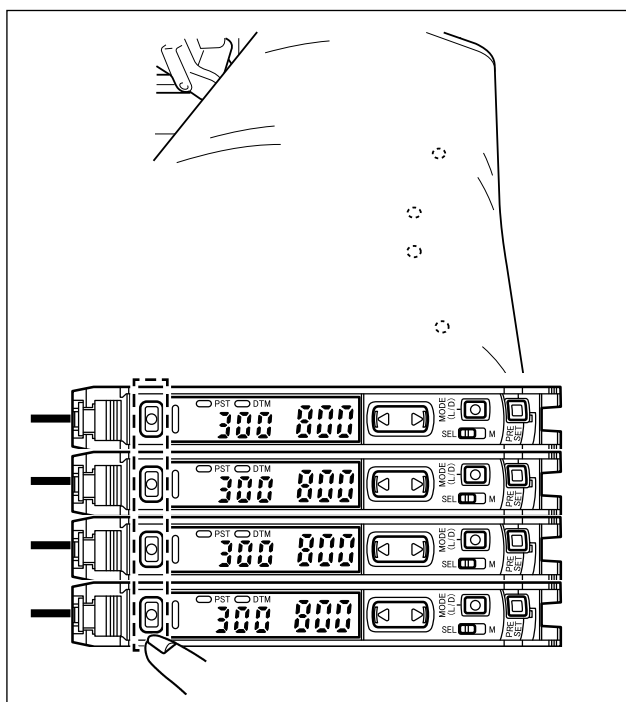


用工厂出货时的设定值基本上不能识别衣身，但是很少有不能通过布料、颜色来识别的衣身。此时，请进行以下的调整。

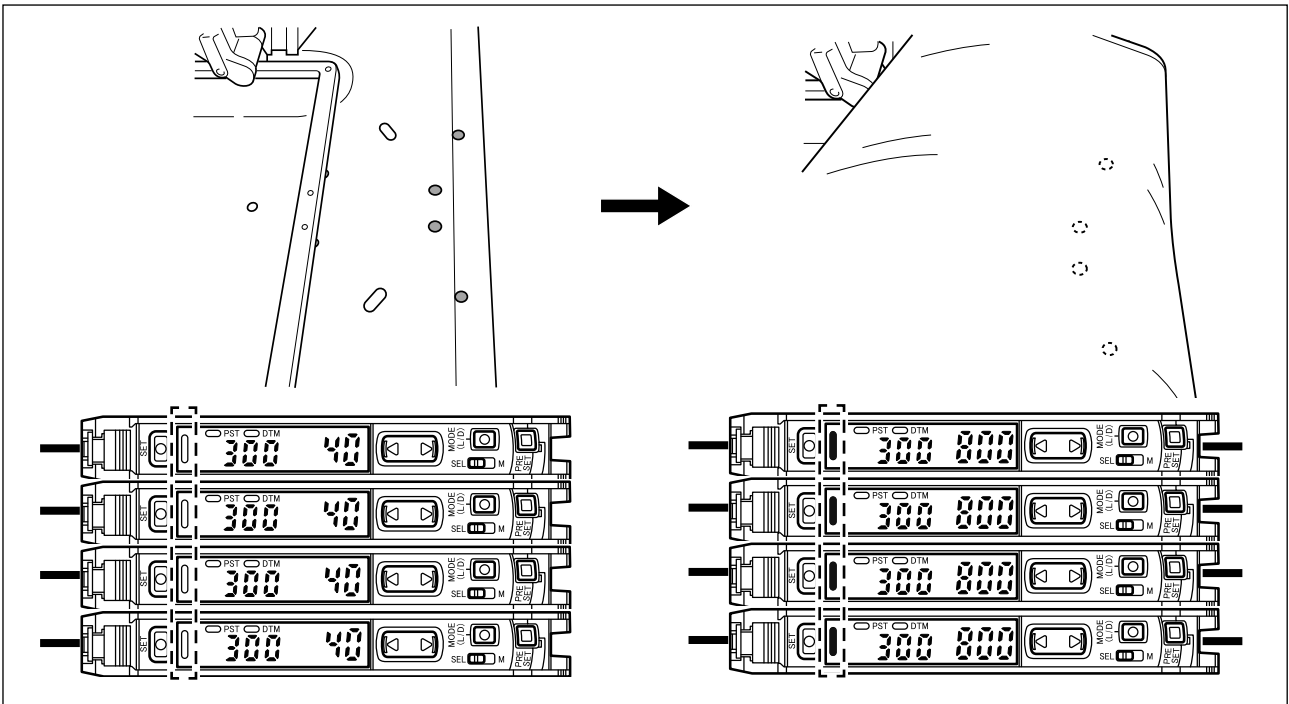
另外，有关通过以下的调整也不能改进的衣身，请把动作模式设定为“手动操作”之后，通过手动操作选择缝制的衣身的 A 或 B 和 IN（内侧）、OUT（外侧）。有关动作模式的设定，请参照“11-4-2 缝制模式的选择” p. 58。



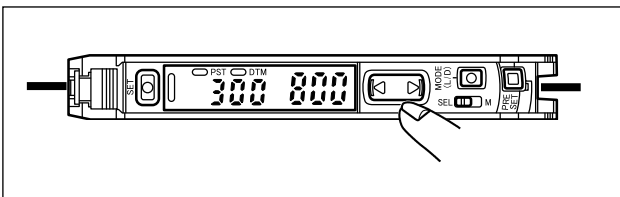
- 1) 在针板辅助护罩上什么也没有的状态下，按“SET”按键（衣身检测传感器 A、B、A IN/OUT、B IN/OUT 4 个全部按）。
- 2) 确认阈值的显示（绿）是否全部为“SET”显示。



- 3) 放置衣身，确认受光量的显示（红）的数值在变化。
- 4) 再次按“SET”按键（衣身检测传感器 A、B、A IN/OUT、B IN/OUT 4 个全部按）。
- 5) 阈值的显示（绿）被变更。



6) 确认在针板辅助护罩上没有放置衣身的状态下，动作显示灯灭灯，放置了衣身之后则亮灯。



7) 任意地设定阈值时，按“上升下降”按键，设定阈值。

※ 工厂出货时的阈值设定为“300”（衣身检测传感器 A、B、A IN/OUT、B IN/OUT）。

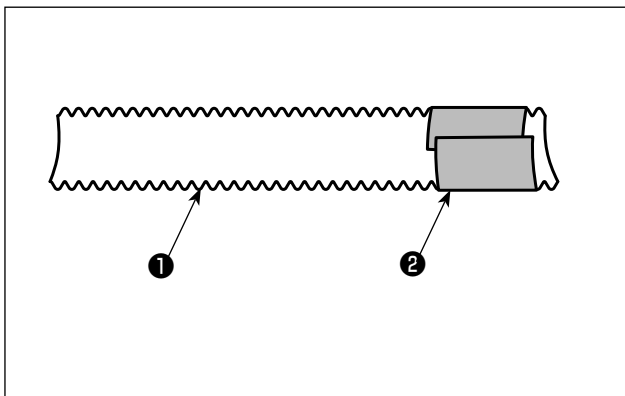


1. 动作显示灯如果没有放置衣身时也亮灯的话，请提高阈值。
2. 请定期地用空气枪清扫针板辅助护罩的衣身检测孔，以放置衣身检测传感器的误认。
3. 缝纫机开始时，请不要把手遮盖到衣身检测传感器的上面。否则有可能发生传感器错误检测，不能正常地判别衣身的 A、B、IN、OUT。（特别是重新调整传感器，下降阈值时，请加以注意。）

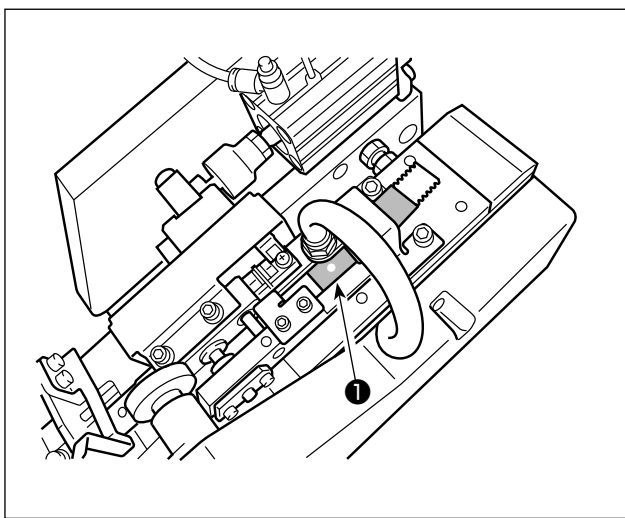
(4) 金带检测传感器



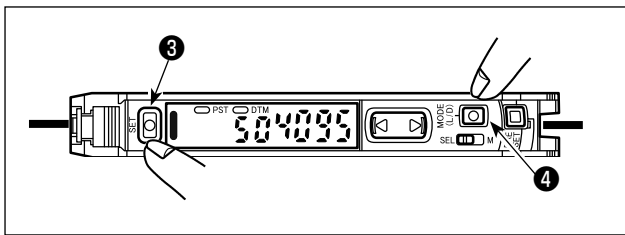
用工厂出货时的设定值基本上不能识别金带（接头带），但是也有使用的金带（接头带）的种类和素材等不能识别。此时，请进行以下的调整。



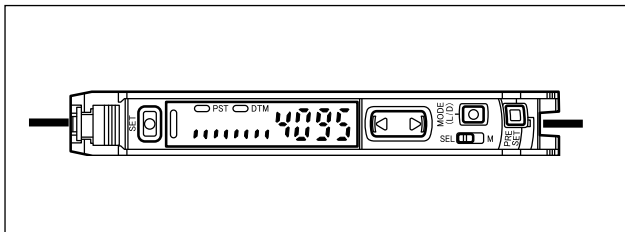
- 1) 请准备下列的零件。
 - ①金带（接头带）
 - ②在使用的各种带中反射率最高的带



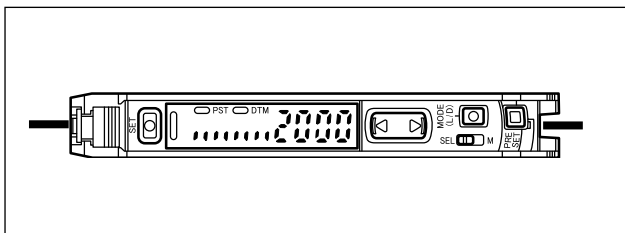
- 2) 把金带（接头带）①插入到传感器的光的位置。



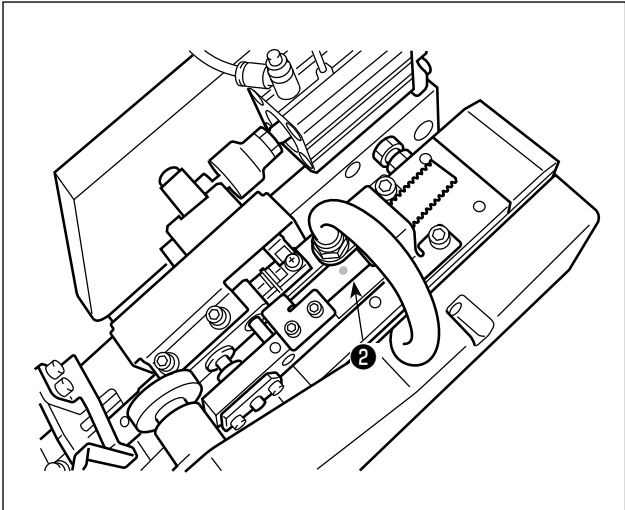
- 3) 在此状态下，一边按住“SET”按钮③同时按“MODE”按钮④。



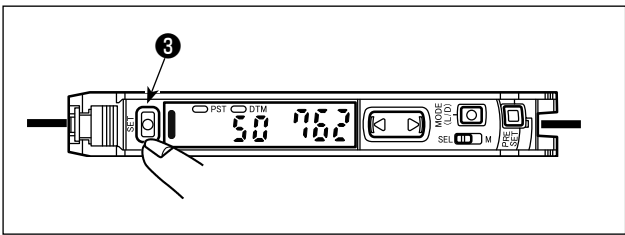
- 4) 放大器的阈值显示（绿）显示变为 。



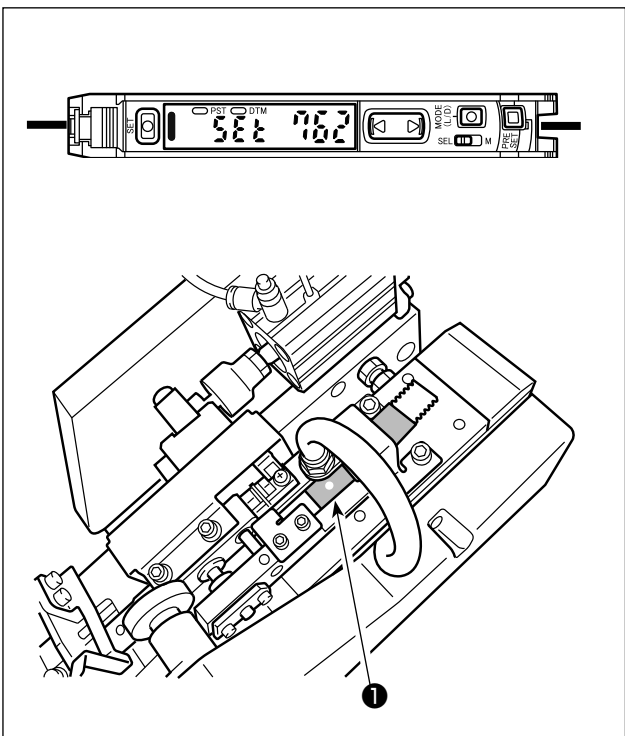
- 5) 之后，红显示（受光量）显示变为约 1700 ~ 2300。



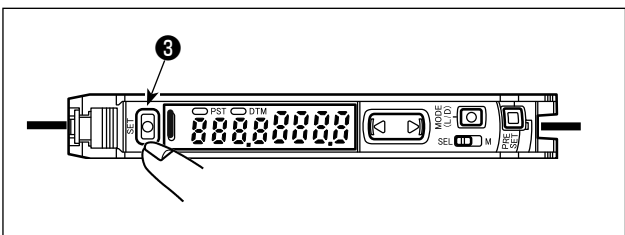
6) 在此状态下，取下金带，把在使用的各种带中反射率最高的带**2**插入到传感器的光的位置。



7) 按放大器的“SET”按键**3**。



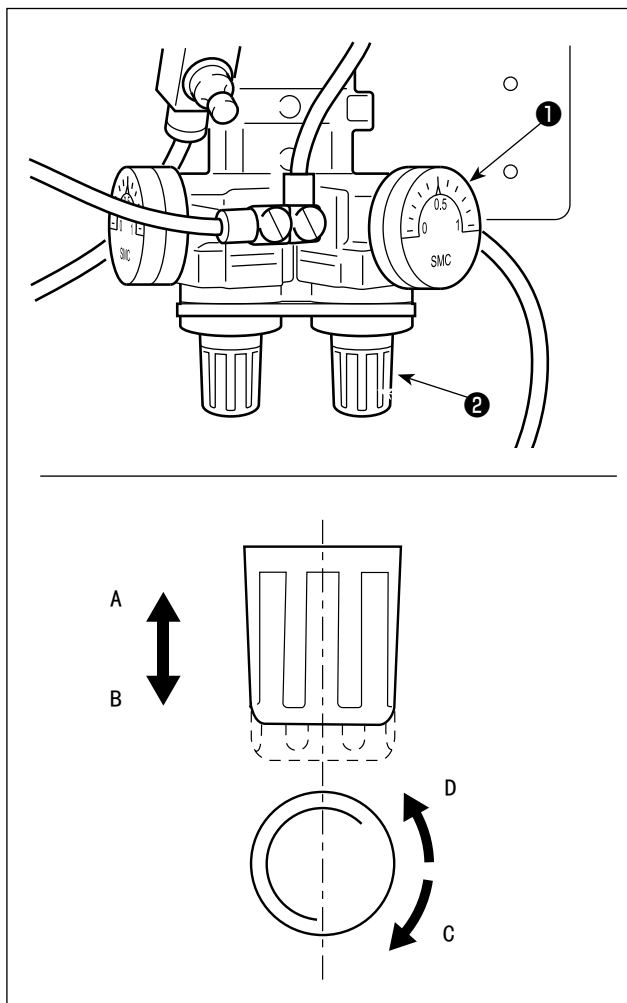
8) 把阈值的显示（绿）显示为“SET”的金带（接头带）**1**插入到传感器的光的位置。



9) 再次按“SET”按键**3**。

10) 以上操作后，放大器的调整完了。

(5) 压辊压力的调整



- 1) 请把空气的压力设定为 0.5MPa。设定方法是，向 B 方向下拉调节器①的旋钮②，压力不足时向右转动（C 方向）旋钮②，另外上升过高时请向左转动（D 方向）。
- 2) 空气压力达到 0.5MPa 之后，请向 A 方向按下旋钮②直至听到「咔嚓」的声音。在此状态下可以进行锁定。

注意 把空气压力调整得过高的话，压辊压带的力量变强，有可能损伤带，务请注意。

5. 缝纫机的操作



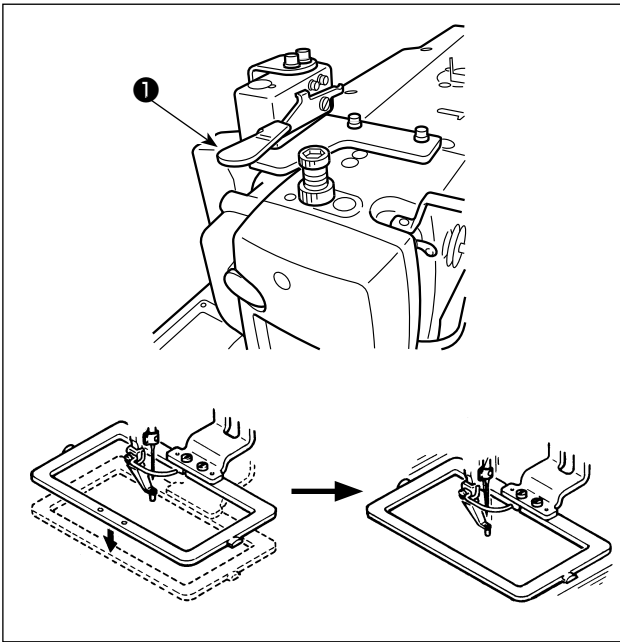
警告

为了防止突然的起动造成的事故，请充分注意不要错按开始开关。

5-1. 缝制



请注意不要让外压脚、中压脚夹到手或手指。另外，压脚在高速地移动，因此请注意不要碰到手或手指。




- 1) 把缝制品放到缝纫机上。
- 2) 按了开始开关①之后，压脚下降，开始缝制。
- 3) 结束缝制之后，针尖返回到缝制开始位置，压脚上升。




缝纫机运转中请不要让手靠近缝纫机。

5-2. 抓线装置

※ 为了防止突然的起动造成的事故，请充分注意不要错按开始开关。

让抓线装置动作，可以防止高速开始时的缝制不良（上线脱线、跳针、脏污上线），保持稳定的缝制质量，同时可以减少面料的上线缠线（鸟巢）。安装着 IP-420 时，动作 ON/OFF 的变换通过  键来变换。抓线装置 OFF 时，自动减速。



存储器开关 No. 35 设定为 1（禁止）时不进行抓线动作。另外， 键无效。

* 使用抓上线时的注意事项

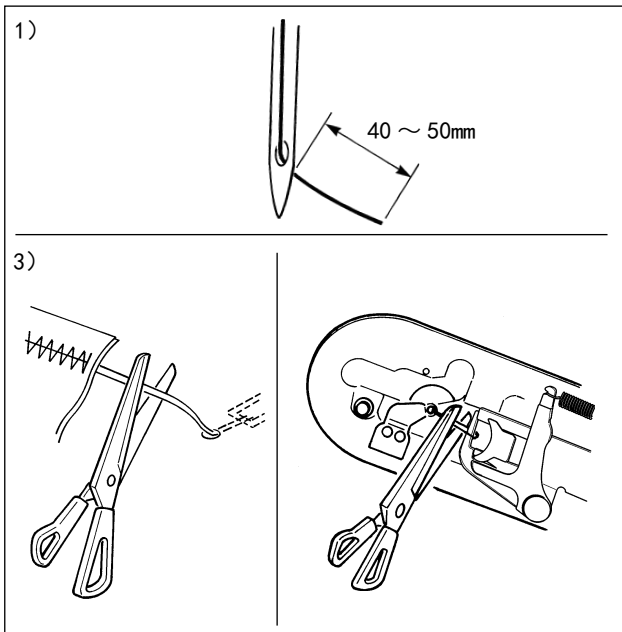
有关与各规格对应的可以设定的存储器开关请参照下表。

缝纫机规格	抓线装置	存储器开关	
		U69	U70
AMS-210EN2210	H 规格	1: H 规格细线 (标准规格) (#50 ~ #8) 2: H 规格中间 (#20 ~ #5) 3: H 规格粗线 (#5 ~ #2)	0: 前方 1: 后方 (标准)

[关于H规格抓线装置]

请根据上线的粗细变更存储器开关 U69 的设定值。出货时设定为 1 : H 规格细线。线号 #50 ~ #8 的推荐值为设定值 :1, 线号 #20 ~ #5 的推荐值为设定值 :2, 线号 #5 ~ #2 的推荐值为设定值 :3。(应根据实际的线粗细、种类、缝制布料种类变化设定值。请根据布料背面的上线情况适当地进行设定。)
另外, 可以根据存储器开关 U70 选择抓线位置。使用线号 #5 ~ #2 的粗线等, 如果发生开始缝制卷入或缝入时, 请设定设定值为 1 : 后方之后再使用。

- (1) 有抓线(动作)时, 请把缝制开始上线的留线长度调整到 40 ~ 50mm 之后再使用。另外, 留线过长的话, 保持在上线抓线夹的上线端有可能被卷入缝迹里



- 1) 有抓线时的机线长度约为 40 ~ 50mm。
 • 缝制开始的零星跳针、从第 1 针开始的跳针
 → 在范围内调整得稍长一点
 • 第 2 针 ~ 第 10 针左右位置的跳针
 → 在范围内调整得稍短一点

注意 使用粗线时, 如果让机线过长的话, 夹持在上线抓爪的上线端就容易被卷入缝迹里, 使布料位置发生偏移, 或发生断针的故障。

- (2) 使用抓线功能, 缝制开始的底线露出布料表面时, 把缝制开始的张力(2 ~ 3 针)降低, 底线就不明显了。
 (设定例) 缝制张力设定为「35」时, 缝制开始 1 ~ 2 针的张力为「20」
 * 有关缝制开始张力的设定, 请参考 "II-4-1. (6) 进行张力的编辑时" p. 13。

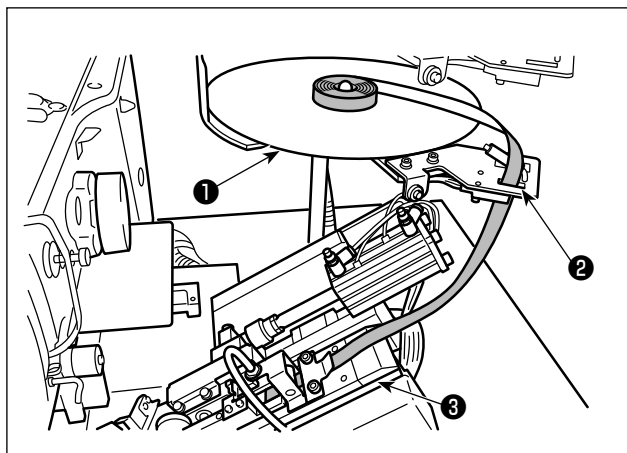
重要

- 有的图案, 有可能卷入缝制开始的线。进行 (1) 或 (2) 的调整仍然卷入时, 请关闭 (OFF) 抓线机构之后再使用。
- 在抓线装置部存积了线屑的状态下, 有可能发生抓线不良的故障。请参照 "III-1-6. 抓线装置" p. 117 的内容, 清除线屑。

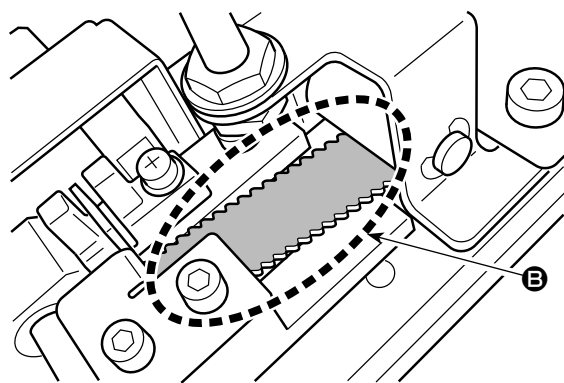
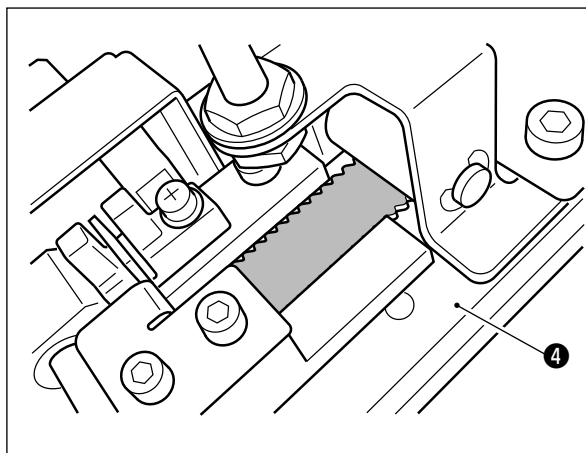
5-3. 带供料方法



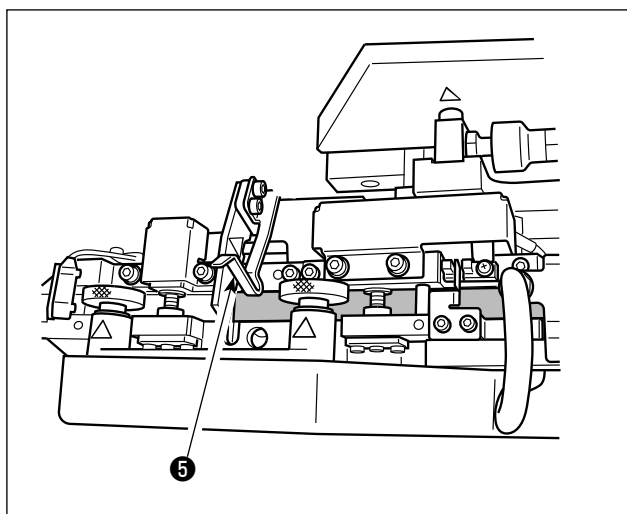
1) 按准备键 **A**，让主机成为准备状态。



2) 把带安放到带卷盘台**1**，穿过带导向器**2**的孔，然后插入带导向板**3**。

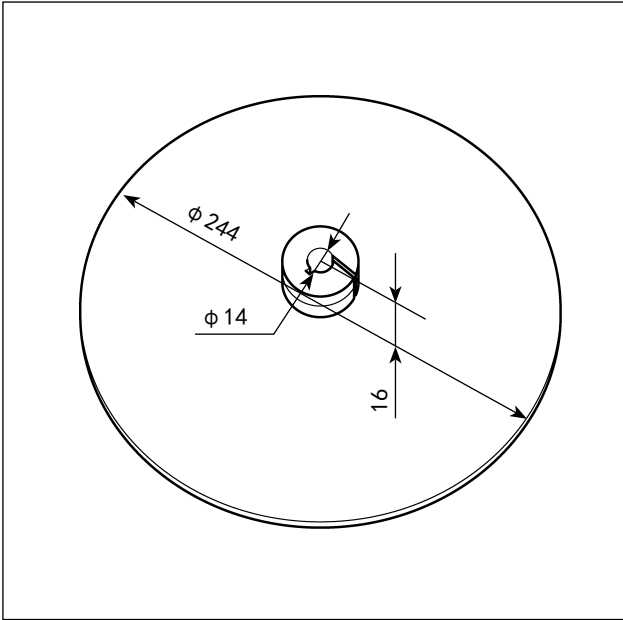


3) 沿着移动导向器**4**的槽沟，传送带。
此时，请确认带是否没有如 **B** 所示那样没有露出。



4) 向上方拉带压片**5**，把带一直传送到顶到切刀前端。

- 注意**
1. 打开电源开关之后，请不要立即进行带的供料操作。
因为带传送单元、切刀单元都是可动的，因此有发生受伤的危险。
 2. 在电源 ON 后的动作确认画面上按了复位开关之后，导向器宽度马达进行原点检索。原点检索后，请把带安放到供料装置里。
 3. 变更带宽度设定时，从供料装置拔出带之后再行带宽度的设定变更。



※ 带卷盘台①没有附属于主机。
请参考图示的尺寸进行制作。

II. 操作篇（关于操作盘）

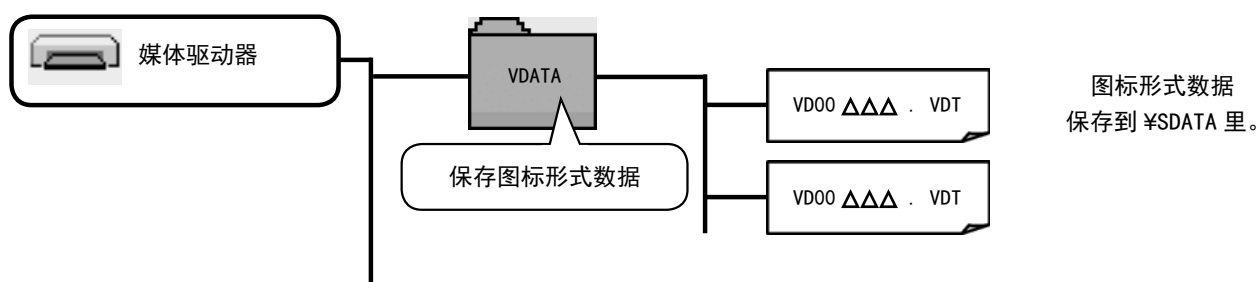
1. 前言

1) IP-420 处理的缝制数据种类

图象名	内容
用户图案	主体中记忆的图案， 最多可以登记 999 图案。

2) 媒体的文件夹构成

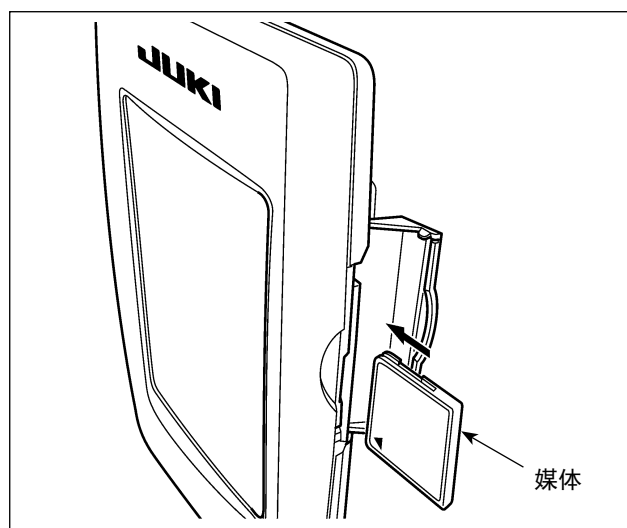
请把各文件保存到媒体内的以下目录里。



没有保存到上述的目录中的数据不能读取，请注意。

3) 关于 CompactFlash (TM)

■ CompactFlash (TM) 的插入方法

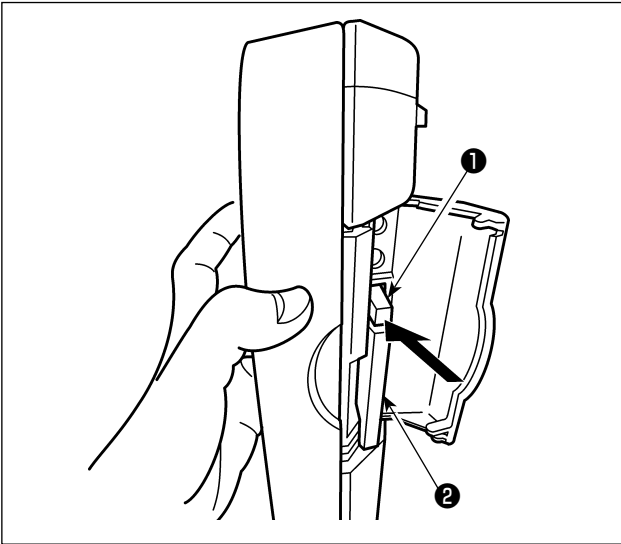


- 1) 请把 CompactFlash (TM) 的标签正面朝向面前，（把边缘有缺口的部分朝向里侧）把有小孔的一头插入到操作盘里面。
- 2) 插完了媒体之后，请关闭护盖。关上了护盖之后，就可以进行存取。如果媒体和护盖相碰不能关闭护盖时，请确认以下事项。
 - 是否把媒体完全插进去了吗？
 - 媒体的插入方向是否正确？



1. 媒体的插入方向弄错的话，有可能损坏操作盘和媒体。
2. 请不要插入 CompactFlash (TM) 以外的媒体。
3. IP-420 的插口可以对应 2GB 以下的 CompactFlash (TM)。
4. IP-420 的插口可以对应 FAT16 格式化的 CompactFlash (TM)。不对应 FAT32。
5. 请一定使用用 IP-420 格式化的 CompactFlash (TM)。有关 CompactFlash (TM) 的格式化方法，请参阅“II-4-19. 进行媒体的格式化时” p. 92。

■ CompactFlash (TM) 的取出方法



- 1) 请手拿面板，打开护盖，按下拨杆取出媒体①。媒体②即可以弹出来。

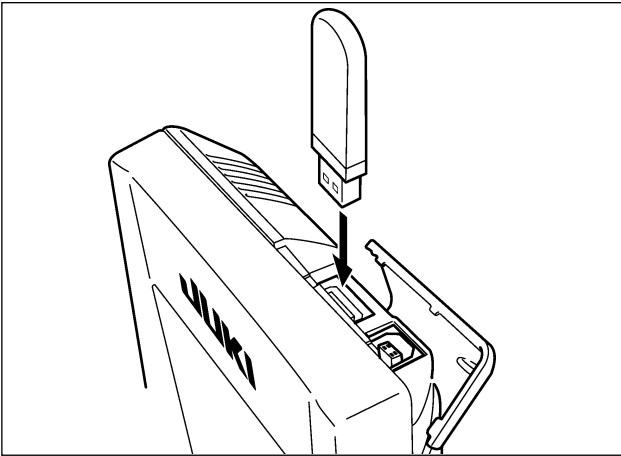


用过大的力量按拨杆①的话，媒体②有可能飞弹出来，掉落到地上，而损坏媒体②。

- 2) 取出弹出的媒体，这样就取出了媒体②。

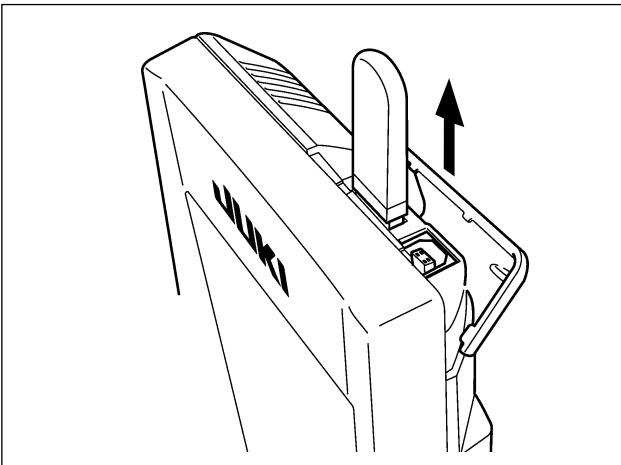
5) 关于 USB

■ USB 插入方法



请滑动上方的护罩，然后插入 USB 机器，把使用的数据复制到机器主体。
复制后，请取下 USB 机器。

■ USB 取出方法



请取下 USB 机器，然后安装上护罩。



警告

使用记忆媒体时的注意事项：

- 请不要弄湿媒体，也不要潮湿的手去触摸媒体。有发生火灾或触电的危险。
- 请不要弯曲媒体，也不要给与媒体强力的冲击。
- 请绝对不要拆卸媒体，也不要改造媒体。
- 请不要用金属触击端子部。数据有可能消失。
- 请不要在以下的地点保管和使用媒体。

高温潮湿的地方 / 结露的地方

灰尘多的地方 / 容易产生静电、电气噪声的地方

① 有关使用 USB 的注意事项

- 缝制时，请不要在 USB 插口上连接着 USB 机器、USB 电缆进行运转。振动有时会造成连接器损坏，也有可能丢失 USB 的数据或发生 USB 机器、缝纫机的故障。
- 读取写入程序或缝制数据时，请不要插拔 USB 插头。
有发生数据损坏或机器误动作的危险。
- 在 USB 机器的保存领域里划分分区后，可以仅与一个分区通讯。
- 有的 USB 机器可能本机不能正确地识别。
- 使用本机时，如果 USB 机器内的数据消失，本公司一律不予赔偿损失。
- 通讯画面、图案数据一览被显示上，插上媒体也不能识别驱动器。
- USB、CompactFlash(TM) 等的媒体原则上仅可以连接 1 台。如果连接了数台机器，只能识别 1 台。有关详细内容，查阅 USB 的规格。
- 请把 USB 连接器确实地深深插进 IP 操作盘的 USB 端子的里面。
- 在与 USB 上的数据进行存取的中途，请不要关闭 (OFF) 电源。

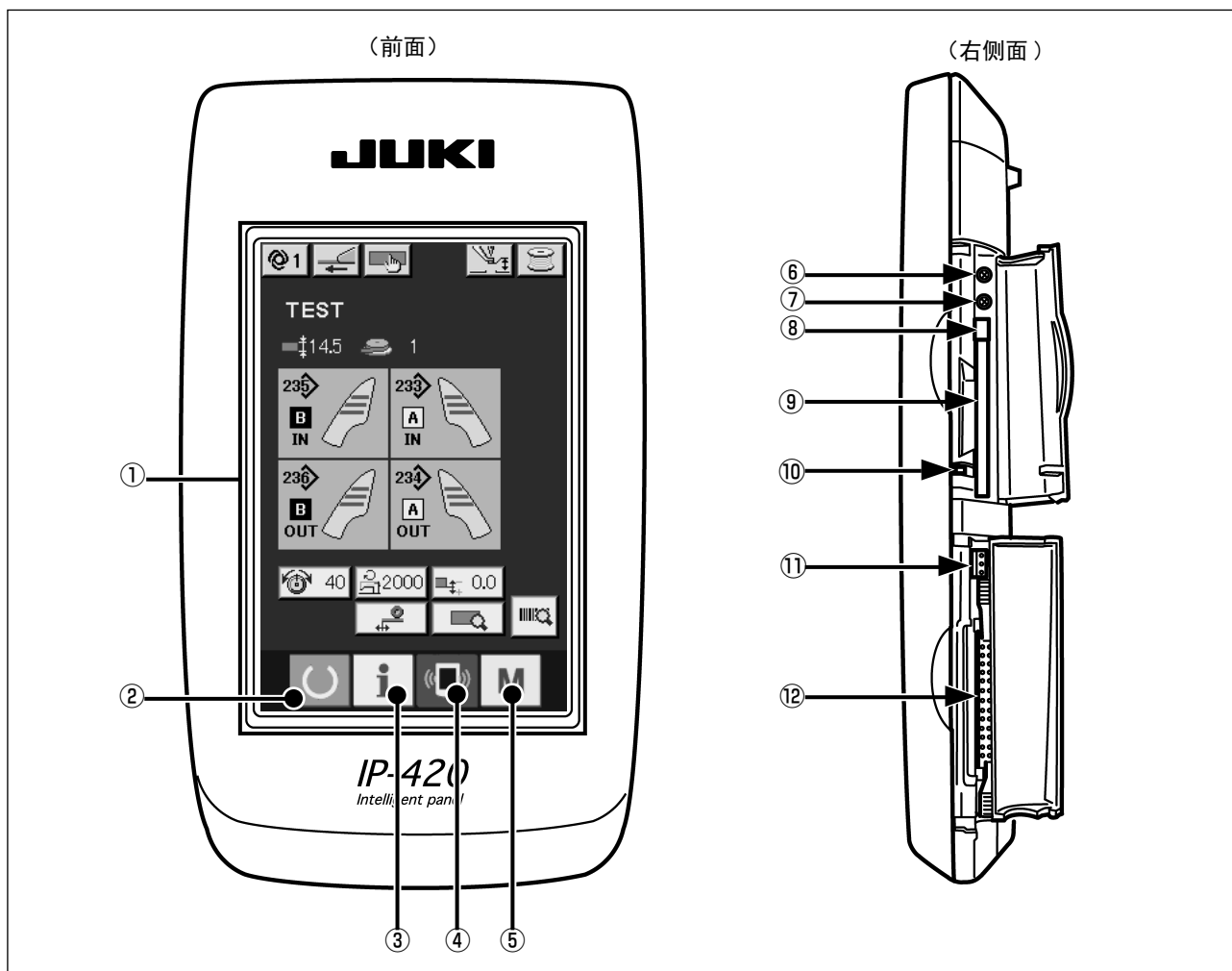
② USB 的规格

- 对应 USB 1.1 规格
- 对应机器 ※1 _____ USB 存储器、USB 集线器、FDD、读卡器的等记忆装置
- 不对应机器 _____ CD、DVD、MO、磁带驱动器等
- 对应格式 _____ FD(软盘)FAT12
_____ 其他(USB 存储器等)FAT12 • FAT16 • FAT32
- 对应媒体尺寸 _____ FD(软盘)1.44MB • 720kB
_____ 其他(USB 存储器等)4.1MB ~ (2TB)
- 驱动器的识别 _____ 与 USB 机器等外部媒体通讯时，仅和最初识别的媒体通讯。但是向内装媒体插口插入了媒体时，向该媒体的通讯为最优先。(例：插入了 USB 存储器后，如果向媒体插口插入媒体则仅向媒体插口通讯。)
- 连接的限制 _____ 最多 10 装置 (连接了超过最大限数时，超过限数的记忆媒体取下，不重新连接的话，就不能识别。)
- 消费电流 _____ 可以连接的 USB 机器的额定消费电流为最大 500mA。


※1 不能保证所有的对应机器的动作。由于不相匹配等问题，有的机器不能动作。


2. 使用 IP-420 时


2-1. IP-420 各部位的名称



① 触摸盘 / 液晶显示部

②  准备键 → 进行数据输入画面和缝制画面的变换

③  信息键 → 进行数据输入画面和信息画面的变换

④  通信键 → 进行数据输入画面和通信画面的变换

⑤  模式键 → 进行数据输入画面和各种详细设定变换画面的变换

⑥ 对比度调节旋钮

⑦ 亮度调节旋钮

⑧ CompactFlash(TM) 取出按键

⑨ CompactFlash(TM) 插口

⑩ 盖子检测开关

⑪ 外部开关输入用连接器

⑫ 电气机器连接用连接器

2-2. 通用按键

在 IP-420 的各画面上进行通用操作的按键如下所示。



取消按键

→ 关闭突起画面。
数据变更画面时，取消变更中的数据。



确定按键

→ 确定变更了的数据。



上滚动按键

→ 向上方向滚动按键或显示。



下滚动按键

→ 向下方向滚动按键或显示。



复位按键

→ 解除异常。



数字输入按键

→ 显示十数字键，可以进行数字的输入。



文字输入按键

→ 显示文字输入画面。



压脚下降按键

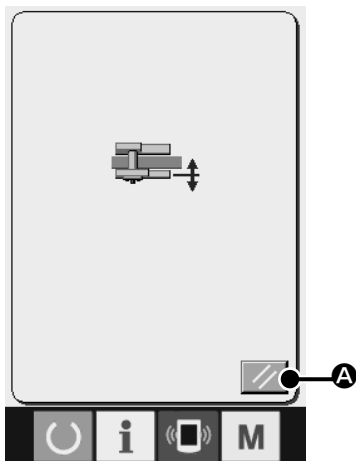
→ 下降压脚，显示下降压脚画面。
让压脚上升时，请按压脚下降画面上的压脚上升按键。



绕线按键


→ 进行底线绕线。
→ "11-4-15. 卷绕底线时" p. 77。

2-3. IP-420 的基本操作



① 打开电源开关

第一次打开电源开关之后。动作确认画面被显示出来。

按了复位按钮  **A**之后，带供料装置进行原点检索。





1. 打开电源开关之后，请不要立即进行带的供料操作。因为带传送单元、切刀单元都是可动的，因此有发生受伤的危险。
2. 在电源 ON 后的动作确认画面上按了复位开关之后，导向器宽度马达进行原点检索。原点检索后，请把带安放到供料装置里。

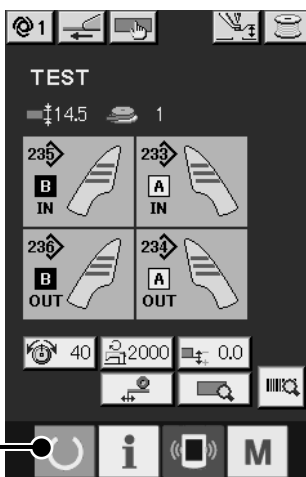


② 显示语言的选择

语言的选择画面被显示出来。请设定您使用的语言。（可以用存储器开关 U500 进行变更。）



不选择语言用取消按钮  或确定（回车）按钮  结束选择画面的话，每次打开电源之后均会显示语言选择画面。




③ 读取想缝制的条形码

原点检索结束之后，数据输入画面被显示出来。

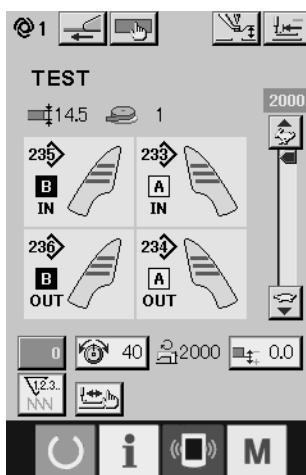
用条形码阅读器读取想缝制的条形码。（有关条形码，请参阅“11-3-2 条形码的作成” p. 37。）

读取之后，画面显示变成了对应读取的条形码的数据。

按了准备键  **B**之后，液晶显示的背景颜色变成了可以进行缝制的绿色。

安放衣身，按了开始开关之后开始缝制。

条形码的读取在设定画面上和缝制画面上均可以读取。



3. 进行缝制之前

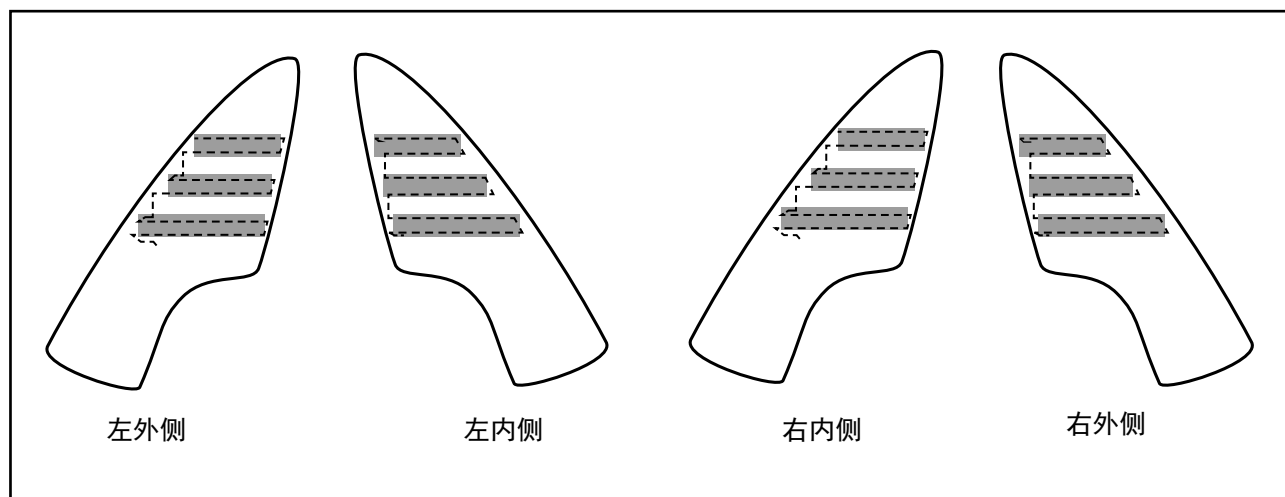
3-1. 图案花样的编制方法

本缝纫机需要编制符合缝制衣身的图案花样（数据种类：图标数据）。

有关图标数据，请使用主机输入功能或者使用缝制数据编制编辑软件 PM-1 来进行编制。

（有关主机输入功能、缝制数据编制编辑软件 PM-1 的使用方法，请参阅各个的使用说明书。）

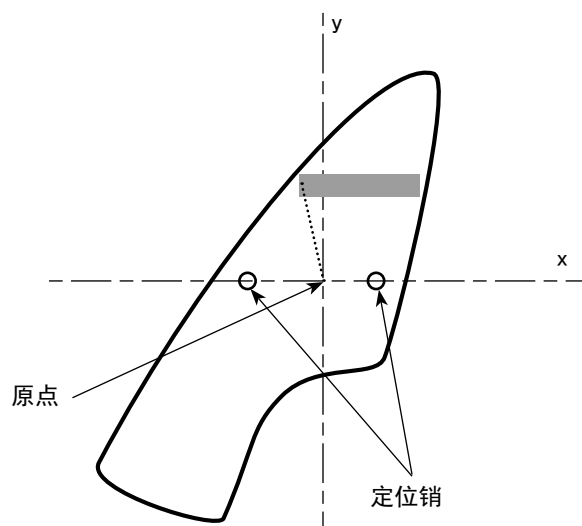
每缝制 1 双时，需要根据衣身（左外侧、左内侧、右内侧、右外侧）编制 4 个图案花样。



※ 粗线部分为带，虚线部分为缝制线

2 销时

有关图案花样，请把定位销的中间位置作为原点 (0,0) 进行编制。

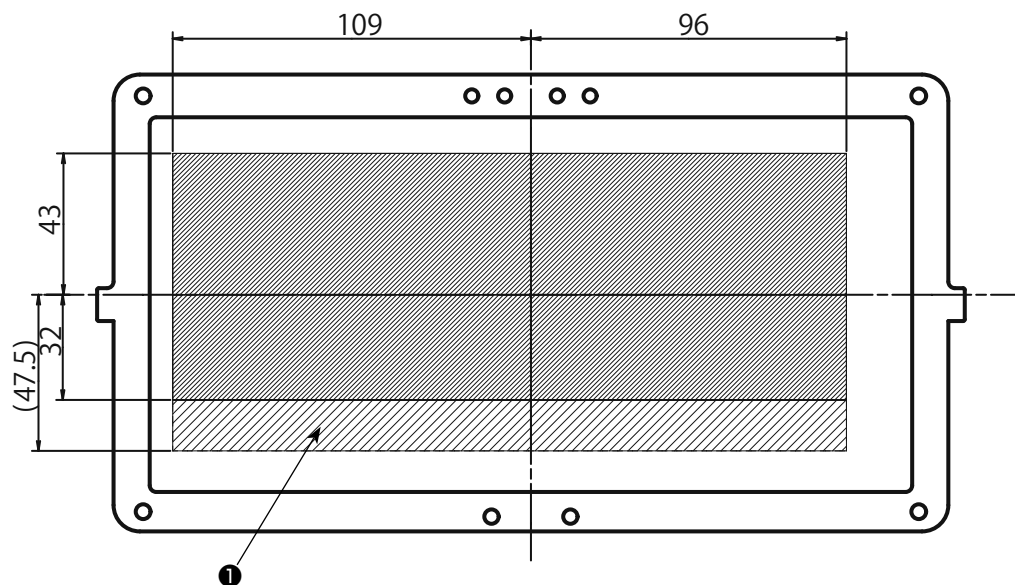


主机输入中压脚不能上升下降。转移到主机输入之前，请安放布料。
不能使用主机输入的试缝模式。

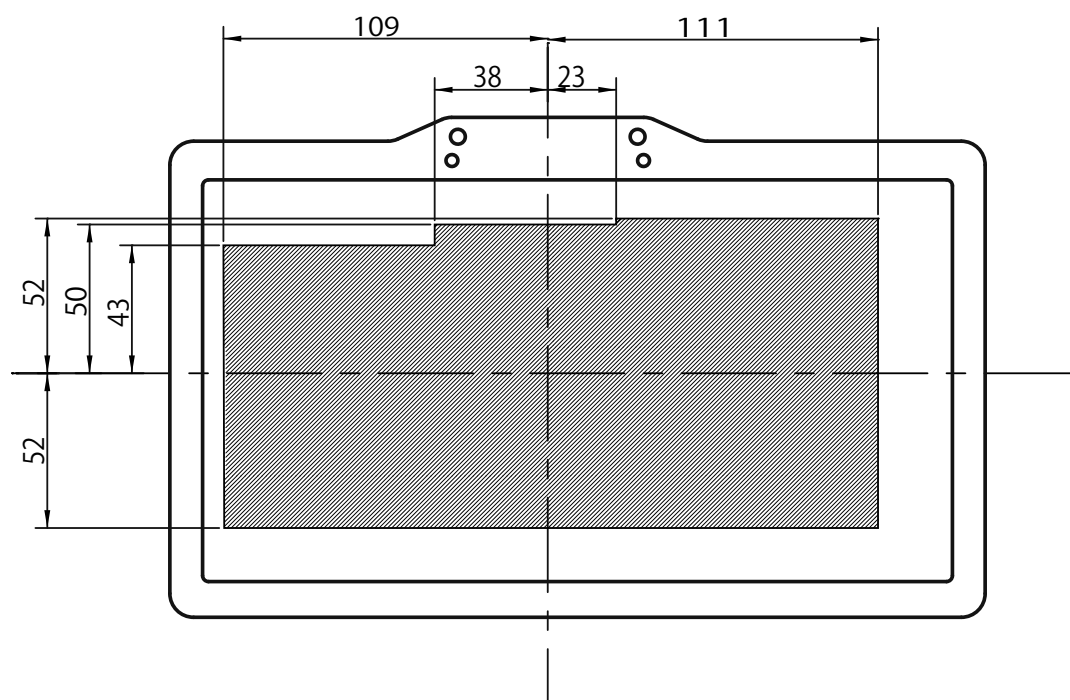
缝可以缝制区域为压脚框不同尺寸如下。请在区域的范围内进行编制。

■标准压脚缝制范围

※ 尺寸表示距离原点位置的距离



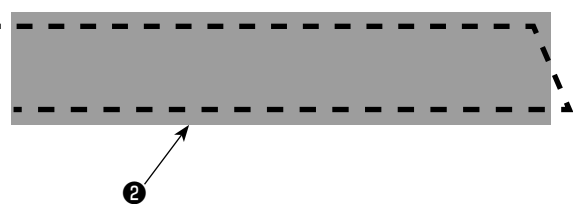
■大压脚缝制范围（选购项）



①的缝制范围是带的返回位置（供料装置上升）时②的范围。



从Y方向 32mm 以上的位置开始缝制之后，带供料装置和压板会相碰，因此请加以注意。

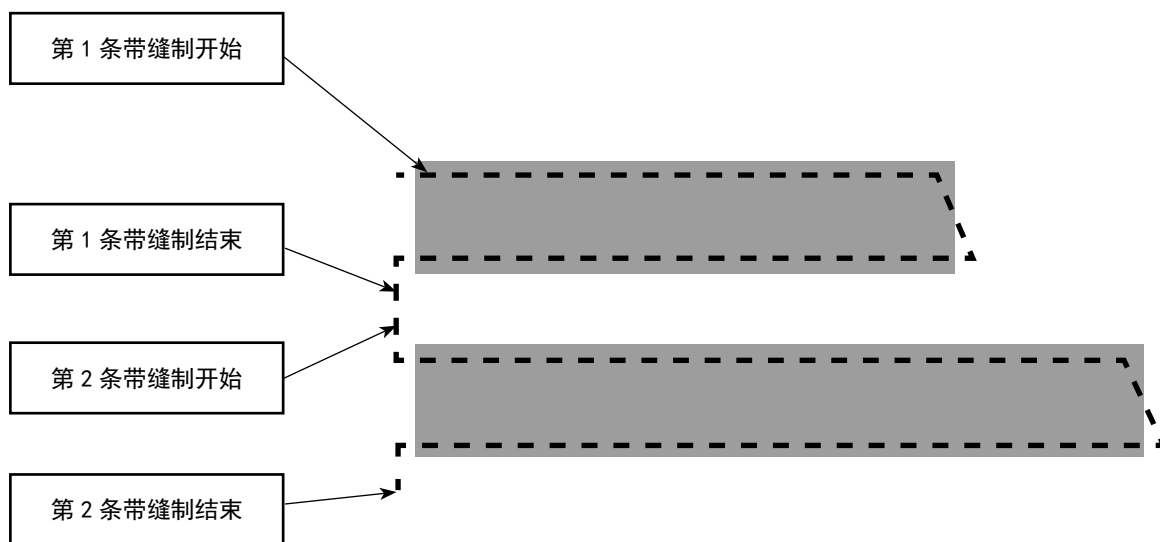


本缝纫机需要的机械控制命令如下所示。

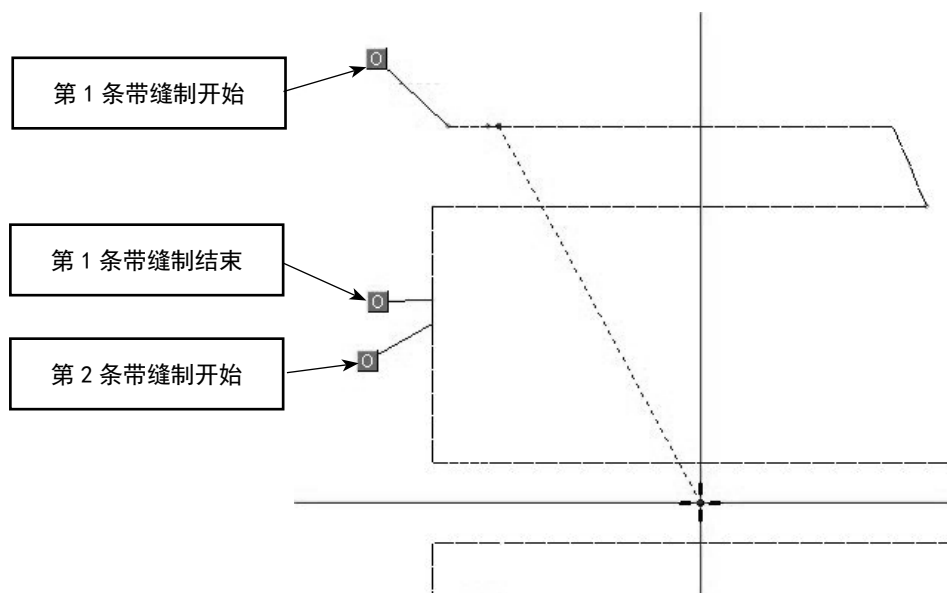
	机械控制命令	功能
1	外部输出命令 (0)	带单位的区分
2	外部输出命令 (1)	带供料开始位置、供料结束位置

(1) 外部输出 (0)

请以带单位将外部输出指令 (0) 输入到缝制开始位置、缝制结束位置。

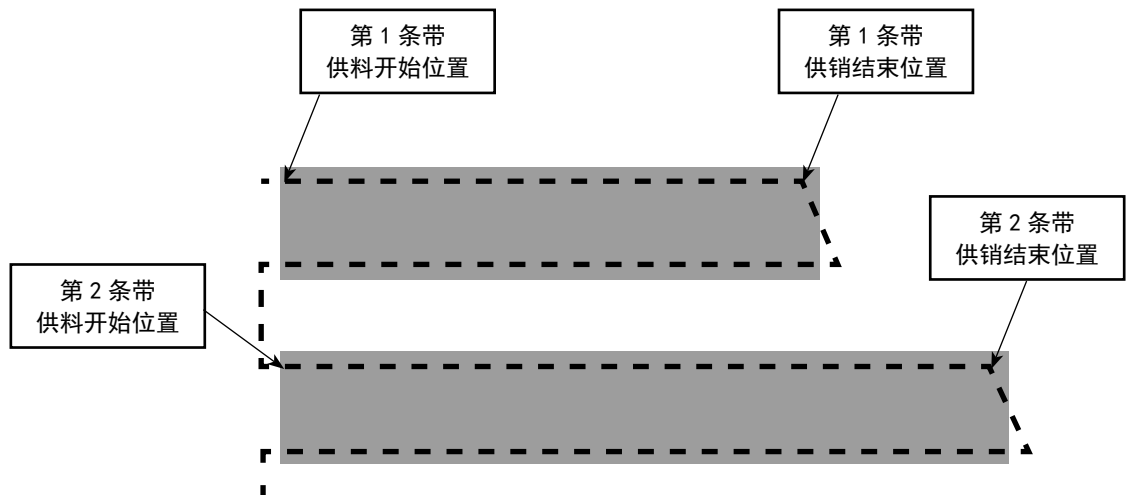


※PM-1 显示例

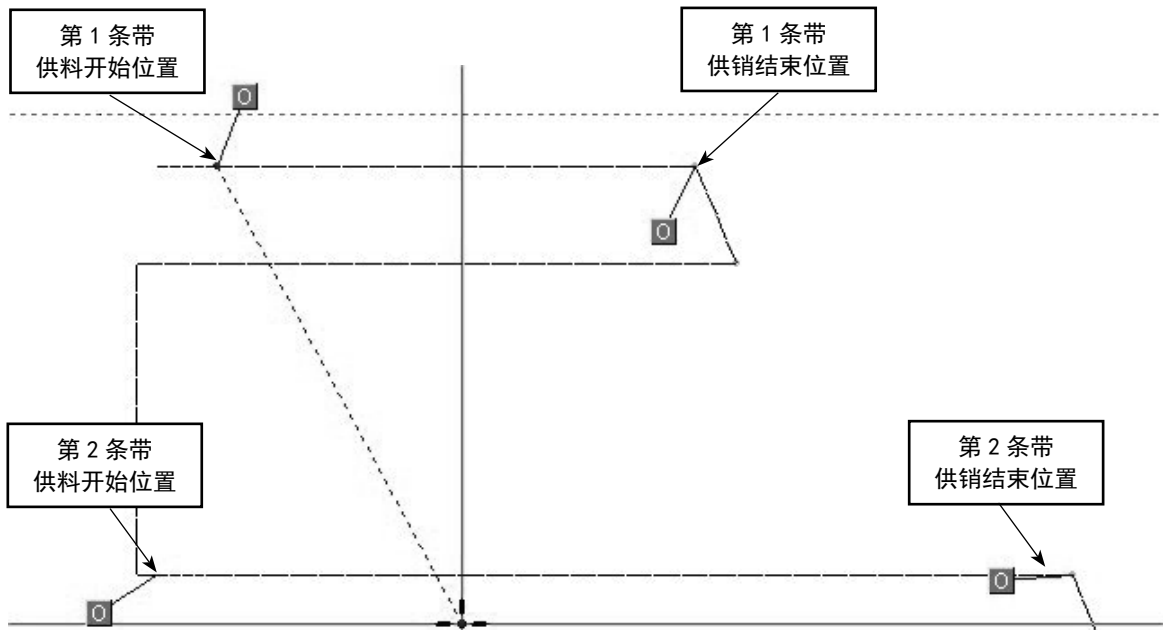


(2) 外部输出 (1)

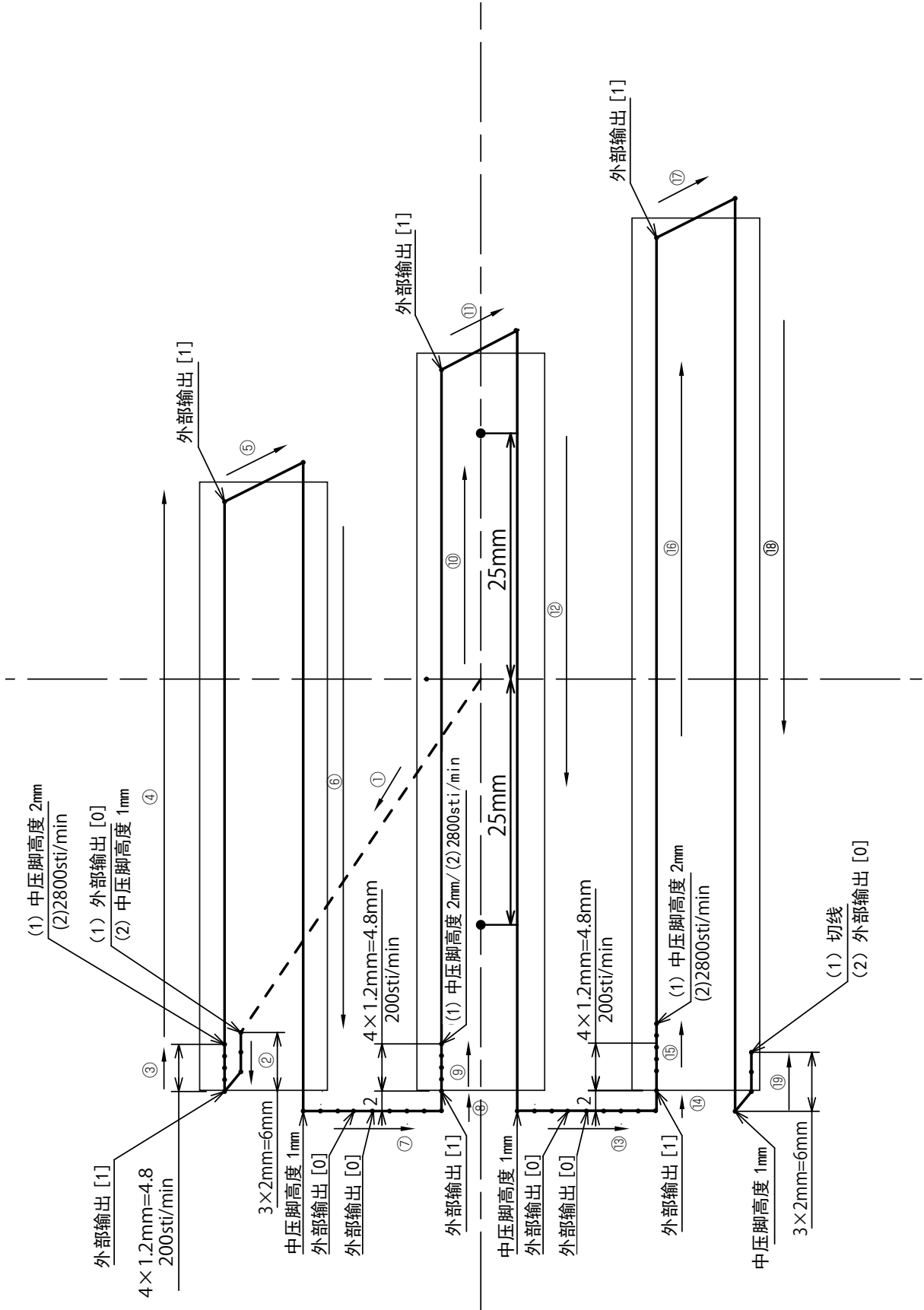
请将外部输出指令 (1) 输入到带供料开始位置、供料结束位置。



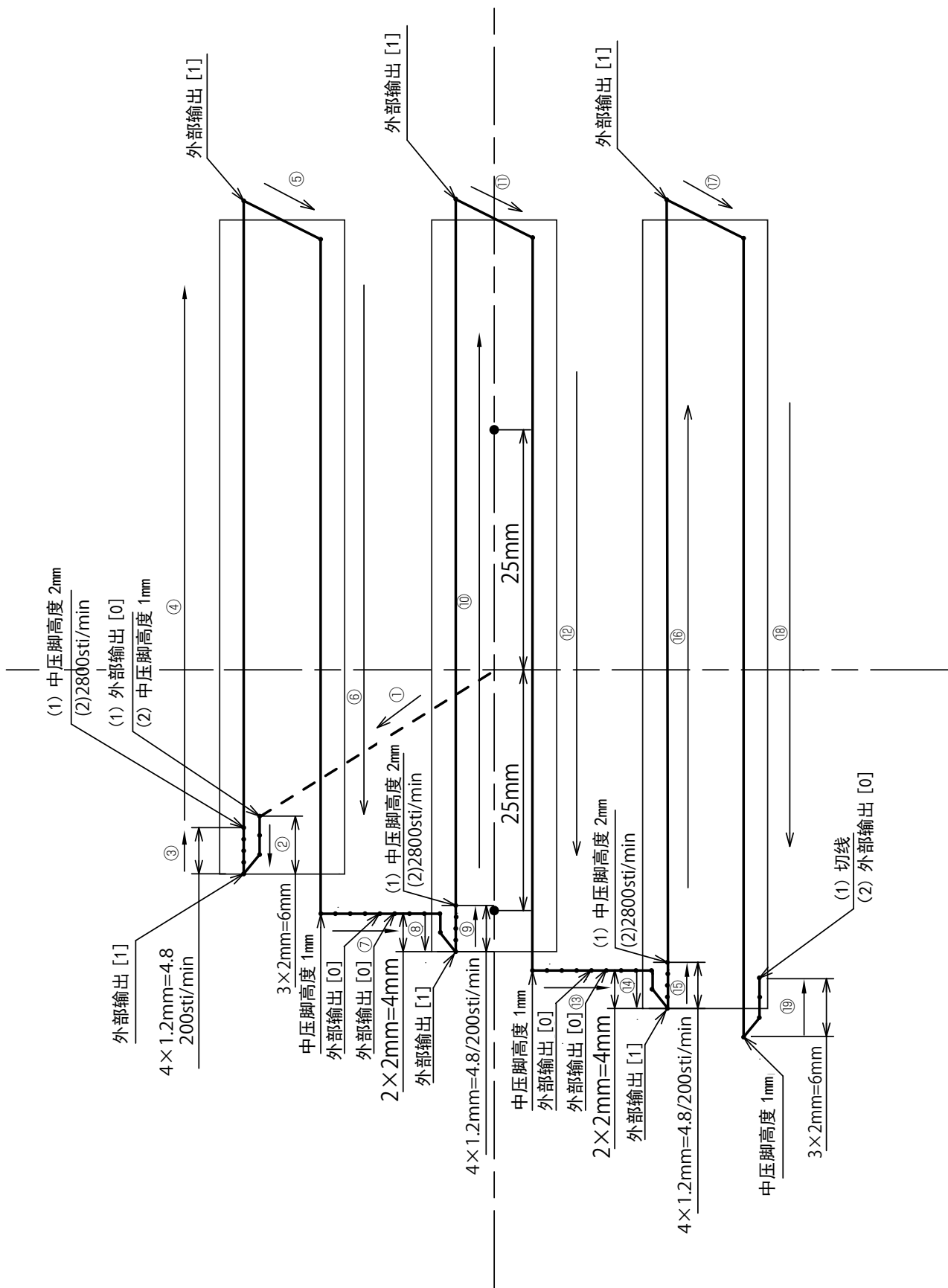
※PM-1 显示例



例) 缝制 3 条带时的样品图案花样



1. 请根据带的厚度，输入中压脚高度指令。
2. 如果把带端部⑤、⑪、⑰弄成斜边，在缝制下一条带时，偏移会减少。



1. 请根据带的厚度，输入中压脚高度指令。
2. 如果把带端部⑤、⑪、⑰弄成斜边，在缝制下一条带时，偏移会减少。

3-2. 条形码的作成

(1) 条形码规格

对应代码	CODE39
对应的文字	A ~ Z、0 ~ 9、+、-、=、SP (空白键)、. (点) ※ 读取包括上述以外的文字的条形码后, 改换为「*」进行显示。
对应文字数	14 个字



1. 缝纫机中没有添附生成条形码的软件。
请准备可以生成 CODE39 的软件。
2. 作为 CODE39 的规格, 在条形码的前后需要它作为开始 / 停止字符 * (星号)。有的用于使用的条形码生成软件也有可能不能自动生成, 那时请进行附加。
3. 印刷代码名称时, 请充分空出两侧的余白。(1cm 左右以上) 余白过小的话, 有可能发生读取不良。

(2) 条形码样品



3T



8T



13T



4



9



14



4T



9T



14T



5



10



15



5T



10T



16



6



11



17



6T



11T



18



7



12



19



7T



12T



20



8



13



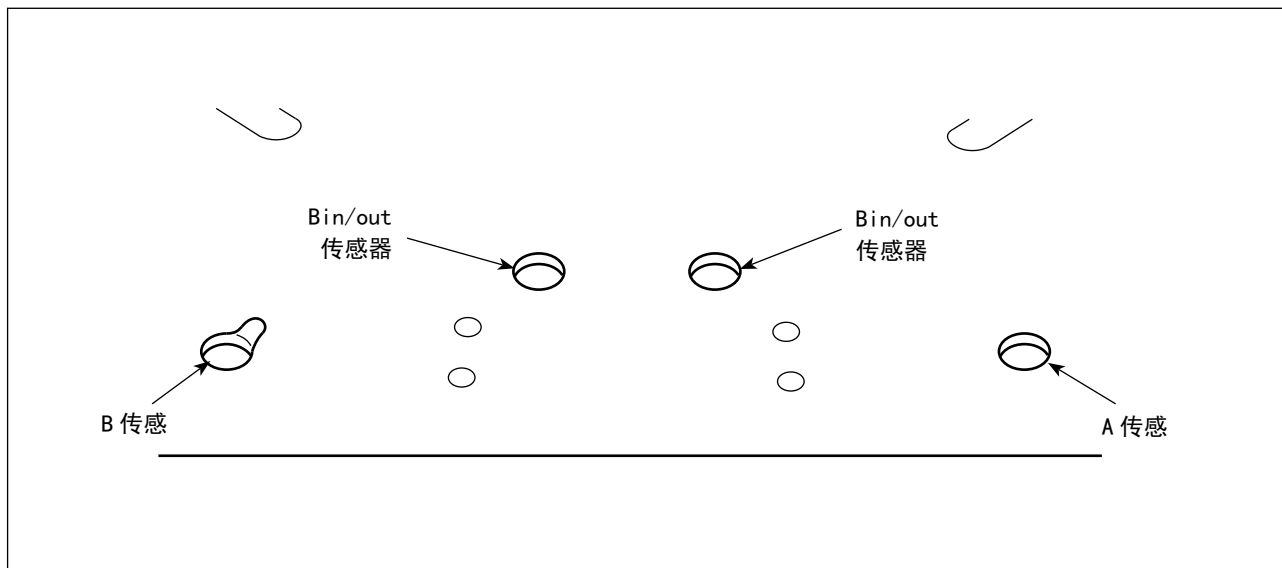
TEST

3-3. 关于动作模式

本缝纫机有 3 种动作模式。

(1) 自动 1 模式

这是根据配置在针板上的 4 个传感器来判别安放的衣身种类，自动选择对应的图案花样（图标数据）然后进行缝制的动作模式。



根据传感器如下地判断衣身种类：

A 传感器为 ON	→	Ain/out 传感器为 ON	→	左内侧 (Ain)	
		→	Ain/out 传感器为 OFF	→	右外侧 (Aout)
B 传感器为 ON	→	Bin/out 传感器为 ON	→	右内侧 (Bin)	
		→	Bin/out 传感器为 OFF	→	左外侧 (Bout)

(2) 自动 2 模式

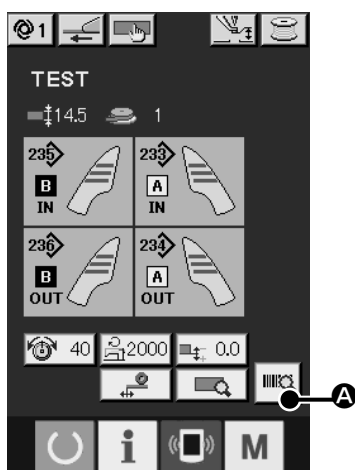
这是缝制指定的图案花样的动作模式。

(3) 手动操作

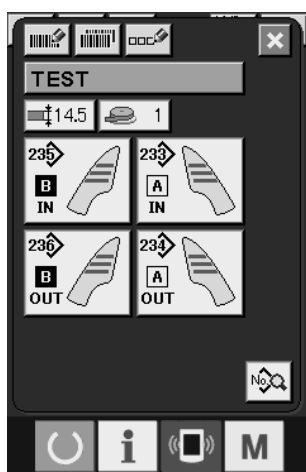
这是操作人员使用操作盘操作或者使用外部开关，选择缝制的衣身的朝向 A 或者 B 以及衣身的 IN（内侧）或者 OUT（外侧），就可以从 1 双的条形码记录确定对应的左右、内外的图案花样，进行缝制的手动选择模式。

3-4. 条形码记录（1 双的数据）的编制

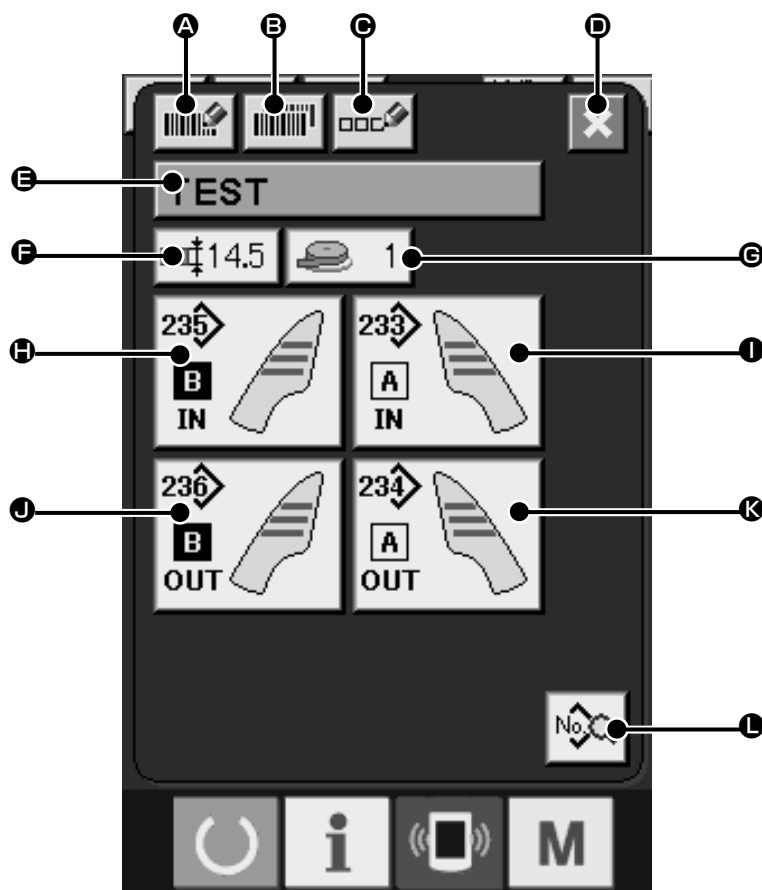
(1) 数据编辑画面的显示方法



- ① 长时间按数据编辑按键  **A** 之后，数据编辑画面被显示出来。



(2) 数据编辑画面的液晶显示部



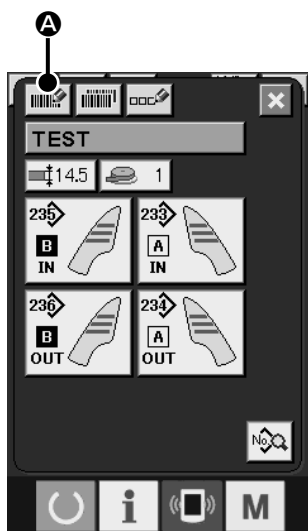
中文

按钮 / 显示	内容
A 条形码记录的新登记按钮	条形码记录的登记画面被显示出来。 →请参阅“11-3-4. (3) 条形码记录的新登记” p. 43。
B 条形码记录复制按钮	条形码记录的复制画面被显示出来。 →请参阅“11-3-4. (7) 条形码记录的复制” p. 54。
C 代码名称编辑按钮	代码名称编辑画面被显示出来。 →请参阅“11-3-4. (6) 代码名称的编辑” p. 53。
D 关闭按钮	关闭数据编辑画面。
E 条形码记录选择按钮	条形码记录选择画面被显示出来。
F 带宽度设定按钮	显示带宽度，按了此键之后，参数变更画面被显示出来。 →请参阅“11-3-4. (5) 参数的编辑” p. 46。
G 使用带号码设定按钮	显示使用带号码，按了此键之后，参数变更画面被显示出来。 →请参阅“11-3-4. (5) 参数的编辑” p. 46。
H B-IN 登记按钮	显示登记在 B-IN 登记的图案的号码，按此键之后，图案一览画面被显示出来。 →请参阅“11-3-4. (4) 对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样的登记” p. 45。
I A-IN 登记按钮	显示登记在 A-IN 登记的图案的号码，按此键之后，图案一览画面被显示出来。 →请参阅“11-3-4. (4) 对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样的登记” p. 45。

	按键 / 显示	内容
Ⓜ	B-OUT 登记按键	显示登记在 B-OUT 登记的图案的号码，按此键之后，图案一览画面被显示出来。 → 请参阅 “11-3-4. (4) 对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样的登记” p. 45。
Ⓚ	A-OUT 登记按键	显示登记在 A-OUT 登记的图案的号码，按此键之后，图案一览画面被显示出来。 → 请参阅 “11-3-4. (4) 对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样的登记” p. 45。
Ⓛ	详细参数设定按键	→ 请参阅 “11-3-4. (5) 参数的编辑” p. 46。

(3) 条形码记录的新登记

有关条形码记录的新登记，有使用条形码阅读器的登记方法和从操作盘输入文字的登记方法 2 种。



① 显示条形码记录新登记画面

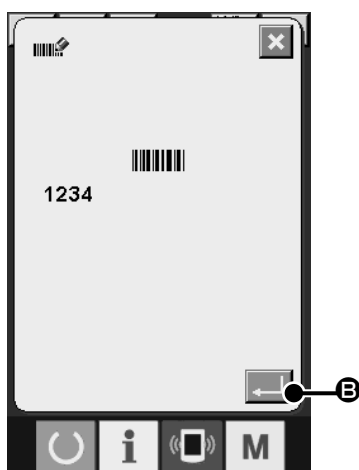
按了条形码记录新登记按钮  **A** 之后，条形码记录新登记画面被显示出来。


■ 使用条形码阅读器的登记方法



② 代码名称的读取

使用条形码阅读器读取想新登记的代码名称。



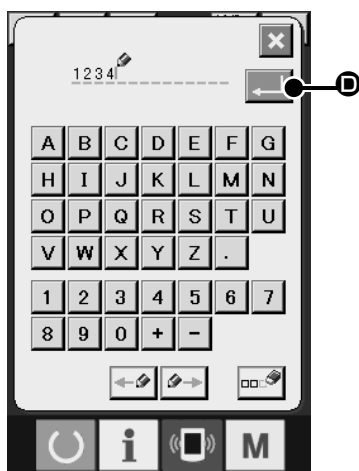
读取的代码名称被显示出来，因此请按确定按钮  **B**。
新登记完了，条形码记录新登记画面关闭。


■从操作盘进行文字输入的登记方法



② 输入代码名称

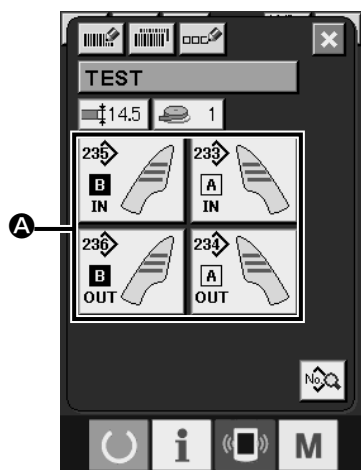
按了代码名称输入按钮  **C** 之后，代码名称输入画面被显示出来。



输入想新登记的代码名称，然后请按确定按钮  **D**。
新登记完了，条形码记录新登记画面关闭。

(4) 对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样的登记

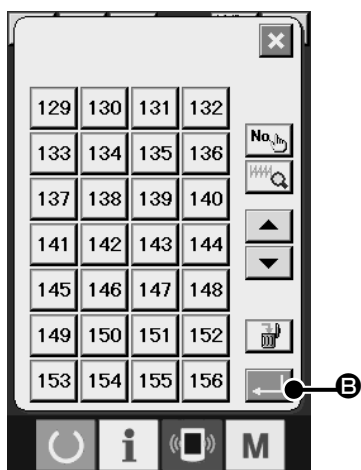
登记分别对应 B-IN、A-IN、B-OUT、A-OUT 的图案花样。




① 打开图案花样选择画面

从按键 A 中选择 B-IN、A-IN、B-OUT、A-OUT 等 4 种中想登记的图案花样。

按了按键之后，图案花样选择画面被显示出来。



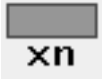

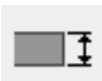

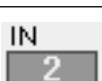
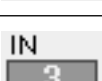
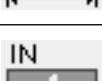
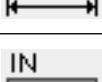
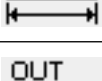
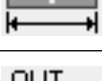
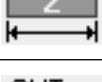
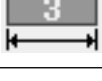
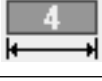
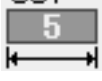

② 选择图案花样



选择登记的图案花样，请按确定键  B。

登记完了，图案花样选择画面关闭。

(5) 参数的编辑

■ 参数一览

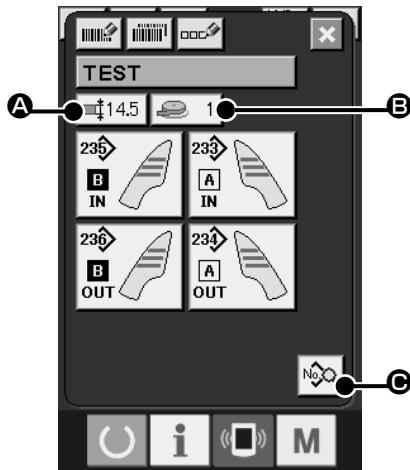
记号	记号	项目	内容	数据范围	初期值
S001		带数量	对于衣身，缝制的带的数量	0 ~ 5	3
S002		使用带号码	使用的带放置台的号码 带放置台从下面起为 1、2、3……。	0 ~ 6	1
S003		带导向器宽度	缝制的带的宽度	10.0 ~ 16.7mm	14.5
S004		I 带长度 1	对于内侧的衣身，第 1 条缝制的带的长度	55 ~ 130 mm	72
S005		I 带长度 2	对于内侧的衣身，第 2 条缝制的带的长度	55 ~ 130 mm	80
S006		I 带长度 3	对于内侧的衣身，第 3 条缝制的带的长度	55 ~ 130 mm	86
S007		I 带长度 4	对于内侧的衣身，第 4 条缝制的带的长度	55 ~ 130 mm	0
S008		I 带长度 5	对于内侧的衣身，第 5 条缝制的带的长度	55 ~ 130 mm	0
S009		O 带长度 1	对于外侧的衣身，第 1 条缝制的带的长度	55 ~ 130 mm	66
S010		O 带长度 2	对于外侧的衣身，第 2 条缝制的带的长度	55 ~ 130 mm	74
S011		O 带长度 3	对于外侧的衣身，第 3 条缝制的带的长度	55 ~ 130 mm	82
S012		O 带长度 4	对于外侧的衣身，第 4 条缝制的带的长度	55 ~ 130 mm	0
S013		O 带长度 5	对于外侧的衣身，第 5 条缝制的带的长度	55 ~ 130 mm	0
S014		BI 图案花样 No.	对应右内侧的图案花样号码	0 ~ 999	235
S015		AI 图案花样 No.	对应左内侧的图案花样号码	0 ~ 999	233

记号	记号	项目	内容	数据范围	初期值
S016		B0 图案花样 No.	对应左外侧的图案花样号码	0 ~ 999	236
S017		A0 图案花样 No.	对应左外侧的图案花样号码	0 ~ 999	234
S018		B 侧 I/O 传感器确认 X 坐标	进行 B 传感器侧的内侧 / 外侧的判断的 X 坐标	- 110.0 ~ 110.0	107.0
S019		B 侧 I/O 传感器确认 Y 坐标	进行 B 传感器侧的内侧 / 外侧的判断的 Y 坐标	- 50.0 ~ 50.0	28.5
S020		A 侧 I/O 传感器确认 X 坐标	进行 A 传感器侧的内侧 / 外侧的判断的 X 坐标	- 110.0 ~ 110.0	107.0
S021		A 侧 I/O 传感器确认 Y 坐标	进行 A 传感器侧的内侧 / 外侧的判断的 Y 坐标	- 50.0 ~ 50.0	28.5





1. 自动 2 模式时：S009 开始至 S021 是非显示。
手动模式时：S018 开始至 S021 是非显示。
2. S004 ~ S013 的设定值超过 100mm 时，一边缝钉带一边切割带。切割带时，缝纫机需要暂时停止。
停止的时间为缝制间距单位，因此带长度有可能比最大时缝制间距的设定长度长。


■ 参数设定的操作顺序

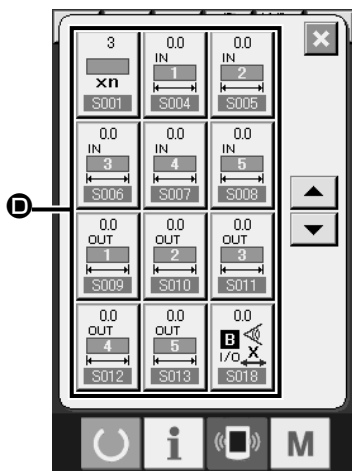


① 打开参数一览画面

输入带宽度时，请按带宽度设定按钮  **A**，然后进入顺序③。

设定使用带号码时，按使用带号码设定按钮  **B**，然后进入顺序③。

进行其他的参数的设定时，按菜单一览按钮  **C**，然后打开参数输入画面。



② 打开参数输入画面


选择想设定的参数，请按按钮 **D**。

参数输入画面被显示出来。

有关 S018 ~ S021，请参阅“■ IN/OUT 判别位置设定” p. 49。



③ 输入参数

请输入参数。输入之后，请按确定键  **E**。参数设定完了，参数输入画面关闭。



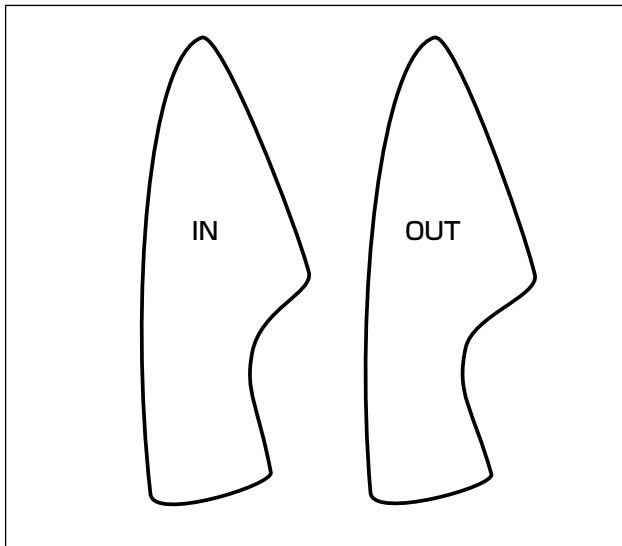
变更带宽度设定时，从供料装置拔出带之后再带宽度的设定变更。

■ IN/OUT 判别位置设定

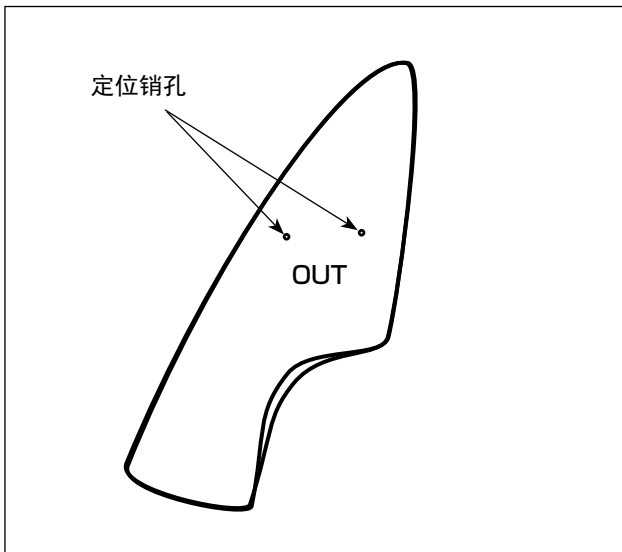
所谓 IN/OUT 判别位置，就是缝制模式为自动 1 时，为了判别安放在压脚下的衣身是 IN 还是 OUT 的传感器检测的位置。A 侧的衣身，B 侧的衣身必须分别进行设定。

[看实物来设定 IN/OUT 判别位置时]

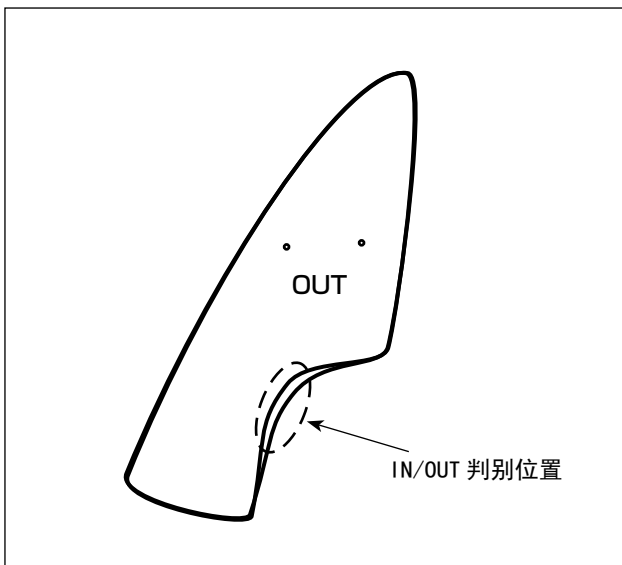
本说明是举例 B 侧的衣身的说明。A 侧的衣身时，请把 B 换成 A。



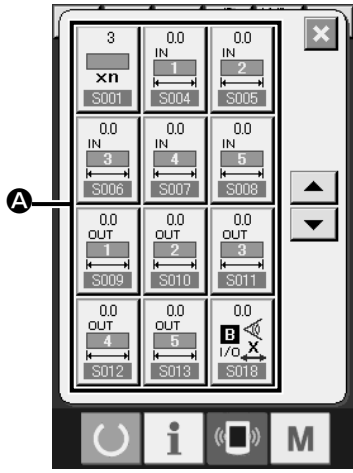
① 准备好 B-IN 衣身和 B-OUT 衣身。



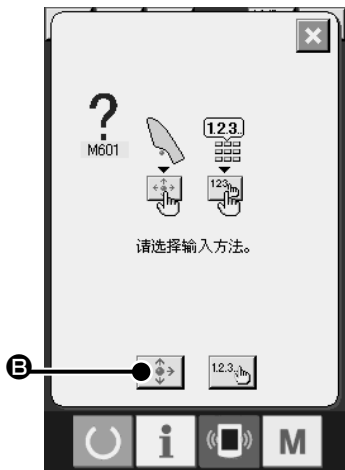
② 把定位销孔为基准，把 B-OUT 衣身重叠地放到 B-IN 衣身上。




③ 请将从 B-OUT 衣身可以看见 B-IN 衣身的任意位置决定为 IN/OUT 判别位置。

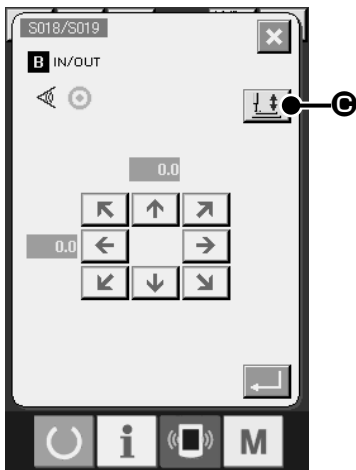


④ 打开参数输入画面，从按键 **A** 中选择 S018 或者 S019（A 侧衣身时，请选择 S020 或者 S021）。



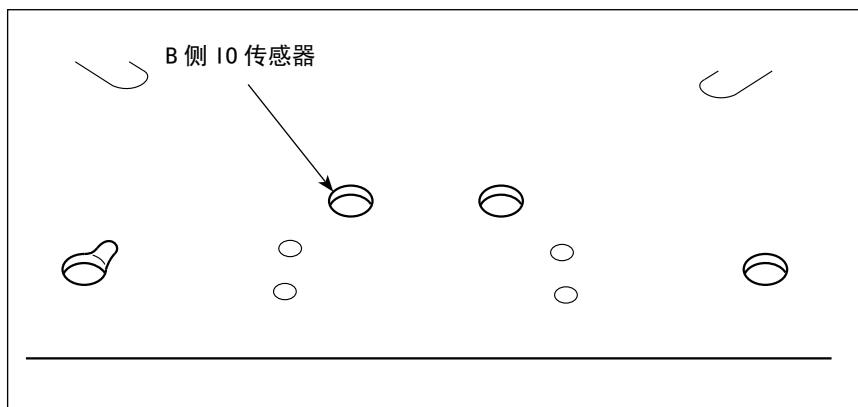
⑤ 请按 JOG 输入按键 **B**。

打开电源之后如果没有进行一次原点检索时，即使按了 JOG 输入按键，JOG 输入画面也不会显示出来。
注意 请在数据输入画面上按准备键 ，显示出缝制画面之后再进行操作。

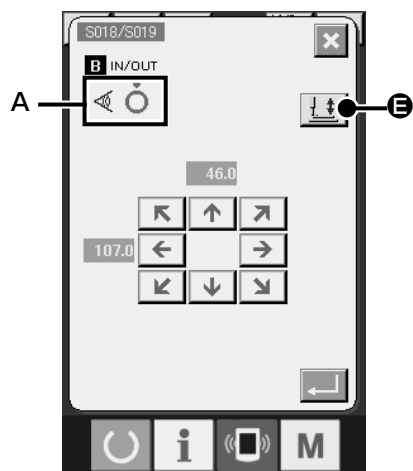
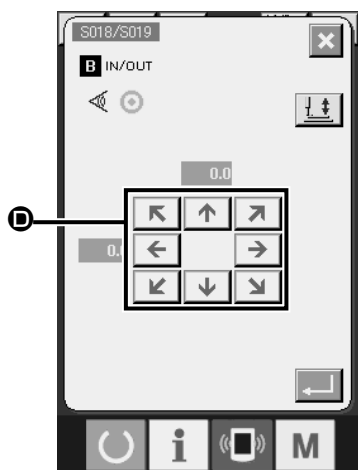



⑥ 请把 B-IN 衣身安放到压脚下面。

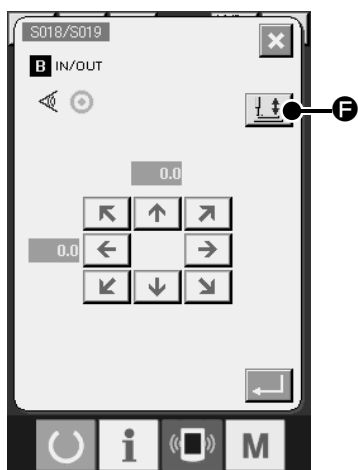
⑦ 请按压脚上下按键 **C**。压脚下降。



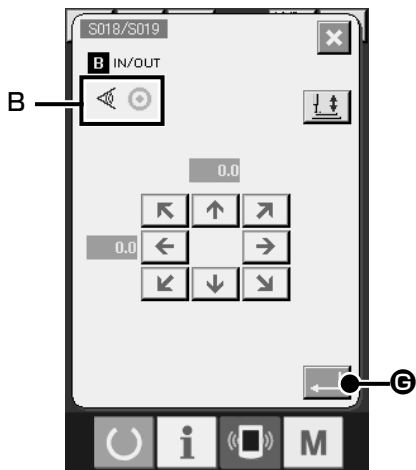
- ⑧ 操作 JOG 键 **D**，让 3) 确定的 IN/OUT 判别位置重置于 B 侧 IO 传感器。




- ⑨ 请确认 B 侧 IO 传感器是 ON **A**，按压脚上下移动按键  **E**。压脚在移动到固定退避位置后上升。
- ⑩ 从压脚取下 B-IN 衣身，然后把 B-OUT 衣身安放到压脚下。



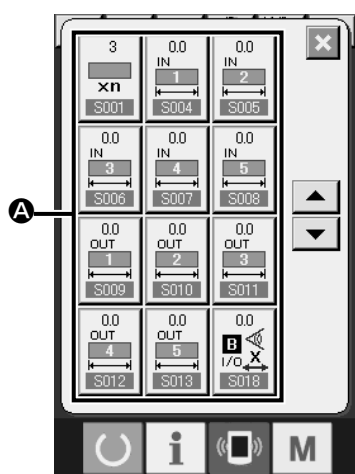
- ⑪ 请按压脚上下移动按键  **F**。压脚下降，自动移动到 9) 时的位置。



- ⑫ 确认 B 侧 IO 传感器是否是 OFF **B**。确认了是 OFF 之后，请按确定键  **G**。这样，B 侧衣身的 IN/OUT 判别位置设定完了。同样，请进行 A 侧衣身的 IN/OUT 判别位置设定。如果经确认不是 OFF 时，请返回到 2)，把 IN/OUT 判别位置变更到其他的位置重新进行设定。

[知道 IN/OUT 判别位置的坐标时]

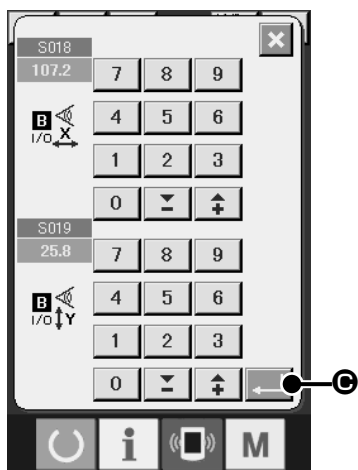
本说明是举例 B 侧的衣身的说明。A 侧的衣身时，请把 B 换成 A。




- ① 打开参数输入画面。进行 B 侧的 IN/OUT 判别位置设定时，从按键 **A** 中选择 S018 或者 S019。A 侧衣身时，请选择 S020 或者 S021。

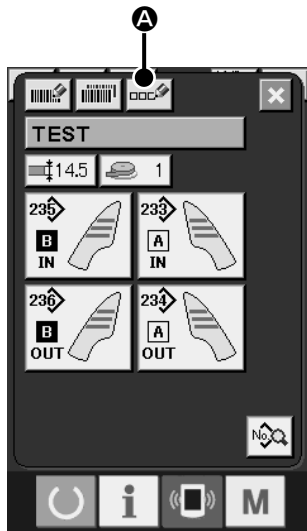


- ② 按坐标输入按键  **B**。



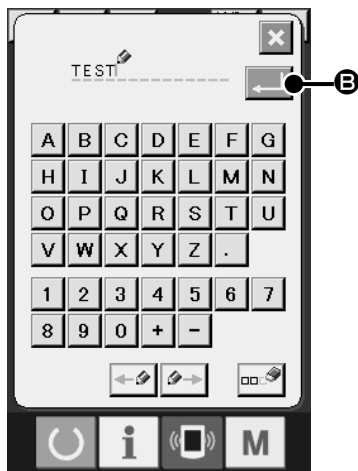
- ③ 输入 IN/OUT 判别位置的 X 坐标和 Y 坐标，然后按确定键  **C**，这样设定完了。

(6) 代码名称的编辑




① 打开代码名称编辑画面

按了代码名称编辑键  **A** 之后，代码名称编辑画面被显示出来。

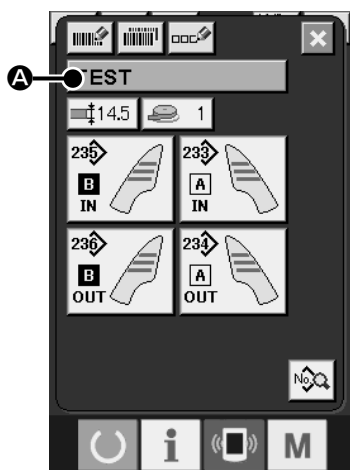


② 编辑代码名称

代码名称编辑结束之后，请按确定键  **B**。代码名称编辑完了，代码名称编辑画面关闭。


(7) 条形码记录的复制

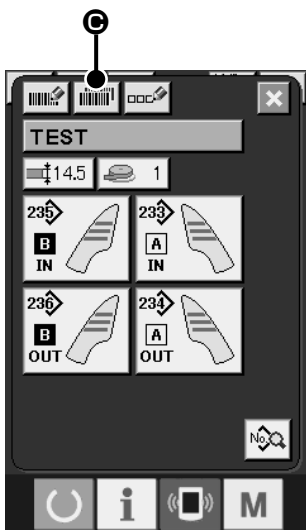
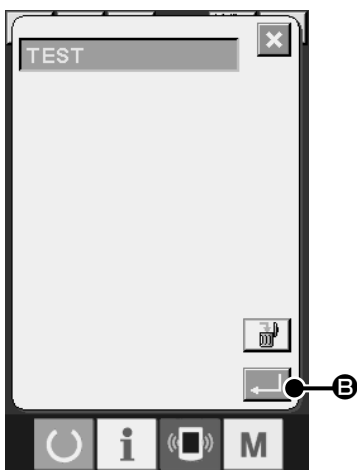
有关条形码记录的复制,有使用条形码阅读器的复制方法和在操作盘上输入文字的复制方法2种方法。



① 选择想复制的条形码记录

按了条形码选择键 **A** 之后,条形码记录选择画面被显示出来。

选择想复制的条形码记录,请按确定键  **B**。



② 显示条形码记录复制画面

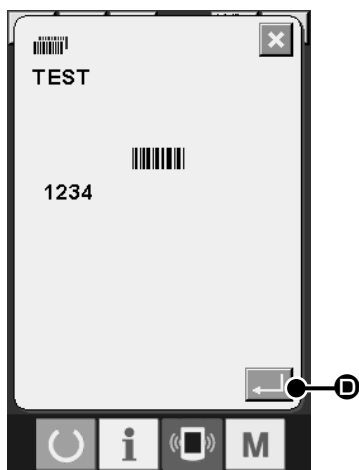
按了条形码记录复制键  **C** 之后,条形码记录复制画面被显示出来。


■使用条形码阅读器的复制方法



③ 代码名称的读取

请使用条形码阅读器读取复制部位的代码名称。




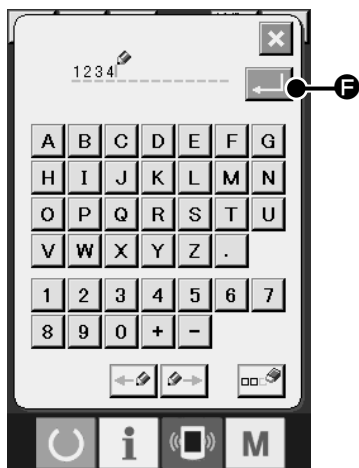
读取的代码名称被显示出来，因此请按确定键  **D**。
复制完了，条形码记录复制画面关闭。


■从操作盘输入文字进行复制的方法



① 选择想复制的条形码记录

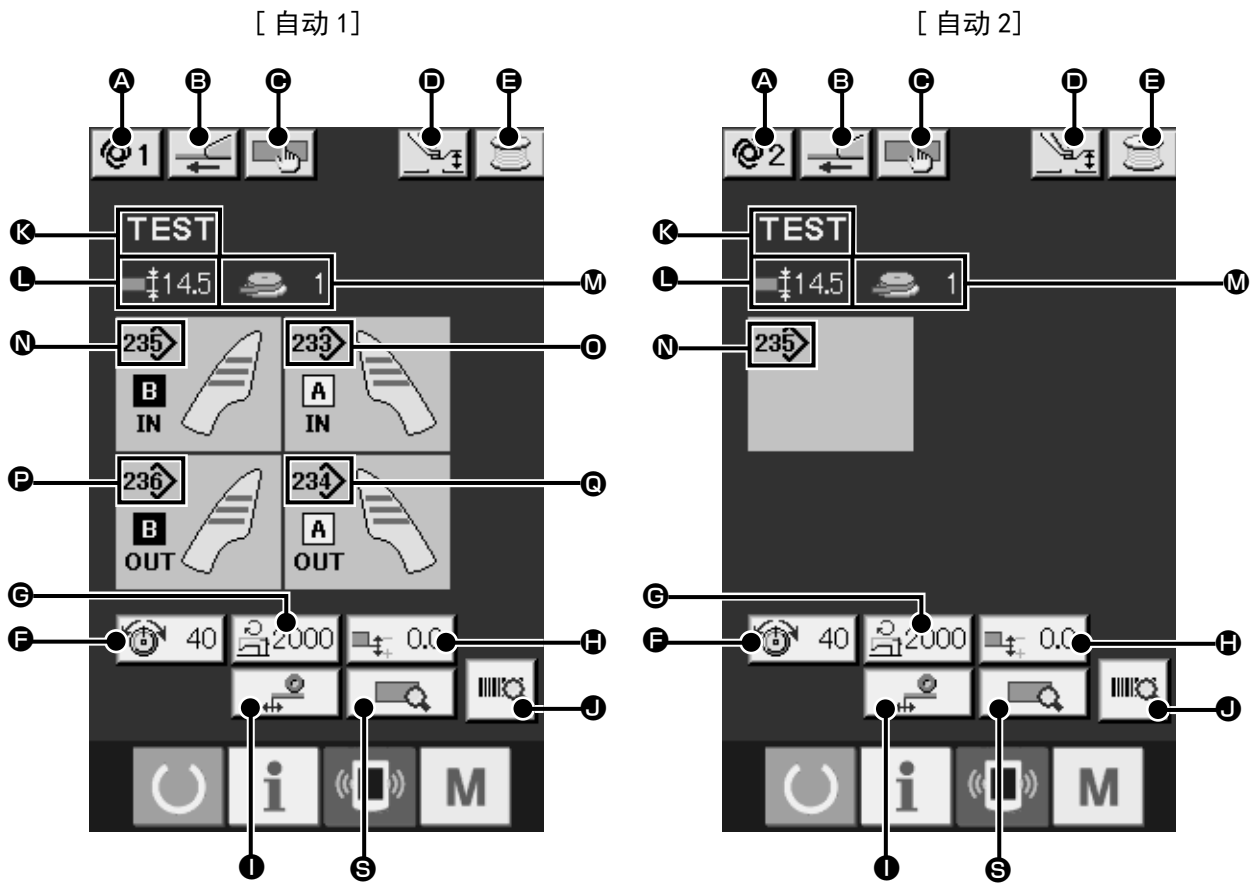
按了代码名称输入键  **E**，代码名称输入画面被显示出来。



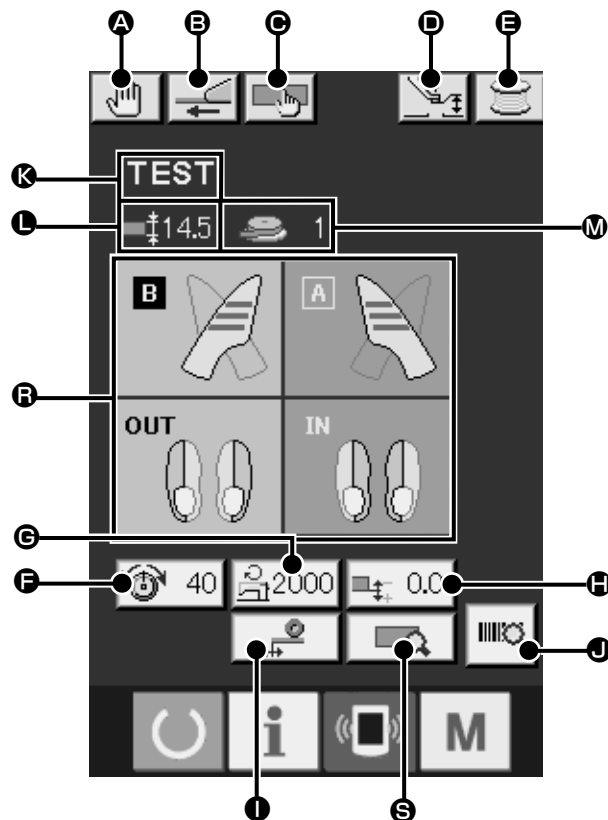
输入复制部位的代码名称，请按确定键  **F**。
复制完了，条形码记录复制画面关闭。

4. 进行缝制时

4-1. 数据输入画面的液晶显示部

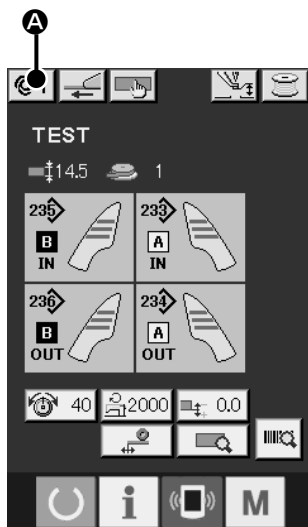


[手动操作模式]




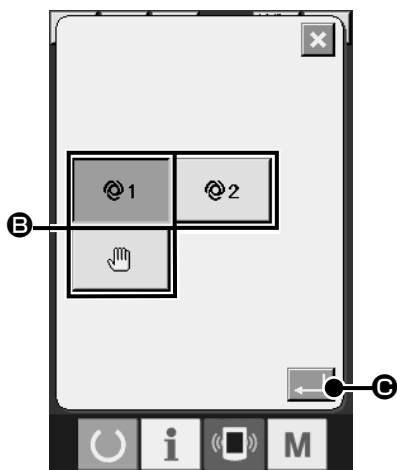
	按键 / 显示	内容
A	缝制模式选择按键	显示现在选择中的缝制模式。  : 自动 1  : 自动 2  : 手动模式 按键之后, 缝制模式选择画面被显示出来。 → 请参阅“11-4-2. 缝制模式的选择” p. 58。
B	拉出装置动作按键	以单体让拉出装置动作时使用。按键之后, 拉出装置动作画面被显示出来。 → 请参阅“11-4-6. 用拉出装置单体动作” p. 62。
C	缝制带选择按键	选择缝制的带时使用。按键之后, 缝制带选择画面被显示出来。 → 请参阅“11-4-7. 缝制的带的选择” p. 63。
D	中压脚设定按键	下降中压脚, 数值输入画面被显示出来。 → 请参阅“11-4-3. 线张力、中压脚高度、最高速度限制的设定” p. 59。
E	绕线按键	可以卷绕底线。 → 请参阅“11-4-15. 卷绕底线时” p. 77。
F	线张力设定按键	在按键上显示上线张力值, 按键之后, 数值输入画面被显示出来 → 请参阅“11-4-3. 线张力、中压脚高度、最高速度限制的设定” p. 59。
G	最高速度限制按键	在按键上显示现在设定的最高限制速度, 按键之后, 数值输入画面被显示出来。 → 请参阅“11-4-3. 线张力、中压脚高度、最高速度限制的设定” p. 59。
H	带宽度修正按键	带宽度修正画面被显示出来。 → 请参阅“11-4-4. 带宽度的修正 ” p. 60。
I	带拉出量设定按键	带编辑画面被显示出来。 → 请参阅“11-4-5. 带拉出量的设定” p. 61。
J	数据编辑按键	数据编辑画面被显示出来。 → 请参阅“11-3-4. 条形码记录 (1 双的数据) 的编制” p. 40。
K	代码名称	显示条形码记录的代码名称。
L	带宽度	显示带宽度。
M	使用带号码	显示使用的带号码。
N	B-IN 图案花样号码	显示在 B-IN 登记的图案花样号码。
O	A-IN 图案花样号码	显示在 A-IN 登记的图案花样号码。
P	B-OUT 图案花样号码	显示在 B-OUT 登记的图案花样号码。
Q	A-OUT 图案花样号码	显示在 A-OUT 登记的图案花样号码。
R	手动模式图案花样号码	显示手动模式时的图案花样。 → 请参阅“11-4-10. 手动操作模式时的图案花样选择” p. 68。
S	带详细设定按键	带的详细设定一览画面被显示出来。 → 请参阅“11-4-8. 进行带的详细设定时” p. 64。

4-2. 缝制模式的选择




① 显示缝制模式选择画面

按了缝制模式选择按钮  **A** 之后，缝制模式选择画面被显示出来。




② 选择缝制模式

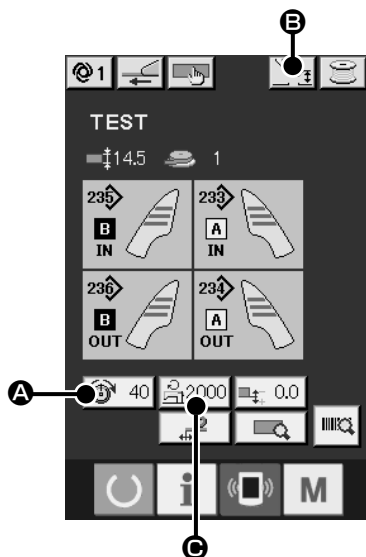
从 **B** 中选择缝制模式，按确定键  **C**。
缝制模式的选择完了，缝制模式选择画面关闭。

 **1** : 自动 1




 **2** : 自动 2

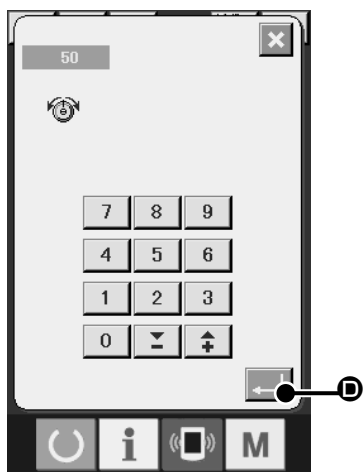
 : 手动模式

4-3. 线张力、中压脚高度、最高速度限制的设定




① 显示数值输入画面

请从线张力设定按键  40 **A**、中压脚设定按键  **B**、最高速度限制按键  2000 **C** 中选择想设定的按键。数值输入画面被显示出来。



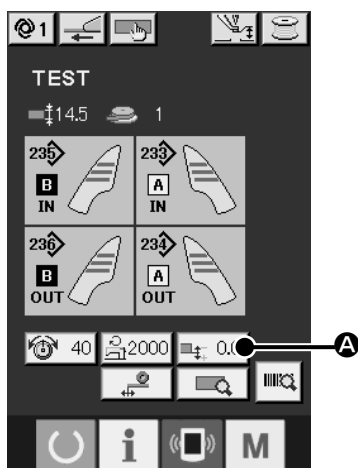
② 输入数值

请输入希望的数值，然后按确定键  **D**。数值输入完了，数值输入画面关闭。

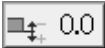
	项目	输入范围	初期值
A	线张力	0 ~ 200	50
B	中压脚高度	0.0 ~ 3.5 (mm)	2,0 (mm)
C	最高速度限制	200 ~ 2,800※ (sti/min)	2,000※ (sti/min)

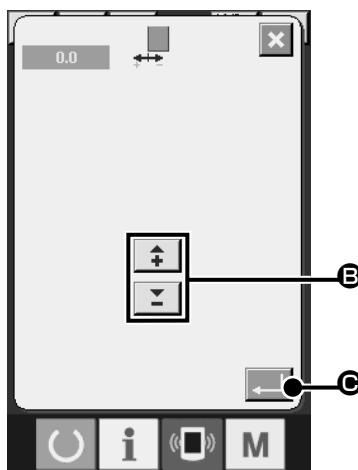
* 最高限制速度 **C** 的最大输入范围和初始值，用存储器开关 U001 决定。

4-4. 带宽度的修正





① 显示带宽度修正画面

按了带宽度修正按键  **A** 之后，带宽度修正画面被显示出来。



② 修正带宽度

按了  按键 **B** 之后，拉出装置调整到输入的值。修正量决定之后，请按确定键  **C**。

带宽度修正完了，带宽度修正画面关闭。



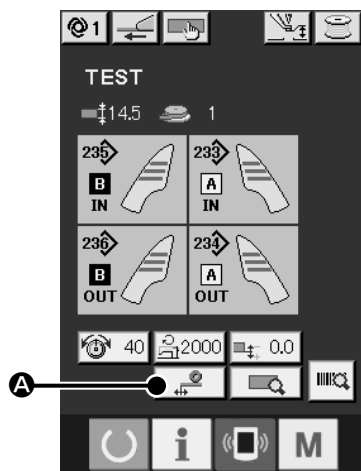
变更带宽度设定时，从供料装置拔出带之后再进行带宽度的设定变更。

4-5. 带拉出量的设定


带的拉出量带的材料不同拉出量也不同。

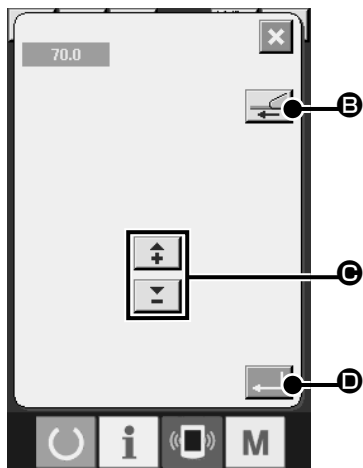
因此，更换成其他种类的带后，请重新设定拉出量。

有关带拉出量的设定，应在以实际拉出的带的长度为基础进行设定。




① 显示带拉出量设定画面

按了带拉出量设定按键  **A** 之后，带拉出量设定画面被显示出来。




② 拉出带，测定长度

按了带拉出按键  **B** 之后，带被拉出来。请测定被拉出的带的长度。



显示本画面，按了最初带拉出按键后的拉出长度的修正值为初期值。不是上一次设定的修正值。

③ 输入测定的带长度

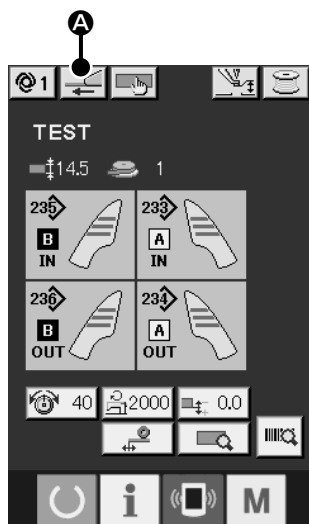
按  按键 **C**，请输入测定的带长度。带长度的单位是 mm。

输入后，请按带拉出按键 **B**，拉出带。


请确认被拉出的带是否是 70.0mm。

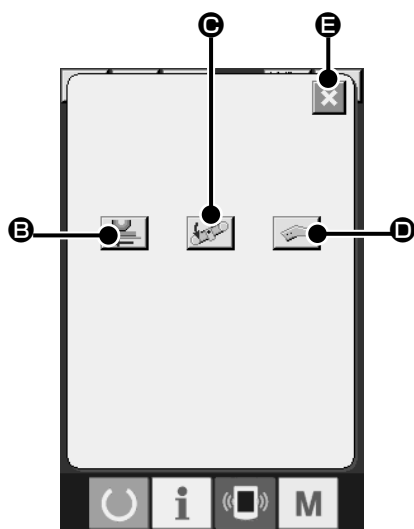
确认之后，请按确定键  **D**，确定设定。

4-6. 用拉出装置单体动作



① 显示拉出装置动作画面

按了拉出装置动作按钮  **A** 之后，拉出装置动作画面被显示出来。




② 让拉出装置动作

按了 **B**、**C**、**D** 的按键之后，拉出装置动作。

	按键	动作部位
B		压辊 按着按键期间动作
C		跷跷板
D		切刀

③ 关闭拉出装置动作画面

结束拉出装置的动作时，请按关闭按钮  **E**。

压板的朝向、切刀返回初期位置。

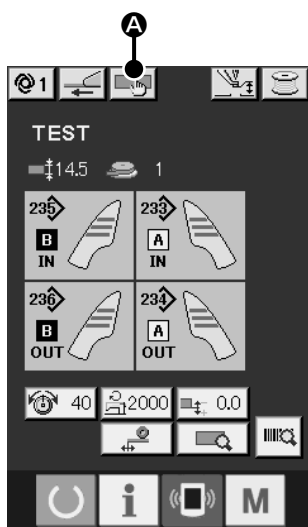
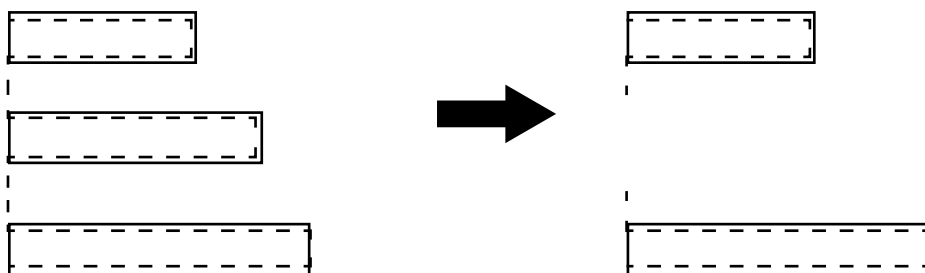


在切刀下降时，压板的朝向不同，有时按了压辊按钮也有可能不能拉出。

4-7. 缝制的带的选择

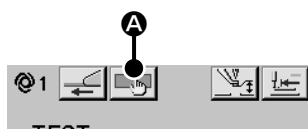
对于缝制复数条带的图案花样，仅可以缝制指定的位置。

例如) 对于缝制 3 条带的图案花样，只缝制第 1 条和第 3 条带。

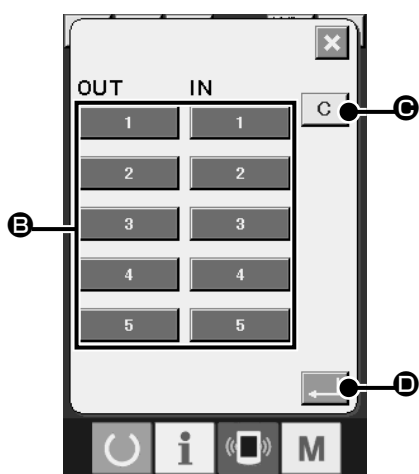


① 显示缝制带选择画面

按了缝制带选择键  **A** 之后，缝制带选择画面被显示出来。





从缝制画面也可以选择。






② 选择缝制的带

请从 **B** 中选择缝制的带。显示 **B** 的 1 ~ 5 是第几条带。

OUT, IN 需要分别地进行设定。

每次按下 **B** 按键，即连续进行反转。 表示缝制第 1 条带， 表示不缝制第 1 条带。

按了清除键  **C** 之后， 状态的按键全部变成了 。

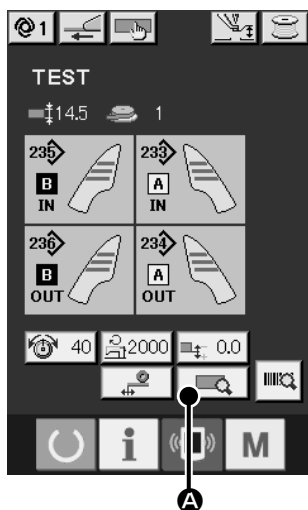
结束了缝制的带的选择之后，请按确定键  **D**。




设定了的数据不能自动地返回。

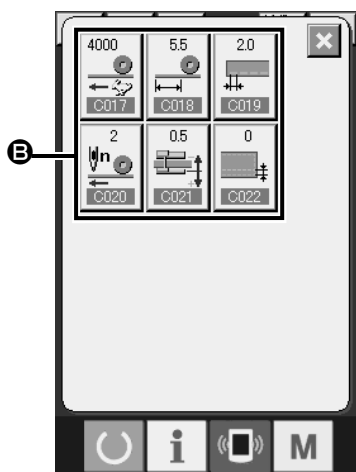
用特定的带的重新缝制等制定后，请返回到重新缝制后的状态。

4-8. 进行带的详细设定时



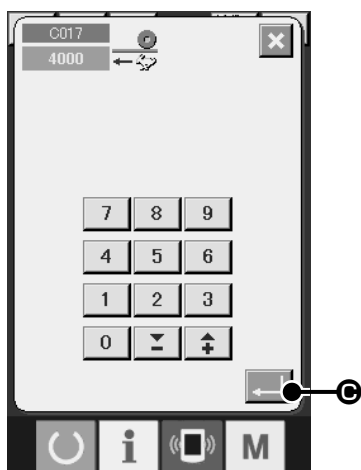
① 打开带详细设定按键

在数据输入画面上，按带详细设定按键  **A**，显示出带详细设定画面。




② 打开参数输入画面



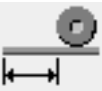
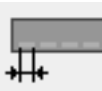
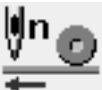

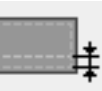
请从带详细设定画面选择想编辑的参数按键 **B**。按键之后，参数输入画面被显示出来。



③ 输入参数

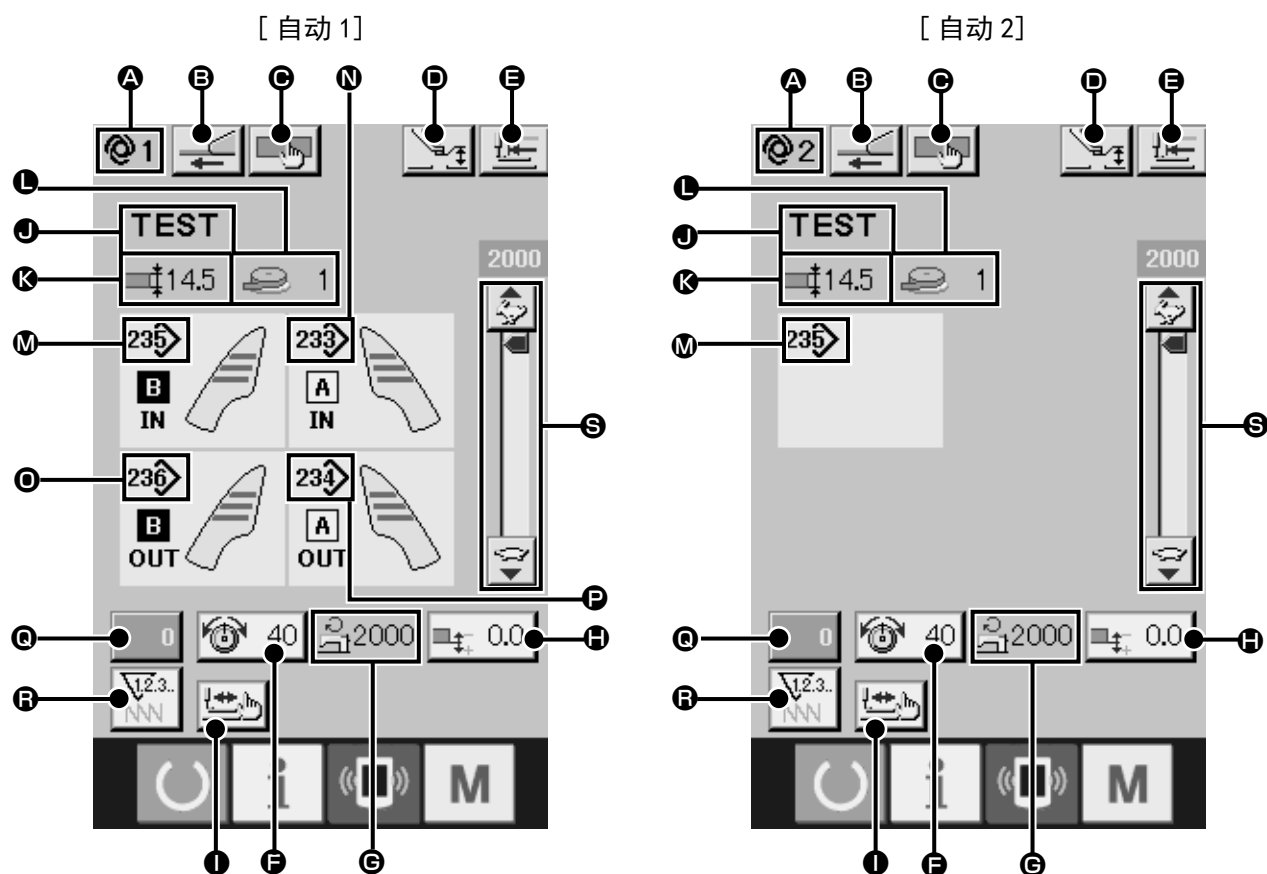
请输入参数。输入结束之后，请按确定键  **C**。参数设定完了，参数画面关闭。

带详细设定项目

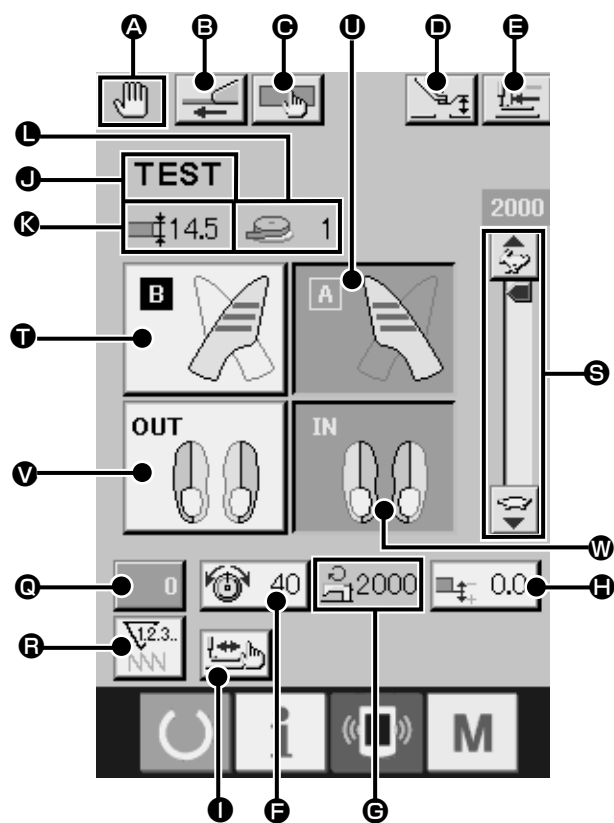
记号	图标	项目	内容	数据范围	編集单位	初期值
C011		带传送马达分辨率	可以微量调整带的拉出量。※1	210 ~ 840	1	400
C017		缝制开始拉出速度	变更拉出缝制开始的带的速度。	1000 ~ 8000	100	4000
C018		缝制开始拉出量	可以变更拉出带的量。	0 ~ 15.0	0.1mm	5.5
C019		缝制开始拉出间距	可以设定 C020 拉出针数动作期间的带的传送量。	0 ~ 15.0	0.1mm	2.0
C020		拉出针数	可以设定以 C019 缝制开始拉出间距进行动作的针数。	0 ~ 10	1 針	2
C021		导向器扩展值	带拉出时意外的导向器宽度扩展量（外部输出 1 为 OFF 的期间扩展导向器宽度）	0 ~ 2.0	0.1mm	0.5
C022		修正带缝制宽度	根据带的宽度，可以修正缝制的宽度。	- 2.0 ~ 2.0	0.1	0.0

※1 在初期状态是非显示。存储器开关水平 2 K554 带传送马达分辨率设定显示模式被显示设定时被显示出来。有关存储器开关水平 2 的设定，请参阅服务手册。

4-9. 缝制画面的液晶显示部

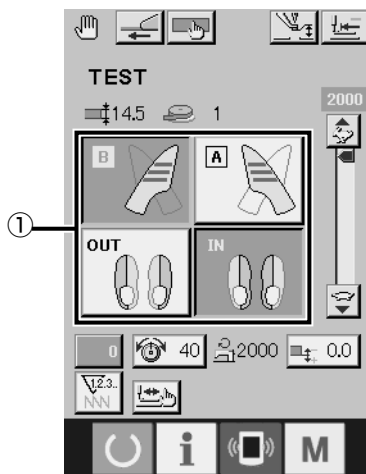


[手动操作模式]



	按键 / 显示	内容
A	缝制模式	显示现在选择中的缝制模式。  : 自动 1  : 自动 2  : 手动模式
B	拉出装置动作按键	想以单体让拉出装置动作时使用。 按键之后, 拉出装置动作画面被显示出来。 →请参阅“11-4-6. 用拉出装置单体动作” p. 62。
C	缝制带选择按键	选择缝制的带时使用。按键之后, 缝制带选择画面被显示出来。 →请参阅“11-4-7. 缝制的带的选择” p. 63。
D	中压脚设定按键	下降中压脚, 数值输入画面被显示出来。 →请参阅“11-4-3. 线张力、中压脚高度、最高速度限制的设定” p. 59。
E	原点复位按键	暂停时, 把压脚返回至缝制开始处, 然后上升压脚。
F	线张力设定按键	在按键上显示上线张力值, 按键之后, 数值输入画面被显示出来 →请参阅“11-4-3. 线张力、中压脚高度、最高速度限制的设定” p. 59。
G	显示最高速度限制	现在设定的最高速度限制被显示出来。
H	带宽度修正按键	带宽度修正画面被显示出来。 →请参阅“11-4-4. 带宽度的修正” p. 60。
I	步骤缝按键	步骤缝画面被显示出来。可以确认图案花样的形状。 →请参阅“11-4-12. 图案形状的确认为” p. 69。
J	代码名称	显示条形码记录的代码名称。
K	带宽度	显示带宽度。
L	使用带号码	显示使用的带号码。
M	B-IN 图案花样号码	显示在 B-IN 登记的图案花样号码。
N	A-IN 图案花样号码	显示在 A-IN 登记的图案花样号码。
O	B-OUT 图案花样号码	显示在 B-OUT 登记的图案花样号码。
P	A-OUT 图案花样号码	显示在 A-OUT 登记的图案花样号码。
Q	计数器值变更按键	在按键上显示现在的计数器值。按键之后, 计数器值变更画面被显示出来。 →请参阅“11-4-16. 使用计数器时” p. 78。
R	计数器变换按键	可以变换缝制计数器 / 底线计数器的显示。 →请参阅“11-4-16. 使用计数器时” p. 78。
S	速度旋钮	可以变更缝纫机的转速。
T	B 选择按键	把缝制的图案花样设定到登记到 B 的图案花样上。 →请参阅“11-4-10. 手动操作模式时的图案花样选择” p. 68。
U	A 选择按键	把缝制的图案花样设定到登记到 A 的图案花样上。 →请参阅“11-4-10. 手动操作模式时的图案花样选择” p. 68。
V	OUT 设定按键	把缝制的图案花样设定到登记到 OUT 的图案花样上。 →请参阅“11-4-10. 手动操作模式时的图案花样选择” p. 68。
W	IN 设定按键	把缝制的图案花样设定到登记到 IN 的图案花样上。 →请参阅“11-4-10. 手动操作模式时的图案花样选择” p. 68。

4-10. 手动操作模式时的图案花样选择

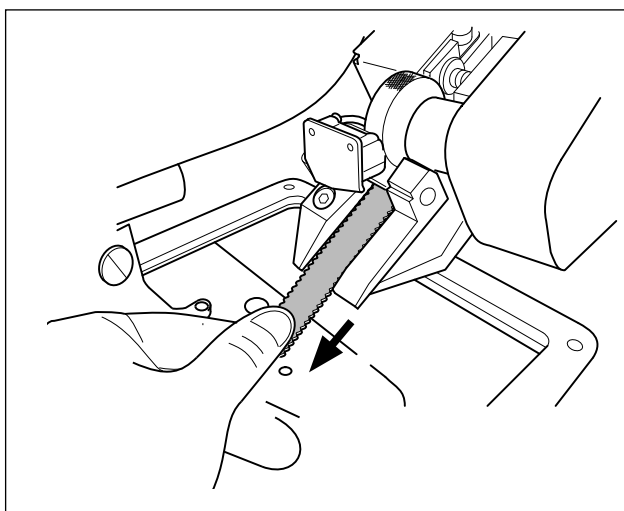


在手动操作模式时，从B-IN、A-IN、B-OUT、A-OUT 分别登记的图案花样中选择 1 个，然后缝制被选择的图案花样。


选择是通过按①中的 B 或者 A 按键，按 OUT 或者 IN 按键来选择。

图的①表示现在选择中的图案花样是 B-IN 登记的图案花样。

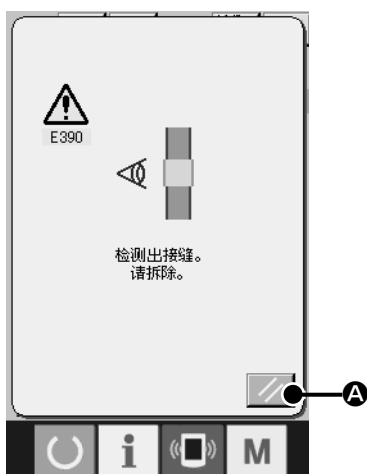
4-11. 检测接缝后时



检测出接缝后，以下的画面被显示出来。

此时，请除去带。然后，请按复位键  **A**。直至除去带之前，复位键无效。

然后，开始缝制时，请按缝纫机的开始开关。

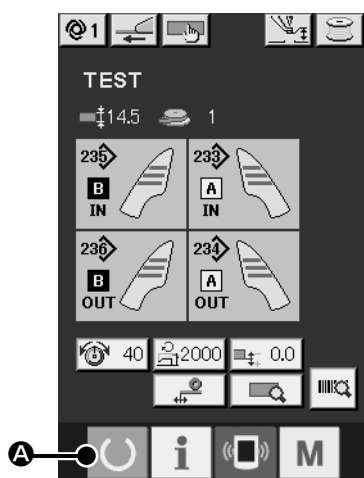


4-12. 图案形状の確認




警告

选择图案后，请一定确认图案。万一图案超出压脚，缝制中机针会与压脚相碰发生断针，十分危险。



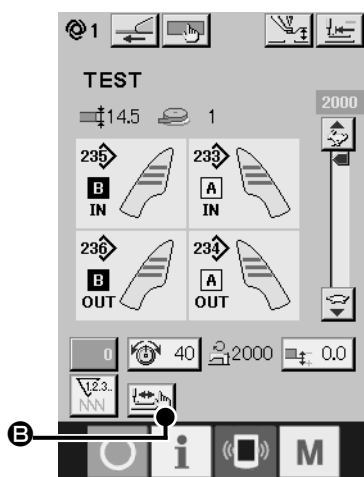
① 显示缝制画面

显示数据输入画面（蓝色），再按准备键  **A** 之后，液晶显示的背景颜色变为绿色，则可以进行缝制。

此时，压脚进行原点检索，移动到缝制开始的位置。

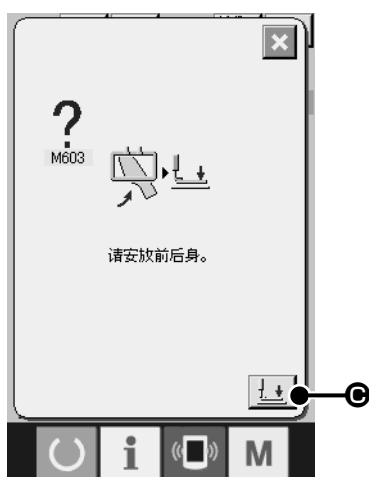


因为压脚上升是在压脚下降之后再移动，因此请注意不要夹到手指。




② 显示步骤缝制画面

按了步骤缝制按键  **B** 之后，显示出步骤缝制画面。

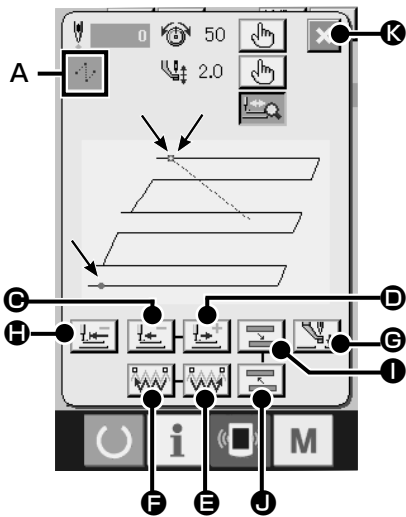


③ 安放衣身，显示步骤缝制画面






请把衣身安放到衣身安放位置。然后按压脚下降键  **C**。

压脚下降。缝制模式为自动 1 时，如果没有安放衣身的话，缝制图案花样就不能被确定。

自动 1 时，下降压脚后，用 AB 传感器检测情况，然后传送到 IN/OUT 判别位置。



④ 在下降了压脚的状态运针

在画面的中央显示出缝制的形状，现在点用  (粉红色圆) 来显示，缝制开始位置用  (蓝点) 来显示，缝制结束位置用  (粉红色点) 来显示。请用 1 针后退按键  **C**、1 针前进按键  **D** 来确认形状。如果有复数个指令被输入时，传送不移动，而是前进、后退指令显示 **A**。



长时间按按键之后，移动速度提高。

按了指令检索前进按键  **E** 之后，自动地移动传送到缝制结束位置，按了指令检索后退按键  **F** 之后，自动地移动传送到缝制开始位置。



如果想停止传送时，请按 **C**、**D**、**E**、**F**、**G**、**H** 中的任意一个按键。


按了中压脚按键  **G** 之后，中压脚上下移动。


(存储器开关 U103 被设定为 0 时，此按键不显示。)

按了带供料位置检索前进键  **I** 之后，从现在位置前进，一直到第一次寻找到的带供料位置，按了带供料位置后退键  **J** 之后，从现在位置后退，自动地传送到第一次寻找到的带供料位置。

⑤ 结束形状确认

按了压脚初期位置按键  **H** 之后，压脚向缝制开始位置移动，然后返回缝制画面。另外，按了取消按键  **K** 之后，则返回缝制画面。压脚没有在缝制开始位置或者不在缝制结束位置时，按了脚踏开关之后，可以从确认中途进行缝制。

取消键  **K** 仅在通过带供料位置检索发现的带供料位置有效。

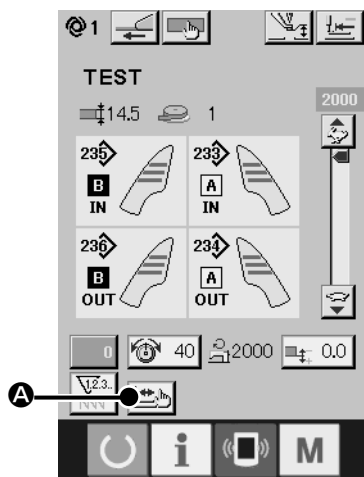
另外，用取消键  **K** 返回到缝制画面后，每次按开始开关，都可以从该位置进行缝制。

在其他位置，取消键为无效，因此请用压脚初期位置按键进行结束。




从形状确认画面用带供料位置的取消按键返回到缝制画面后，可以从该位置进行缝制。
中途的带以后可以重新缝制。

4-13. 进行落针点的修正时

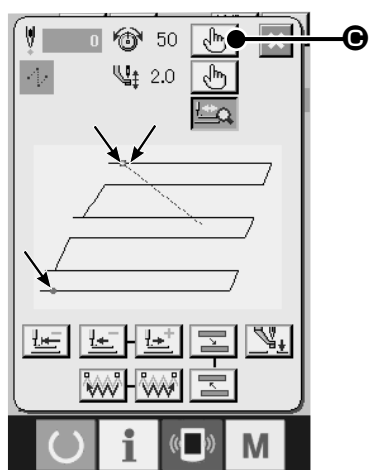





(1) 进行张力的编辑时

在缝制画面上，按了步骤缝按键  **A**，显示出步骤缝画面。

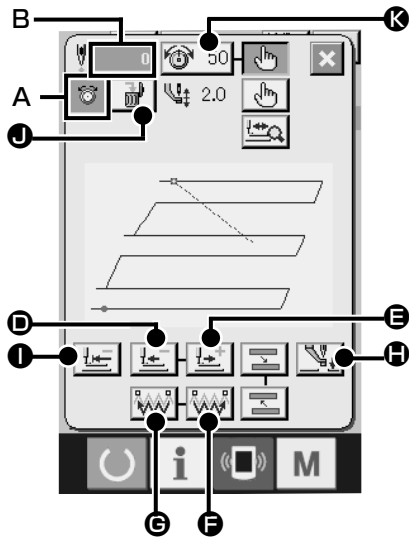
请把衣身安放到衣身安放位置。然后按压脚下降键  **B**。压脚下降。缝制模式为自动 1 时，如果没有安放衣身的话，缝制图案花样就不能被确定。

自动 1 时，下降压脚后，用 AB 传感器检测情况，然后传送到 IN/OUT 判别位置。



在画面的中央显示出缝制的形状，现在点用  (粉红色圆) 来显示，缝制开始位置用  (蓝点) 来显示，缝制结束位置用  (粉红色点) 来显示。

请按模式选择按键  **C**、选择张力模式。



按 1 针后退按钮 **D** 1 针前进按钮 **E**，传送（现在点 ）1 针前后移动。如果有复数个指令被输入时，传送不移动，而是前进、后退指令显示 **A**。长时间按按钮之后，移动速度提高。显示的值 **B** 为绝对值（线张力值+线张力指令值）。

按了指令检索前进按钮 **F**·后退按钮 **G** 之后，分别从现在点前进·后退，移动到最初找到张力指令发现的落针点。如果想停止传送时，请按 **D, E, F, G, H, I** 中的任意一个按钮。

按了中压脚按钮 **H** 之后，中压脚上下移动。（存储器开关 U103 被设定为 0 时，此按钮不显示。）

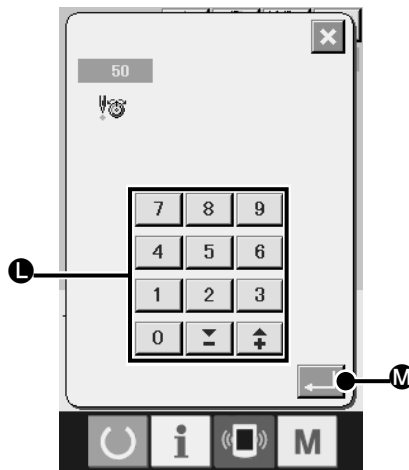
按了压脚初期位置按钮 **I** 之后，压脚向原点移动，然后返回到缝制画面。

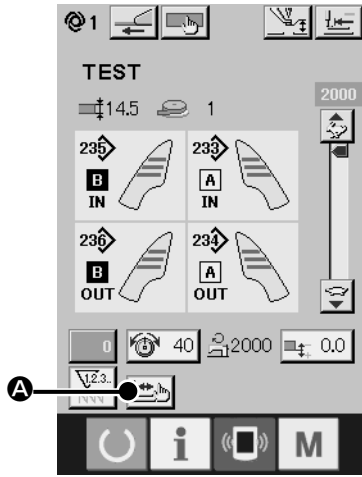
按了删除指令按钮 **J** 之后，在 **A** 上显示出删除指令的画面。按了。

K 之后，则显示出线张力值增减输入画面。

请在线张力值增减输入画面上，用十数字键、+ / - 键 **L** 输入希望的数值。


按回车按钮 **M** 之后，确定数据。



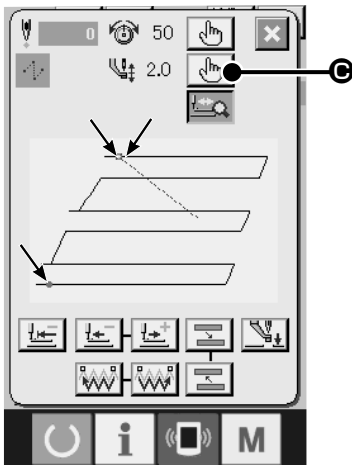





(2) 进行中压脚高度的编辑时

在缝制画面上，按步骤缝按键  **A**，显示出步骤画面。

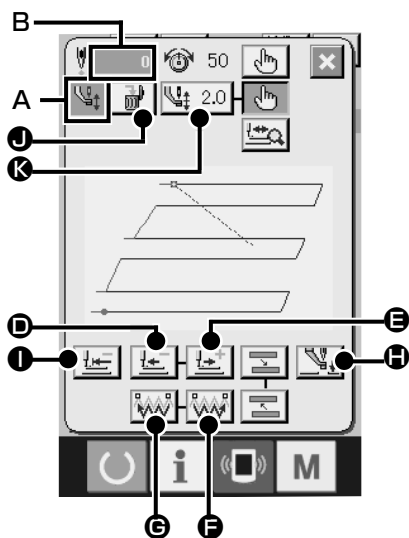
请把衣身安放到衣身安放位置。然后按压脚下降键  **B**。压脚下降。缝制模式为自动 1 时，如果没有安放衣身的话，缝制图案花样就不能被确定。

自动 1 时，下降压脚后，用 AB 传感器检测情况，然后传送到 IN/OUT 判别位置。



在画面的中央显示出缝制的形状，现在点用  (粉红色圆) 来显示，缝制开始位置用  (蓝点) 来显示，缝制结束位置用  (粉红色点) 来显示。

请按模式选择按键  **C**、选择中压脚模式。



按 1 针后退按键 **D**，1 针前进按键 **E**，传送（现在点 ）1 针前后移动。如果有复数个指令被输入时，传送不移动，而是前进、后退指令显示 **A**。长时间按按键之后，移动速度提高。显示的值 **B** 为绝对值（中压脚高度值 + 中压脚高度增减值）。

按了指令检索前进按键 **F** · 后退按键 **G** 之后，分别从现在点前进 · 后退，移动到最初找到中压脚指令发现的落针点。如果想停止传送时，请按 **C**、**D**、**E**、**F**、**G**、**I** 中的任意一个按键。

按了中压脚按键 **H** 之后，中压脚上下移动。（存储器开关 U103 被设定为 0 时，此按键不显示。）

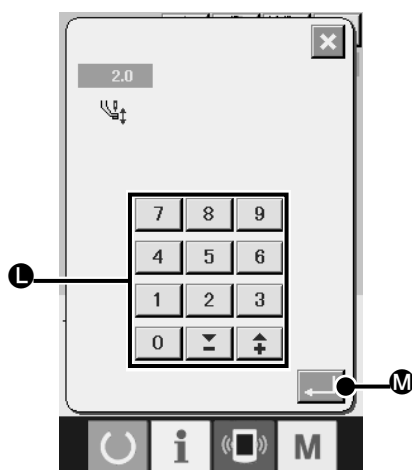
按了删除指令按键 **I** 之后，在 **A** 上显示出删除指令的画面。

按了删除指令按键 **J** 之后，在 **A** 上显示出删除指令的画面。按了。

按了 **K** 之后，则显示出中压脚高度增减输入画面。

请用十数字键、+ / - 键 **L** 输入希望的数值。

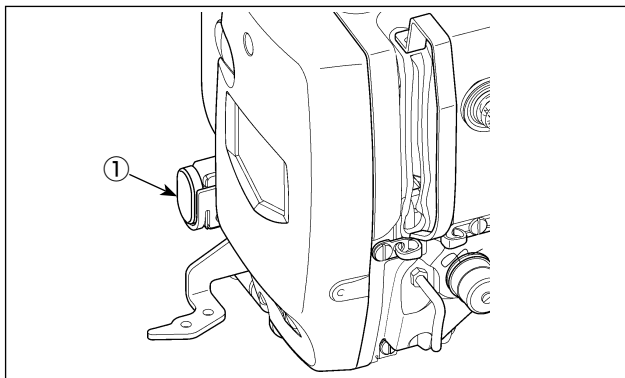
按回车按键 **M** 之后，确定数据。



1. 中压脚下降时的中压脚和机针的动作，存储器开关 U103 的设定不同则动作也不同。
2. 提高中压脚高度之后，或把机针号换成较粗的机针后，请确认与挑线杆的间隙。不能确保间隙时，就不能使用挑线杆。这时，请关闭 (OFF) 挑线杆开关，变更存储器开关 U105 的设定值。有关存储器开关的设定，请参阅 "II-5. 存储器开关一览" p. 95。



4-14. 暂停的使用方法



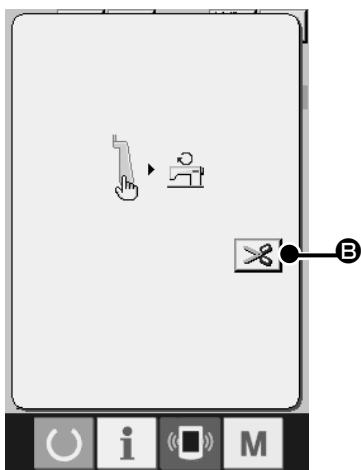
缝制中按了暂停开关①之后，可以让缝纫机停止。此时，异常画面被显示，通知停止开关被按。

(1) 从中途继续进行缝制时



① 解除异常

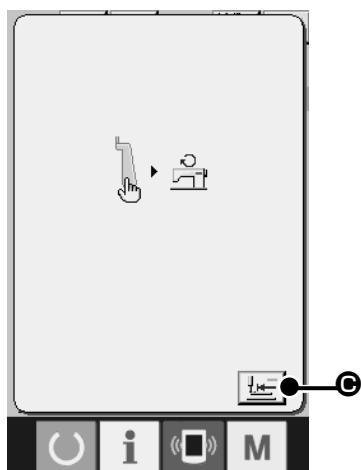
按复位键  **A**，解除出错。




② 进行重新开始或者进行切线

在此画面，可以进行重新开始或者进行切线。按了开始开关之后，缝制重新开始。

按了切线键  **B** 之后，进行切线。

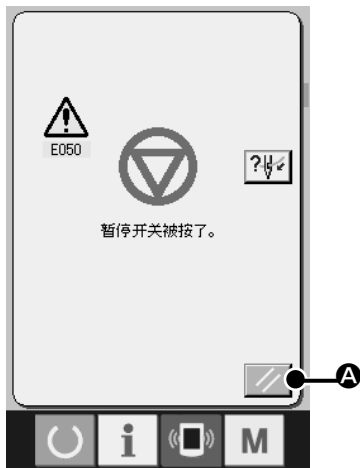


切线之后，在画面上原点复位键  **C** 被显示出来。

③ 重新起动缝制

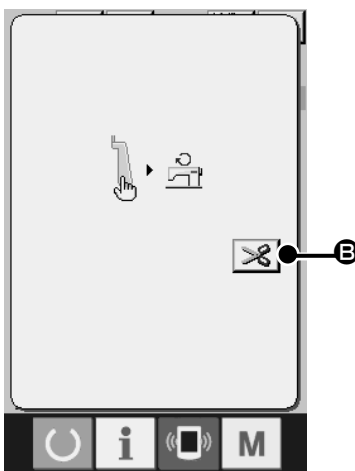
在此画面上，可以重新开始或者复位缝制开始。按了开始开关之后，缝制重新开始。

(2) 从最初重新缝制时



① 解除异常

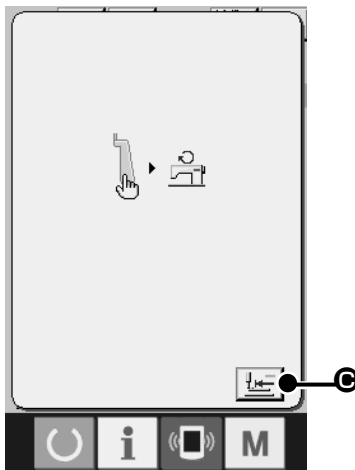
按复位键  **A**，解除出错。




② 进行切线

按切线按钮  **B**，进行切线。

切线之后，在画面上原点复位键  **C** 被显示出来。



③ 复位原点

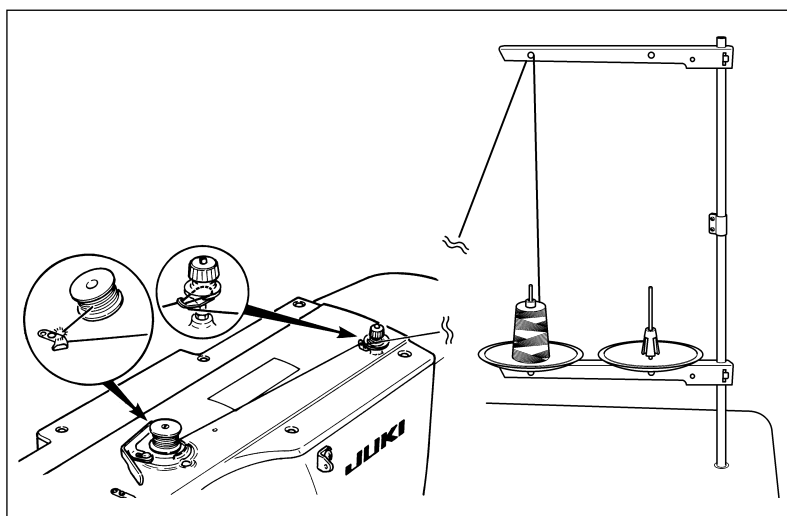
按了原点复位按钮  **C** 之后，关闭凸起画面，显示出缝制画面，返回开始缝制位置。

④ 从最初重新进行缝制作业

重新安放衣身，按了开始开关之后，缝制重新开始。

4-15. 卷绕底线时

(1) 一边缝制一边卷绕底线时




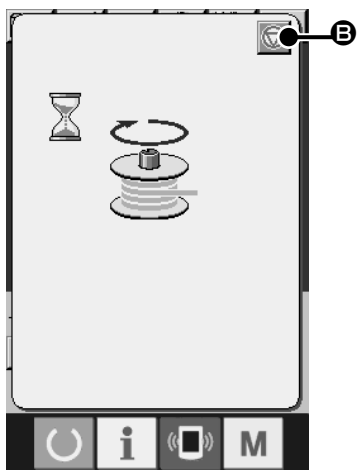
如图所示那样穿线，然后卷绕底线。

(2) 仅卷绕底线时



① 显示底线卷线画面


在数据输入画面（蓝色）上，按了卷线按键  (A) 之后，卷线画面被显示出来。




② 开始卷线

重新安放衣身，按了开始开关之后，缝制重新开始。

③ 停止缝纫机

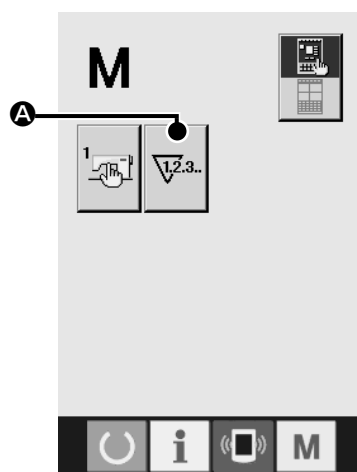
按了停止按键  (B) 之后，缝纫机停止转动，返回通常模式。另外，在卷绕底线中，再次按了开始开关之后，缝纫机在卷线模式下停止缝纫机，因此再次按了开始开关之后，可以继续卷绕底线，在卷绕数个梭芯时可以利用此功能。



电源刚刚打开 (ON) 后，不能进行绕线。设定 1 次花样图案 No. 等，按准备键 ，让缝纫机显示出缝制画面之后才能进行绕线。

4-16. 使用计数器时

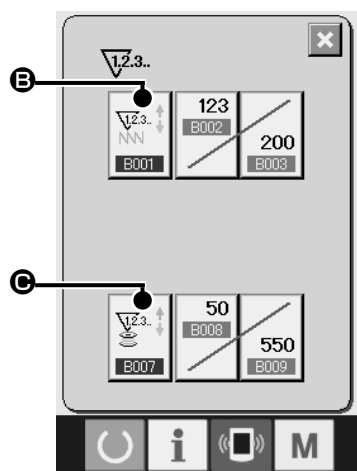
(1) 计数器的设定方法



① 显示计数器画面

按了 **M** 开关之后,画面上显示出计数器设定按键 **1.2.3.** **A**。

按此按键之后,计数器设定画面被显示出来。



② 选择计数器种类

本缝纫机有缝制计数器、底线计数器 2 种计数器。按缝制计数

器种类选择键



B、

底线计数器种类选择键



C, 显

示出计数器种类选择画面,就可以分别设定各个计数器种类。



【 缝制计数器 】



加数计数器：

每缝制 1 形状的缝制物之后,在现在值上加数。当现在值与设定值相等时,显示出计数器加数画面。



减数计数器：

每缝制 1 形状的缝制,从现在值减 1。当现在值等于 0 之后,显示出计数器减数画面。



计数器未使用：

进行缝制,缝制计数器也不计数。缝制计数器的计数画面不显示。



【 件数计数器 】



加数计数器：

每缝制 1 循环或 1 连续缝制,在现在值上进行加数。当现在值等于设定之后,显示出加护器加数画面。



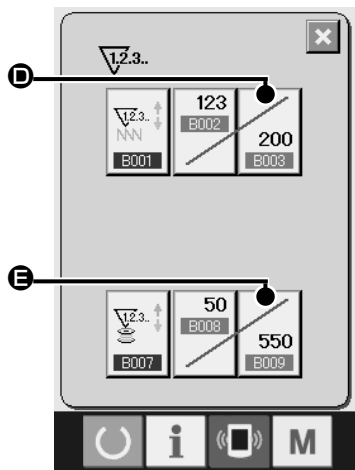
减数计数器：

每缝制 1 循环或 1 连续缝制,当现在值等于 0 之后,显示出计数器减数画面。





计数器未使用：

进行缝制,件数计数器也不计数。件数计数器的计数画面不显示。



③ 变更计数器设定值

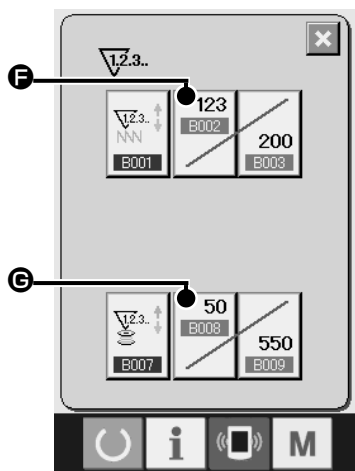
缝制计数器时，按了按键  **D**

底线计数器时，按了按键  **E** 之后，显示出设定值输入画面。





这时，请输入设定值。

把 0 值输入到设定之后，不显示计数器加算画面。



④ 变更计数器现在值

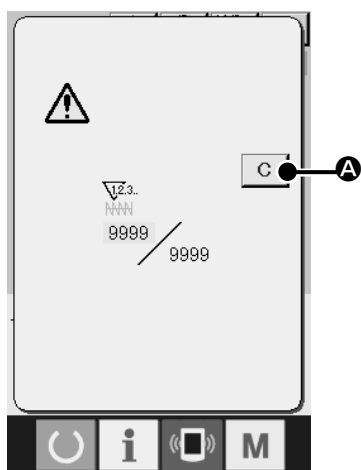
缝制计数器时，按了按键  **F**、

底线计数器时，按了按键  **G** 之后，显示出现在值输入画面。



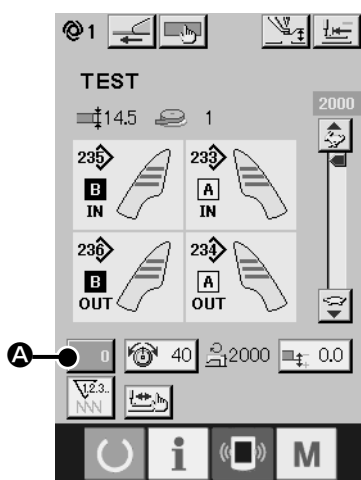
这时，请输入现在值。

(2) 计数器加数的解除方法



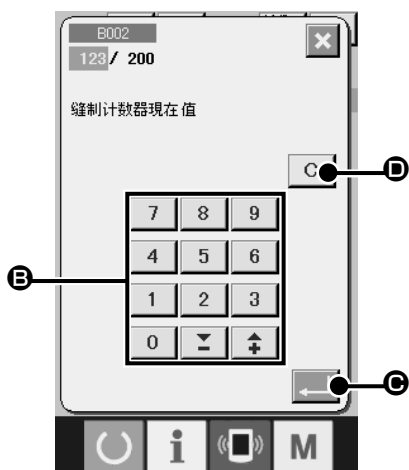
缝制作业中到达计数器加数条件之后，显示出计数器加数画面，并鸣响蜂鸣器。按了清除按键 **C** **A** 之后，复位计数器，返回缝制画面。然后，开始重新计数。

(3) 缝制中计数值的变更方法



① 显示计数值变更画面

由于缝制作业中的错误等需要修正计数值时，请按缝制画面上的计数值变更按键 **0** **A**。计数值变更画面被显示。



② 变更计数值

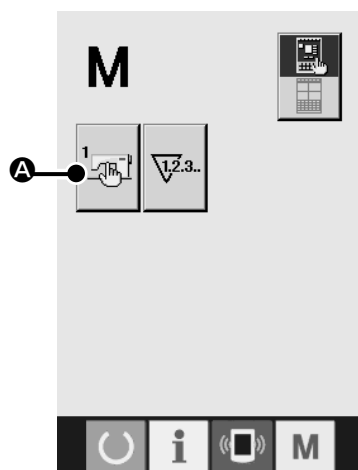
用十数字键、+ / -键 **B** 输入希望的值。

③ 确定计数值


按了确定键 **C** 之后，确定数据。

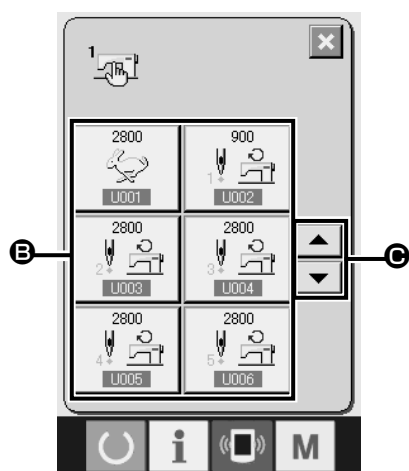
想清除计数值时，请按清除键 **C** **D**。

4-17. 变更存储器开关数据时



① 显示存储器开关数据一览画面

按 **M** 开关之后，在画面上显示出存储器开关按键  **A**。
按此按键之后，存储器开关数据一览画面被显示出来。

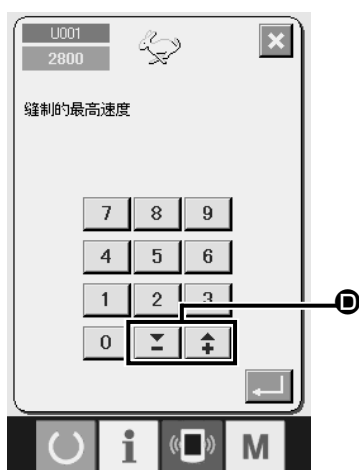


② 选择想变更的存储器开关按键

按上下滚动按键  **C**，选择想变更的数据项目 **B** 按键。

③ 变更存储器开关数据

存储器开关数据有变更数字的数据项目和选择图标的数据项目。



变更数字的数据项目上，有 **U001** 这样的粉红色的 No.，在变更画面上可以用显示的+ / - 按键  **D** 变更设定。

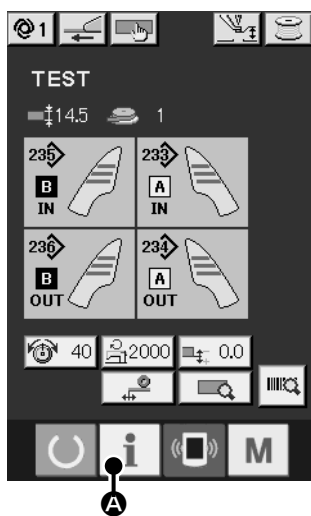


在选择图标的数据项目上，有 **U032** 这样的蓝色的 No.，在变更画面上可以选择显示的图标。


→ 有关存储器开关数据的详细内容，请参照 "11-5. 存储器开关数据一览" p. 95。

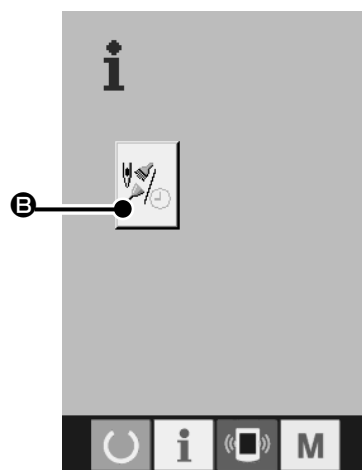
指定缝纫机油更换（加油）时期、机针更换时期、清扫时期等，当到达指定时间之后本机可以进行警告通知。

(1) 看维修检查信息




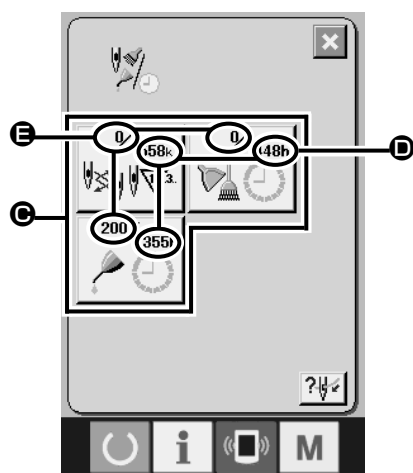
① 显示信息画面

在数据输入画面，按开关密封部的信息按键  **A** 之后，信息画面被显示出来。





② 显示保养维修画面。

请按信息画面的保养维修信息画面显示按键  **B**。

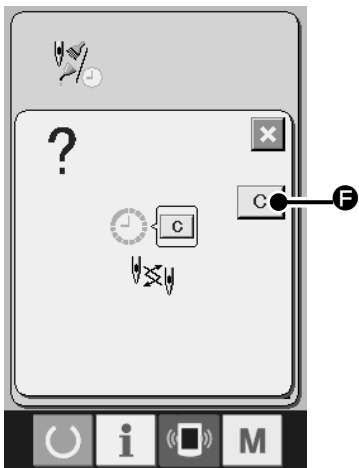


在保养维修信息画面上，有以下 3 个项目的信息被显示出来。

- 更换机针（1000 针）：
- 清扫时间（小时）：
- 机油更换时间（小时）：

各项目显示在按键 **C**，通知检修的间隔显示在 **D**，至更换的剩余时间显示在 **E**。

另外，还可以清除至更换的剩余时间。



③ 清除至更换的剩余时间

按了想清除的项目按钮 **C** 之后，清除更换时间画面被显示出来。

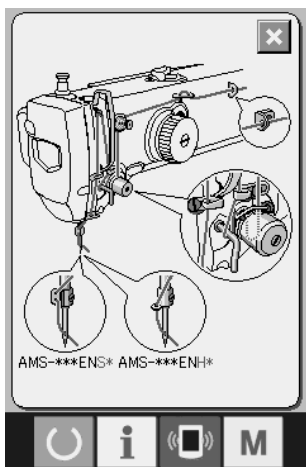
按了清除按钮 **C** **F** 之后，至更换的剩余时间被清除。



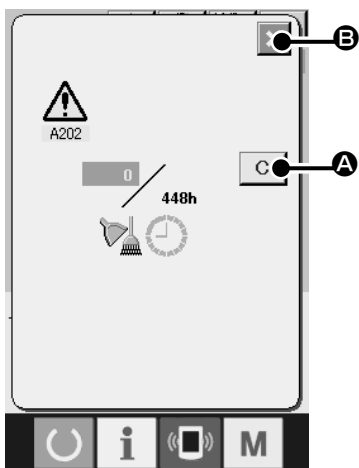
④ 显示穿线图

按了在维修保养信息画面上显示的穿线按钮 **G** 之后，上穿线图被显示出来。

穿线时，请参阅。



(2) 警告的解除方法



到了指定的维修保养时间之后，警告画面被显示出来。

要清除维修保养时间时，请按清除按钮 **C** **A**。


清除维修保养时间，关闭凸起画面。

不清除维修保养时间时，请按取消按钮 **X** **B**，关闭凸起画面。

在清除维修保养时间之前，每 1 缝制结束后显示警告画面。

各项目的警告号码如下。

- 机针更换 : A201
- 清扫时间 : A202
- 机油更换时间 : A203

 有关涂抹润滑脂的部位，请参照 "III-1-15. 向指定部位补充润滑脂" p. 124 的项目。

(3) 条形码记录数据的上传和下载

使用通信功能可以把保存的条形码记录数据上传到媒体。另外，还可以从媒体把条形码记录数据下载到缝纫机。



进行了条形码记录数据的上传和下载之后，登记在条形码记录的图标数据也一起被上传和下载。

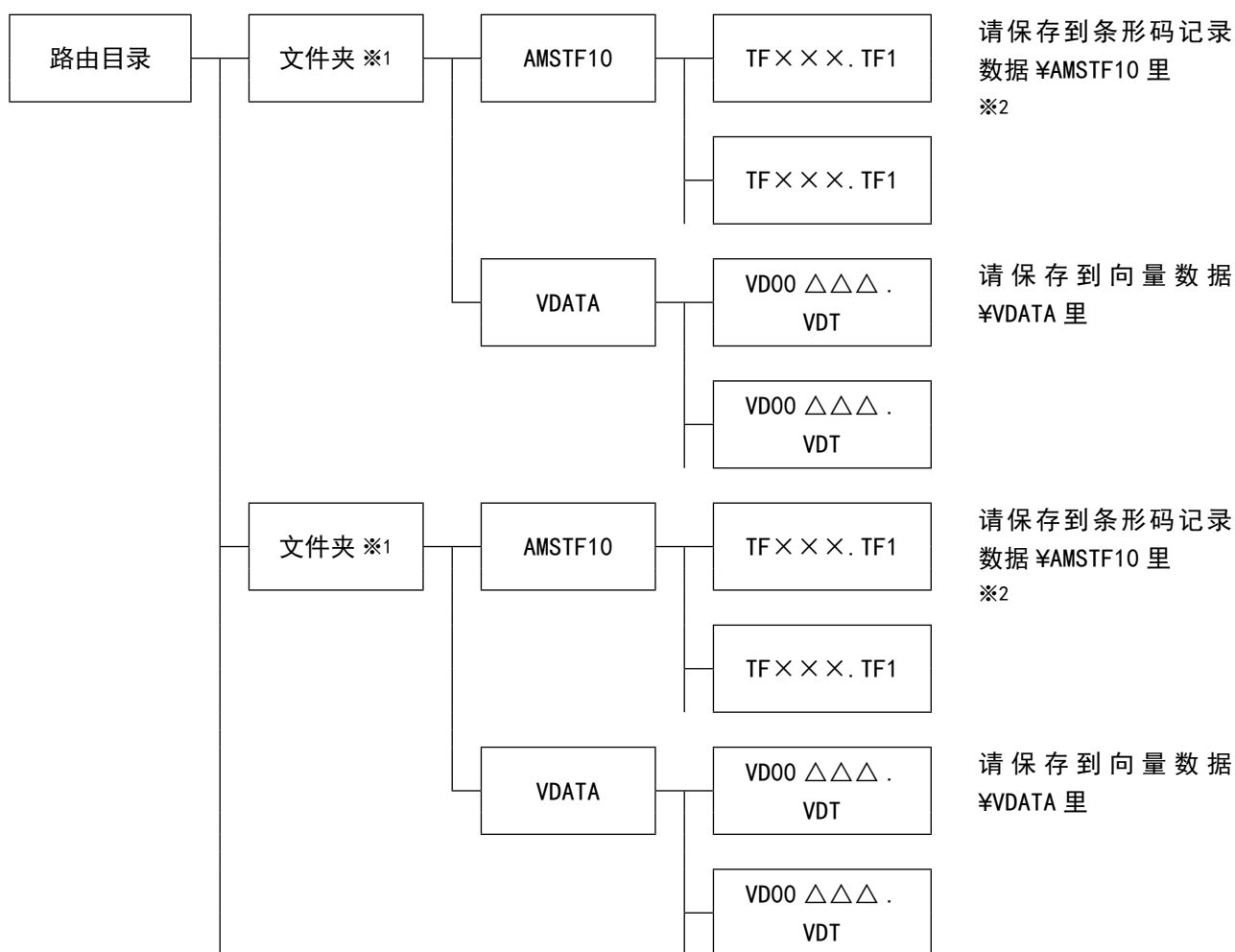
■ 条形码记录数据的文件名称

TF×××.TF1

×××：代码名称

■ 媒体的文件夹的构成

各文件请保存到媒体内的以下的目录里。



※1 文件夹名称的字数为 14 字以下。

文件夹名称可以使用的文字仅为 a ~ z, A ~ Z, 0 ~ 9, +, -, #。

a ~ z 在操作盘上的显示为大写字母 A ~ Z。

路由目录下面的文件夹数为 100 个以下。

※2 一个 AMSTF10 文件夹中保存的条形码记录数据为 200 个以下。

■ 关于一次通信、个别通信

条形码记录数据的通信有一次通信和个别通信。一次通信、个别通信分别有上传和下载，总共有 4 种通信方法。

① 一次通信

上传（缝纫机→媒体写入数据）

把在缝纫机中保存的所有的条形码记录数据上传到媒体内指定的文件夹。可以指定的文件夹仅为媒体的路由目录下面的任意文件夹。请参阅「**■媒体的文件夹构成**」p. 84。



删除了上传处的文件夹以下里保存的所有的条形码记录数据和所有的向量数据之后，开始上传。

下载（媒体→缝纫机写入数据）

把媒体内的制定的 1 个文件夹里的所有的条形码记录数据下载到缝纫机。

可以指定的文件夹仅为媒体的路由目录下面的任意文件夹。请参阅「**■媒体的文件夹构成**」p. 84。



删除了保存在缝纫机里的所有的条形码记录数据和所有的向量数据之后，开始下载。

② 个别通信

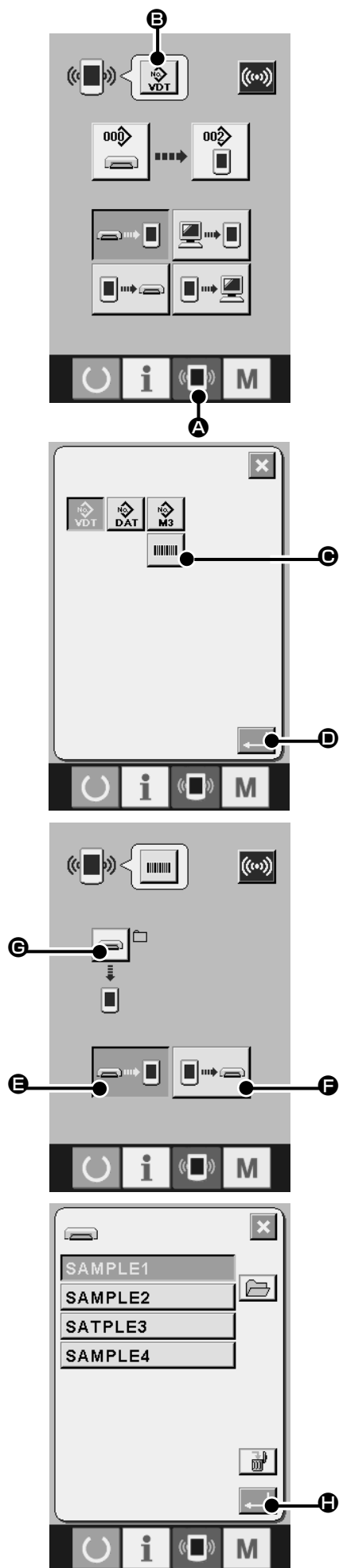
上传（缝纫机→媒体写入数据）

一次上传是把缝纫机保存的条形码记录数据进行所有的上传，但是个别上传是可以任意地制定上传的条形码记录。


下载（媒体→缝纫机写入数据）

一次下载是下载媒体内指定的 1 个文件夹内保存的所有的条形码记录数据，但是个别下载可以任意地指定下载的条形码记录。但是，条形码记录数据的指定紧可以在同一文件夹内进行。不能跨文件夹进行指定。


■ 一次通信的操作顺序



① 显示通信画面

在数据输入画面，按开关部的通信开关  **A** 之后，显示出通信画面。

② 选择条形码记录

按了数据种类键  **B** 之后，数据种类选择画面被显示出来。

按条形码记录数据键  **C**，然后按确定键  **D**。

③ 选择通信方法



通信方法有以下 2 种。

E 下载（媒体→缝纫机写入数据）

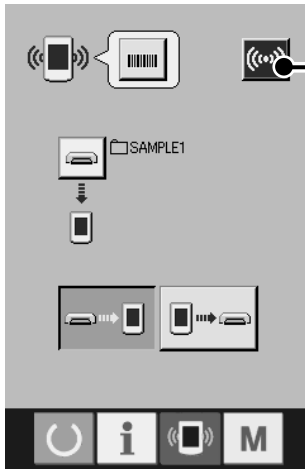
F 上传（缝纫机→媒体写入数据）

请选择希望的通信方法。

④ 选择文件夹

按了文件夹选择键  **G** 之后，文件夹选择画面被打开，下载时，选择下载的文件夹，上传时，选择上传处的文件夹，然后按确定键  **H**。

上传时，可以编制媒体的路由目录下面的新文件夹。请参阅“**■新文件夹的作成**” p. 91。



⑤ 开始通信

按了通信开始键  ① 之后，开始通信。

开始通信之后，以下的数据被删除后，进行上传或下载。

(a) 下载时：

缝纫机中保存的所有的条形码记录数据和所有的向量数据



(b) 上传时：

上传处的文件夹里的所有的条形码记录数据和所有的向量数据



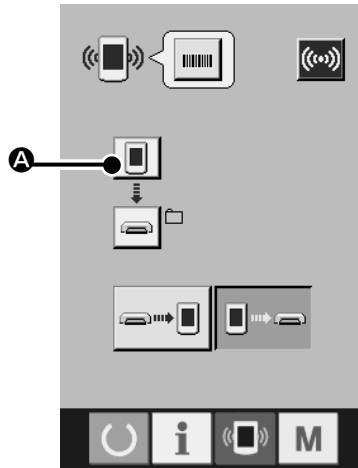
通信中显示出通信中画面。

通信中画面上，通信条形码记录数据总数和数据通信结束的条形码记录数据数被显示出来。条形码记录数据的通信结束之后，便开始了向量数据的通信，在通信中画面上显示出通信向量数据总数和数据通信结束的向量数据数。


向量数据通信结束后，通信中画面关闭。

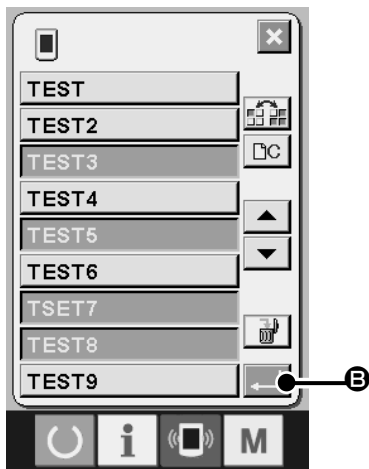
■个别通信的操作顺序

1. 上传时





① 显示条形码记录数据一览画面

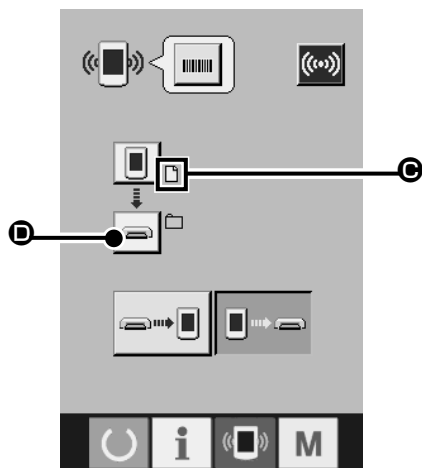
按了缝纫机条形码记录键  A 之后，条形码一览画面被显示出来。





② 选择上传的条形码记录数据

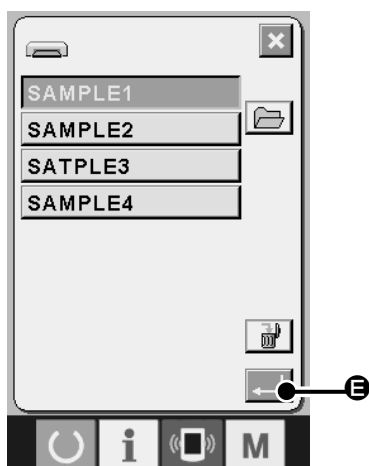
选择上传的条形码记录数据，然后按确定键  B。

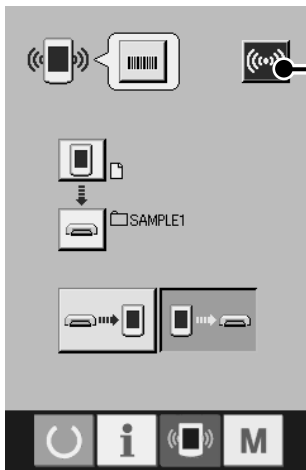
在通信画面上显示个别通信状态的标记  C 被显示出来。



③ 选择上传处的文件夹

按了文件夹选择键  D 之后，文件夹选择画面被打开。选择上传处的文件夹，然后请按确定键  E。此时，可以编制路由怒路下面的新文件夹。请参阅“■新文件夹的作成” p. 91。





⑤ 开始通信

按了通信开始键  ⑤ 之后，开始通信。




通信中显示出通信中画面。

通信中画面上，通信条形码记录数据总数和数据通信结束的条形码记录数据数被显示出来。条形码记录数据的通信结束之后，便开始了向量数据的通信，在通信中画面上显示出通信向量数据总数和数据通信结束的向量数据数。

向量数据通信结束后，通信中画面关闭。



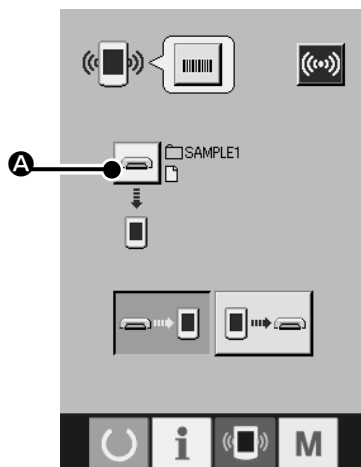
* 上传在媒体内已经存在的条形码记录数据时，改写确认画面被显示出来。

这时，请按确认按钮  ⑥。


不显示重写确认画面，全部进行重写时，请按全部重写按钮

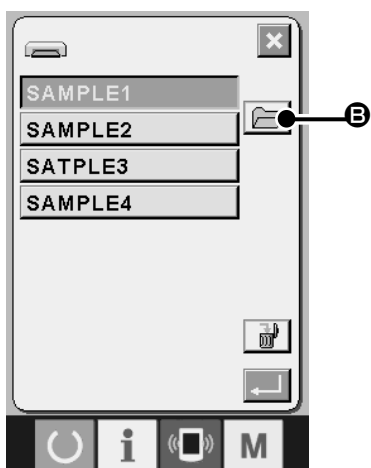
 ⑦。


2. 下载时

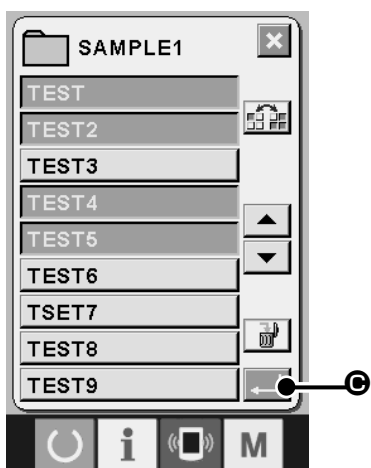


① 选择文件夹



按了文件夹选择键  **A** 之后，文件夹选择画面被显示出来。

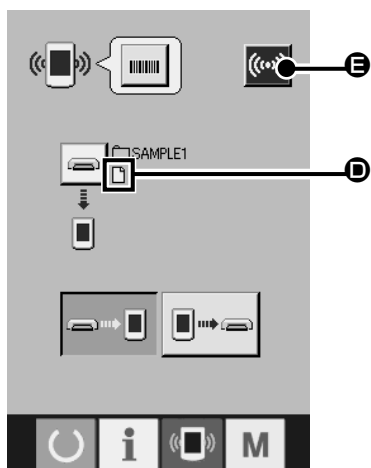


选择想下载的保存条形码记录数据的文件夹，按了文件夹打开图标  **B** 之后，条形码记录一览画面被显示出来。



② 选择下载的条形码记录数据

选择下载的条形码记录数据，按确定键  **C**。
在通信画面上显示个别通信状态的标记  **D** 被显示出来。



③ 开始通信


按了通信开始键  **E** 之后，开始通信。

通信中显示出通信中画面。

通信中画面上，通信条形码记录数据总数和数据通信结束的条形码记录数据数被显示出来。条形码记录数据的通信结束之后，便开始了向量数据的通信，在通信中画面上显示出通信向量数据总数和数据通信结束的向量数据数。

向量数据通信结束后，通信中画面关闭。

* 下载缝纫机里已经保存的条形码记录数据时，改写确认画面被显示出来。

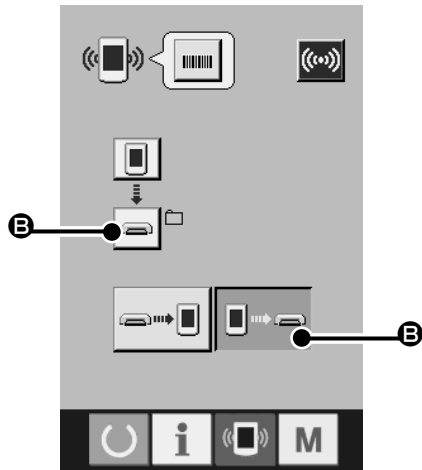
这时，请按确认按钮 .

不显示重写确认画面，全部进行重写时，请按全部重写按钮




■新文件夹的作成


可以在媒体的路由目录下面作成文件夹。

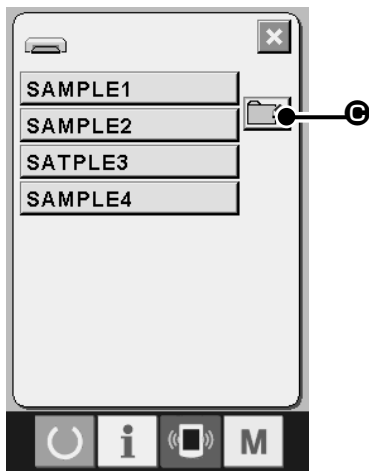


① 设定为上传状态

按上传键  A 之后，设定为上传状态。

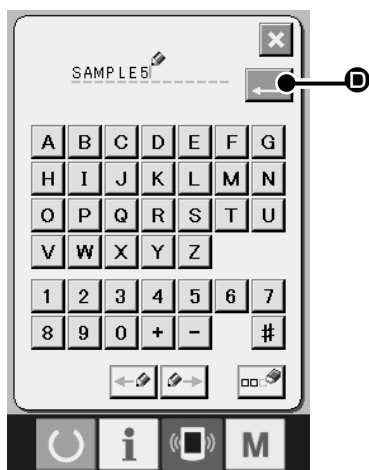
② 打开文件夹选择画面

按了文件夹选择键  B 之后，文件夹选择画面被显示出来。

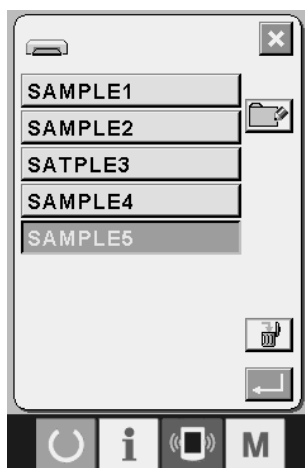


③ 打开文件夹名称输入画面

按了文件夹新作成键  C 之后，文件夹名称输入画面被显示出来。

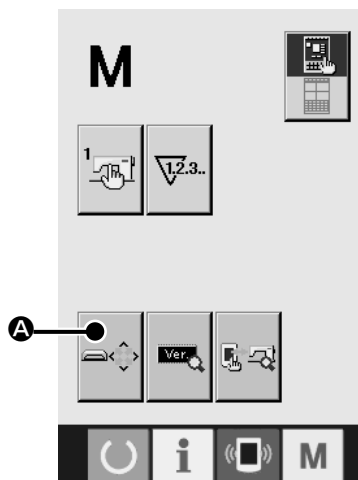


输入文件名称，按了确定键  D 之后，文件夹被作成，返回到文件夹选择画面。



4-19. 进行媒体的格式化时

重新格式化媒体时，请移动到 IP-420 上进行格式化。用电脑格式化的媒体不能在 IP-420 上进行读取。



① 显示媒体格式化画面

持续 3 秒钟按 **M** 开关之后，在画面上显示出媒体格式化

按钮  **A**。按此按钮之后，显示出媒体格式化画面。



② 开始媒体格式化

把想要格式化的媒体放到媒体插孔里，关上护盖，按确定（回车）

按钮  **B** 之后，开始格式化。

格式化之前，请把媒体内重要的数据保存到其他的媒体里。初期化之后，内部的数据将被消去。

如果连接了复数个媒体的话，则根据优先顺序决定格式化的媒体。顺序为

高 ← 低



CF (TM) 插口 ← USB 机器 1 ← USB 机器 2 ← ,

因此，如果在 CF (TM) 插口上插入了 CompactFlash (TM) 的话，CompactFlash (TM) 首先被格式化。

有关通讯的优先顺序，请参照 USB 的规格。


4-20. X·Y 马达位置偏移异常时的操作

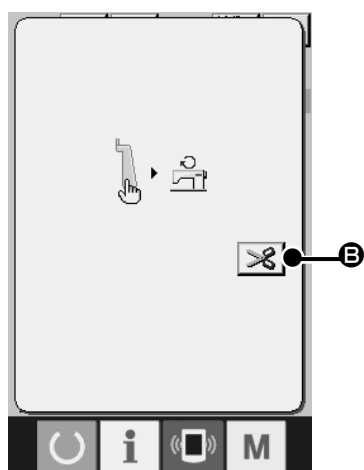
XY 马达检测了位置偏移之后，异常画面被显示出来。
用存储器开关的选择功能可以变更异常显示的时间。详细内容请参照服务手册。

(1) 缝制中显示时




① 解除异常

按复位按钮  **A**，解除了异常之后，切线凸起画面被显示出来。

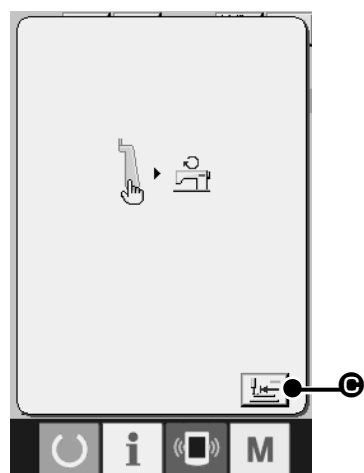


② 进行切线

确认缝迹，如果没有问题时，就劫浊按开始开关，重新开始缝制。

如果有问题的话，按切线按钮  **B**，进行切线。

进行切线之后，前进后退送布凸起画面被显示出来。



③ 把压脚移动到重新缝制的位置。

另外，按了原点复位按钮  **C** 之后，凸起画面关闭，显示缝制画面然后返回到缝制开始的位置。


④ 重新开始缝制

按了开始开关之后，缝制重新开始。

(2) 缝制结束后被显示时



① 解除异常

按复位按键  **A**，解除了异常之后，缝制画面被显示出来。

② 从最初重新进行缝制

按了开始开关之后，缝制开始。

(3) 没有显示复位开关时

检测到有较大偏移后，复位开关不显示。



① 关掉 (OFF) 电源。

5. 存储器开关数据一览

存储器开关数据是缝纫机通用的动作数据，所有的缝制图案具有通用作用的数据。

5-1. 数据一览





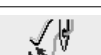

No.	项目		设定范围	编辑单位
U001	缝制的最高速度		200 ~ 2800	100sti/min
U002	第 1 针的缝制速度 有抓线时		200 ~ 900	100sti/min
U003	第 2 针的缝制速度 有抓线时		200 ~ 2800	100sti/min
U004	第 3 针的缝制速度 有抓线时		200 ~ 2800	100sti/min
U005	第 4 针的缝制速度 有抓线时		200 ~ 2800	100sti/min
U006	第 5 针的缝制速度 有抓线时		200 ~ 2800	100sti/min
U007	第 1 针的线张力 有抓线时		0 ~ 200	1
U008	切线时的线张力设定		0 ~ 200	1
U009	切线时的线张力变换同步时间		- 6 ~ 4	1
U010	第 1 针的缝制速度 无抓线时		200 ~ 1500	100sti/min
U011	第 2 针的缝制速度 无抓线时		200 ~ 2800	100sti/min
U012	第 3 针的缝制速度 无抓线时		200 ~ 2800	100sti/min
U013	第 4 针的缝制速度 无抓线时		200 ~ 2800	100sti/min
U014	第 5 针的缝制速度 无抓线时		200 ~ 2800	100sti/min
U015	第 1 针的线张力 无抓线时		0 ~ 200	1
U016	开始缝制时的线张力变换同步时间 无抓线时		- 5 ~ 2	1

No.	项目	设定范围	设定范围
U032	可以禁止蜂鸣音    无蜂鸣音 操作盘操作音 操作盘操作音 + 异常音	---	---
U033	设定抓针的放针数 	1 ~ 7	1
U034	可以推迟抓针的同步 	- 10 ~ 0	1
U035	可以禁止抓线控制   通常 禁止	---	---
U036	选择送布动作同步 紧线不好时，设定为一方向 	- 8 ~ 16	1
U039	每次缝制结束后可以检索原点（组合缝制以外）   无原点检索 有原点检索	---	---
U042	设定机针停止位置   上位置 上死点	---	---
U046	可以禁止切线   通常 禁止切线	---	---
U048	可以选择用原点复位按钮的原点复位路径    直线复位 返回图案 原点检索→缝制开始点	---	---
U049	可以设定卷线速度 	800 ~ 2000	100sti/min
U051	可以选择挑线杆的动作方法   无效 电磁式挑线杆	---	---
U068	可以设定线张力设定时的线张力输出时间 	0 ~ 20	1
U069	选择抓线的弯曲位置 1 : H 规格细线 (#50 ~ #8) 2 : H 规格中间 (#20 ~ #5) 3 : H 规格粗线 (#5 ~ #2) 	---	---
U070	选择抓线 · 抓线位置   前方位置 后方位置	---	---

No.	项目	设定范围	设定范围
U071	选择切线检测  切线检测无效 切线检测有效	---	---
U072	切线检测时缝制开始的无效针数 	0 ~ 15 针	1 针
U073	切线检测时缝制中途无效针数 	0 ~ 15 针	1 针
U091	止动器补偿动作 · 选择动作  不动作 动作	---	---
U094	原点检索 / 原点复位时, 选择针上死点  否 是	---	---
U097	暂停 · 切线操作  自动切线 手动切线 (用停止 SW 切线)	---	---
U101	主马达 XY 传送同步控制 · 速度 / 间距  2800sti/min /4.0mm 2200sti/min /4.0mm 1800sti/min /4.0mm 1400sti/min /4.0mm	---	---
U103	中压脚控制的有无  无 有 有 (下降固定) (运转时, 根据缝制数据下降) (前进·后退时均下降)	---	---
U104	中压脚下降同步  缝纫机机头启动之前 与最后的外压脚同步	---	---
U105	中压脚 / 挑线杆挑线位置  中压脚上挑线 中压脚上挑线 中压脚下挑线 (中压脚下最低位置)	---	---
U108	检测空气压力的有无  无 有	---	---

No.	项目	设定范围	设定范围
U112	中压脚下位置的设定 → 请参阅“1-4-1. (7) 中压脚的高度” p14。 	0 ~ 7.0mm	0.1
U117	固定躲避位置、X 坐标 	- 800 ~ 800mm	0.1mm
U118	固定躲避位置、Y 坐标 	- 800 ~ 800mm	0.1mm
U129	机针冷却控制的有无  无 有	---	---
U245	加润滑脂异常清除加润滑脂针数。 → 请参阅“111-1-15. 向指定部位补充润滑脂” p. 124。 	---	---
U500	语言的选择 日本語 English 中文繁體字 中文简体字 日文 英文 中文（繁体字） 中文（简体字） Español Italiano Français Deutsch 西班牙文 意大利文 法文 德文 Português Türkçe Tiếng Việt 한국어 葡萄牙文 土耳其文 越南文 韩文 Indonesia Русский 印尼文 俄文		
U501	接头带宽度 	10 ~ 50	1mm
U502	接缝带检测有效  标准 反转	---	---
U503	接缝传感器有效无效  有效 无效	---	---
U504	长带拉出式，缝制速度限制 	200 ~ 2000	100 sti/min
U505	拉出传感器有效无效  有效 无效	---	---
U506	带放置台有效无效  有效 无效	---	---

5-2. 初始值一览表

No.	项目	初始值
U001	缝制的最高速度	2000
U002	第 1 针的缝制速度（有抓线时）	900
U003	第 2 针的缝制速度（有抓线时）	2000
U004	第 3 针的缝制速度（有抓线时）	2000
U005	第 4 针的缝制速度（有抓线时）	2000
U006	第 5 针的缝制速度（有抓线时）	2000
U007	第 1 针的线张力（有抓线时）	200
U008	切线时的线张力设定	0
U009	切线时的线张力变换同步时间	0
U010	第 1 针的缝制速度（无抓线时）	300
U011	第 2 针的缝制速度（无抓线时）	400
U012	第 3 针的缝制速度（无抓线时）	600
U013	第 4 针的缝制速度（无抓线时）	1500
U014	第 5 针的缝制速度（无抓线时）	2000
U015	第 1 针的线张力（无抓线时）	0
U016	开始缝制时的线张力变换同步时间（无抓线时）	- 5
U032	可以禁止蜂鸣音	
U033	设定抓针的放针数	2
U034	可以推迟抓针的同步	0
U035	可以禁止抓线控制	
U036	选择送布动作同步	3
U039	每次缝制结束后可以检索原点（组合缝制以外）	
U042	设定机针停止位置	
U046	可以禁止切线	
U048	可以选择用原点复位按键的原点复位路径	
U049	可以设定卷线速度	1600
U051	可以选择挑线杆的动作方法	
U068	可以设定线张力设定时的线张力输出时间	20
U069	选择抓线的弯曲位置	H 规格 : 1
U070	选择抓线 · 抓线位置	

No.	项目	初始值
U071	选择切线检测	
U072	切线检测时缝制开始的无效针数	8
U073	切线检测时缝制中途无效针数	3
U088	放大缩小功能模式	
U091	止动器补偿动作 · 选择动作	
U094	原点检索 / 原点复位时, 选择针上死点	
U097	暂停 · 切线操作	
U101	主马达 XY 传送同步控制 · 速度 / 间距	
U103	中压脚控制的有无	
U104	中压脚下下降同步	
U105	中压脚 / 挑线杆挑线位置	
U108	检测空气压力的有无	
U112	中压脚下位置的设定	3.5
U117	固定躲避位置、X 坐标	107.0
U118	固定躲避位置、Y 坐标	46.0
U129	机针冷却控制的有无	
U245	加润滑脂异常清除加润滑脂针数。	-
U500	语言的选择	未设定
U501	接缝带长度	18 mm
U502	接缝带检测有效	
U503	接缝传感器有效无效	
U504	长带拉出式, 缝制速度限制	200
U505	拉出传感器有效无效	
U506	带放置台有效无效	

6. 异常代码一览

异常代码	显示	异常内容	显示信息	复位方法
E007		缝纫机锁定 由于发生某种故障，缝纫机主轴不转动	缝纫机正在锁定。	电源 OFF
E008		机头插头异常 不能读取机头存储器	选择了未定义机头。	电源 OFF
E010		图案 No. 异常 后备的图案 No. 没有被登记到数据 ROM，或设定为不能读出	没有指定的图案。	复位后可以重新输入
E011		外部媒体未插入 外部媒体没有插入	没有插入媒体。	复位后可以重新输入
E012		读取异常 从外部媒体不能读取数据	无法读数据。	复位后可以重新启动
E013		写入异常 不能从外部媒体写入数据	无法写数据。	复位后可以重新启动
E015		初期化异常 不能初期化	不能格式化。	复位后可以重新启动
E016		外部媒体容量不足 外部媒体的容量不够	容量不足。 (媒体)	复位后可以重新启动
E017		缝纫机存储器容量超量 缝纫机存储器容量不够	容量不足。 (缝纫机)	复位后可以重新启动
E019		文件尺寸过大 文件过大	图案数据过大。 (约50,000针)	复位后可以重新启动
E024		图案数据超过尺寸 存储器尺寸超过	超过了内存尺寸。	复位后可以重新启动

异常代码	显示	异常内容	显示信息	复位方法
E027		读取异常 不能读取管理人来的数据	无法读数据。	复位后可以重新启动
E028		写入异常 不能写入管理人来的数据	无法写数据。	复位后可以重新启动
E029		媒体插口开放异常 媒体插口的盖打开	媒体插槽的盖子打开着。	复位后可以重新启动
E030		针杆位置异常 针杆不在规定的位置	机针不在正确的位置。	请转动飞轮，把针杆返回到规定位置
E031		空气压力过低 空气的压力过低	空气压力过低。	复位后可以重新启动
E032		文件兼容异常 文件不能读取	文件不能读取。	复位后可以重新启动
E040		超过缝制范围	超过了移动范围。	复位后可以重新启动
E043		放大异常 最大间距超	超过了最大缝距。	复位后可以重新启动
E045		图案数据异常	图案数据损坏了。	复位后可以重新启动
E050		停止开关 缝纫机起动种停止开关被按后	暂停开关被按了。	复位后可以重新启动
E052		断线检测异常 检测到断线时	检测出断线了。	复位后可以重新启动
E061		存储器开关数据异常 存储器开关数据损坏或版本老	存储器开关异常	电源 O F F



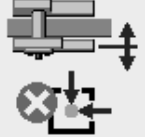
异常代码	显示	异常内容	显示信息	复位方法
E204		USB 连接出错 连接着 USB 机器缝制了 10 次以上时	缝制中请不要连接 USB 存储器等。	复位后可以重新启动
E220		润滑油缺油警告 动作 10,000 万针后 → 请参阅“111-1-15. 向指定部位补充润滑脂” p. 124。	重要: 润滑脂没有了。 请加润滑脂。	复位后可以重新启动
E221		润滑油缺油异常 动作 12,000 万针后变成不能缝制状态 可以用存储器开关 U245 清除 → 请参阅“111-1-15. 向指定部位补充润滑脂” p. 124。	重要: 润滑脂没有了。 请加润滑脂。	复位后可以重新启动
E302		确认机头部放倒 机头放倒传感器 OFF 时	机头翻倒了。	复位后可以重新启动
E305		剪刀位置异常 剪刀不在正规位置	不能检测 切线刀传感器。	电源 OFF
E306		抓线位置异常 抓线位置不在正规位置	不能检测抓线传感器。	电源 OFF
E307		外部输入命令超时异常 图标数据的外部输入命令规定的时间内没有输入	由于矢量数据的外部输入命令一定时间没有输入。	复位后可以重新启动
E308		待机端子的超时异常 一定时间内没有向待机端子输入	从待机端子一定时间没有输入。	电源 OFF
E387		不能识别图案花样 在自动 1 模式, 按下开始开关时, 如果衣身没有被安放或者衣身检测传感器检测不到衣身。	不能识别衣身。	复位
E388		有带异常 供带时, 或者带缝制结束时, 拉出装置里有带。	拉出装置里有带。	复位
E389		缝制开始无带异常 带缝制开始时, 拉出装置里没有带。	拉出装置里没有带。	复位

异常代码	显示	异常内容	显示信息	复位方法
E390		接缝检测异常 检测到接缝。请去除。	检测出接缝。 请拆除。	复位
E391		无带异常 缝制开始时，被指定的带防止台上没有带。	带放置台上没有带。	复位
E392		定位销传感器异常 定位销动作时，传感器没有正确地反应。	定位销传感器异常	电源OFF
E393		带供料装置传感器异常 带供料装置在前进退避动作时，传感器没有正确地反应。	供带装置传感器异常	电源OFF
E395		图案花样的外部输出的数量、顺序异常。	图案花样的外部输出数量、 顺序异常。	复位
E497		文件夹名称重复异常 输入的文件夹名称已经存在。	按了暂停开关。	复位
E498		代码名称不能变更异常 此代码名称已经存在，因此不能变更。	这个代码名称已经存在 因此不能变更。	复位
E499		条形码未登记异常 条形码未登记	没有登记条形码	复位
E703		操作盘与缝纫机错误连接（机种异常） 初期通信时，系统的机种代码不一致	操作盘和缝纫机的机种不配套。	按了通信开关之后， 可以改写程序。
E704		系统的版本不一致 初期通信时，系统软件的版本不一致	程序的版本 不对。	按了通信开关之后， 可以改写程序。
E730		主轴马达调节器不良 缝纫机马达的调节器异常时	缝纫机马达不良。 （编码器A,B相）	电源OFF




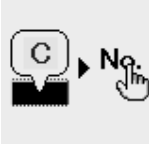



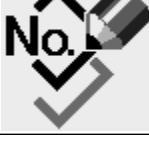

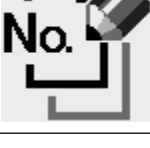
异常代码	显示	异常内容	显示信息	复位方法
E731		主轴马达传感器不良 · 位置传感器不良 缝纫机马达的传感器或位置传感器不良时	缝纫机马达不良。 (编码器U,V,W相)	电源OFF
E733		主轴马达倒转 缝纫机马达倒转时	缝纫机马达逆转。	电源OFF
E797		SUB 电路板初期化异常	SUB电路板初期化异常	电源OFF
E798		SUB 状态异常	SUB状态异常	电源OFF
E799		MAIN 状态异常	MAIN状态异常	电源OFF
E802		电源瞬间检测	电源瞬间切断了。	电源OFF
E811		电压过高 输入电源在规定值以上时	输入电压过高。 (确认输入电压)	电源OFF
E813		电压过低 输入电源在规定值以下时	输入电压过低。 (确认输入电压)	电源OFF
E901		主轴马达 IPM 异常 伺服控制电路板的 IPM 异常时	SDC 电路板不良。 (IPM)	电源OFF
E903		脉冲马达电源异常 伺服控制电路板的脉冲马达电源在 ±15% 以上变动时	SDC 电路板的电源不良。 (脉冲马达电源85V)	电源OFF
E904		继电器电源异常 伺服控制电路板的继电器电源在 ±15% 以上变动时	SDC 电路板的电源不良。 (电磁电源33V)	电源OFF

异常代码	显示	异常内容	显示信息	复位方法
E905		伺服控制电路板用加热器温度异常 伺服控制电路板的加热器过热 放置一段时间后重新打开电源	检测到 SDC电路板的温度上升。	电源OFF
E907		X 送布马达原点检索异常 原点检索时，原点传感器信号不能输入时	找不到X马达的原点。 (X原点传感器)	电源OFF
E908		Y 送布马达原点检索异常 原点检索时，原点传感器信号不能输入时	找不到Y马达的原点。 (Y原点传感器)	电源OFF
E910		压脚马达原点检索异常 原点检索时，原点传感器信号不能输入时	找不到 压脚切线马达的原点。 (压脚切线原点传感器)	电源OFF
E913		抓线原点检索异常 原点检索动作时，没有输入原点传感器信号时	找不到 抓线马达的原点。 (抓线原点传感器)	电源OFF
E914		送布不良异常 发生送布和主轴的同步偏差	检测到XY传送不良。	电源OFF
E915		操作盘 ↔ 主 CPU 之间通信异常 数据通信发生异常时	不能通信。 (操作盘 - 主电路板)	电源OFF
E916		主 CPU ↔ 主轴 CPU 之间通信异常 数据通信发生异常时	不能通信。 (主电路板 - 缝纫机马达电路板)	电源OFF
E917		操作盘 ↔ 电脑之间不能通信 数据通信发生异常时	不能通信。 (操作盘 - PC)	复位后可以重新启动
E918		MAIN 电路板过热 主电路板过热 请关掉电源，等一段时间之后，再重新打开 (ON) 电源。	检测到 主电路板的温度上升。	电源OFF
E925		中压脚马达原点检索异常 原点检索时，中压脚马达的原点传感器不变化	找不到 中压脚马达的原点。 (中压脚原点传感器)	电源OFF

异常代码	显示	异常内容	显示信息	复位方法
E926		X 马达位置偏移异常	X 传送马达的位置错位了。	<ol style="list-style-type: none"> 缝制中显示异常时 复位后，可以重新启动 缝制结束后显示异常时 复位后，可以重新启动 其他情况时 电源 OFF
E927		Y 马达位置偏移异常	Y 传送马达的位置错位了。	<ol style="list-style-type: none"> 缝制中显示异常时 复位后，可以重新启动 缝制结束后显示异常时 复位后，可以重新启动 其他情况时 电源 OFF
E928		剪线马达位置偏移异常	切线马达的位置错位了。	电源 OFF
E930		中压脚马达位置偏移异常	中压脚马达的位置错位了。	电源 OFF
E931		X 马达超负荷异常	X 传送马达的负荷过大。	电源 OFF
E932		Y 马达超负荷异常	Y 传送马达的负荷过大。	电源 OFF
E933		剪线马达超负荷异常	切线马达的负荷过大。	电源 OFF
E935		中压脚马达超负荷异常	中压脚马达的负荷过大。	电源 OFF
E936		XY 马达框外异常	传送马达位置超过了缝制范围。	电源 OFF

异常代码	显示	异常内容	显示信息	复位方法
E943		主控制电路板不良 不能向主控制电路板写入数据时	主电路板不良。	电源OFF
E946		机头连接电路板不良 不能向机头连接电路板写入数据时	机头电路板不良。	电源OFF
E998		导向器宽度马达原点渐斐异常	导向宽度马达原点检索异常	电源OFF

7. 信息一览

信息 No.	显示	显示信息	内容
M520		消去。 确认吗？	确认用户图案的消去 消去。确认吗？
M521		消去。 确认吗？	确认图案按钮的消去 消去。确认吗？
M522		消去。 确认吗？	确认循环图案的消去 消去。确认吗？
M523		图形数据尚未保存。 删除吗？	认备份数据的消去 图形数据尚未保存。删除吗？
M528		覆盖保存。 确认吗？	确认用户图案的改写 覆盖保存。确认吗？
M529		覆盖保存。 确认吗？	媒体的改写确认 覆盖保存。确认吗？
M530		覆盖保存。 确认吗？	确认操作盘的图标数据 / M3 数据 / 缝制标准格式数据 / 简易程序数据的改写 覆盖保存。确认吗？
M531		覆盖保存。 确认吗？	媒体数据的图标数据 / M3 数据 / 缝制标准格式数据 / 简易程序数据的改写 覆盖保存。确认吗？
M532		覆盖保存。 确认吗？	确认 PC 上的图标数据 / M3 数据 / 缝制标准格式数据 / 简易程序数据的改写 覆盖保存。确认吗？
M534		覆盖保存。 确认吗？	确认媒体的调整数据、自动缝纫机数据的改写 覆盖保存。确认吗？

信息 No.	显示	显示信息	内容
M535		覆盖保存。 确认吗？	确认 PC 的调整数据和全缝纫机数据的 改写 覆盖保存。确认吗？
M537		删除。 确认吗？	确认线张力指令的消除 删除。确认吗？
M538		删除。 确认吗？	确认中压脚增减值的削除 删除。确认吗？
M542		格式化。 确认吗？	确认格式 格式化。确认吗？
M544		数据不存在。	没有对应操作盘的数据 数据不存在。
M545		数据不存在。	没有对应媒体的数据 数据不存在。
M546		数据不存在。	没有对应 PC 的数据 数据不存在。
M547		数据已存在不能覆盖保存。	禁止图案数据的改写 数据已存在不能覆盖保存。
M548		数据已存在不能覆盖保存。	禁止媒体数据的改写 数据已存在不能覆盖保存。
M549		数据已存在不能覆盖保存。	禁止 PC 上的数据的改写 数据已存在不能覆盖保存。
M550		存在本体输入的备份数据。	通知主机输入的备份数据 存在本体输入的备份数据。

信息 No.	显示	显示信息	内容
M554		初始化了 止动键特别数据。	通知用户数据初期化 初期化了加密锁定用户数据。
M555		止动键特别数据 损坏了。 初始化吗？	损坏用户数据 加密锁定用户数据损坏。进行初期化 吗？
M556		初始化 止动键特别数据。 可以吗？	确认用户数据初期化 初期化加密锁定用户数据。可以吗？
M601		请选择输入方法。	传感器位置输入方法的选择 请选择输入方法。
M602		这是已经登记完的数据。	条形码记录不能登记 这是已经登记的数据。
M603		请安放前后身。	确认形状时，显示衣身安放 请安放前后身。
M604		清除接缝信息。 可以吗？	清除接缝信息的确认 清除接缝信息。可以吗？
M605		请输入条形码。	条形码记录的新作成 请输入条形码。
M606		保存。 可以吗？	条形码记录的改写确认 保存。可以吗？
M607		删除。 可以吗？	条形码记录的删除确认 删除。可以吗？
M608		删除。 可以吗？	文件夹的删除确认 删除。可以吗？

信息 No.	显示	显示信息	内容
M609		保存。 可以吗？	条形码记录的改写确认 保存。可以吗？
M653		正在格式化。	正在格式化 正在格式化。
M669		正在读取数据。	正在读取数据 正在读取数据。
M670		正在写入数据。	正在改写数据 正在写入数据。
M671		正在变换数据。	正在变换数据 正在变换数据。

III. 缝纫机的维修保养

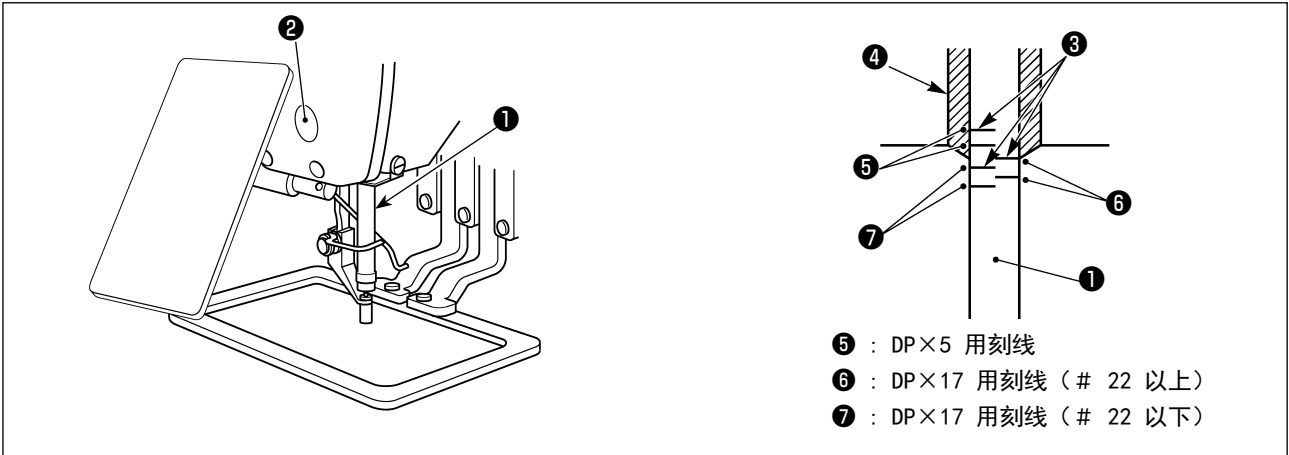
1. 保养

1-1. 针杆高度（改变机针长度）



警告

为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



* 请打开一次电源，待中压脚下下降之后，再把电源关闭。

- 1) 把针杆①降到最下点，拧松针杆套筒固定螺丝②，把针杆上刻线③调整对准针杆下端块④的下端。
- 2) 如上图所示，根据机针尺寸改变调节位置。



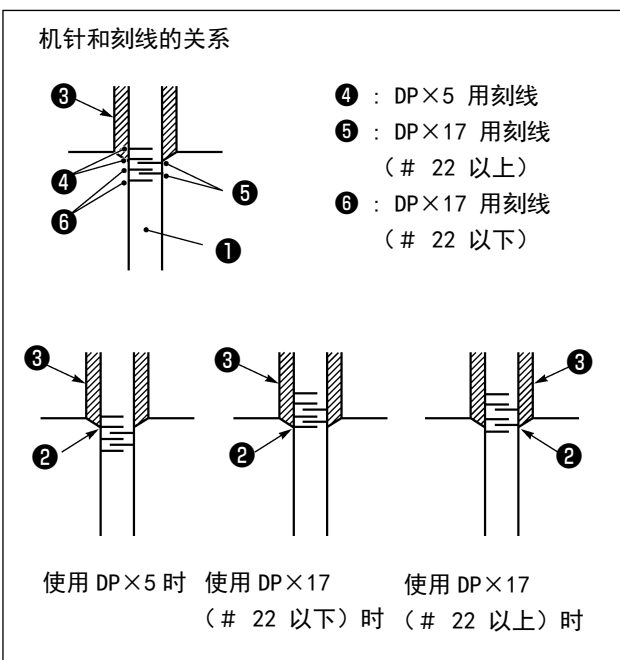
调节后请一定确认扭矩不要松弛。

1-2. 机针与旋梭



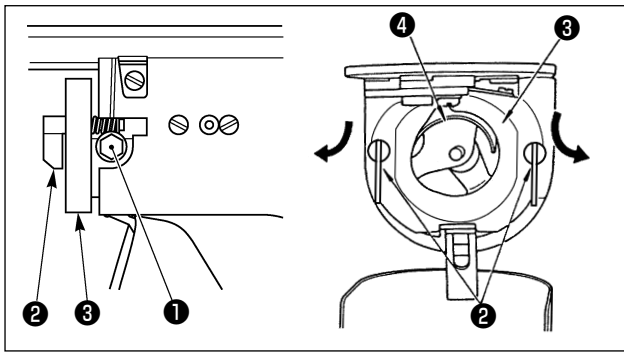
警告

为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



* 请打开一次电源，待中压脚下下降之后，再把电源关闭。

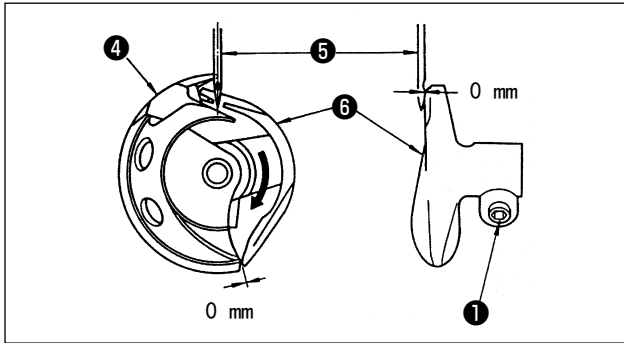
- 1) 用手转动皮带轮，针杆①上升时，把下刻线②对准针杆下挡块下端。



- 2) 拧松驱动固定螺丝①，左右打开中旋梭压片②，卸下中旋梭压脚③。



此时，要注意不要让中旋梭④掉下来。

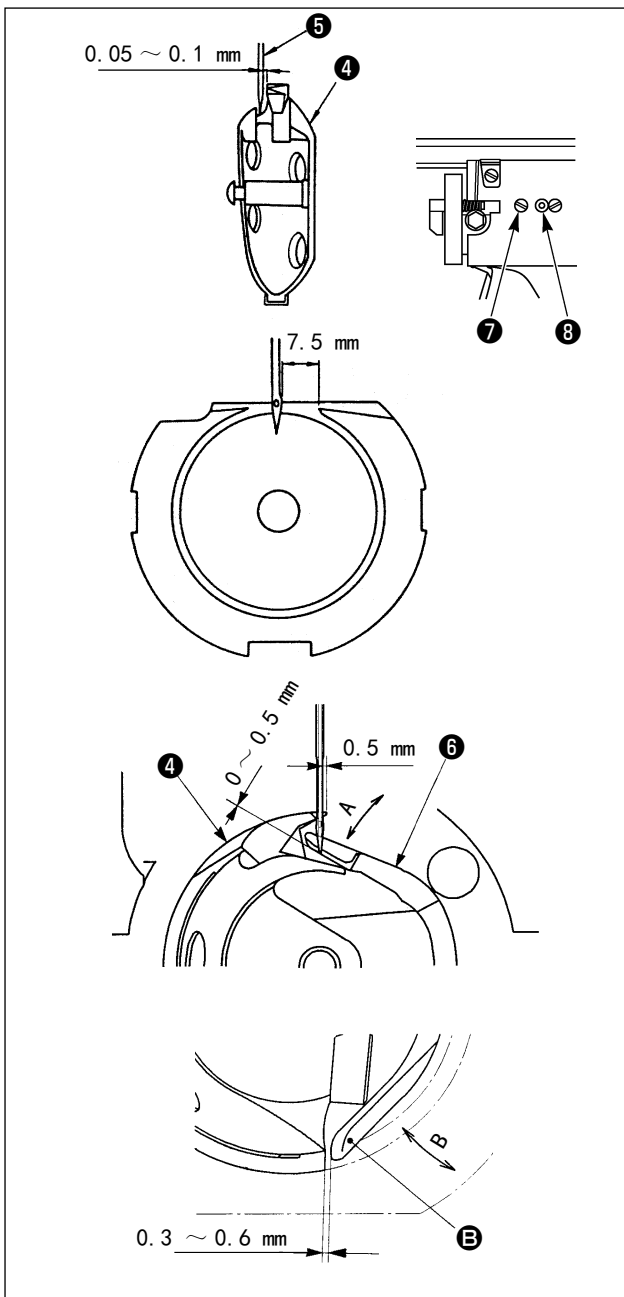


- 3) 为了让中旋梭④的梭尖与针⑤的中心一致，同时让驱动器⑥的前端面防止机针弯曲。因此，把机针和驱动器前端面的间隙调节为 0mm，然后拧紧驱动器固定螺丝①。

- 4) 拧松大旋梭固定螺丝⑦，左右转动大旋梭调节轴⑧，调节大旋梭的前后位置，把机针⑤和中旋梭④的梭尖的间隙调整为 0.05 ~ 0.1mm。

- 5) 调节完大旋梭的前后位置后，机针和大旋梭的间隙应为 7.5mm，然后拧紧大旋梭固定螺丝⑦。

- 6) 变更标准出货时的机针号后，或者使用新的驱动器时，请调整驱动器的高度。



[驱动器高度的调整]

- 1) 把中旋梭④的梭尖调节到对准机针⑤的中心，然后请拧紧驱动器的固定螺丝①。
- 2) 中旋梭④的梭尖从机针⑤的右端突出 0.5mm 后，把驱动器⑥的接针部向箭头 A 方向弯曲，让驱动器⑥的接针部下端从机针⑤的前端突出 0 ~ 0.5mm。
- 3) 把驱动器⑥的后端 B 向 B 方向弯曲，让驱动器⑥的后端 B 和中旋梭④的间隙为 0.3 ~ 0.6mm。
- 4) 进行上述 3) ~ 5) 的调整。



1. 把机针号换成较粗的机针后，请确认机针尖或中压脚和挑线杆的间隙。不能确保间隙时，不能使用挑线杆。这时，请关闭 (OFF) 挑线杆开关，变更存储器开关 U105 的设定值。

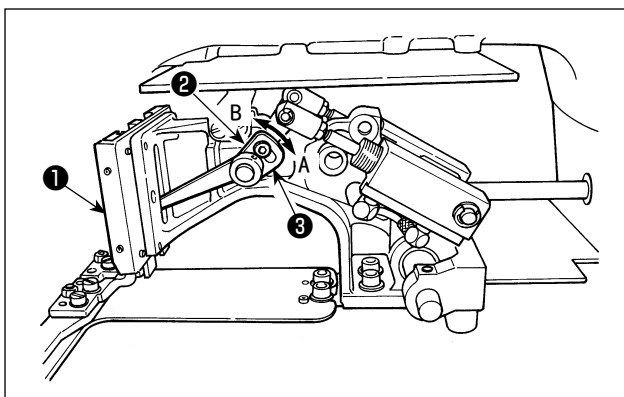
2. 驱动器的接针高度如果不适合的话，会发生中旋梭尖磨损，跳针等故障。

1-3. 压脚的高度和角度



为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。

(1) 压脚的高度

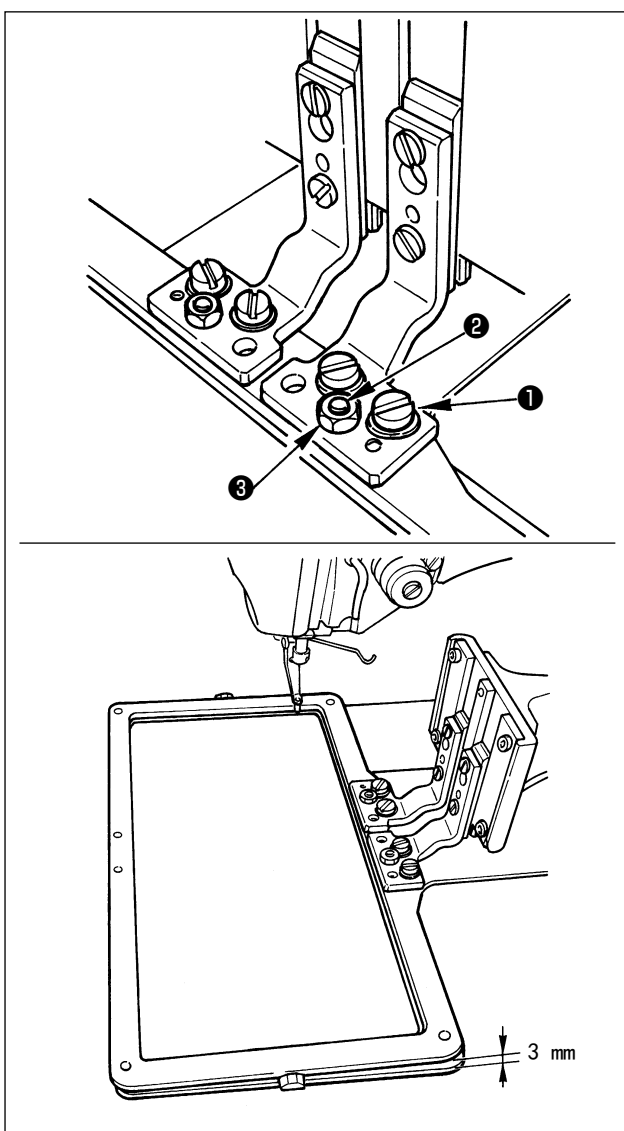


- 1) 拧松送布台①左右的固定螺丝②，把布压脚挡块③拨到B方向，压脚的高度变高。
- 2) 调整了高度后，拧紧固定螺丝②。

(2) 压脚的角度



为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



外压脚与平板平行之后，外压角前方的压脚压力会不足，请把外压脚的前方调节成稍稍向下的角度。

- 1) 拧松固定螺丝①和螺母③，顺时针转动调节螺丝②之后，外压脚前方下降。
- 2) 角度调节后，拧紧固定螺丝①和螺母③。



外压脚倾斜得过大时，外压脚有可能上升不了。

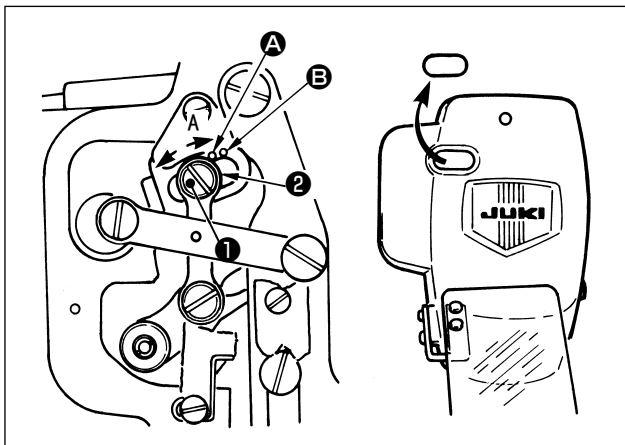
外压脚前端与针板面一致时，后端应高出针板面 3mm。

1-4. 中压脚的上下行程调节



警告

为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



* 请打开一次电源，待中压脚下降之后，再把电源关闭。

- 1) 取下面罩。
- 2) 转动皮带轮，把针杆移动到下死点。
- 3) 拧松平头螺丝①，把平头螺丝①的位置向A方向移动，行程变大。
- 4) 刻点A与垫片②的外周右侧一致时行程为4mm，与刻点B一致时行程为7mm。
(工厂出货时调节为4mm。)



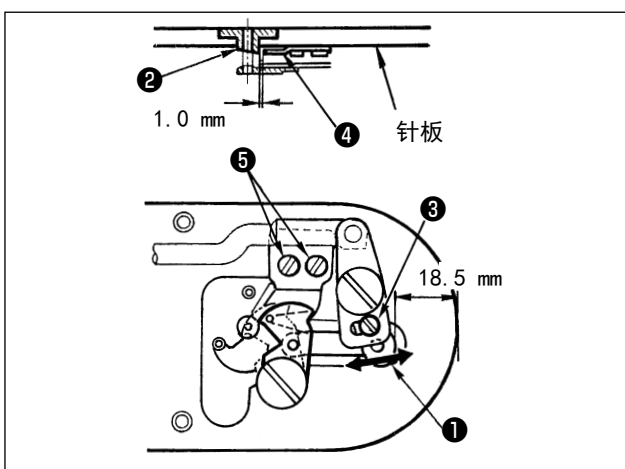
卸下面部护罩的橡胶栓，不用拆卸面部护罩也可以进行调整。

1-5. 移动刀和固定刀

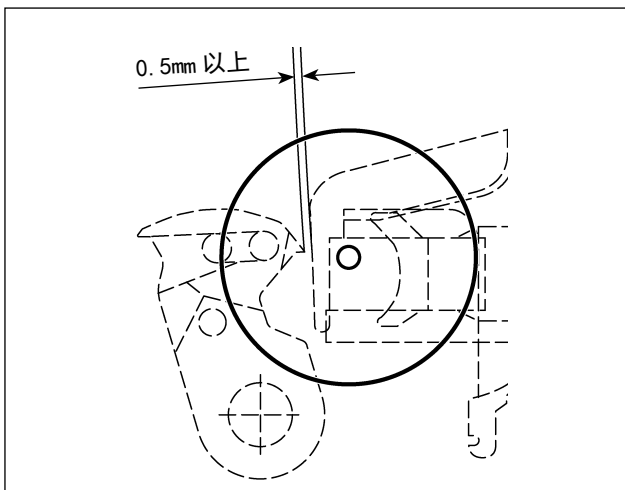


警告

为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



- 1) 拧松调节螺丝③，向箭头方向移动动刀，把从针板前端到切线小拨杆①前端的距离调整为18.5mm。
- 2) 拧松固定螺丝⑤，移动固定刀，把针孔导线器②和固定刀④之间的间隙调整为1.0mm。



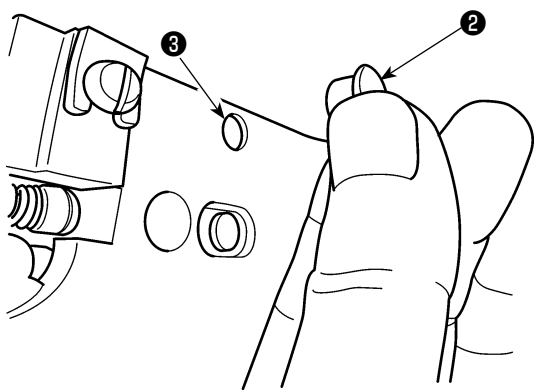
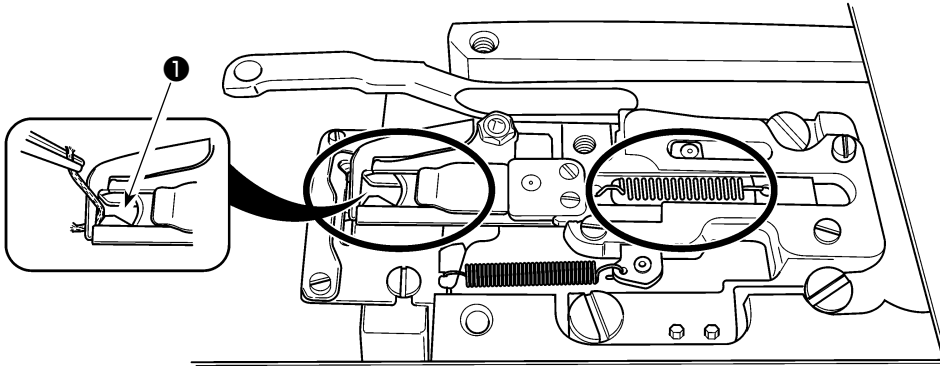
按IP操作盘的准备键检索原点时，请确认移动刀和抓线器前端的间隙应为0.5mm以上。
如果间隙不能达到0.5mm以上时，请在 18.5 ± 0.5 mm的范围内调整移动刀的位置，以确保间隙。

1-6. 抓线装置



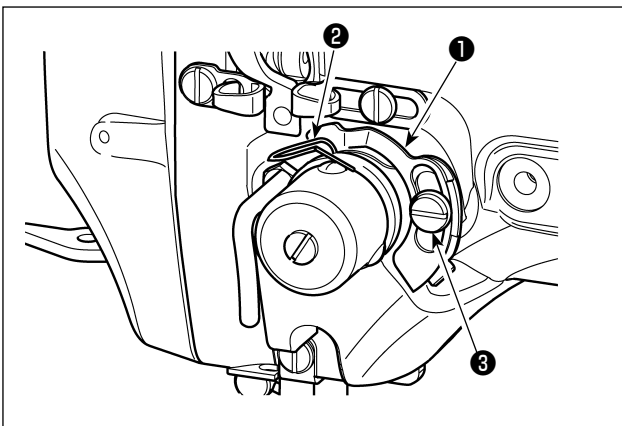
警告

为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。



如果抓线前端①抓线的话，抓线就不牢，有可能发生缝制开始的缝制故障。请用镊子等除去线头。圆圈内的部位上，容易积存线屑、线尘，因此请卸下针板，进行定期清扫，以及卸下橡胶栓②，向③的孔中吹气除掉尘埃。

1-7. 断线检测板

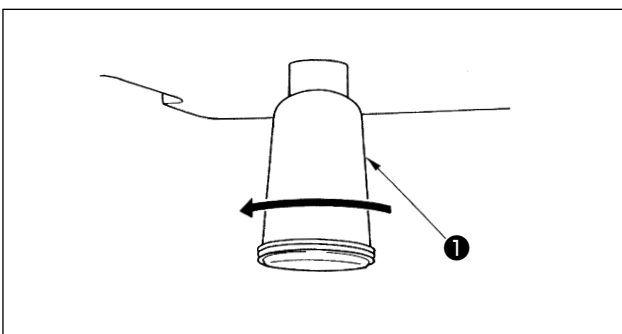


- 1) 没有穿线时，把断线检测板①和挑线弹簧②调整成相接触（垂度为0.5mm）。
- 2) 改变了挑线弹簧②的行程后，请拧松螺丝③，再次调整断线检测板①。



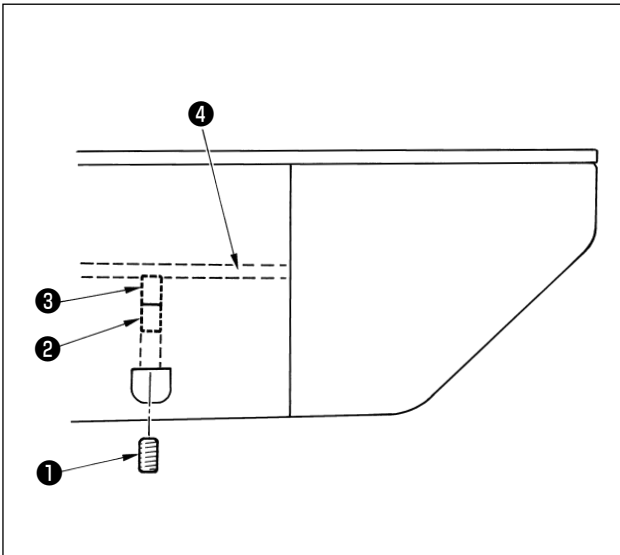
注意 断线检测板①除挑线弹簧②以外不能与其他金属部件相接触。

1-8. 废油的处理



积油杯①里积满了油之后，请卸下积油杯①排放出废油。

1-9. 旋梭的加油量



- 1) 拧松固定螺丝①，卸下固定螺丝①。
- 2) 拧紧调整螺丝②之后，加油管左④的油量被弄小。
- 3) 调整后，拧紧固定螺丝①固定好。

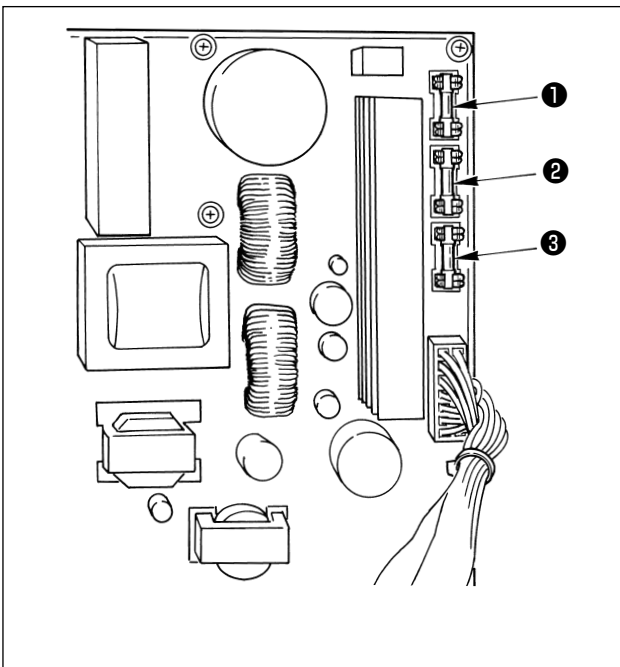


1. 在标准出货状态，轻轻拧紧③，回转4圈的位置。
2. 弄小油量时，不要一次拧紧，拧紧③回转2圈，待半日左右观看一下。拧得过紧的话会磨损旋梭。

1-10. 保险丝的更换



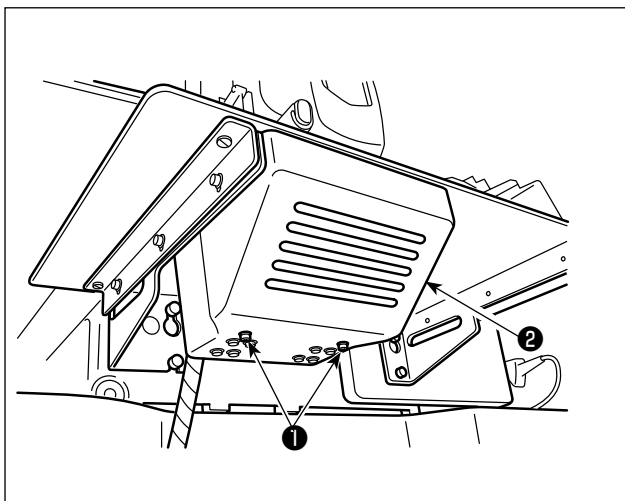
1. 为了防止触电事故，关掉电源5分钟之后再打开外罩。
2. 请一定关掉电源开关之后再打开控制箱的盖子，更换规定容量的保险丝。



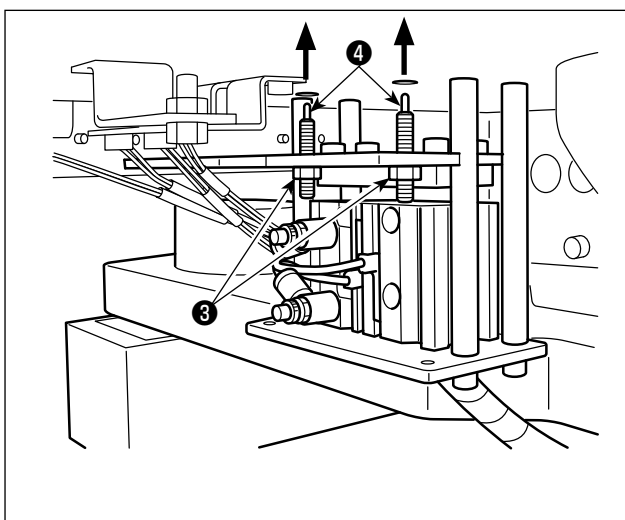
使用3个保险丝。

- ① 脉冲马达电源保护用
5A（延时保险丝）
- ② 电磁，脉冲马达电源保护用
3.15A（延时保险丝）
- ③ 控制电源保护用
2A（速断型保险丝）

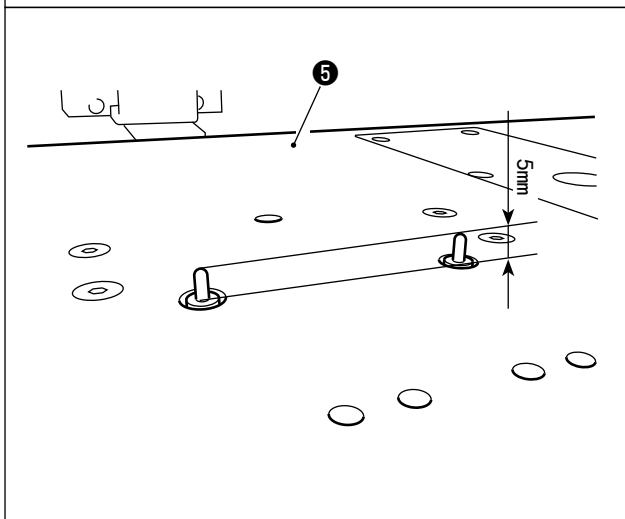
1-11. 定位销的更换方法



- 1) 操作前, 请拔掉电源和空气。
- 2) 拧下螺丝①, 取下护罩②。

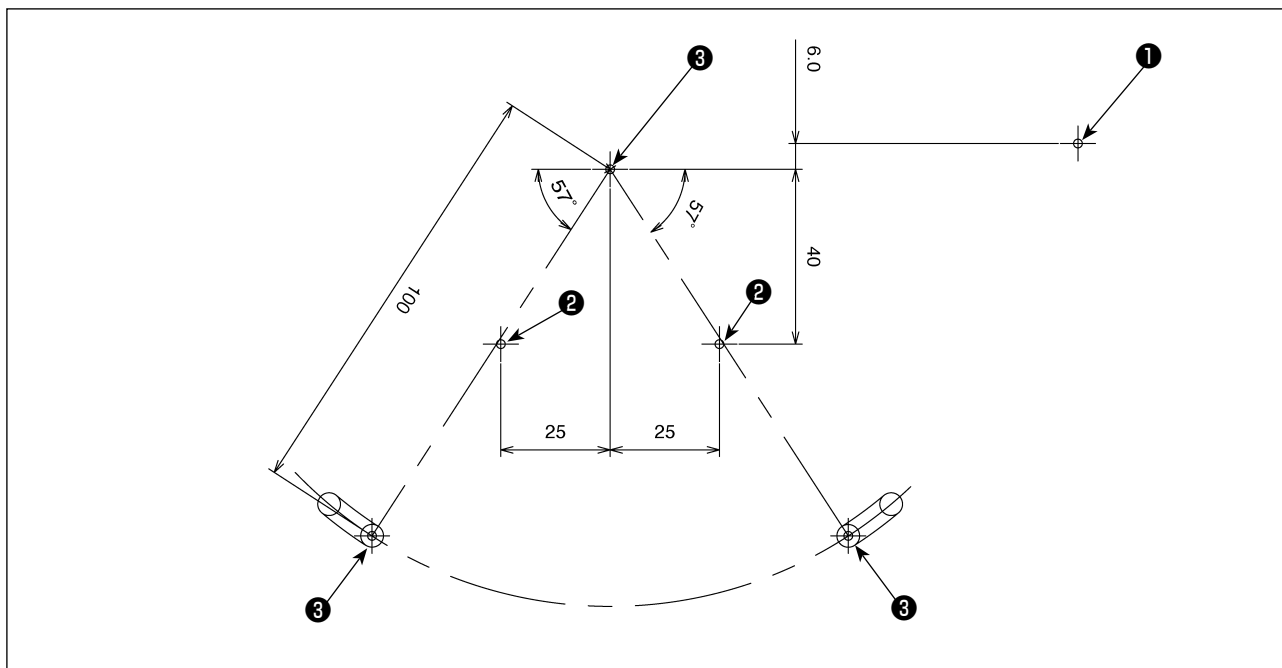


- 3) 拧松螺母③, 向上方向拔定位销④, 提升气缸。
- 4) 把定位销④的高度调整到销前端距离机台上面⑤ 5mm。
- 5) 决定位置, 用螺母③固定定位销④。



1. 使用 $50^{\circ} \sim 57^{\circ}$ 的长孔时, 请使用 2 个螺母③固定好定位销④。
2. 向下方向拔定位销④之后, 会被标记器勾住, 因此请一定向上方向拉。

1-12. 定位销位置的确认

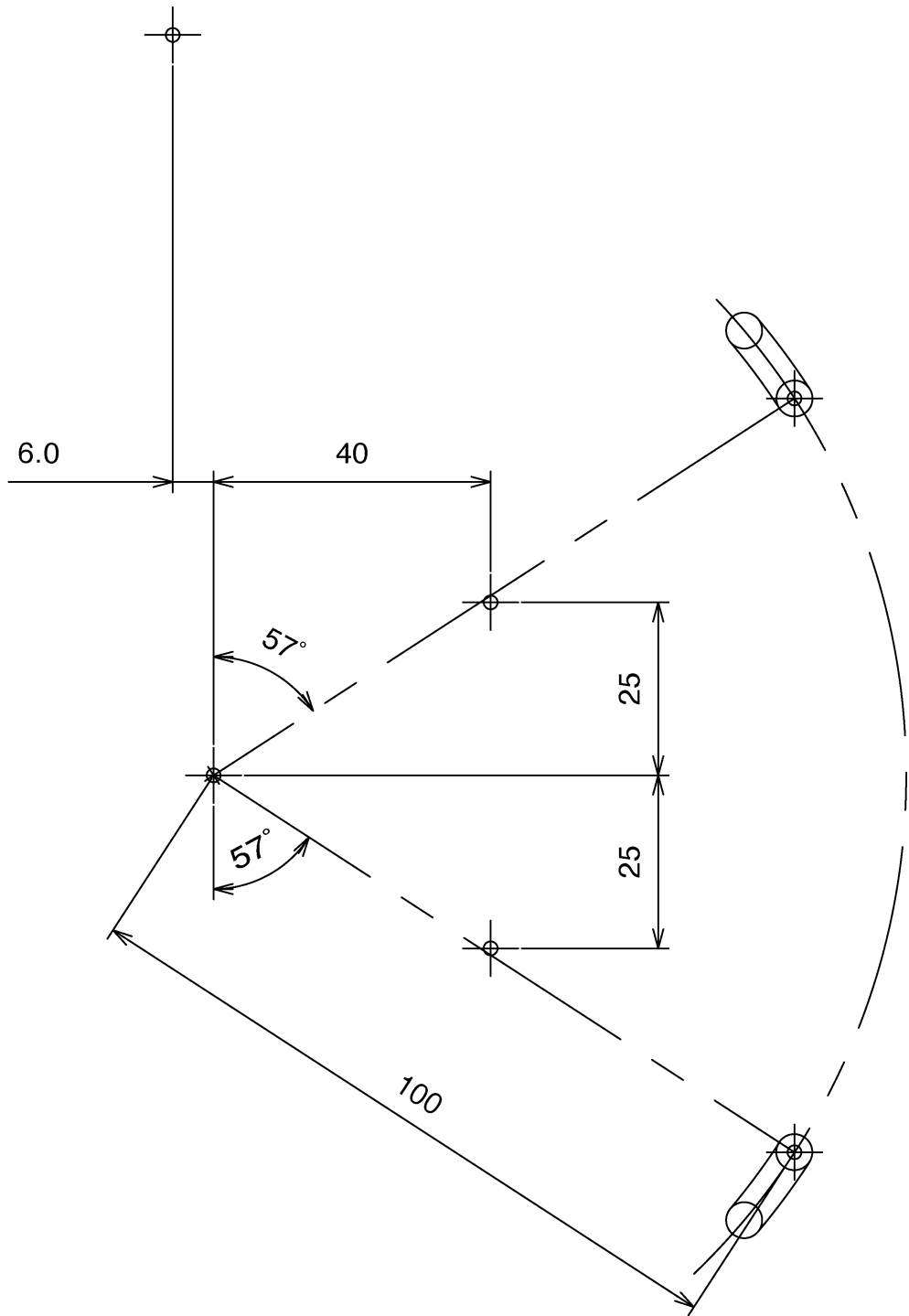


- 1) 在定位销原点贴片（参照 p. 121）的①②③的部位钻孔，然后放到针板上上面。
- 2) 把机针落到落针原点①。
- 3) 确认 2 销时，请确认是否把销插入 2 处的销孔②，确认 3 销时，请确认是否把销插入 3 处的小孔③。
- 4) 如果销位置发生偏移时，请参照「III-1-11. 定位销的更换方法」p. 119 的顺序，重新进行调整。



把定位销原点贴片粘贴到塑料板上，可以作为在规定位置钻孔的夹具进行利用。

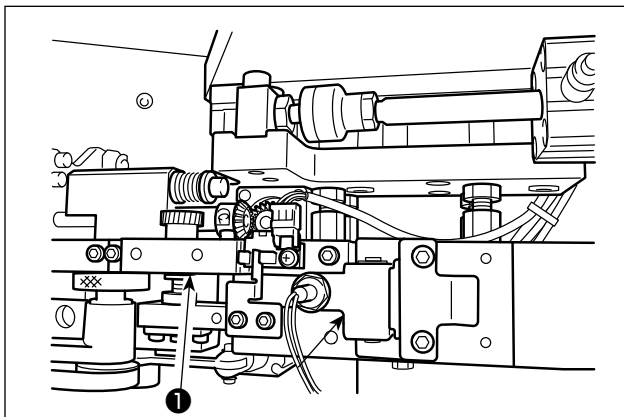
■ 定位销原点贴片



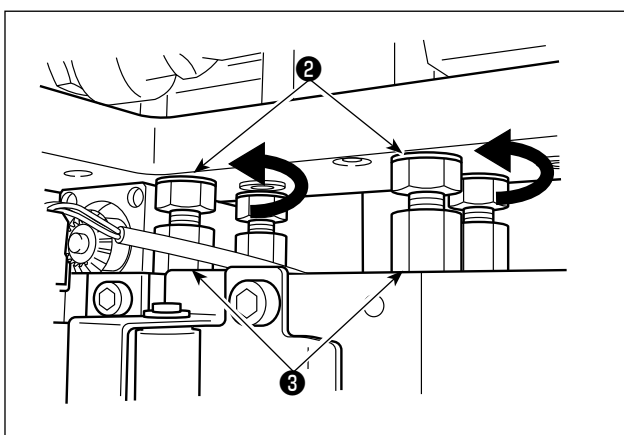
1-13. 切块宽度的调整方法



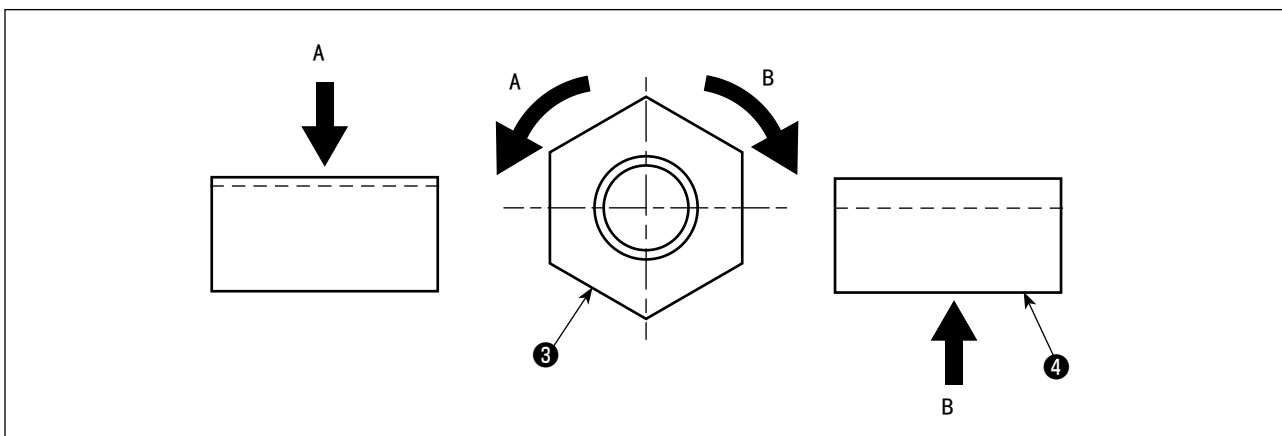
为了防止突然的启动造成人身事故，请关掉电源后再进行。



1) 取下护罩 B ①。



2) 向逆时针方向转动固定螺母②×4 拧松螺母。
转动螺母垫块③×4，调节导向器宽度。



3) 从操作者方向向 A 方向转动螺母垫块③×4 之后，带④向前方移动，切块宽度变小。
向 B 方向转动之后，带④向里侧移动，切块宽度变宽。

※ 工厂出货状态的切块宽度从 2.5mm 变更为 3.0mm 时，请向 B 方向转动调整切块宽度。

4) 调整结束之后，请拧紧螺母②，固定好位置。

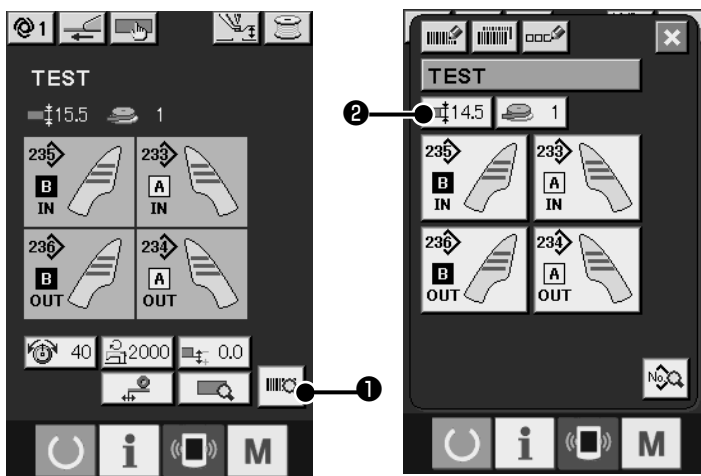



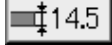
1. 请一定拔 4 个螺母垫块转动相同的量。
2. 调整时，请注意不要夹到电缆线。

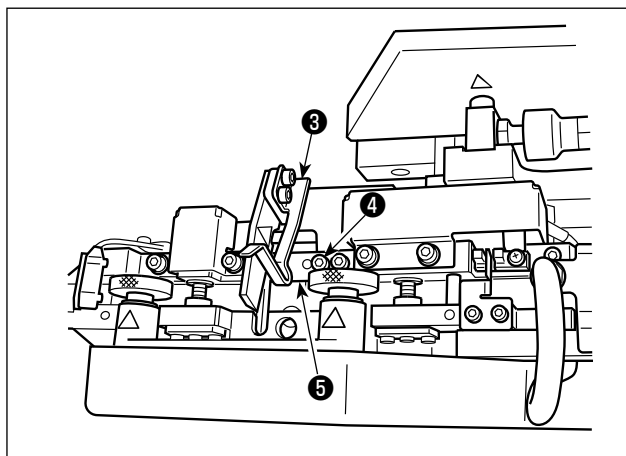
1-14. 切刀的调整方法



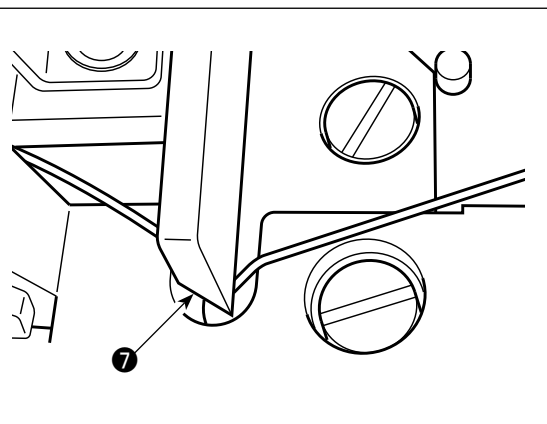
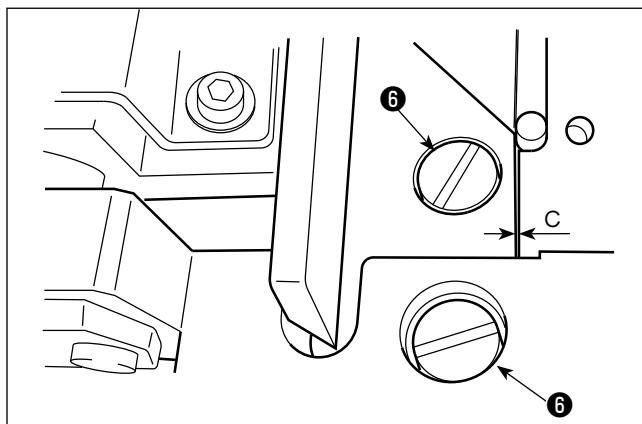
1. 为了防止突然的起动造成的事故，把带宽度设定为最小后，请一定关掉电源和空气之后再进行操作。
2. 请注意不要把手指插到上切刀和下切刀之间，以免发生受伤的危险。



- 1) 打开电源，长时间按数据编辑按键  **1**，显示出数据编辑画面。
按带宽度设定按键  **2**，把设定值设定为“10mm”。



- 2) 取下压带弹簧**3**，取下固定导向器固定螺丝**4**，然后卸下固定导向器**5**。



- 3) 拧松下切刀固定螺丝**6** × 2，把间隙 **C** 调整打开到 0.1 ~ 0.2mm。
调整后，拧紧下切刀固定螺丝**6**，请用切刀**7**的前端试着看看是否可以把缝纫机 60 号线切断。
※ 如果不能切断时，请扩宽间隙 **C**。
- 4) 调整后，用固定导向器固定螺丝**4**组装好固定导向器**5**。

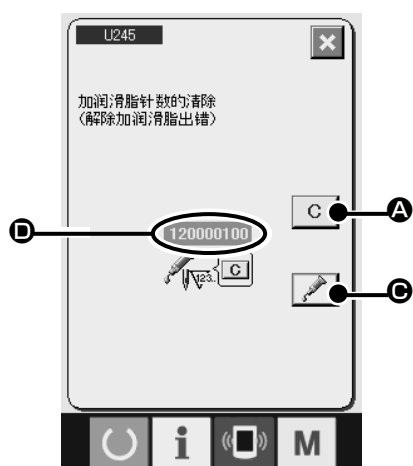
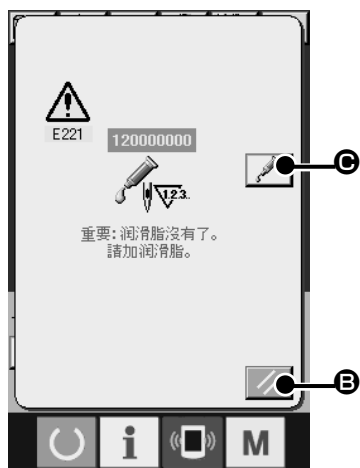
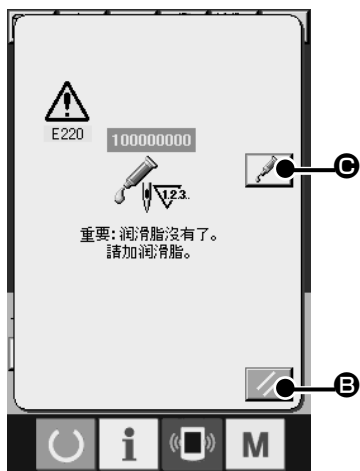


1. 如果间隙 **C** 扩大得过宽的话，上切刀和下切刀的接触压力变强，有可能损坏切刀刃，因此不要把间隙扩宽到 0.2mm 以上。
2. 请不要把下切刀固定螺丝**6**拧松固定。除了可能影响到切刀的锋利外，螺丝头有可能从导向器飞出，造成带堵塞故障。

1-15. 向指定部位补充润滑脂

※ 显示下列异常时或每年（较早的时间），请补充润滑脂。

由于清扫缝纫机等原因造成润滑脂减少时，请立即加以补充。



缝制了一定的针数之后，打开电源时，会显示出出错「E220 加润滑脂警告」。这是缝纫机自动通知现在到了需要向指定部位补充润滑脂的时期，因此请一定补加下列的润滑脂。然后，请呼出存储器开关 U245，按清除按键 **C** **A**，并把针数 **D** 设定为“0”。

显示出出错「E220 加润滑脂警告」后，虽然按复位键 **B**，可以解除出错，但是可以继续使用缝纫机，可是以后每次再打开电源时，还会显示出出错代码「E220 加润滑脂警告」。

另外，一旦显示出出错 No. E220 后，如果不补加润滑脂继续使用缝纫机一定时间后，则会显示出「E221 加润滑脂出错」，此时按了复位键也不能解除出错，而且缝纫机也不能动作。

显示出出错「E221 加润滑脂出错」后，请一定向下列指定部位补加润滑脂。然后，请呼出存储器开关 U245，按清除按键 **C** **A**，并把针数 **D** 设定为“0”。

请注意，如果不补加润滑脂按了复位键 **B** 的话，以后每次再打开电源时，都会显示出出错代码「E221 加润滑脂出错」，而且缝纫机也不能动作。



1. 补加了润滑脂后，如果不把针数 **D** 变更为“0”的话，就会再次显示出错误代码 E220 或显示出错误代码 E221。请注意 E221 被显示出来后，缝纫机就不能动作了。
2. 在各画面上，按了润滑脂涂抹位置显示按键 **C** 的话，润滑脂涂抹位置就可以通过操作盘的显示进行确认。但是，补加润滑脂时，请一定关闭电源之后再行补加操作。

(1) 专用润滑脂的放置部位

在图示的位置安放 JUKI 润滑脂 A ①和 B ② 2 种润滑脂，以及 JUKI 润滑脂 B 专用接头和固定螺丝。
请定期地（操作盘上显示出补充润滑脂警告 No. E220 或者 1 次 /1 年）补充润滑脂。
由于清扫缝纫机等原因造成润滑脂减少时，请立即加以补充。



请不要涂抹混合的润滑脂。同时，请一定涂抹指定的润滑脂。
在涂抹 JUKI 润滑脂 B 时，请使用润滑脂加入扳手和螺丝。补充 JUKI 润滑脂 A 时请不要使用。

		补充润滑脂 No.
JUKI 润滑脂 A	10g 软管	40006323
	100g 软管	23640204
JUKI 润滑脂 B	10g 软管	40013640

如果润滑脂量不足时，请购买润滑脂。

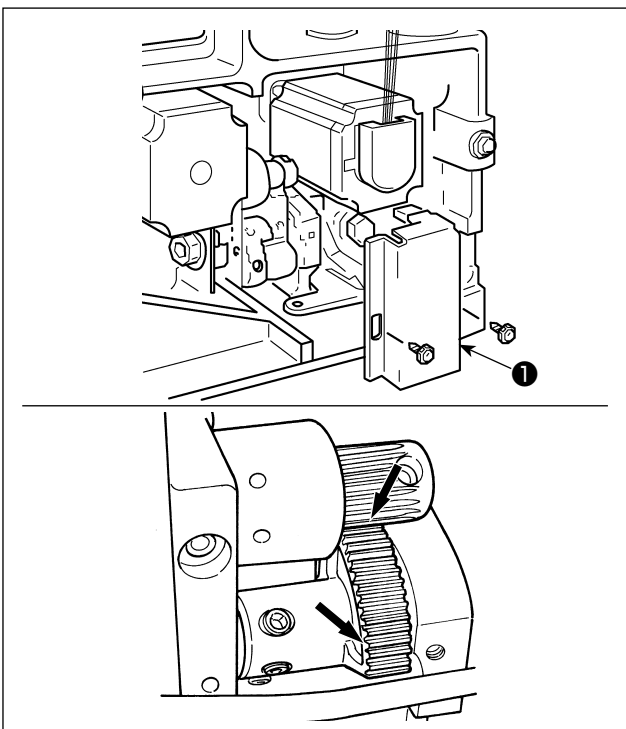
警告 为了防止突然的起动造成人身事故，请一定关掉电源后再进行操作。
另外，运转缝纫机前，请把卸下的护罩等部件都安装到原来的部位。

(2) JUKI 润滑脂 A 的涂抹部位



向下列指定部位补充润滑脂时，请使用附属的润滑脂软管 A（货号 40006323）浅蓝色。
补充了指定以外的润滑脂的话，会造成零件损坏。

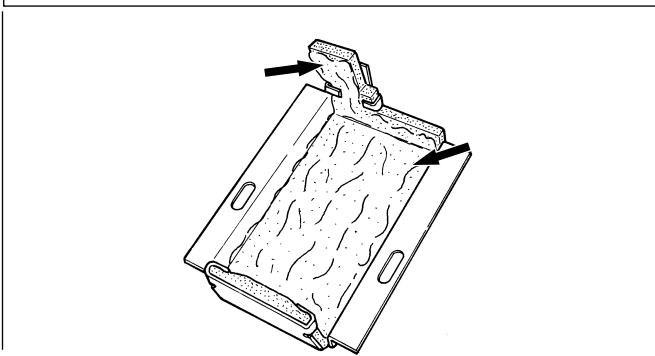
■ 大摆动子齿轮部的润滑脂补充



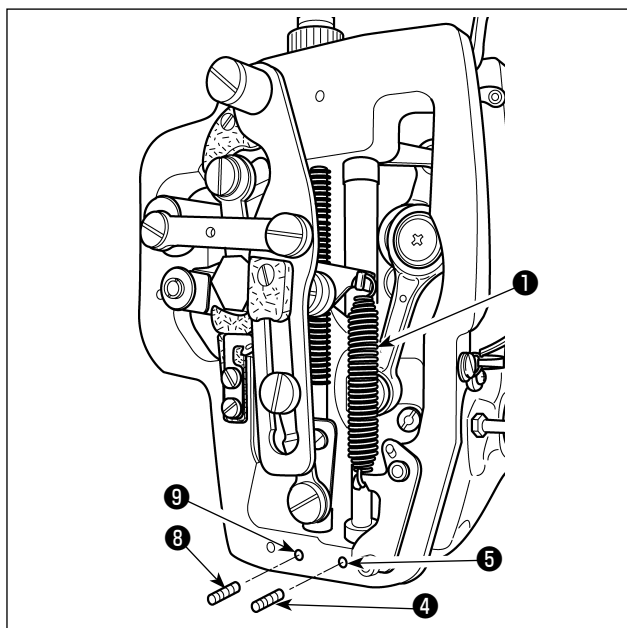
- 1) 放倒缝纫机，卸下润滑脂护罩①。
- 2) 请向大摆动子的齿轮部和下轴的尺寸四周涂抹 JUKI 润滑脂 A。
- 3) 然后再向润滑脂护罩①的毡垫面也涂抹上 JUKI 润滑脂 A。



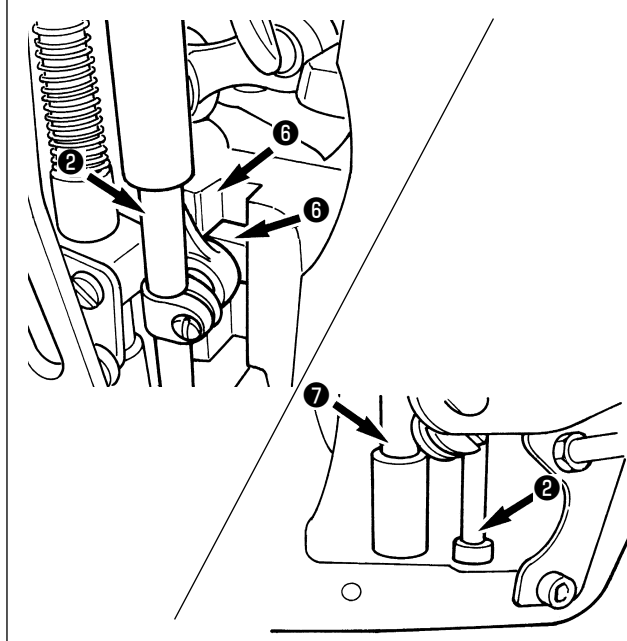
由于清扫、用气枪吹缝纫机等原因造成润滑脂减少时，请一定重新涂抹润滑脂。



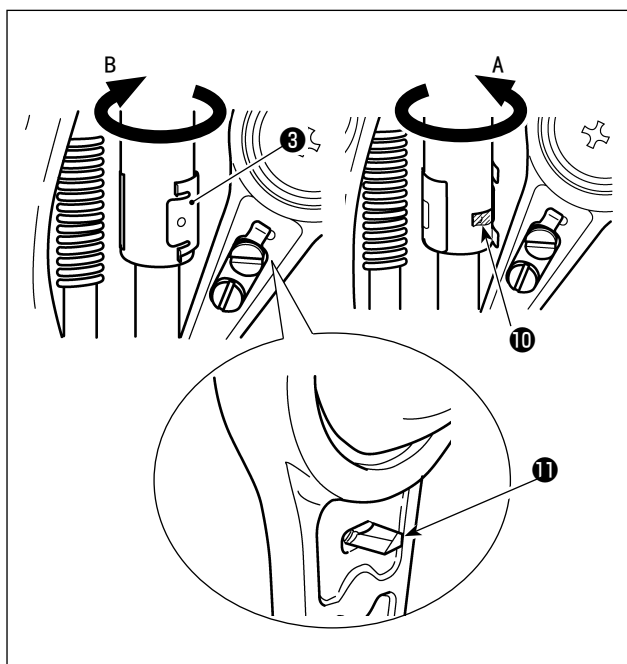
■ 针杆上下金属部、金属方块部以及中压脚杆下金属部的润滑脂补充



- 1) 打开缝纫机面部护罩，卸下中压脚辅助弹簧 B ①。
- 2) 请向针杆四周②涂抹 JUKI 润滑脂 A。然后请用手转动缝纫机让润滑脂涂满整个针杆四周。向箭头A方向转动针杆上金属部润滑脂护罩③，从注入口充填润滑脂。充填完毕后，向箭头 B 方向转动针杆上金属部润滑脂护罩，返回到原来的位置。
卸下针杆下金属部润滑脂孔固定螺丝④，向孔⑤里注入 JUKI 润滑脂 A，然后拧紧固定螺丝④，让 JUKI 润滑脂 A 充填到金属内部。



- 3) 请向金属方块的槽部⑥也涂抹 JUKI 润滑脂 A。
- 4) 请向中压脚杆四周⑦上也涂抹 JUKI 润滑脂 A。卸下中压脚杆金属部润滑脂孔固定螺丝⑧，向孔⑨里注入 JUKI 润滑脂 A。然后拧紧固定螺丝⑧，让 JUKI 润滑脂 A 充填到金属内部。



1. 请不要擦拭缝纫机面部内的针杆四周上涂抹的润滑脂。由于清扫、用气枪吹缝纫机等原因造成润滑脂减少时，请一定重新涂抹润滑脂。
2. 缝纫机运转时，请向 B 方向转动针杆上的金属部润滑脂护罩，然后关闭上润滑脂补充口⑩。
3. 请注意在针杆曲轴杆的背面有端头非常尖锐的凸起⑪。操作时，请绝对不要把手指伸到针杆曲轴杆的背面。

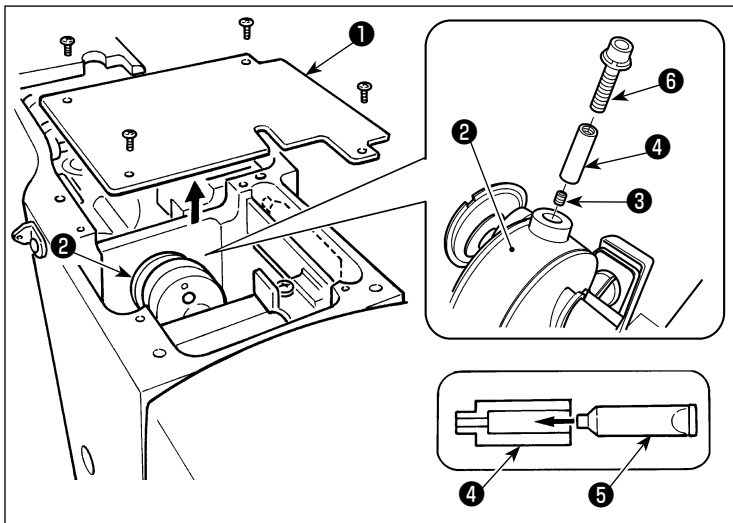


(3) JUKI 润滑脂 B 的涂抹部位



下列指定部位补充润滑脂时，请使用附属的润滑脂软管 B（货号 40013640）紫色。
补充了指定以外的润滑脂的话，会造成零件损坏。

■ 偏心凸轮部的润滑脂补充

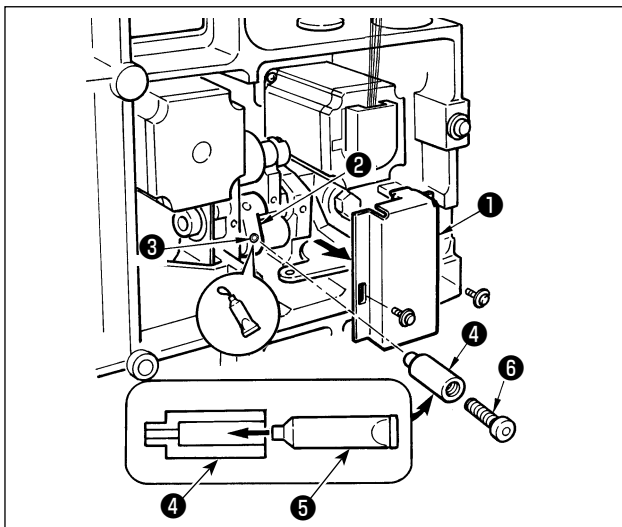


- 1) 打开曲柄杆护罩**①**。
- 2) 卸下曲柄杆四周**②**的润滑脂注入盖固定螺丝**③**。
- 3) 向接头**④**里充填 JUKI 润滑脂 B 软管**⑤**中的润滑脂。
- 4) 请把附属的螺丝**⑥**拧进接头，然后补充润滑脂。
- 5) 补充完润滑脂后，请把刚才取下的固定螺丝**③**牢固地固定好。



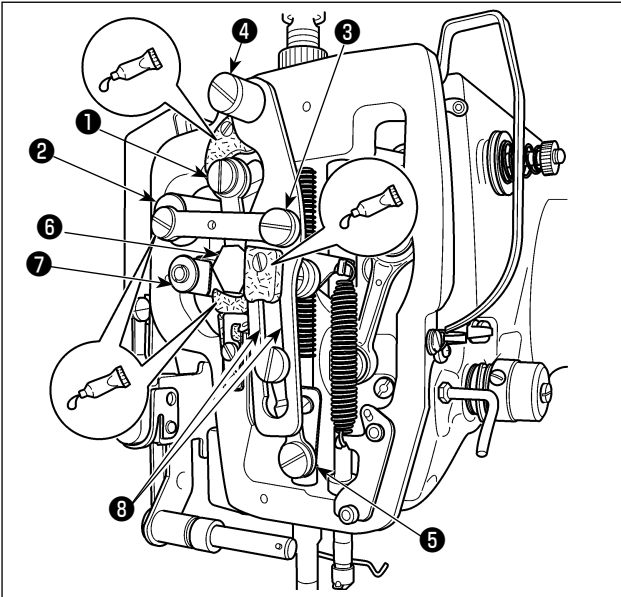
一边转动缝纫机的上轴，一边补充润滑脂的话，可以让润滑脂充分润滑充填。

■ 大摆动子销部的润滑脂补充



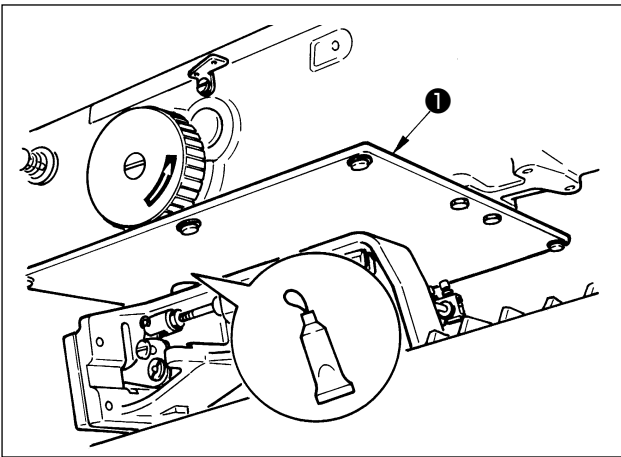
- 1) 放倒缝纫机，卸下润滑脂护罩**①**。
- 2) 请向附属的接头**④**里充填 JUKI 润滑脂 B 软管**⑤**中的润滑脂。
- 3) 卸下大摆动齿轮**②**的固定螺丝**③**，把接头**④**拧进螺丝孔里。
- 4) 请把附属的螺丝**⑥**拧进附属的接头里，然后补充 JUKI 润滑脂 B。
- 5) 补充了润滑脂之后，请卸下的固定螺丝**③**拧紧固定。

■ 向机头面板补充润滑脂



- 1) 打开机头面罩。
- 2) 请向毡垫部 (3 处) 及其四周的平头螺丝、支点①~⑦和导向槽部⑧里补充 JUKI 润滑脂 B。

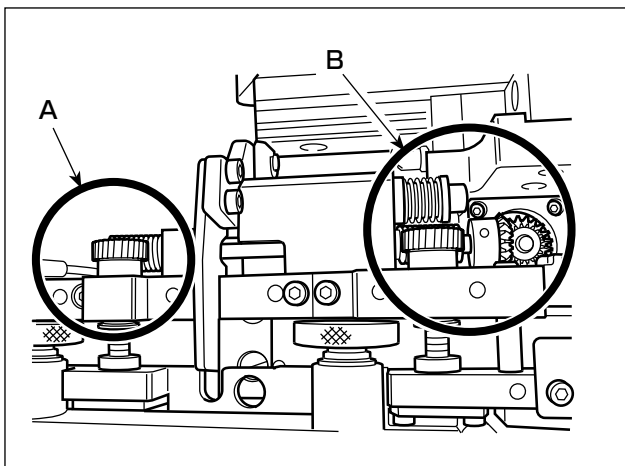
■ 向 X 导向轴轴承补充润滑脂



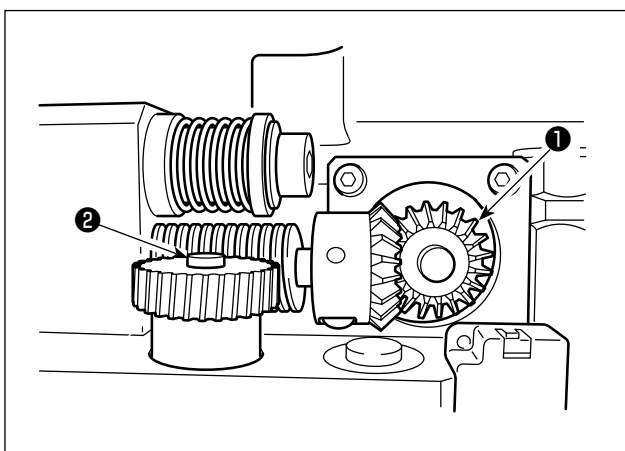
- 1) 请把润滑脂涂抹到压脚版①背面。

(4) 其他的润滑脂涂抹

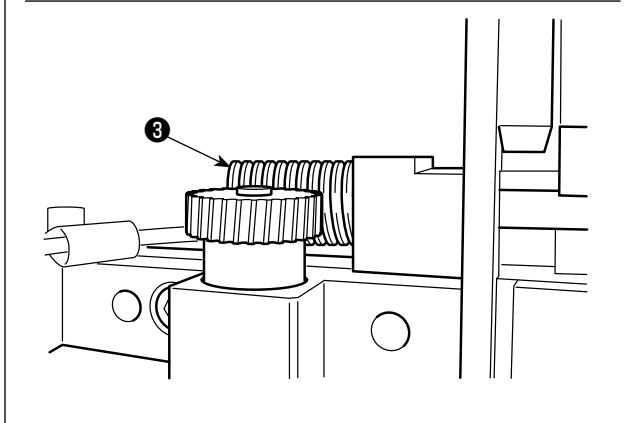
■向带传送压辊的齿轮部补充润滑脂



1) 卸下护罩 A、B。



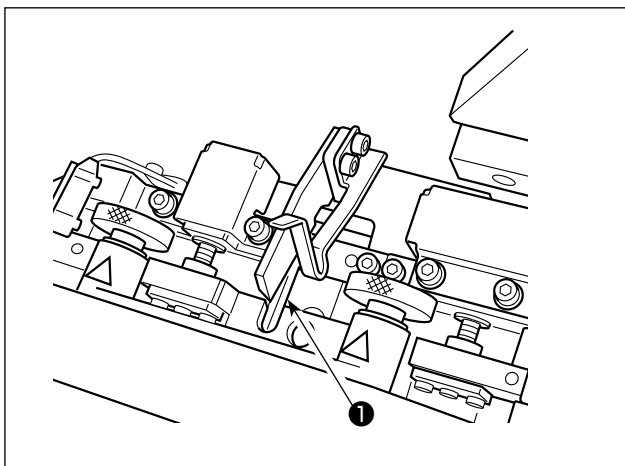
2) 1次/月左右，向齿轮部涂抹 JUKI 指定润滑脂 Templex N2 (JUKI 货号：13525506) 涂抹到圆锥齿轮①和涡轮②③的四周。



3) 打开 (ON) 电源之前，用手动方法转动圆锥齿轮①，让带传送压辊转动 1 圈，让润滑脂油膜均匀地涂抹到齿轮表面。

1-16. 清除

(1) 切刀的灰尘清除

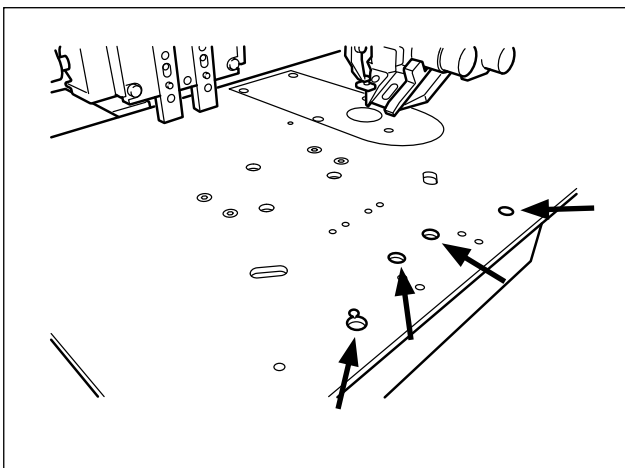


- 1) 关闭电源，请使用空气枪。清除掉切刀槽沟①里积存的带碎屑。

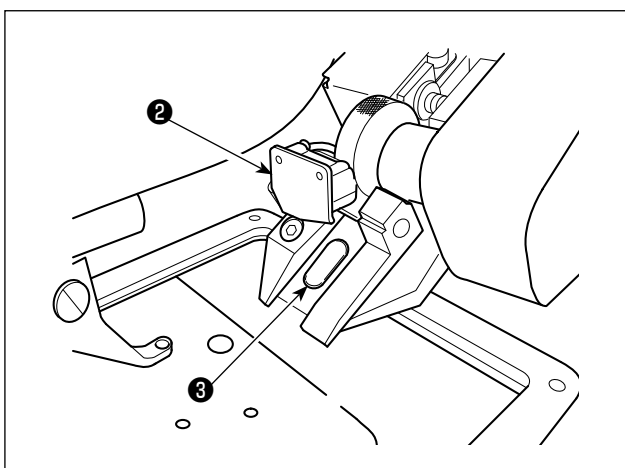


为了防止缝纫机的突然起动造成的事故，请关闭电源，一定用空气枪清除干净。

(2) 传感器的灰尘清除

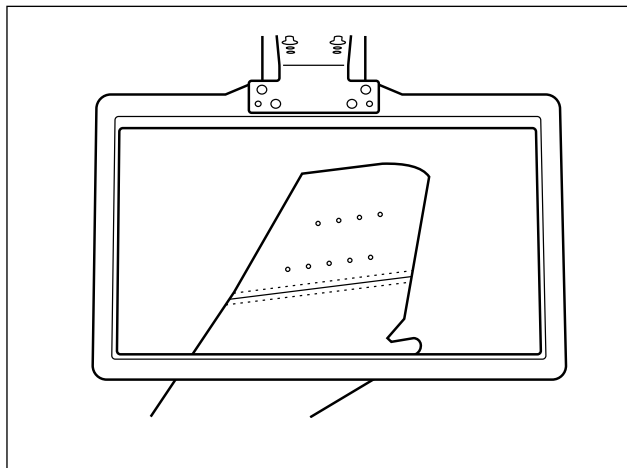


- 1) 请清除掉针板辅助护罩的衣身检测传感器孔（箭头处：4处）积存的灰尘。积存了灰尘之后，会造成衣身检测传感器的检测错误故障。

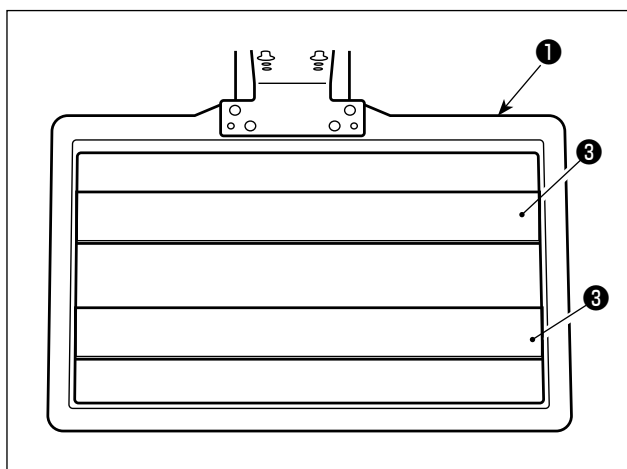


- 2) 请清除掉有无带的检测传感器②的反射带③上积存的灰尘。积存了灰尘之后，会造成有无带的检测传感器②的检测错误故障。

1-17. 对应小衣身



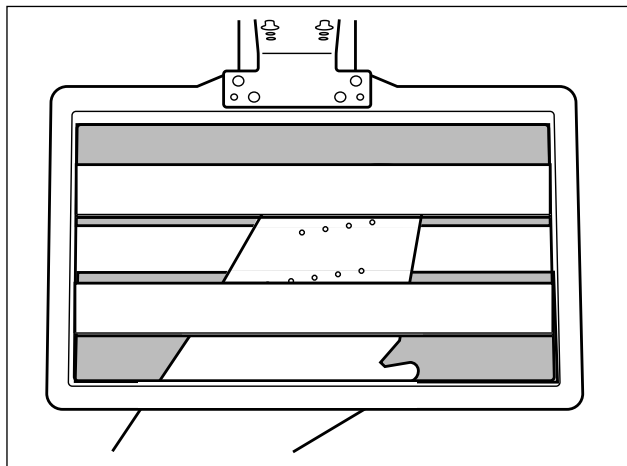
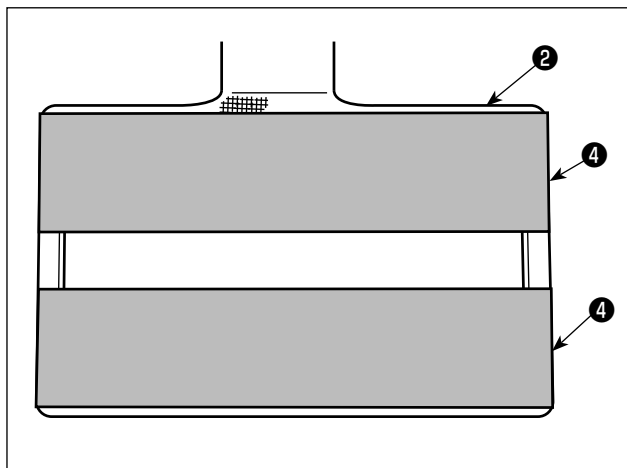
1) 如图所示，衣身比压板的范围小时，请把板材和贴片材料粘贴到压板上进行对应。





2) 请把板材料③粘贴到上压片①，把2块贴片材料④粘贴到下压块②上面。粘贴部位请设定到距离缝制位置极端近的位置。



1. 请注意板材③的粘贴部位不要遮盖住缝制范围。
2. 对于粘贴到下板②上的粘贴的贴片材料④，请使用厚度为0.5mm左右的材料。如果使用过厚的贴片材料，布料从针板浮起，会影响到缝制精度。



1-18. 条形码阅读器

 警告	<ul style="list-style-type: none">· 请不要直接用眼睛去看条码阅读器的激光光线。有可能伤害眼睛。· 请不要对着人的眼睛放射激光。有可能伤害眼睛。· 请不要用光学仪器直接窥看激光光线。有可能伤害眼睛。
 注意	<ul style="list-style-type: none">· 请在缝纫机的使用温度范围内以及使用温度湿度内使用。· 在供给了电源的状态下，请不要拔插连接器。

条形码阅读器是读取条形码，进行那个条形码记录的选择，或者输入代码名称的机器。

条形码阅读器规格

1 级 激光产品

最大输出：850mW

波长：630nm

安全规格

IEC62471

IEC60825-1

2. 缝制时的故障、原因和对策

现象	原因	对策	页
1. 始缝时脱线。	① 始缝时跳针。 ② 切线后上线长度短。 ③ 底线过短。 ④ 第1针的上线张力高。 ⑤ 抓线不稳定（布料容易伸长、线不滑、线粗等） ⑥ 第1针的间距小。	○ 机针和旋梭的间隙调整为0.05 ~ 0.1mm。 ○ 设定始缝时软起动。 ○ 调节第2线张力器的浮线量。 ○ 把挑线弹簧弄强或把第一线张力盘的张力减弱。 ○ 减弱底线张力。 ○ 弄大针孔导向器和固定刀的间隙。 ○ 降低第1针的张力。 ○ 降低缝制开始第1针的转速。（600 ~ 1000sti/min 左右） ○ 抓线针数增加3 ~ 4针。 ○ 增长第1针的间距。 ○ 下降第1针的上线张力。	114 99 13, 14 13 116
2. 老断线。 化纤线拉断。	① 旋梭、驱动器上有伤。 ② 针孔导向器上有伤。 ③ 机针碰到中压脚。 ④ 线头进入大旋梭的沟里。 ⑤ 上线张力过强。 ⑥ 挑线弹簧过强。 ⑦ 向上拉线时，把线扎到针尖了。	○ 卸下用细磨时或锉刀磨平。 ○ 用锉刀磨，或换新。 ○ 调节中压脚的位置。 ○ 卸下中旋梭，清除线头。 ○ 减弱上线张力。 ○ 减弱挑线弹簧。 ○ 把针杆高度下降刻度的一半。 ○ 确认针尖是否钝了。 ○ 使用球点针。	14 13 14 113
3. 常断针。	① 针弯了。 ② 机针碰到中压脚。 ③ 针过粗。 ④ 驱动器把针弄得过弯。	○ 更换机针。 ○ 调节中压脚的位置。 ○ 根据缝制物选用适当的机针。 ○ 调整针和旋梭位置。	11 14 114
4. 线切不断。 (仅限底线)	① 固定刀不快。 ② 针孔导向器和固定刀高低差小。 ③ 刀位置不好。 ④ 最终针跳线。 ⑤ 底线张力低。 ⑥ 面料缝合不齐。	○ 更换固定刀。 ○ 把固定刀再弄弯一些。 ○ 调整动刀位置。 ○ 调整针和旋梭的同步。 ○ 提高底线张力。 ○ 下降最终针的中压脚高度。	116 114
5. 经常跳针	① 针和旋梭调整不好。 ② 针和中旋梭得间隙过大。 ③ 针弯了。 ④ 驱动器把针弄得过弯。 ⑤ 切线后，上线长度过长。 （第2针~第10针左右跳针时）	○ 调整针和旋梭的位置。 ○ 调整针和旋梭的位置。 ○ 更换机针。 ○ 调整驱动器的位置。 ○ 减弱勾线弹簧，或者把第一线张力器的张力调强。	114 114 11 114 13, 14

现象	原因	对策	页
6. 上线从布的里侧露出来。	① 上线紧线不好。 ② 线张力盘浮起机构不动作。 ③ 切线后的上线过长。 ④ 针数少。 ⑤ 缝制长度短时（缝制背面上线头露出。） ⑥ 针数少。	<input type="checkbox"/> 加强上线张力。 <input type="checkbox"/> 确认缝制中第 2 线张力盘是否浮起。 <input type="checkbox"/> 加强第 1 线张力。 <input type="checkbox"/> 把抓线装置设定为 OFF。 <input type="checkbox"/> 把抓线装置设定为 OFF。 <input type="checkbox"/> 使用暗缝式下板。	13 13
7 在布料表面，第 1 针的线头露出来了	① 第 1 针跳针。 ② 与中压脚内径相比使用机针和线过粗。 ③ 中压脚与机针不同心。	<input type="checkbox"/> 调整旋梭同步时间提前 1/2 针。 <input type="checkbox"/> 弄大中压脚的内径。 <input type="checkbox"/> 调整机针与中压脚的心偏差，让机针落在中压脚中心。	
8. 切线时断线	① 动刀位置不好。	<input type="checkbox"/> 调节动刀位置。	116
9. 上线缠结在抓线装置上	① 缝制开始的上线长。	<input type="checkbox"/> 拧紧第 1 线张力器，把机线长度调整为 40 ~ 50mm。	22
10. 机线长度不一致	① 挑线弹簧的张力低。	<input type="checkbox"/> 提高挑线弹簧的张力。	14
11. 机线长度不能弄短	① 第 1 线张力器的张力低。 ② 挑线弹簧张力过强。 ③ 因为挑线弹簧的张力过低，所以动作不稳定。	<input type="checkbox"/> 增强第 1 线张力器的张力。 <input type="checkbox"/> 降低挑线弹簧的张力。 <input type="checkbox"/> 增强挑线弹簧的张力，行程也变长。	13 14
12. 缝制开始第 2 针的底线结线部露出表面。	① 梭芯的空转大。 ② 底线张力低。 ③ 第 1 针的上线张力过强。	<input type="checkbox"/> 调整活动刀位置。 <input type="checkbox"/> 增强底线张力。 <input type="checkbox"/> 下降第 1 针的上线张力。 <input type="checkbox"/> 把抓线装置设定为 OFF。	117 13
13. 挑线杆动作不良（返回不良）	① 最终针和缝制开始同一落针位置时，线和布料的阻力大。	<input type="checkbox"/> 移动最终针的落针位置。	

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