

# ***ENGLISH***

## **PS-810**

### **Active tension**

# **INSTRUCTION MANUAL**



**CAUTION :**

This Instruction Manual provides instructions for the active tension. When you want to use your sewing machine with this product attached, refer to the “Safety precautions” in the Instruction Manual for your sewing machine carefully until you fully understand the included precautions in prior.

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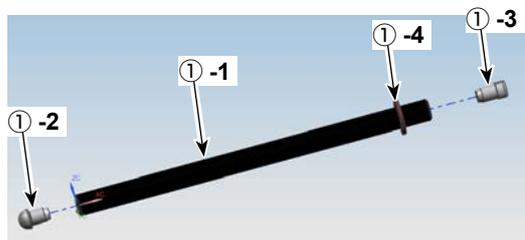
## 1. List of parts



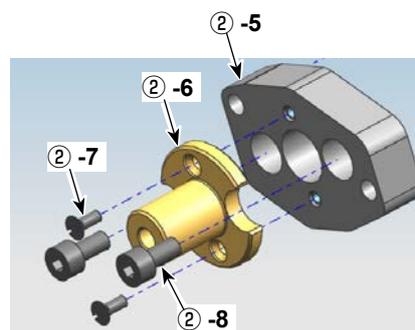
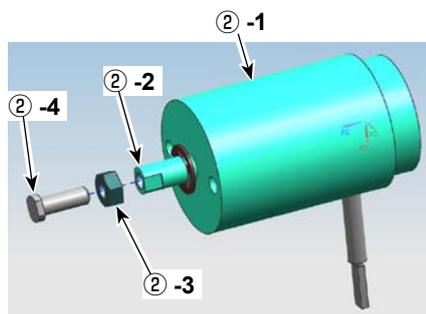
### WARNING :

In order to prevent accidents caused by a sudden start of the sewing machine, the following procedure has to be carried out after turning OFF the power supply and air supply to the sewing machine.

#### ① 40244934 Tension release auxiliary shaft

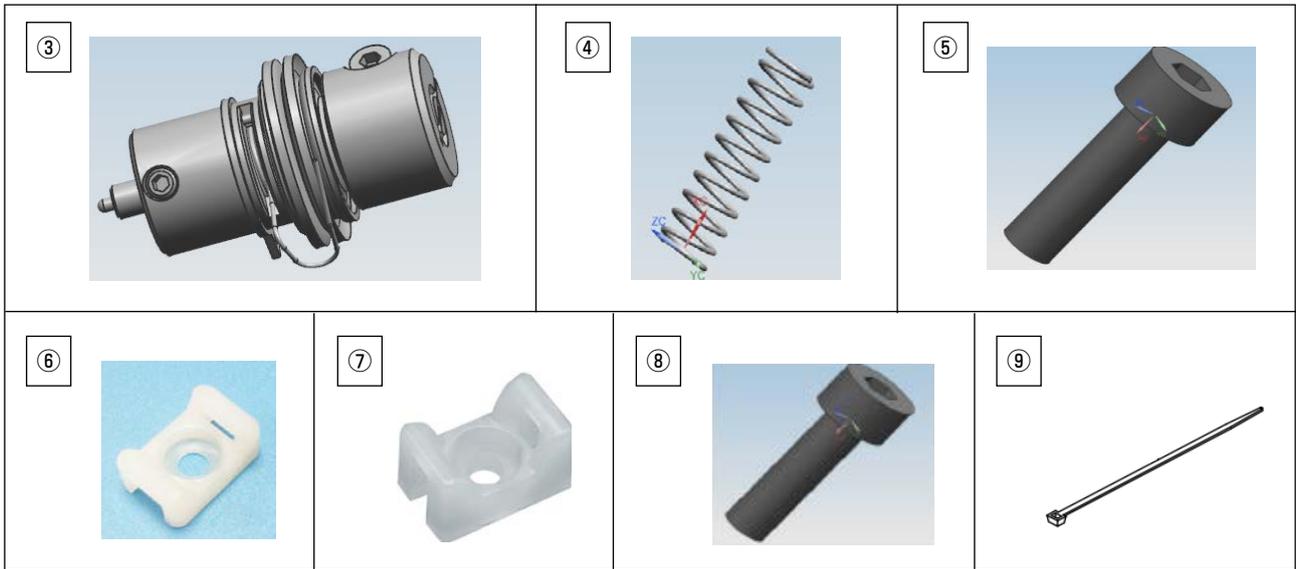


#### ② 40244974 AT solenoid



Active tension (asm.)

No.	Part number	Part name	Qty
①	40244934	Tension release auxiliary shaft (asm.)	1
① -1	40236683	Tension release auxiliary shaft	(1)
① -2	40236685	Tension release auxiliary pin	(1)
① -3	26201004	Guide pin	(1)
① -4	RE0320000K0	E retaining ring	(1)
②	40244974	AT solenoid asm.	1
② -1	40236465	Solenoid	(1)
② -2	RE0500000K0	E retaining ring	(1)
② -3	NM6040000SN	Hexagonal nut M4 1 type	(1)
② -4	40236686	Solenoid screw	(1)
② -5	40236680	Solenoid mounting plate	(1)
② -6	40236681	Left AT shaft bushing	(1)
② -7	SM1850600SP	Countersunk head screw	(2)
② -8	SM6040802TP	Bolt screw	(2)



No.	Part number	Part name	Qty
③	40172470	Thread tension controller (asm.)	1
④	40243919	AT spring	1
⑤	SM6041402TP	Bolt M4 L=14	2
⑥	KX000000210	Cable tie mount	2
⑦	HX002940000	Fixation base	1
⑧	SM6041002TN	Bolt M4, L=10	1
⑨	EA9500B0200	Cable clip band	6

## 2. Assembling the parts

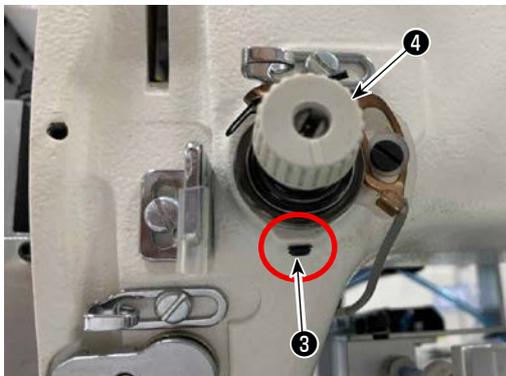


### WARNING :

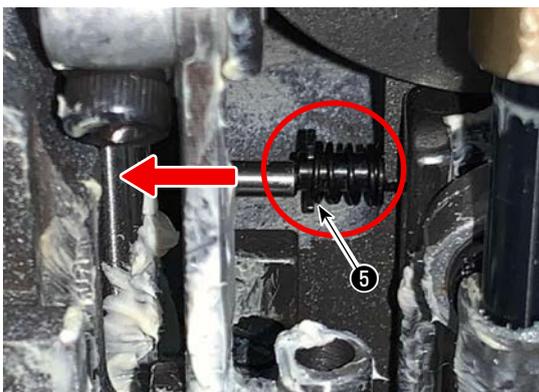
In order to prevent accidents caused by a sudden start of the sewing machine, the following procedure has to be carried out after turning OFF the power supply and air supply to the sewing machine.



- 1) Loosen screw **1** . Detach tension release solenoid **2** .



- 2) Loosen screw **3** . Detach thread tension controller **4** .



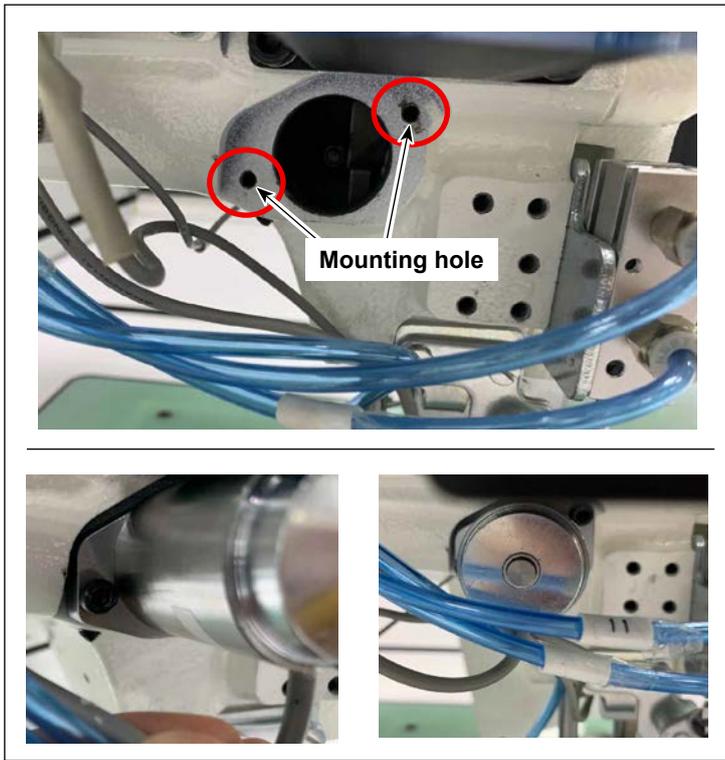
- 3) Detach the face plate. Take out tension disc releasing solenoid tension release auxiliary shaft asm. **5** from the solenoid mounting hole.



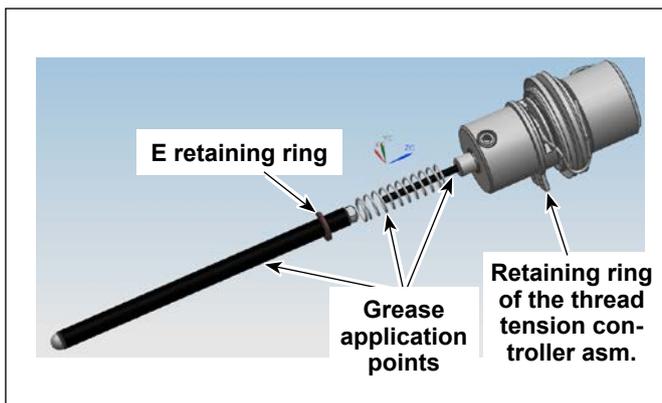
**Pull the auxiliary shaft in the direction of the arrow until it comes off.**



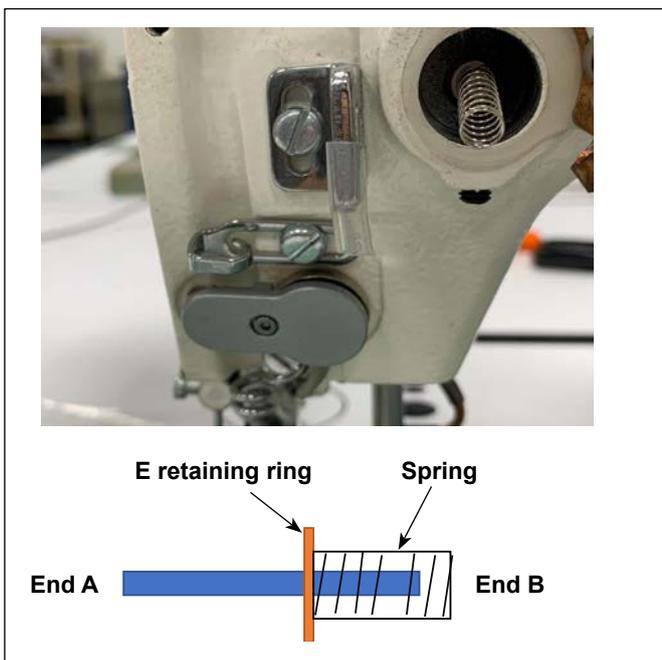
**Tension disc releasing solenoid tension release auxiliary shaft asm.**



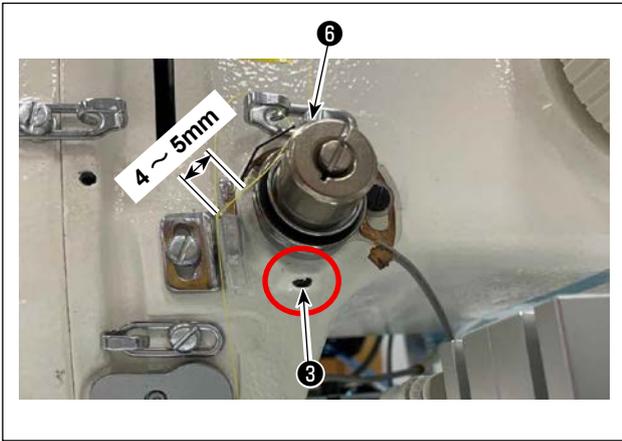
- 4) Secure AT solenoid asm ② in the mounting hole with screws ⑤ (two pieces).



- 5) Put a little amount of grease (white) supplied in the accessory bag on a piece of cloth. Then, apply a thin coat of the grease to the AT shaft, reseal spring and tension release pin with that cloth.



- 6) Put the end **A** of tension release auxiliary shaft asm. ① into the thread tension controller mounting hole. Put spring ④ on the end **B** of the tension release auxiliary shaft asm.



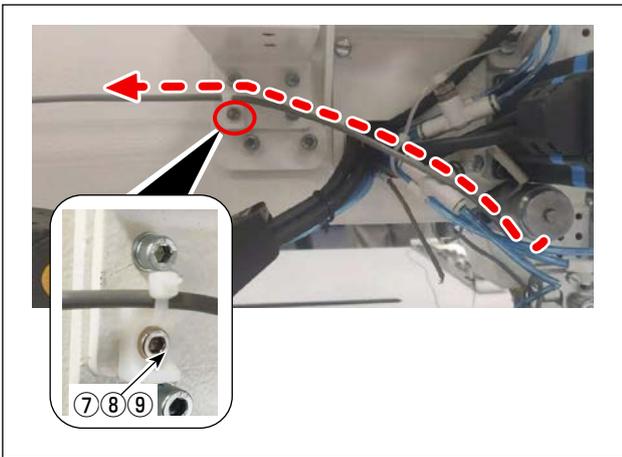
- 7) Pressing the retaining spring of the AT thread tension controller asm. against the end surface of the tension controller mounting hole, secure it with screw ③ at a position where the stroke of the thread take-up spring becomes 4 to 5 mm.



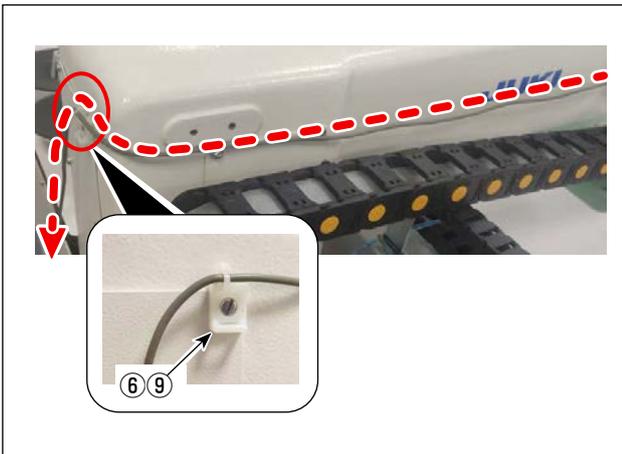
**If you cannot press the retaining spring of the thread tension controller asm. against the end surface of the mounting hole, loosen bracket screw ⑥ of the AT thread tension controller. After pressing the retaining spring against the end surface of the mounting hole, temporarily tighten bracket screw ⑥.**

### 3. Wiring (miscellaneous cover components of the sewing machine)

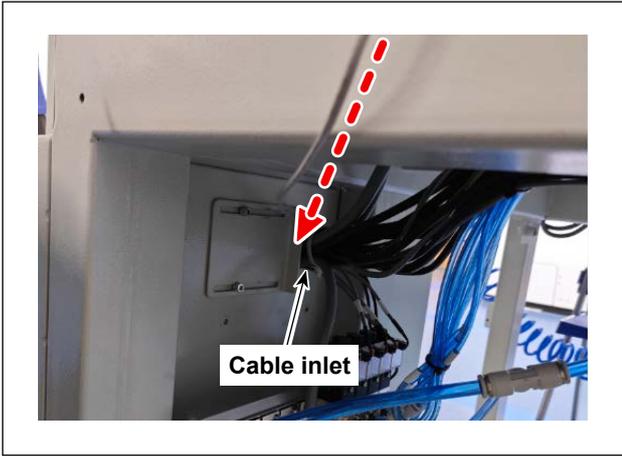
#### 3-1. PS-810-8045,10045



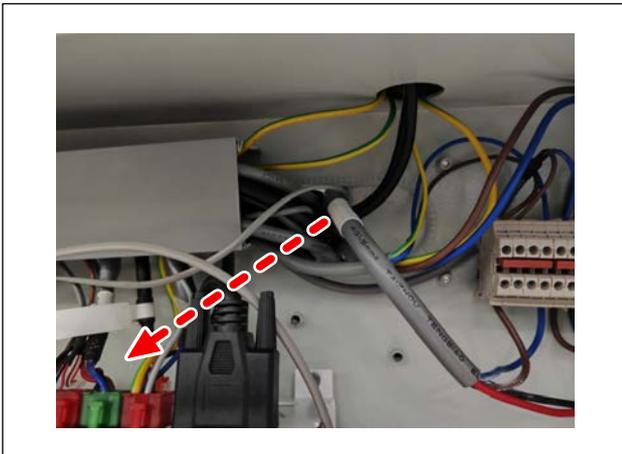
- 1) Route the cable for AT solenoid ② along the red dotted line shown in the figure on the left. At an intermediate point, replace the screw with screw ⑧, and then tighten the fixing base ⑦. Secure the cable with the cable clip band ⑨.



- 2) Route the cable for AT solenoid ② along the red dotted line shown in the figure on the left. At an intermediate point, loosen the screw, and then tighten the fixing base ⑥. Secure the cable with the cable clip band ⑨.

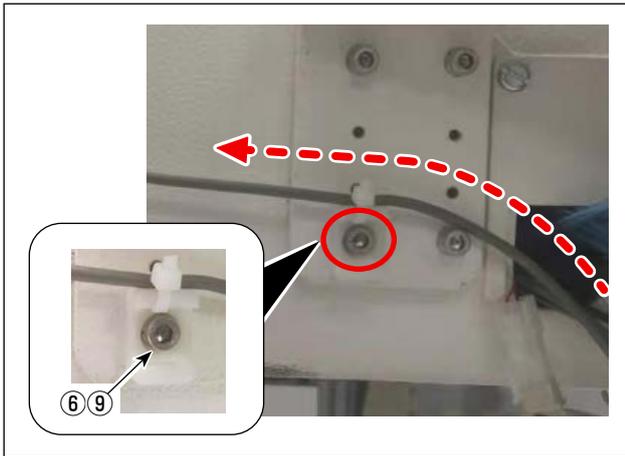


- 3) Pull the cable for AT solenoid ② into the electrical equipment rack through the cable inlet.



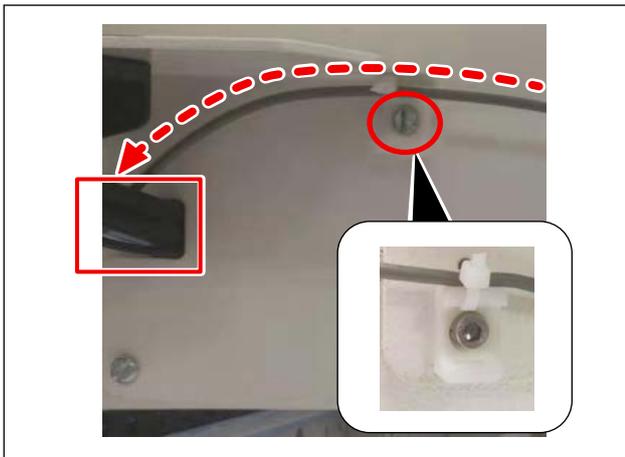
- 4) Route the cable for AT solenoid ② along the red dotted line shown in the figure on the left.

### 3-2. PS-810-13085



- 1) Wire AT solenoid cable ② along the route indicated with the red dotted line as shown in the figure on the left.

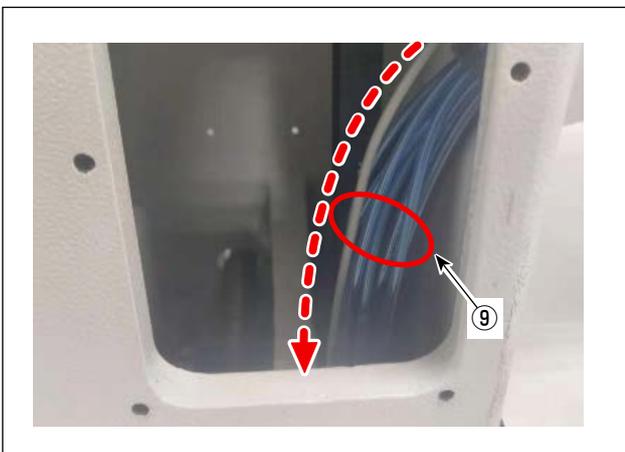
During this procedure, loosen the screw and tighten fixing base ⑥ . Then, secure the cable with cable clip band ⑨ .



- 2) Wire AT solenoid cable ② along the route indicated with the red dotted line as shown in the figure on the left.

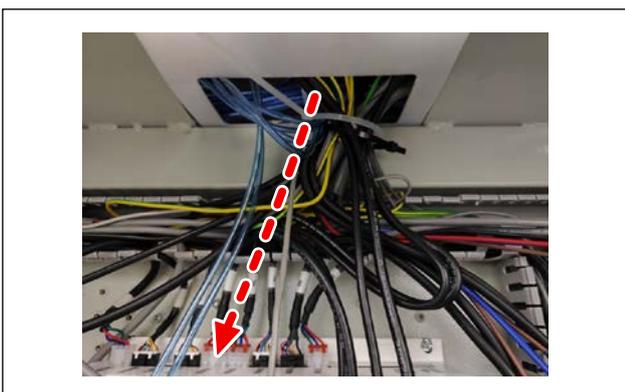
Insert the termina-side cable through the intermediate-part opening in the cover and pass it through the sewing machine.

During this procedure, loosen the screw and tighten fixing base ⑥ . Then, secure the cable with cable clip band ⑨ .



- 3) Wire AT solenoid cable ② along the route indicated with the red dotted line as shown in the figure on the left.

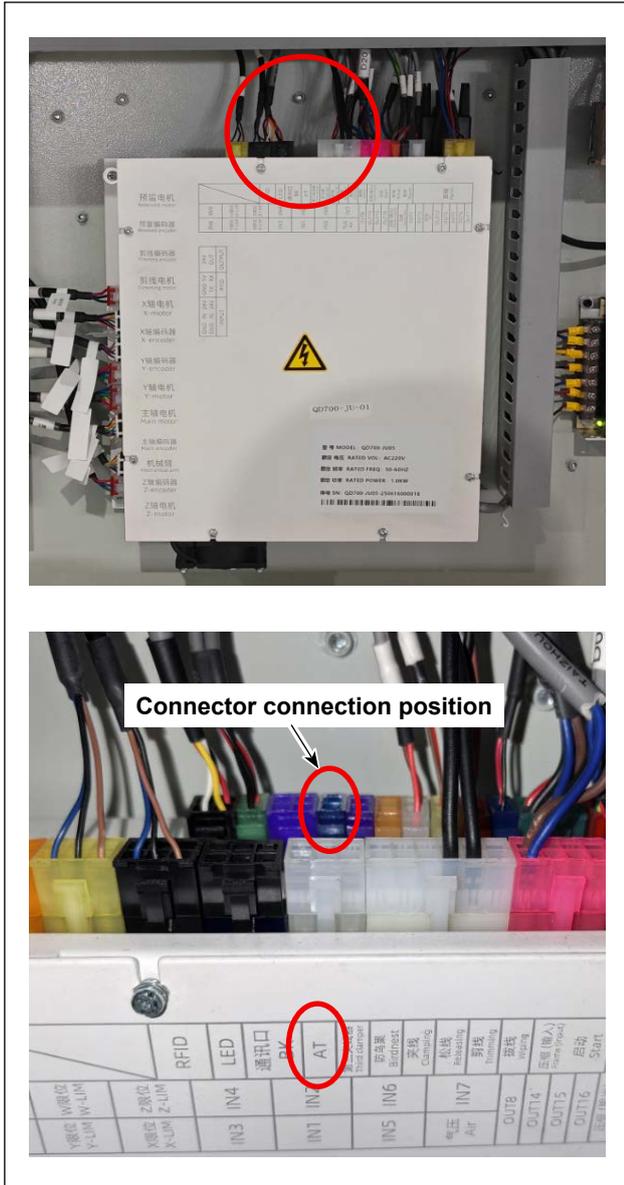
Draw out the cable from the rear opening in the cover and secure it together with other cables with cable clip band ⑨ .



- 4) Pull AT solenoid cable ② into the electrical equipment rack through cable entrance of the rack.

## 4. Wiring (inside the electrical equipment case)

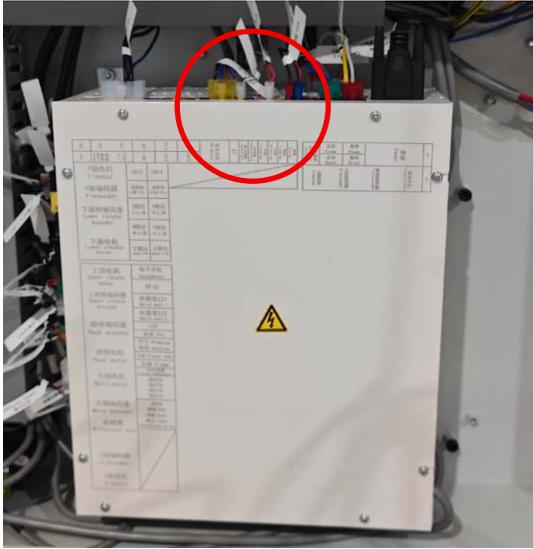
[Standard type and the laser type]



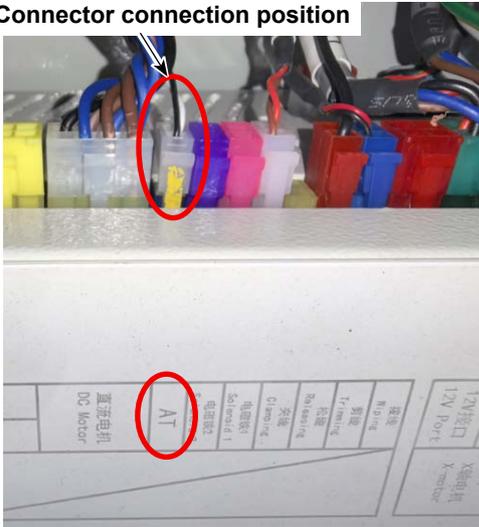
Connect the connector of AT solenoid ② to the AT connector of the electrical control box.

[ Rotary knife type ]

Connect the connector of AT solenoid ② to the AT connector of the electrical control box.



Connector connection position

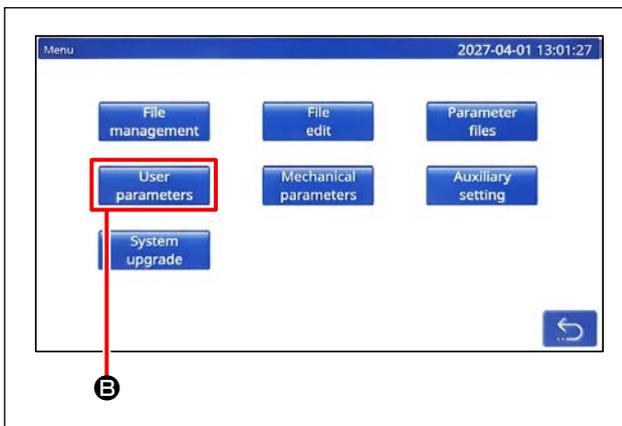


## 5. Method for adjusting the AT

### 5-1. Setting of the parameters



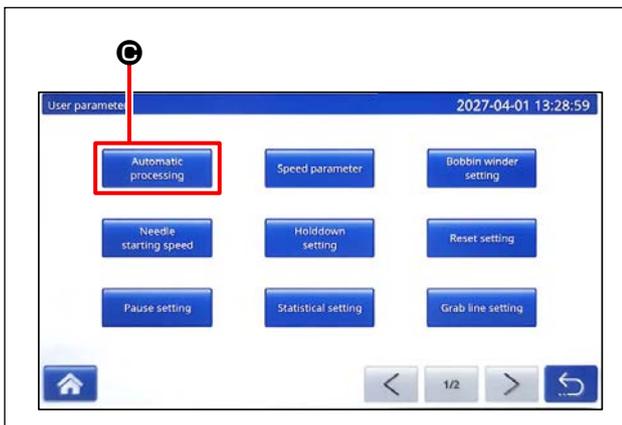
1) Press button **A**.



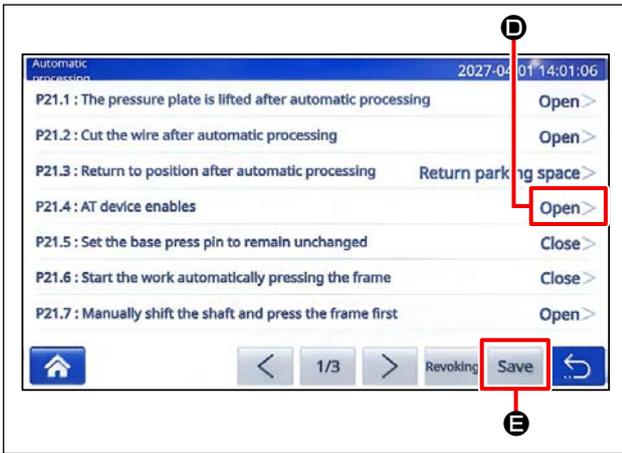
2) Press button **B**.

In the default state, the password that has been factory-prepared at the time of delivery is provided.

The factory-provided password is "11111111".

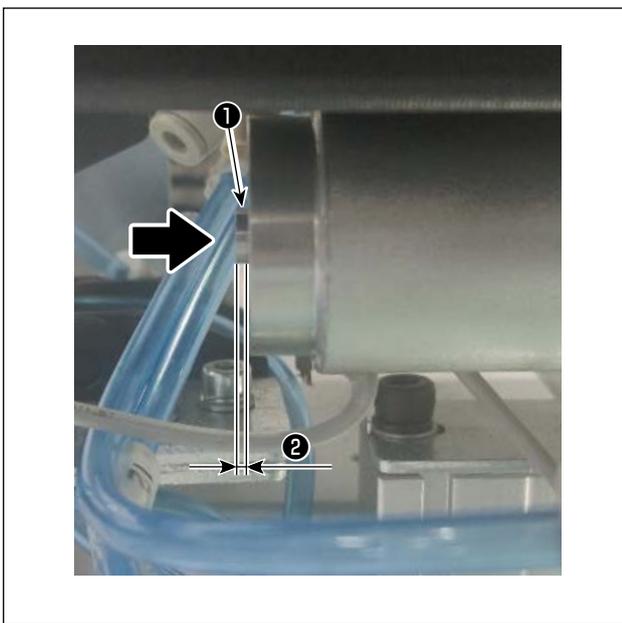


3) Press button **C**.

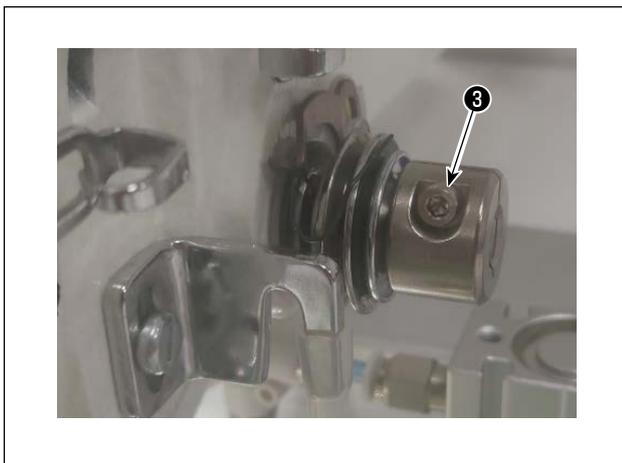


- 4) To enable the AT function, change setting **D** on page 21.4 from "OFF" to "ON". After changing the setting, press button **E**.

## 5-2. Adjusting the projection amount of the plunger



- 1) Press plunger **1** of the solenoid into the solenoid. Measure projection amount **2** of the plunger.



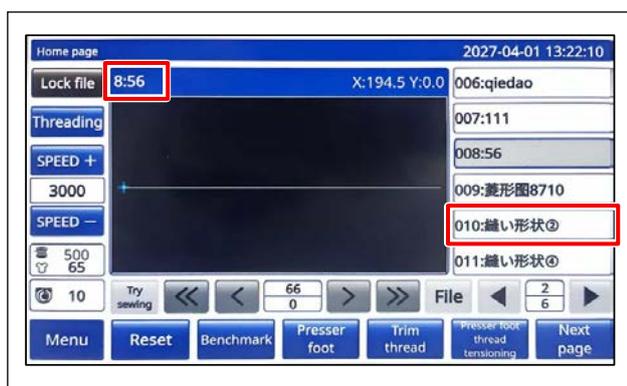
- 2) Loosen screw **3** of the thread tension controller bracket. Adjust the longitudinal position of the bracket so that projection amount **2** of the plunger becomes  $1.5 \pm 0.1$  mm. Then, tighten screw **3**.

## 6. Method for using the AT

### 6-1. Method for setting the AT thread tension



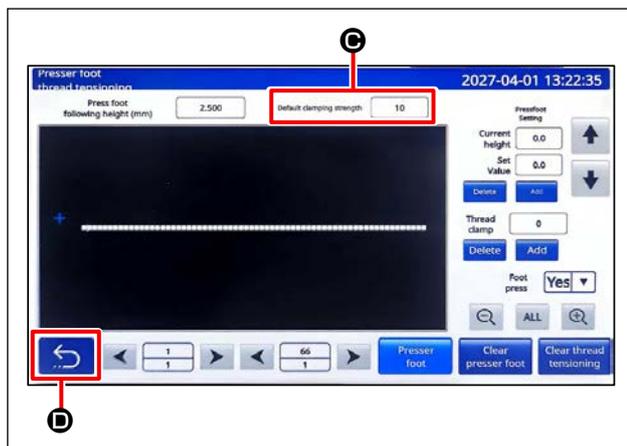
- 1) Press button **A** to set the tension, enter the desired value, and perform a test stitching. Check the stitching results to determine the appropriate tension setting.



- 2) Other setting method
  - ① Select the pattern for which the thread tension is to be set.



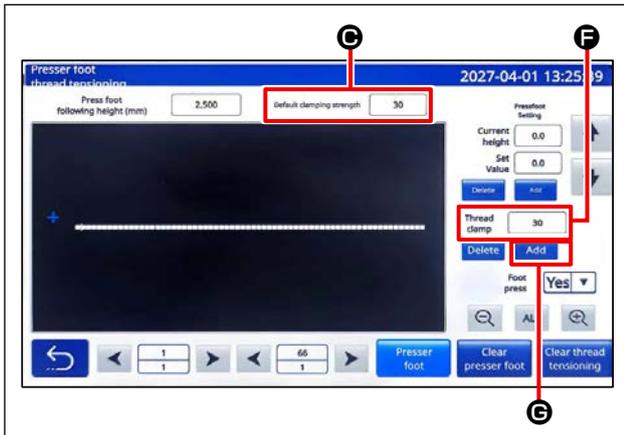
- ② Press "Presser foot thread tensioning" **B**.



- ③ Press "Default clamping strength" **C** to set the tension.
- ④ Press return button **D** to return to the main screen.



- 3) Press the reset button **E** on the main screen to return to the origin.



- 4) Press the same button as in step 2) to open the tension setting screen, enter the tension value confirmed in step 1) into the thread clamp **F**, and press "Add" **E**.

30

Thread clamp at the start of sewing: 30



1. The valid setting range for the default thread tension and thread clamp is 1 to 200 (integers only).
2. The default thread tension setting is used only to check the appropriate tension during test stitching. During production, set the thread clamp tension.

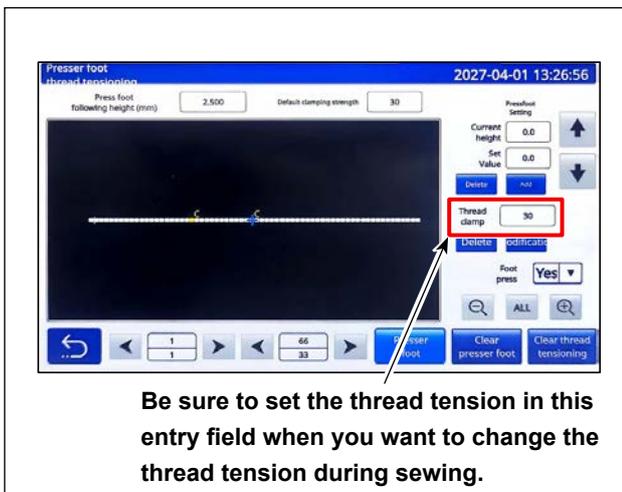
## 6-2. Method for changing the thread tension during sewing



- 1) Set the tension for the thread clamp at the point along the stitching line where you want to change it.  
Thread tension setting method in the case of the picture shown on the left

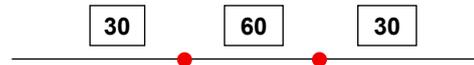


Thread clamp at the start of sewing: 30  
Thread tension from the changing point -  
(To the end of sewing) : 60



- 2) If you want to change the tension while sewing, set the thread clamp tension.

Thread tension setting method in the case of the picture shown on the left



Thread clamp at the start of sewing : 30  
Thread tension from the first changing point - : 60  
Thread tension from the second changing point -  
(To the end of sewing) : 30

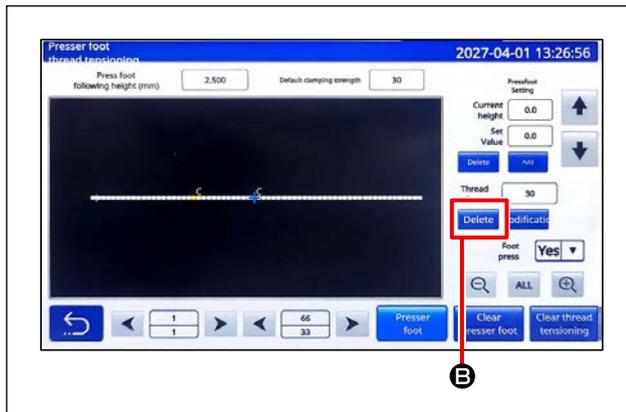


The tension set by the thread clamp remains unchanged until sewing is completed.

### 6-3. Method for deleting the changes in thread tension setting during sewing



- 1) Press button **A** to clear the thread clamp, and all individual tension settings in the pattern will be deleted.



- 2) If you want to delete the individual thread tension settings separately, move cross mark cursor ( + ) to the target thread tension setting position and press delete button **B**.