

# ***ENGLISH***

## **PS-810 Pen holder INSTRUCTION MANUAL**



**CAUTION :**

This Instruction Manual provides instructions for the pen holder. 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.

# CONTENTS

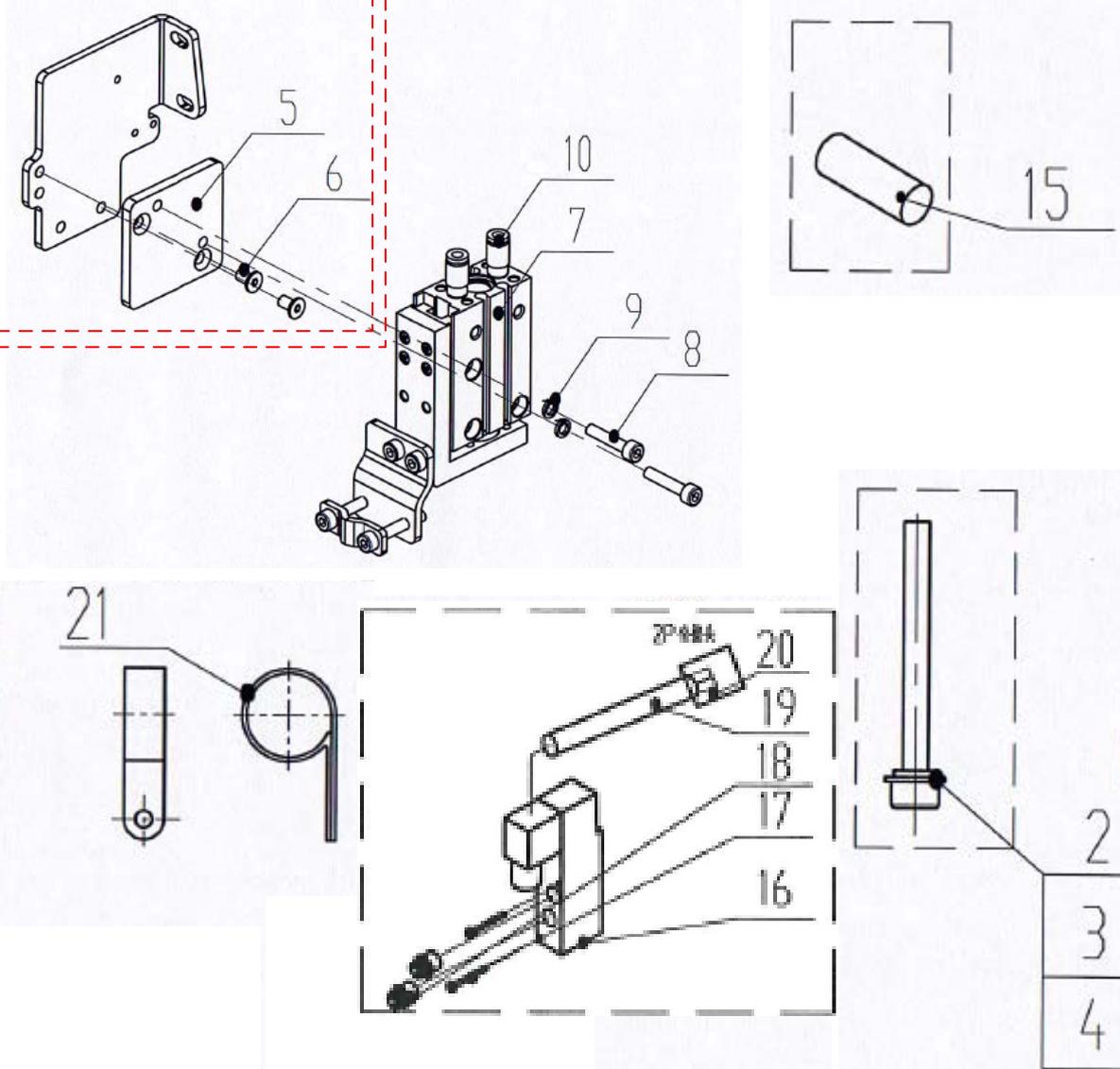
<b>1. List of parts of the pen holder .....</b>	<b>1</b>
1-1. List of parts of the pen holder (J).....	1
1-2. List of parts of the pen holder (N).....	3
<b>2. Installing the pen .....</b>	<b>5</b>
2-1. Pen holder mounting position (Standard / laser type).....	5
2-2. How to install the pen holder.....	7
2-3. Installing the pen holder (Rotary knifetype type).....	10
2-4. Installing the solenoid valve.....	13
2-5. How to wire the air tube (13085).....	14
2-6. How to wire the air tube (8045/10045).....	15
2-7. Solenoid valve cable wiring.....	16
2-8. Electrical control box wiring.....	17
<b>3. Attaching the pen (N company).....</b>	<b>19</b>
3-1. Location and method to install the pen holder (N) (Standard/laser type models).....	19
3-2. Installing the pen holder (Rotary knife type).....	22
<b>4. Operation .....</b>	<b>24</b>
4-1. Adjusting the pen cylinder standard.....	24
4-2. Attaching and adjusting the pen .....	27
4-2-1. Installing and adjusting the pen (J).....	27
4-2-2. Installing and adjusting the pen (N company).....	28
4-3. Setting the pen line application software.....	29

# 1. List of parts of the pen holder

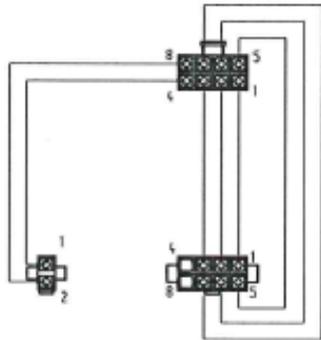
## 1-1. List of parts of the pen holder (J)

Exclusive parts for the standard / laser type pen holder

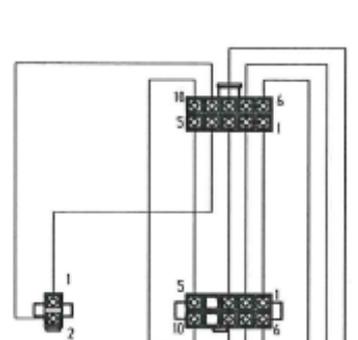
Common parts



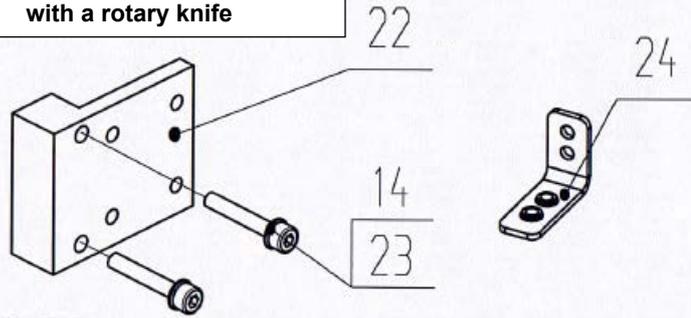
25 Junction cable A  
(standard/laser type)



26 Junction cable B  
(Rotary knife type)

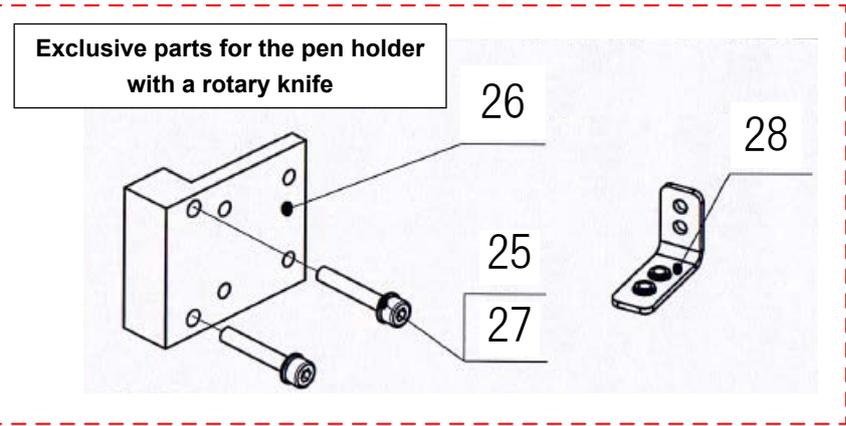
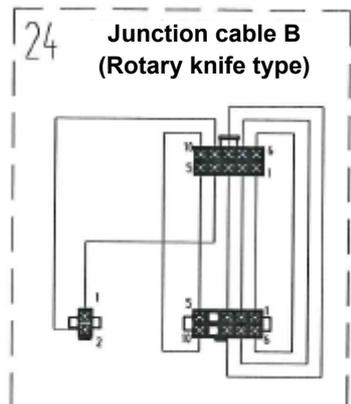
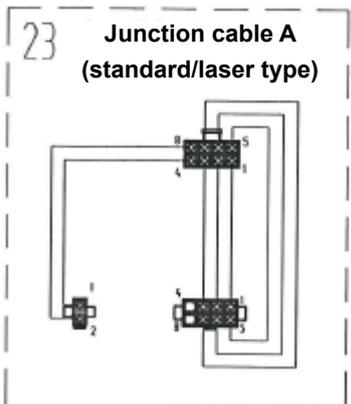
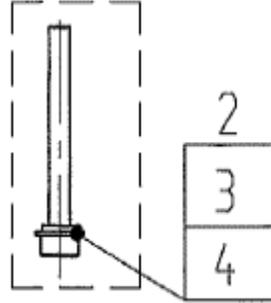
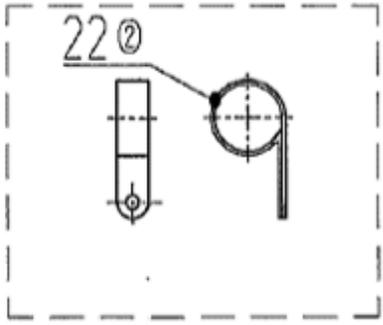
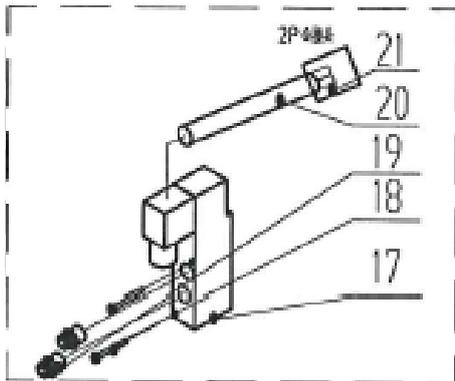
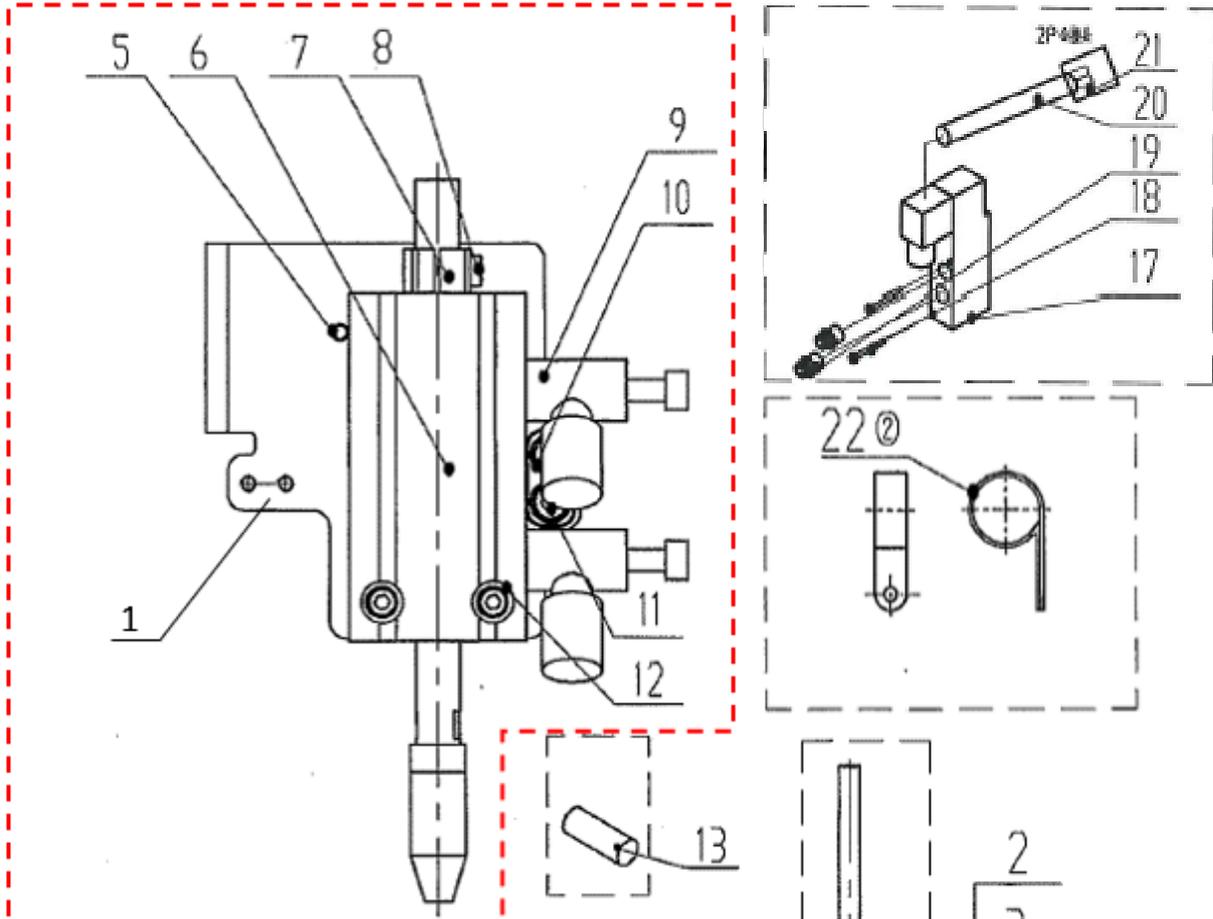


Exclusive parts for the pen holder  
with a rotary knife



No.	Product name	Q'ty	Description
①	Pen holder mounting plate	1	Standard / Laser type is used
②	M3 x 30 hexagon socket head cap screw	2	
③	M3 washer	2	
④	Spring washer (M3)	2	
⑤	Pen holder auxiliary mounting plate	1	Standard / Laser type is used
⑥	M4 x 6 flat head screw	2	Standard / Laser type is used
⑦	Cylinder	1	
⑧	M4 x 20 hexagon socket setscrew	2	
⑨	Spring washer (M4)	2	
⑩	Cylinder joint	2	
⑪	Pen clamp plate	1	
⑫	M4 x 8 hexagon head screw	2	
⑬	Pen mounting plate	1	
⑭	M4 x 25 hexagon head screw	4	
⑮	Air pipe	6	$\Phi 4 \times \Phi 2.5 \times 6m$ (3m $\times$ 2)
⑯	Solenoid valve	1	
⑰	Solenoid valve mounting plate setscrew	2	
⑱	Solenoid valve joint	2	
⑲	Electric wire	1.2	
⑳	2P terminal	1	
㉑	Cable clip band	3	
㉒	Pen holder mounting base	1	Used for the pen holder with a rotary knife
㉓	Spring washer (M4)	2	Used for the pen holder with a rotary knife
㉔	Eye protection plate mounting plate	1	Used for the pen holder with a rotary knife
㉕	Junction cable A	1	Standard / Laser type is used
㉖	Junction cable B	1	Rotary knifetype is used

1-2. List of parts of the pen holder (N)



No.	Product name	Q'ty	Description
①	Pen holder mounting plate	1	Standard / Laser type is used
②	M3 x 30 hexagon socket head cap screw	2	
③	M3 washer	2	
④	Spring washer (M3)	2	
⑤	Elastic cylindrical pin	1	
⑥	Pen holder cylinder	1	
⑦	Stroke adjustment ring	1	
⑧	M4 x 10 hexagon socket setscrew	1	
⑨	L type cylinder joint	2	
⑩	Cylinder positioning block	1	
⑪	M4 x 6 hexagon head screw	2	
⑫	M4 x 20 hexagon head screw	2	
⑬	Air pipe	6	$\Phi 4 \times \Phi 2.5 \times 6m$ (3m $\times$ 2)
⑭	Pen spring	1	
⑮	Pen adjustment link	1	
⑯	Pen cap	1	
⑰	Solenoid valve	1	
⑱	Solenoid valve mounting plate setscrew	2	
⑲	Solenoid valve joint	2	
⑳	Electric wire	1.2	
㉑	2P terminal	1	
㉒	Cable clip band	3	
㉓	Junction cable A	1	Standard / Laser type is used
㉔	Junction cable B	1	Rotary knifetype is used
㉕	M4 x 25 hexagon socket head cap screw	2	Rotary knifetype is used
㉖	Pen stick mounting base	1	Rotary knifetype is used
㉗	Spring washer (M4)	2	Rotary knifetype is used
㉘	Eye protection plate mounting plate	1	Rotary knifetype is used

## 2. Installing the pen

### 2-1. Pen holder mounting position (Standard / laser type)



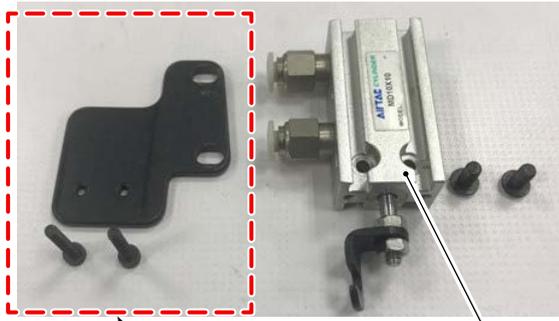
Fig. 1



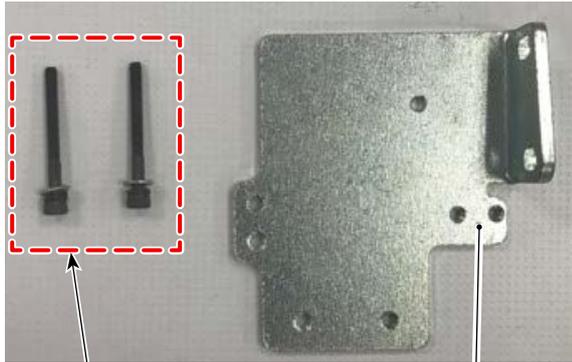
Fig. 2

- 1) Removing face plate ④  
Remove screws ① shown in Fig. 1 with a screwdriver.
- 2) Removing the thread tension cylinder  
Firstly, remove screws ② shown in Fig. 2 with a 2.5-mm hexagonal wrench key. Then, remove screws ③ with a 3-mm hexagonal wrench key.

- 3) Attach the parts of the thread tension cylinder you have removed to pen holder mounting plate A with the screws, spring washers and plain washers as shown in Fig. 3.



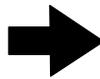
Parts that need to be replaced      Thread tension cylinder



M3 x 30 hexagon socket head cap screw  
Spring washer  
Plain washer  
\* Assembled state of parts ②, ③ and ④ in the Parts List



State of the parts before the replacement



State of the parts after the replacement

Fig. 3 (After the thread tension cylinder is installed)

## 2-2. How to install the pen holder



Fig. 1

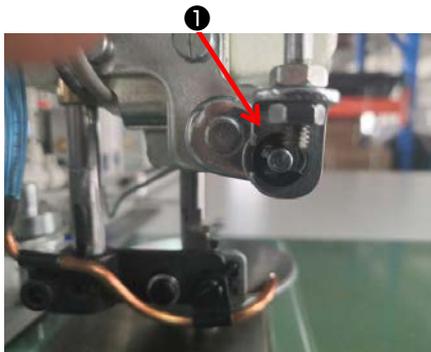


Fig. 2

- 1) Securing the thread tension cylinder parts  
Secure tension fork ① of the thread tension cylinder parts shown in Fig. 1 at the position as shown in Fig. 2.

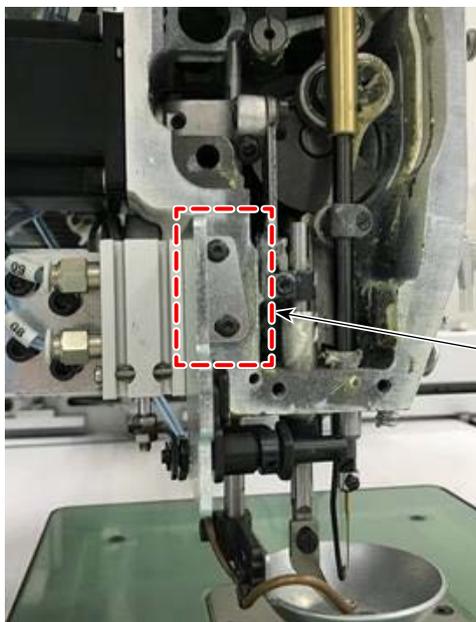
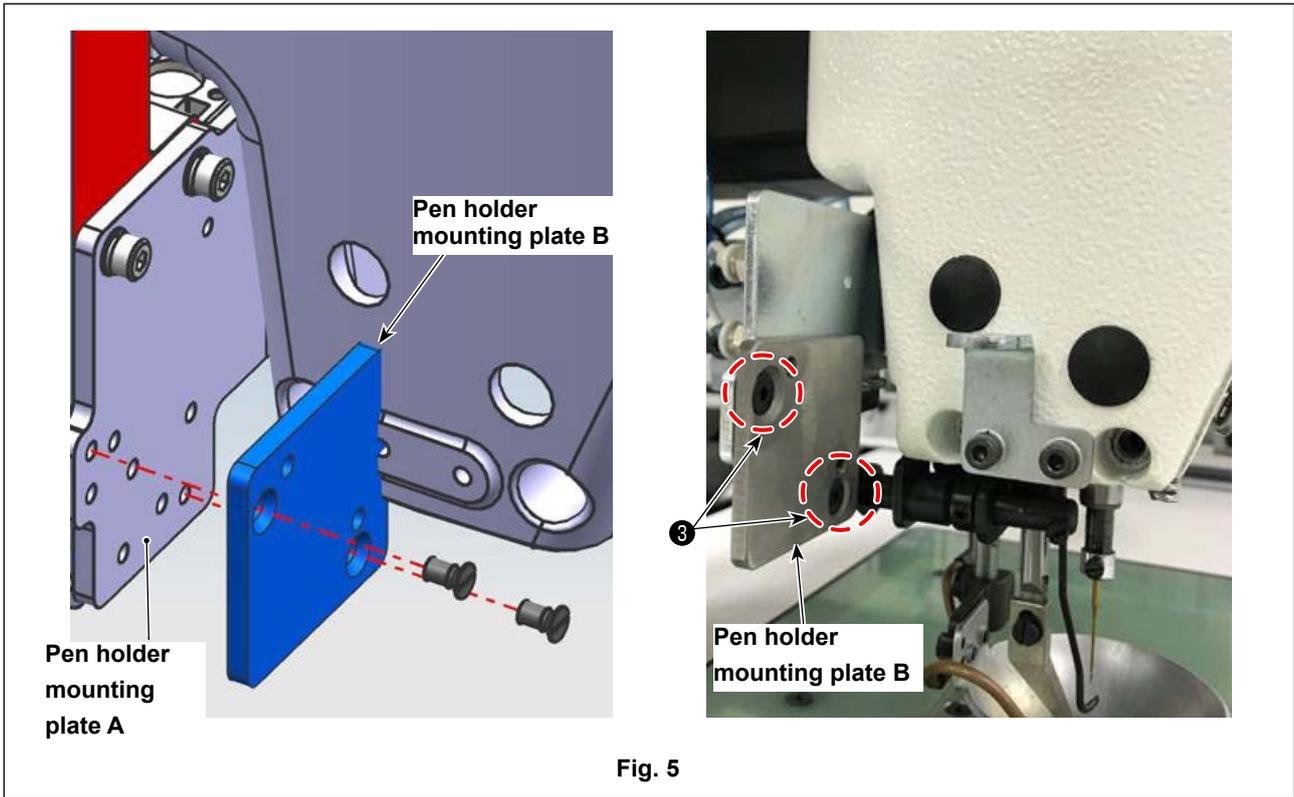


Fig. 3

- 2) Securing the pen holder mounting plate A  
Install the pen holder mounting plate A to the sewing machine head with two screws using a 2.5-mm hexagonal wrench key. (Fig. 3)



- 3) Securing the face plate  
 Put face plate ② that you have detached in "2-1. Pen holder mounting position (Standard / laser type)" p.5 back into place as shown in Fig. 4.



- 4) Securing the pen holder mounting plate B  
 Attach the pen holder mounting plate A to the pen holder mounting plate B with two flat head screws ③ using a 2.5-mm hexagonal wrench key. (Fig. 5)

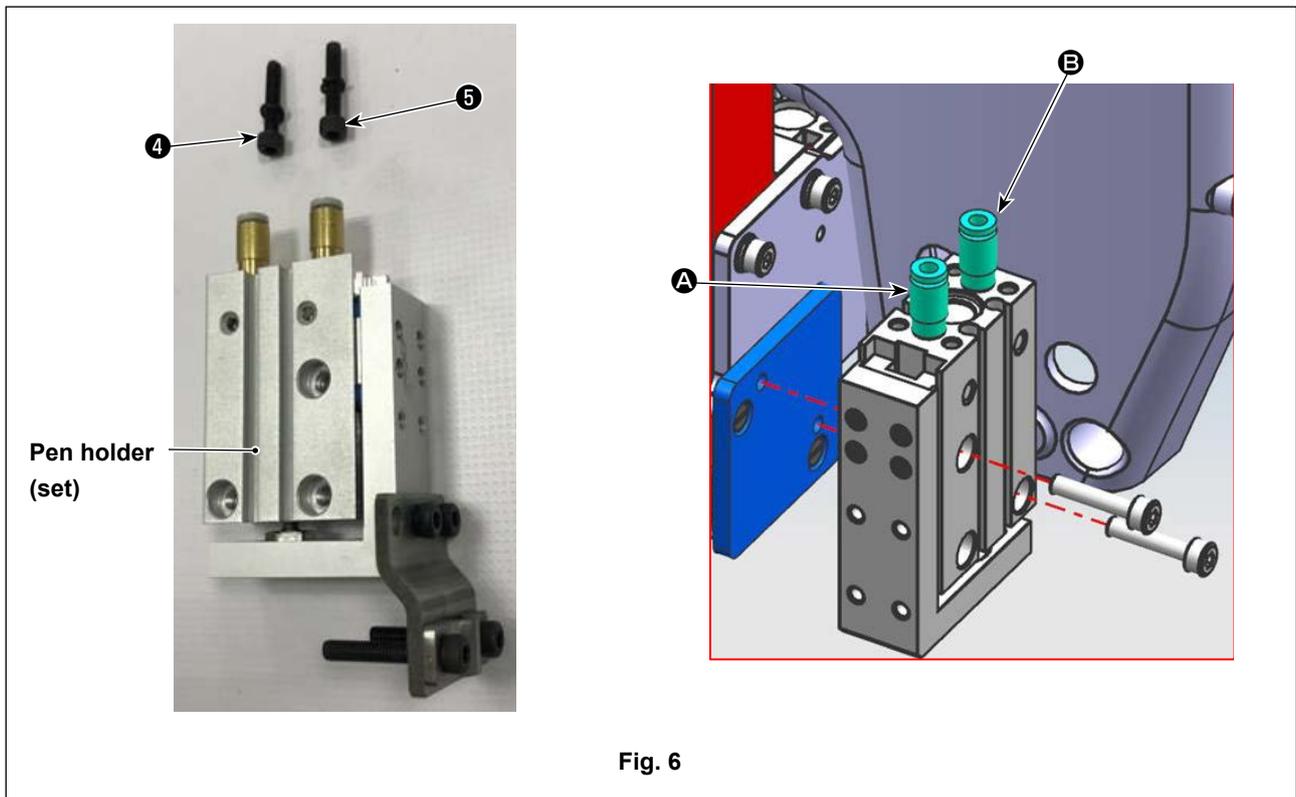


Fig. 6

5) Securing the pen holder

Install the pen holder to the pen holder mounting plate B with two screws ④ and two spring washers ⑤ using a 3-mm hexagonal wrench key. (Fig. 6)

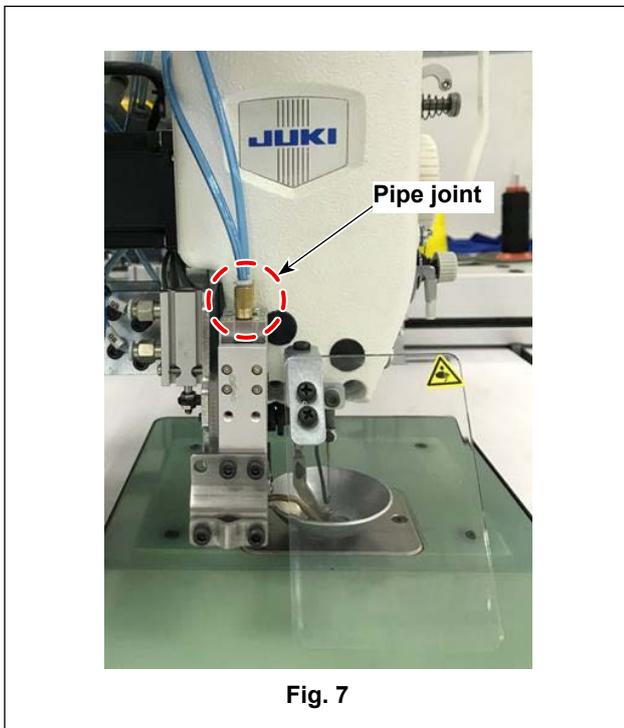


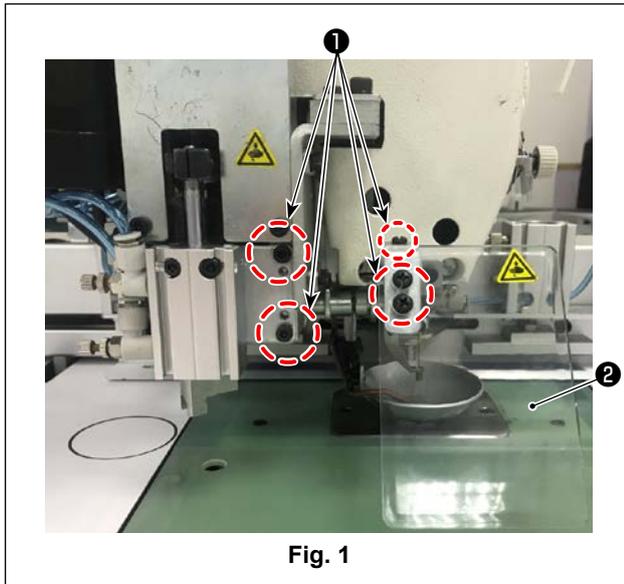
Fig. 7

6) Connecting the air pipe

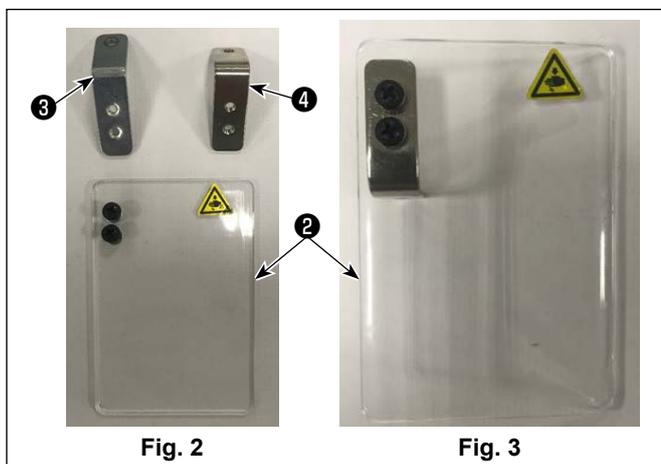
Insert the air pipes into the pipe joint of the pen holder to complete the installation procedure.

\* Refer to "2-4. Installing the solenoid valve" p.13 for the positional relationship between the air tubes ① and ② which are inserted into the pipe joint (Fig. 7).

## 2-3. Installing the pen holder (Rotary knifetype type)



- 1) Removing the screws at the location that needs replacement  
Remove five screws ① and detach eye protection plate ② as shown in Fig. 1.



- 2) Replacing the eye protection plate mounting plate  
Replace conventional mounting plate ③ with new mounting plate ④ as shown in Fig. 2. Assemble new mounting plate ④ and eye protection plate ② with the screws. The assembled state of the aforementioned parts is as shown in Fig. 3.

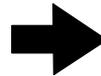


Fig. 4

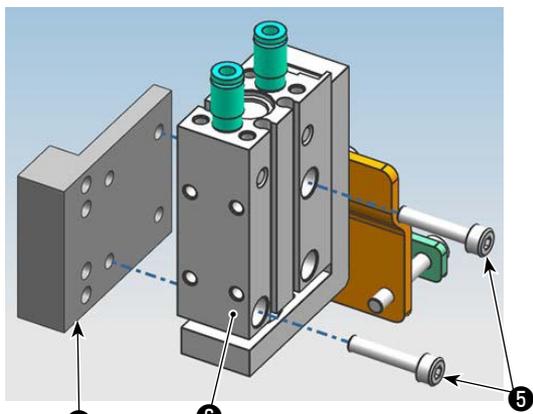
- 3) Installing the eye protection plate mounting plate  
Put the eye protection plate mounting plate back on the face plate with the previously-used screws as shown in Fig. 4.
- \* Refer to the pictures that show the eye protection plate mounting plate before and after the replacement.



Eye protection plate mounting plate before the replacement

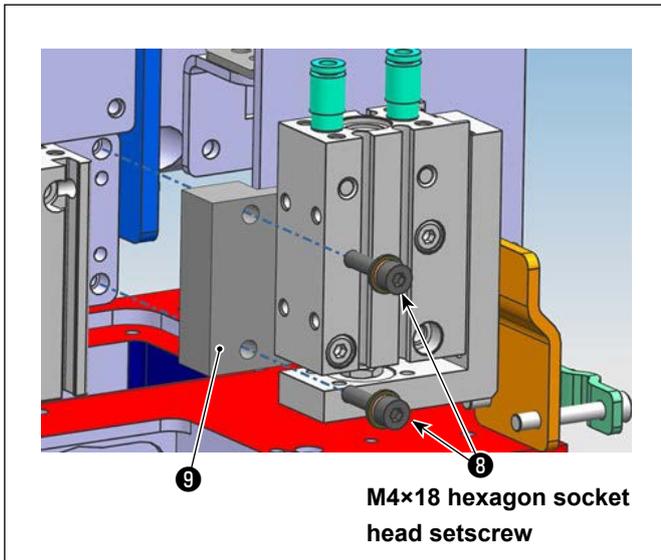


Eye protection plate mounting plate after the replacement

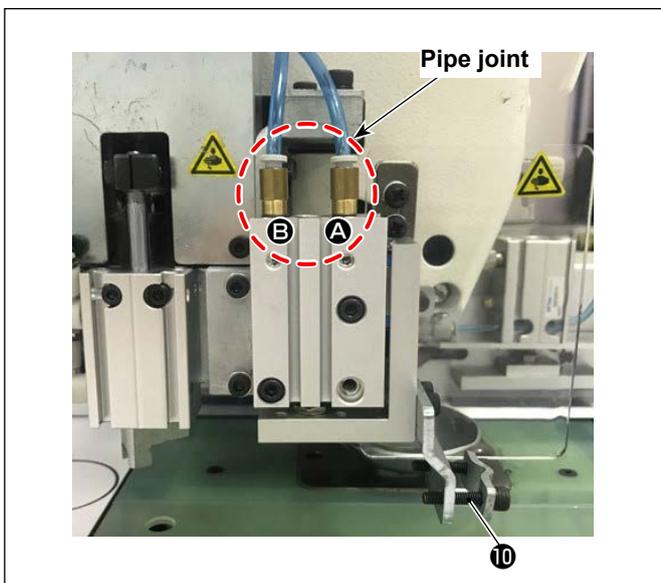


M4 x 20 hexagon socket head setscrew

- 4) Installing the pen holder (after assembled)  
Install pen holder cylinder ⑥ to mounting base ⑦ with two screws ⑤ .



- 5) Assembling the pen holder parts  
 Attach pen holder assembly 9 to the counter knife device with two screws 8 . The mounting holes are those from which you have removed two left-handed screws as shown in Fig. 1.



- 6) Connecting the air pipe  
 Insert the air pipes into the pipe joint of the pen holder to complete the installation procedure.
- \* Refer to "2-4. Installing the solenoid valve" p.13 for the positional relationship between the air tubes A and B which are inserted into the pipe joint.

## 2-4. Installing the solenoid valve

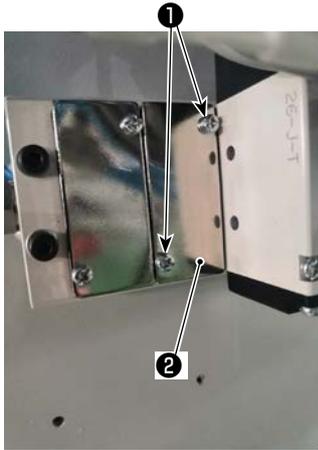


Fig. 1



Fig. 2

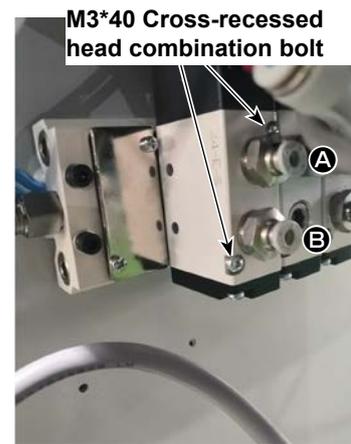


Fig. 3

### 1) Securing the solenoid valve

Remove screws ❶ with a screwdriver as shown in Fig. 1. Also remove MG-4V110 blind cap ❷ . Fig. 2 shows the state after you have removed the aforementioned parts.

Then, secure the solenoid valve on the solenoid valve seat with two screws using a screwdriver as shown in Fig. 3.

## 2-5. How to wire the air tube (13085)

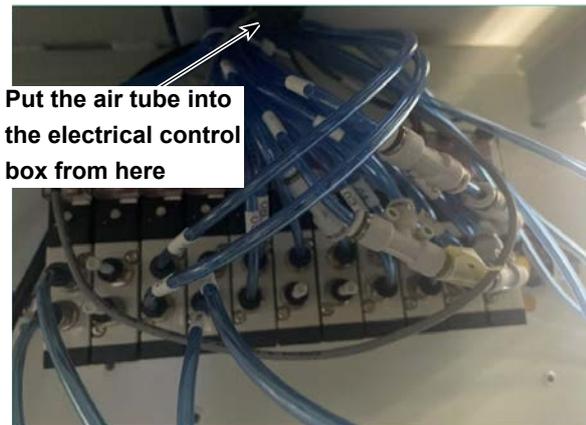


Fig. 1

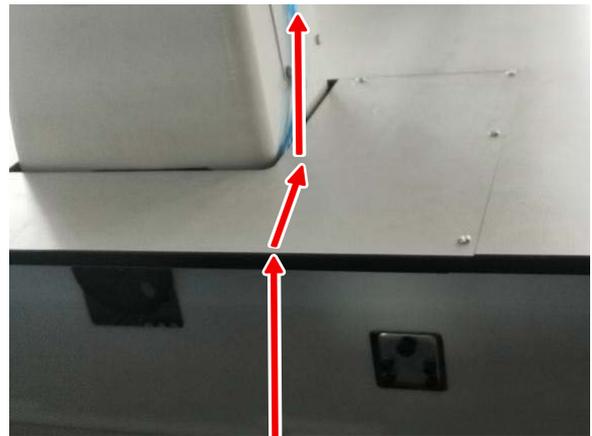


Fig. 2

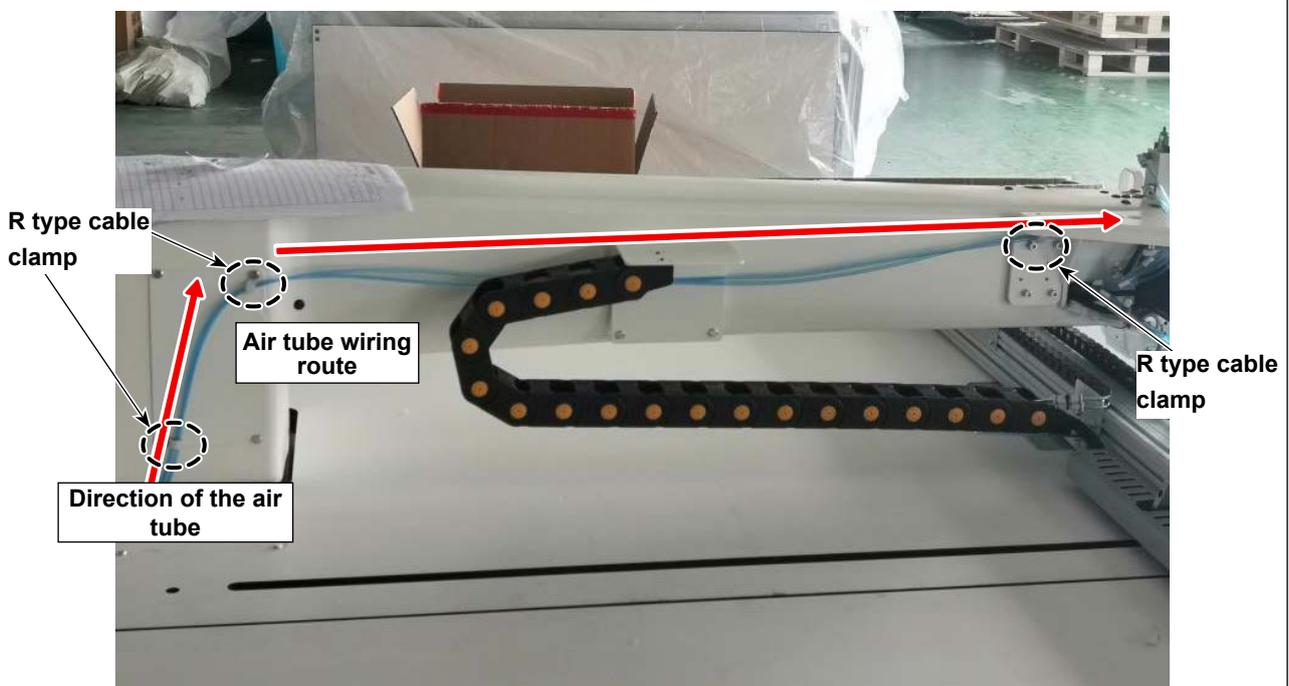


Fig. 3

- 1) Take out two  $\phi 4 \times \phi 2.5$  air tubes from the solenoid valve and put them into the electrical control box from its bottom.  
Route the air tubes along the outer surfaces of the casing (Fig. 2). Then, pass it along the route as shown in Fig. 3. Put three R type cable clamps over the air tubes and secure the air tubes on the outer surface of the casing.
- 2) Connect the air tube to the cylinder.



**Connect A to A and B to B.**

## 2-6. How to wire the air tube (8045/10045)

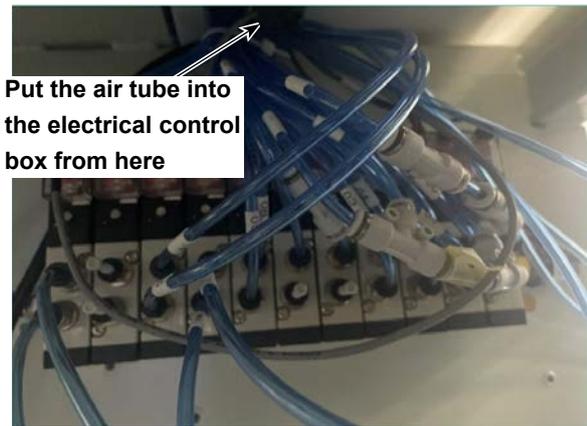


Fig. 1

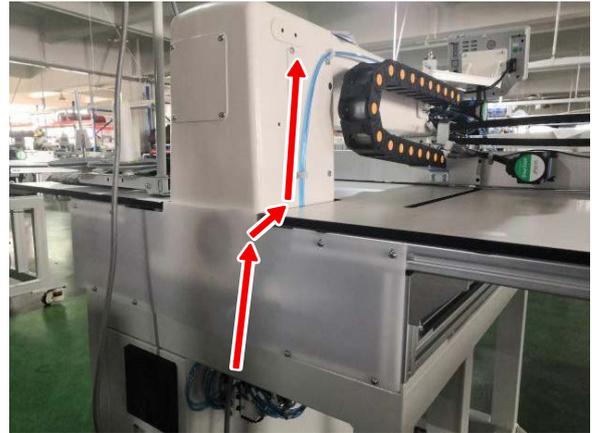


Fig. 2

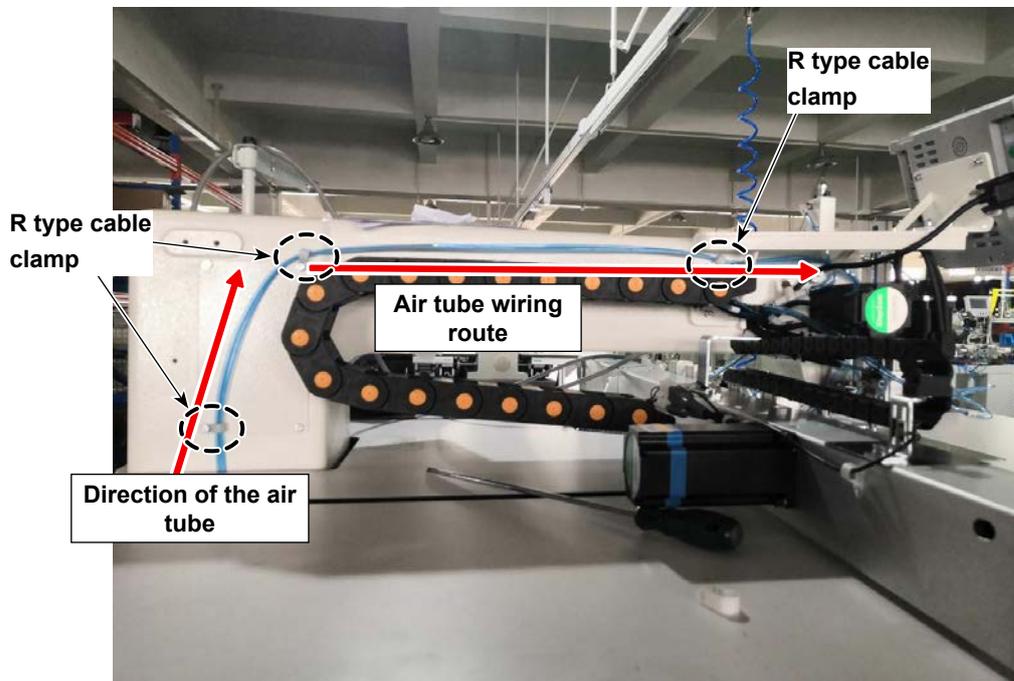


Fig. 3

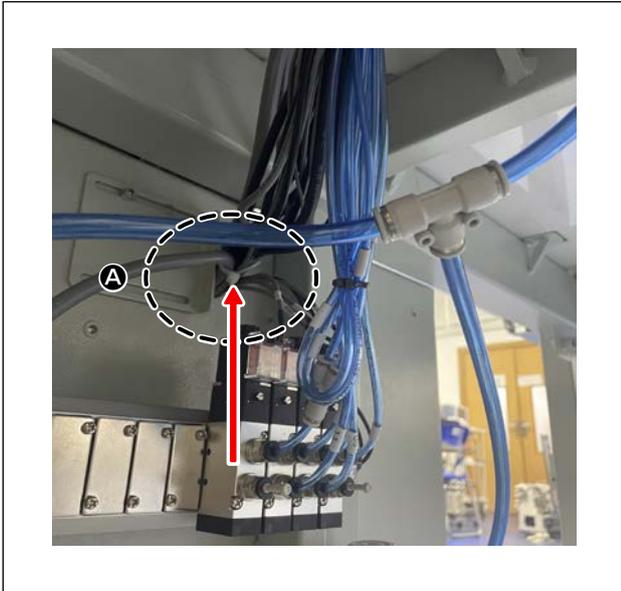
- 1) Route the air tubes along the outer surfaces of the casing (Fig. 2). Then, pass it along the route while putting three R type cable clamps over the air tubes as shown in Fig. 3 and secure the air tubes on the outer surface of the casing. Then, complete the wiring of the air tubes by connecting them to the pen cylinder.
- 2) Connect the air tube to the cylinder.



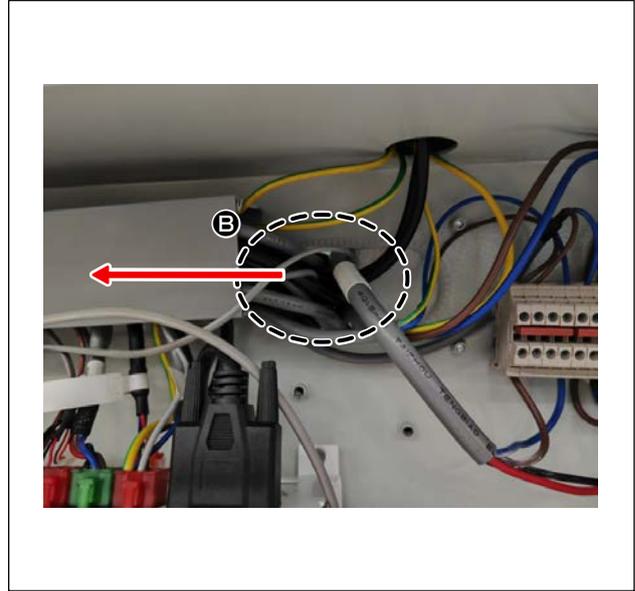
Connect A to A and B to B.

## 2-7. Solenoid valve cable wiring

[PS810-8045/10045]

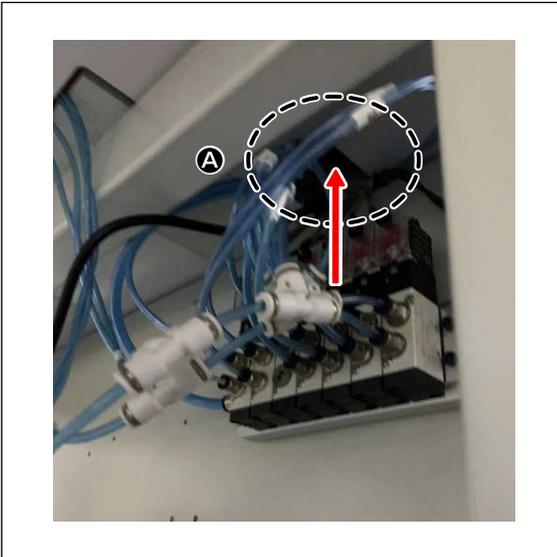


- 1) Pull the solenoid valve cable you have installed in 2-4 through location **A** into the top surface of the electrical rack.

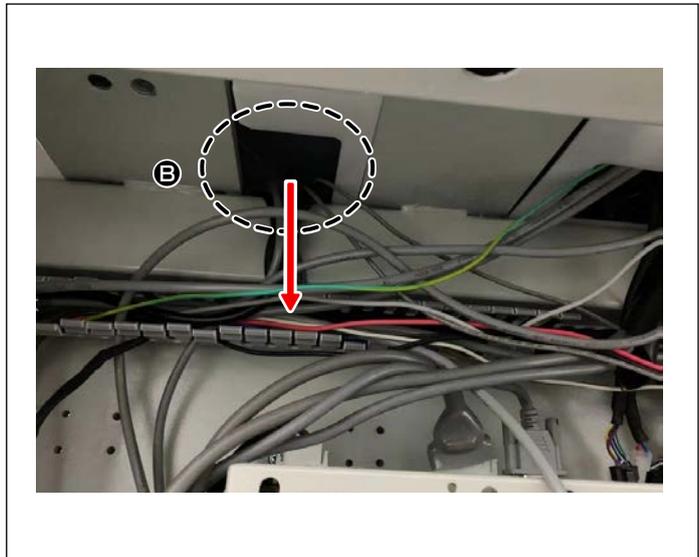


- 2) Pull the solenoid valve cable into the electrical rack through location **B** of the top surface of the electrical rack

[PS810-13085]



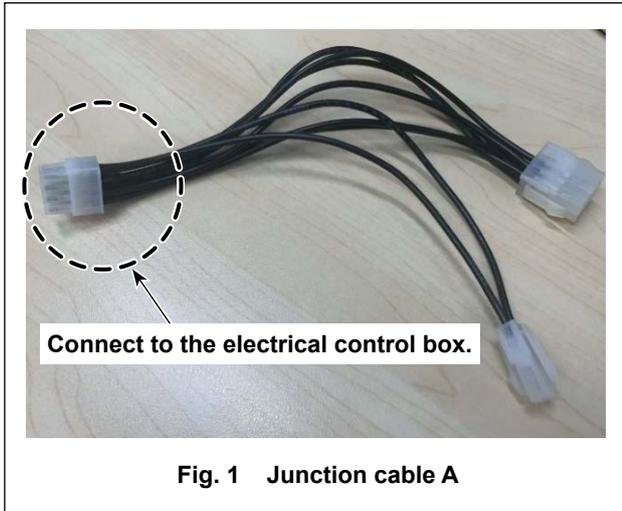
- 1) Pull the solenoid valve cable you have installed in 2-4 through location **A** into the top surface of the electrical rack.



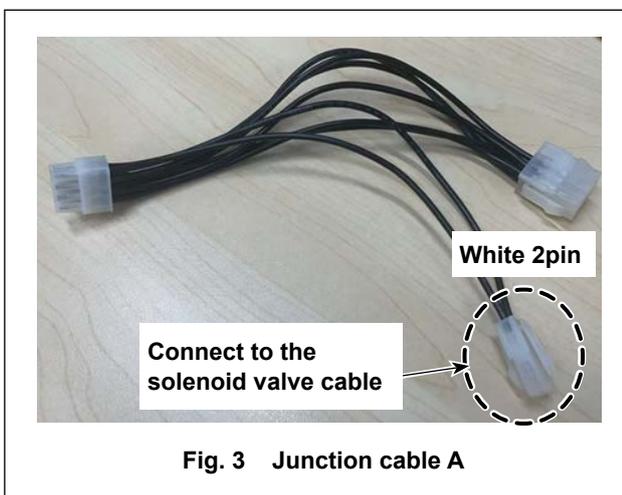
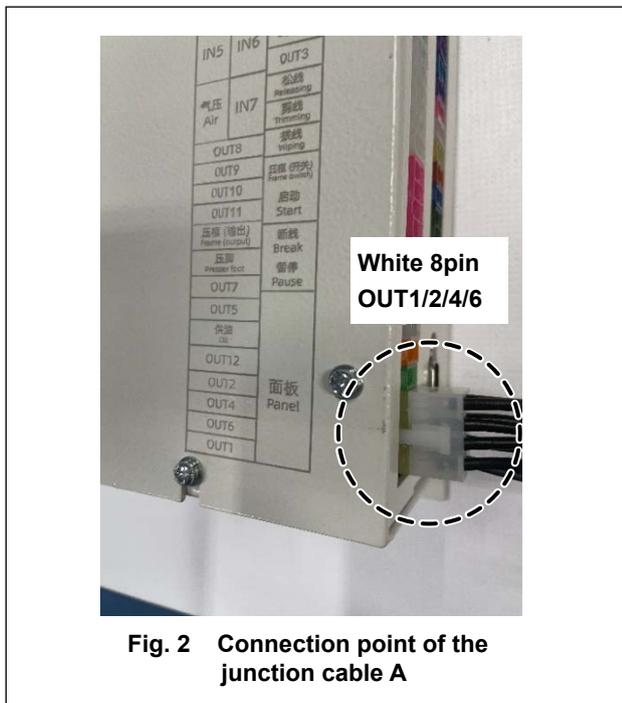
- 2) Pull the solenoid valve cable into the electrical rack through location **B** of the top surface of the electrical rack

## 2-8. Electrical control box wiring

[standard/laser type]



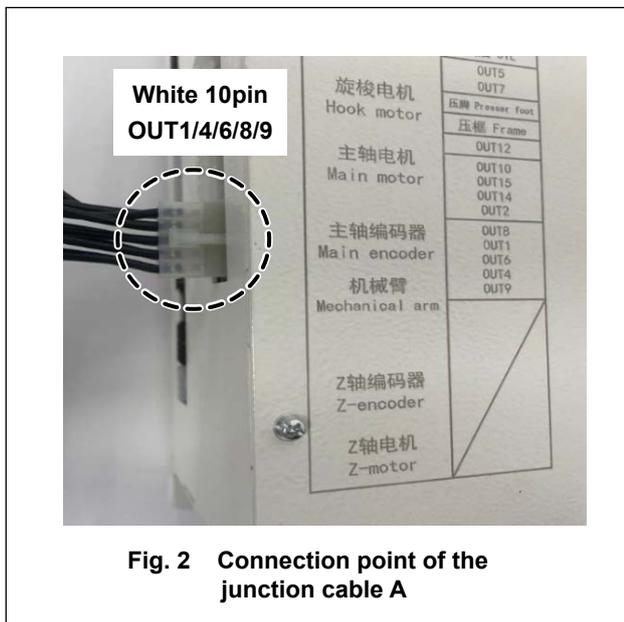
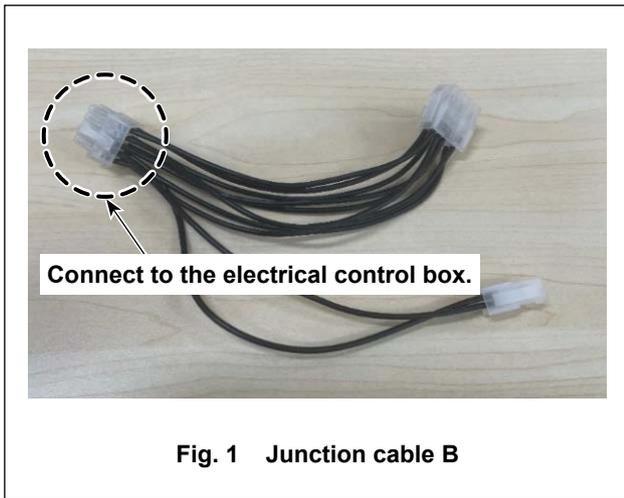
- 1) Connect the connector of the junction cable A (Fig. 1) to the connector on the side face of the electrical control box (Fig. 2).



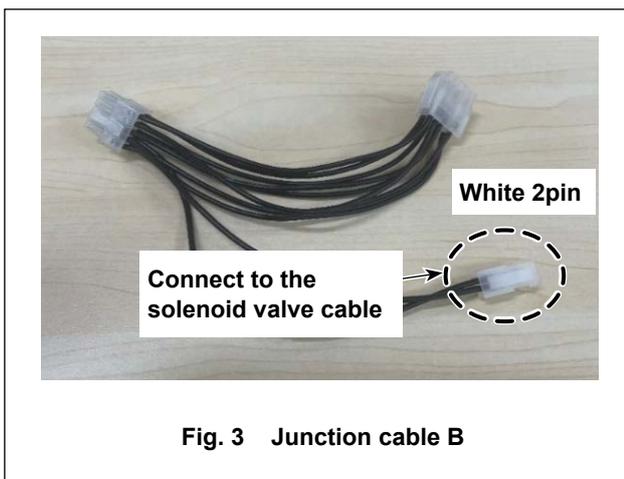
- 2) Connect the solenoid valve cable to the connector of the junction cable A (Fig. 3).

[Rotary knife type]

- 1) Connect the connector of the junction cable B (Fig. 1) to the connector on the side face of the electrical control box (Fig. 2).

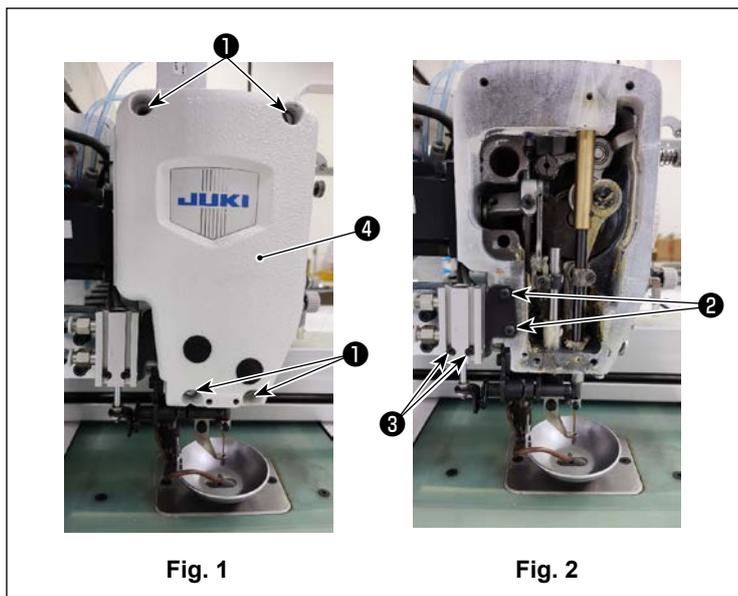


- 2) Connect the solenoid valve cable to the connector of the junction cable B (Fig. 3).

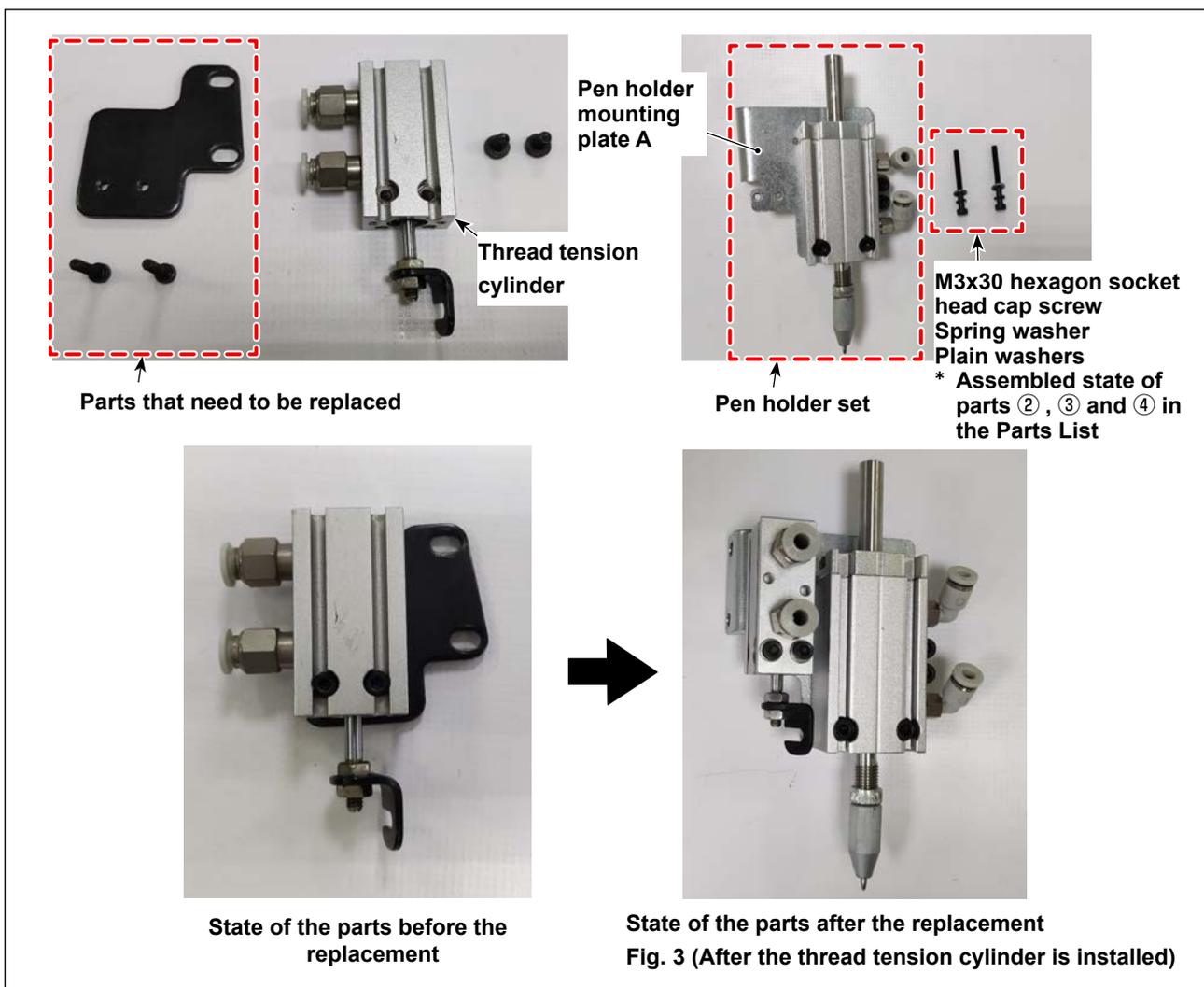


### 3. Attaching the pen (N company)

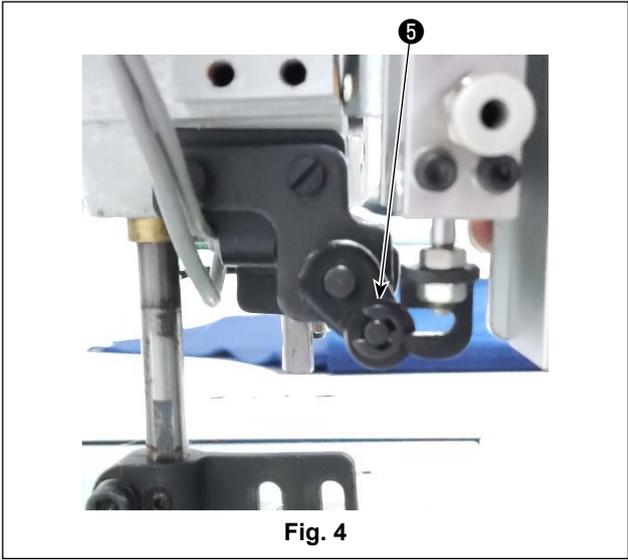
#### 3-1. Location and method to install the pen holder (N) (Standard/laser type models)



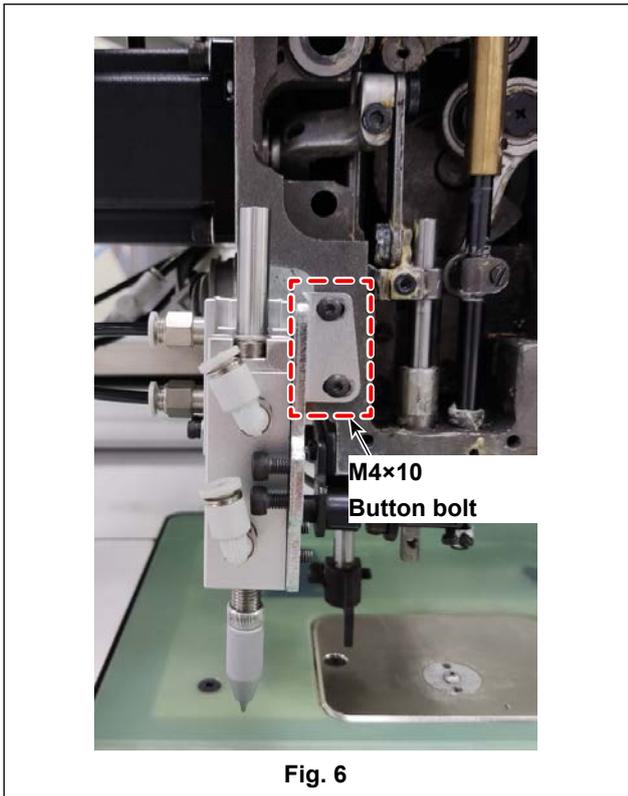
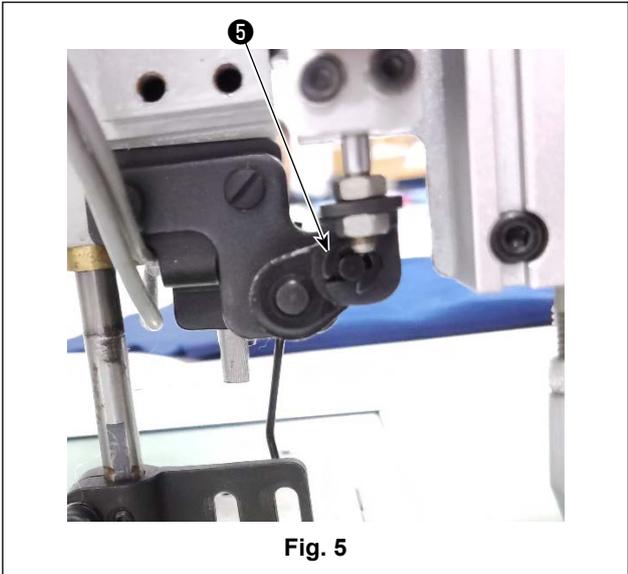
- 1) Removing face plate ④  
Remove screws ① as shown in Fig. 1 with a screwdriver.
- 2) Removing the thread tension cylinder  
Firstly, remove screws ② shown in Fig. 2 with a 2.5-mm hexagonal wrench key. Then, remove screws ③ shown in Figure 2 with a 3-mm hexagonal wrench key.



- 3) Attach the parts of the thread tension cylinder you have removed to the pen holder mounting plate A with screws, spring washers and plain washers as shown in Fig. 3.



- 4) Securing the thread tension cylinder parts  
Secure tension fork ⑤ of the thread tension cylinder parts as shown in Fig. 4 to the position shown in Fig. 5.



- 5) Securing the pen holder mounting plate A  
Install the pen holder mounting plate A to the sewing machine head with two screws using a 2.5-mm hexagonal wrench key. (Fig. 6)



Fig. 7

- 6) Securing face plate ⑥ .  
 Re-install face plate ⑥ you have removed in **"1) Removing face plate ④ "** p.19, as shown in Fig. 7.

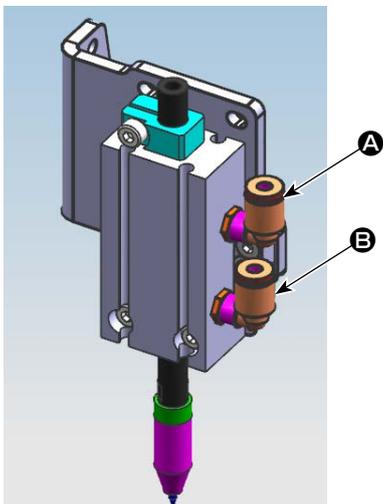
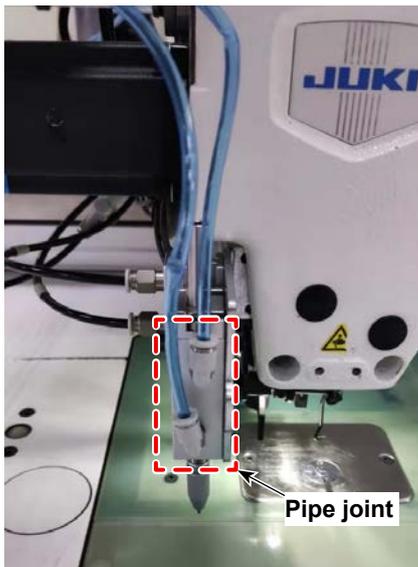
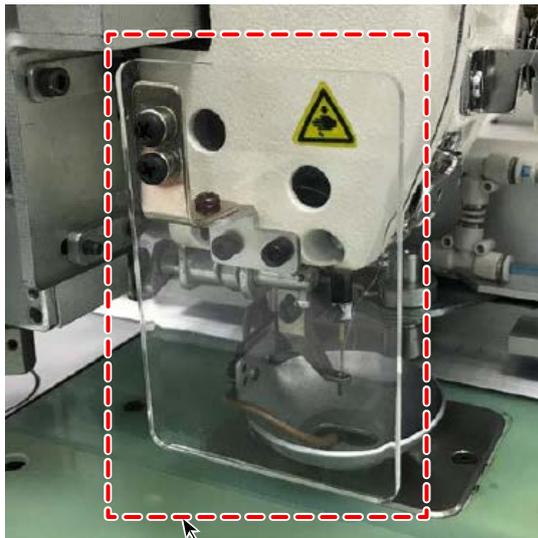


Fig. 8

- 7) Connecting the air pipes  
 Insert the air pipes into the pipe joint to complete the installation procedure.  
 \* Refer to the description in **"2-4. Installing the solenoid valve" p.13** for the positional relationship between air tubes ① and ② (Fig. 8) which are inserted into the pipe joint.

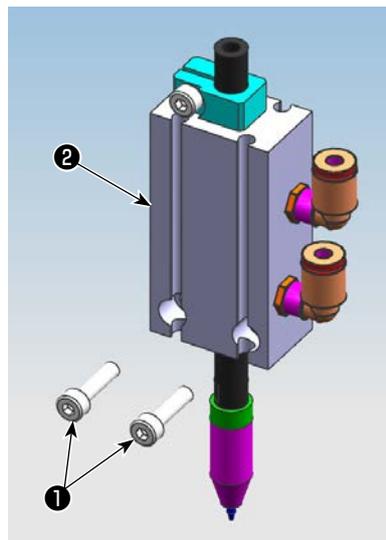
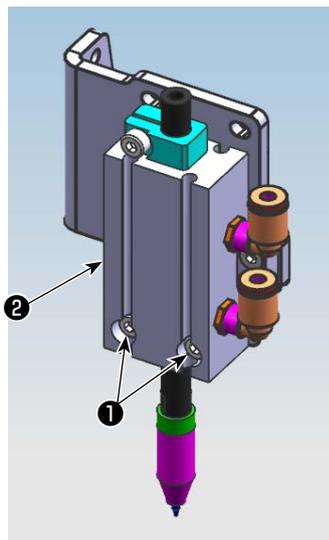
### 3-2. Installing the pen holder (Rotary knife type)



New eye protection plate mounting plate

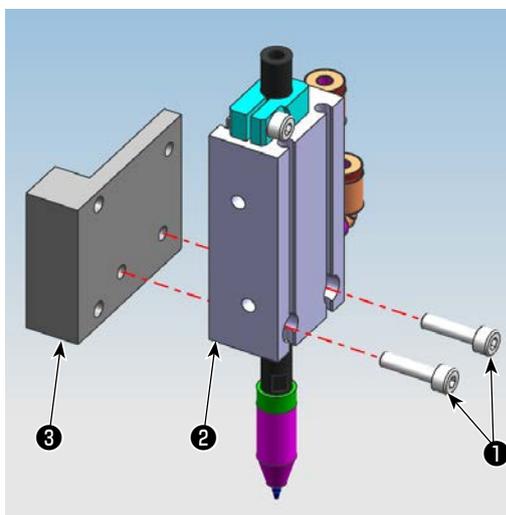
- 1) Replacing the eye protection plate mounting plate

Replace the eye protection plate mounting plate, referring to "1), 2), 3)" in **"2-3. Installing the pen holder (Rotary knifetype type)" p.10.**

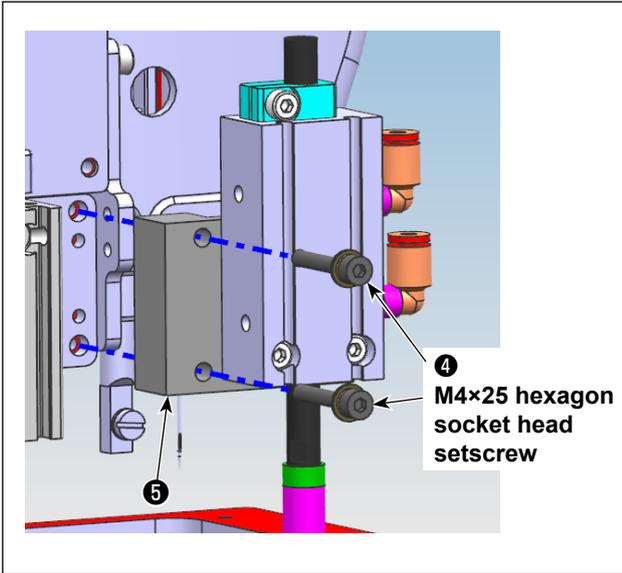


- 2) Remove the pen holder cylinder and cylinder positioning block

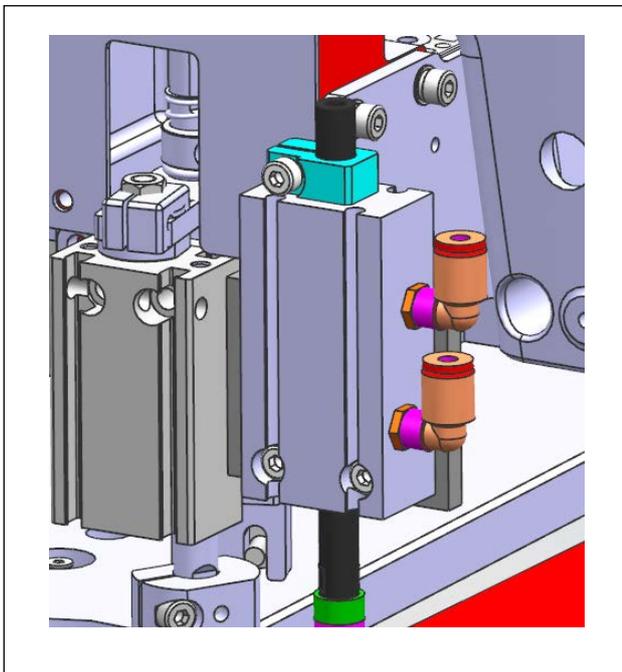
Remove pen holder cylinder **2** and screws **1** from the pen holder set with a 3-mm hexagonal wrench key.



- 3) Installing the pen holder (after assembled)  
Install pen holder cylinder **2** to mounting base **3** with two screws **1**.



- 4) Assembling the pen holder parts  
Attach pen holder asm. 5 to the counter knife device with two screws 4. The mounting holes are those from which you have removed two left-handed screws as shown in Fig. 1 in "2-3. Installing the pen holder (Rotary knifetype)" p.10.



- 5) Connecting the air pipes  
Insert the air pipes into the pipe joint of the pen holder to complete the installation procedure.  
\* Refer to the description in "2-4. Installing the solenoid valve" p.13 for the positional relationship between air tubes A and B which are inserted into the pipe joint.

## 4. Operation

### 4-1. Adjusting the pen cylinder standard



Fig. 1



Fig. 2

- 1) Place a piece of cloth or a sheet of white paper on the pattern you have already created. (Fig. 1)
- 2) Place the pattern alignment guide pin in the X direction as shown in Fig. 2. Click the "Feeding frame" shown in the lower part of the display.

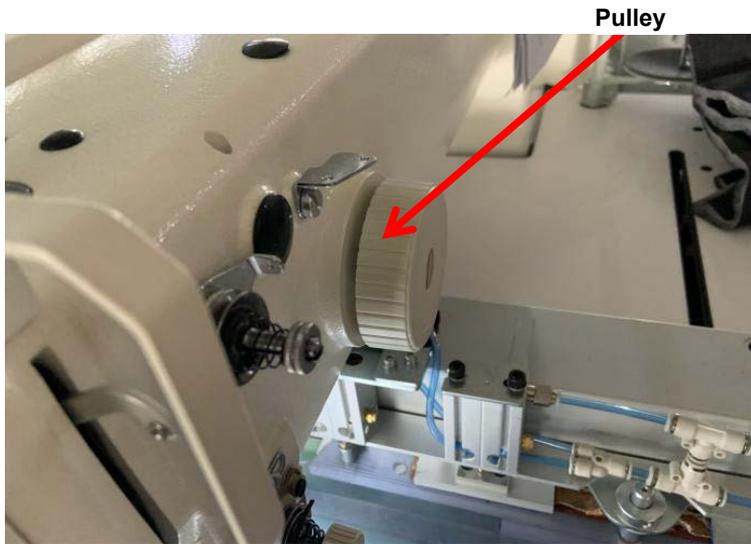


Fig. 3



Fig. 4

- 3) Turn the pulley (in the direction of the arrow shown on the pulley) as shown in Fig. 3. Prick a hole in the paper with a needle as shown in Fig. 4.

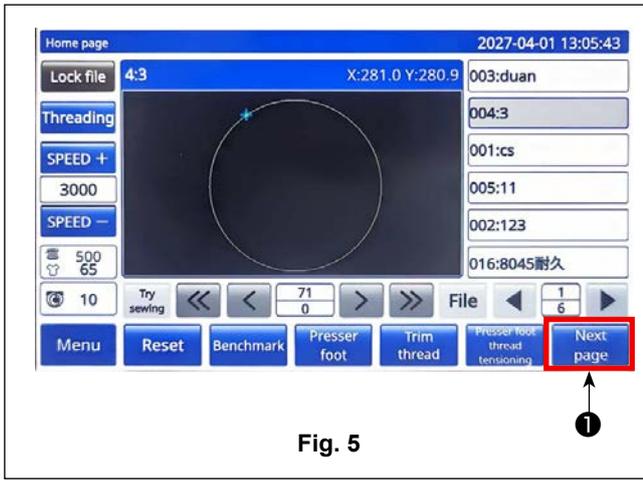


Fig. 5

4) Press "Next page" ❶ on the electronic control main screen. (Fig. 5)

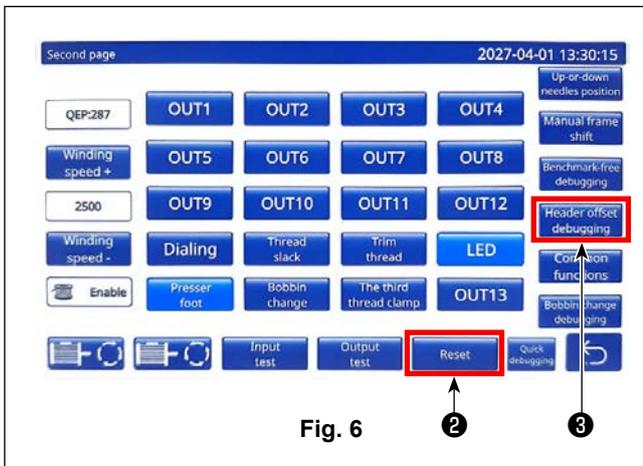
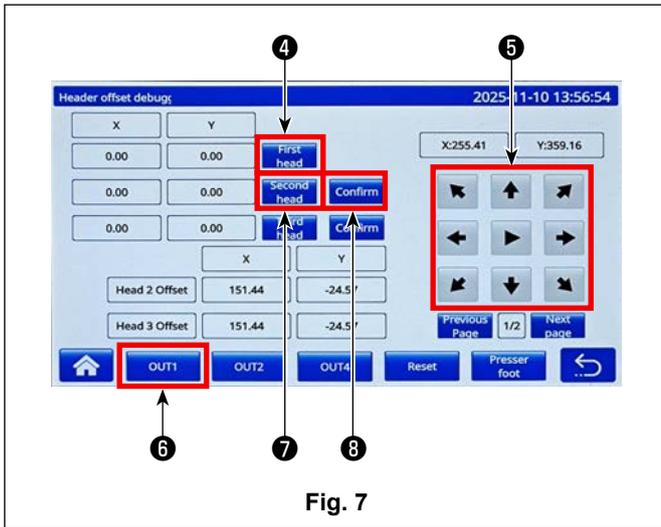


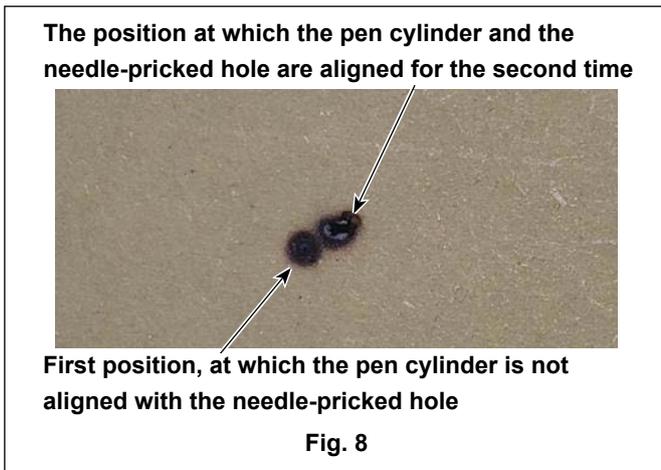
Fig. 6

5) Press "Reset" ❷ .  
Press "Head offset" ❸ . (Figure 6)



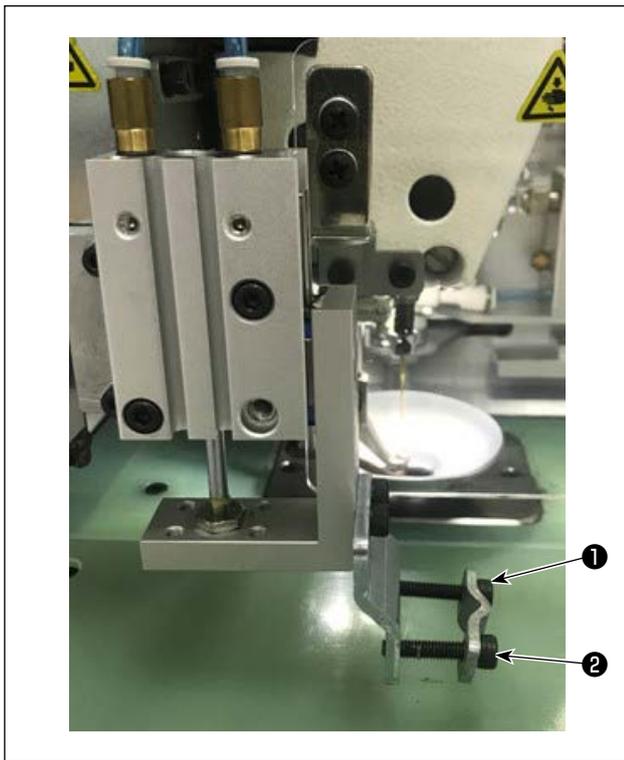
- 6) When you press "Head 1" ④, the X and Y values displayed next to the "Head 1" ④ are changed. (Fig. 7)
- 7) Use the arrow buttons ⑤ to move up, down, left, and right, and align the point on the pattern marked by the needle with the pen cylinder. Then press "OUT1" ⑥ to move the pen downward, and check whether the pen tip and the needle hole point are aligned.

If they are not aligned, use the arrow buttons ⑤ until the pen tip and the needle hole point are aligned. Use the arrow buttons ⑤ to adjust up, down, left, and right, overlap the two points, press "Second head" ⑦, and then press "Confirm" ⑧. (Figure 8)

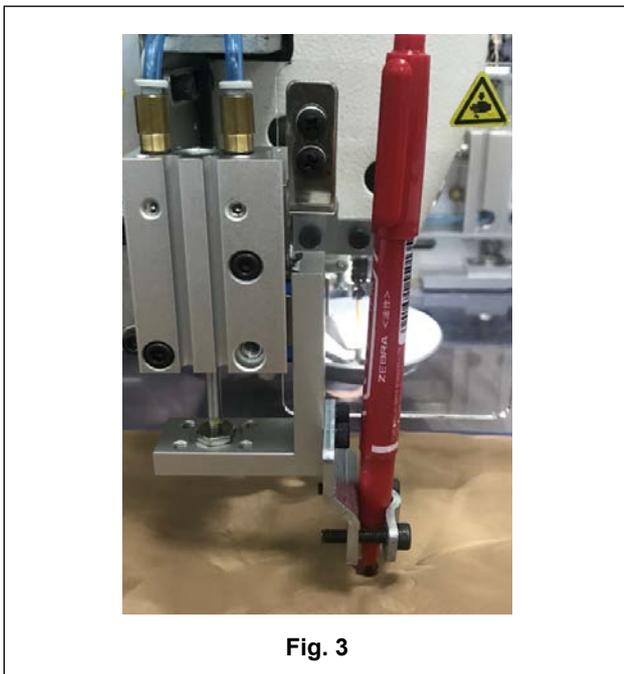


## 4-2. Attaching and adjusting the pen

### 4-2-1. Installing and adjusting the pen (J)



- 1) Bring the pen holder device to its lowest position. Adjust the position of pen mounting plate ① and screw ② in accordance with the size of the pen.



- 2) Attach the pen to the pen holder device. Adjust the distance from the pen to the material. Then, secure the pen.

## 4-2-2. Installing and adjusting the pen (N company)

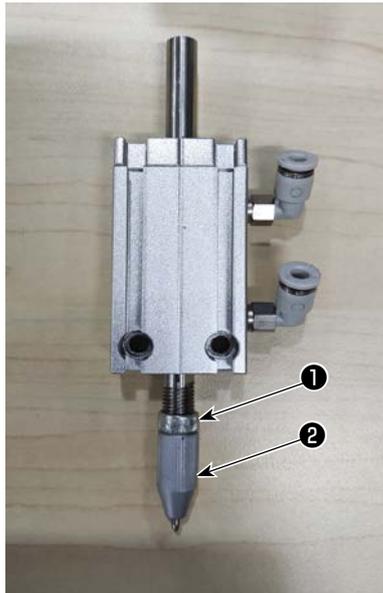


Fig. 1

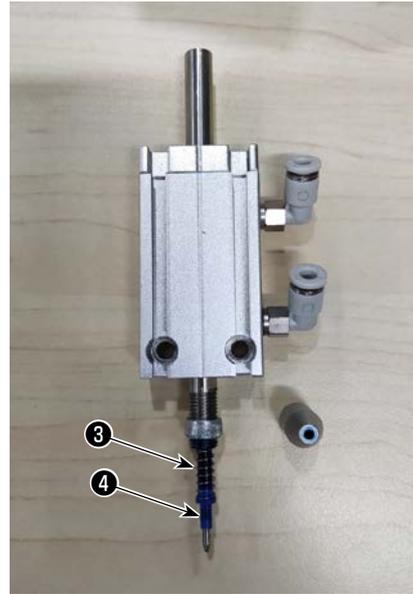


Fig. 2

### 1) Removing the old pen

Remove socket ② of the pen holder set (Fig. 1) by hand. Then, remove fine adjustment nut ① (Fig. 2), and lastly, remove spring ③ and pen ④ together also by hand.

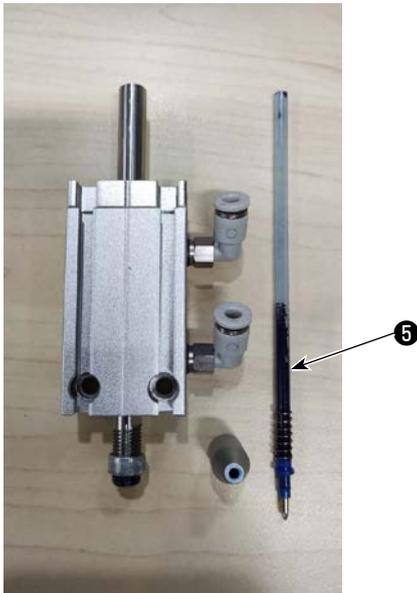
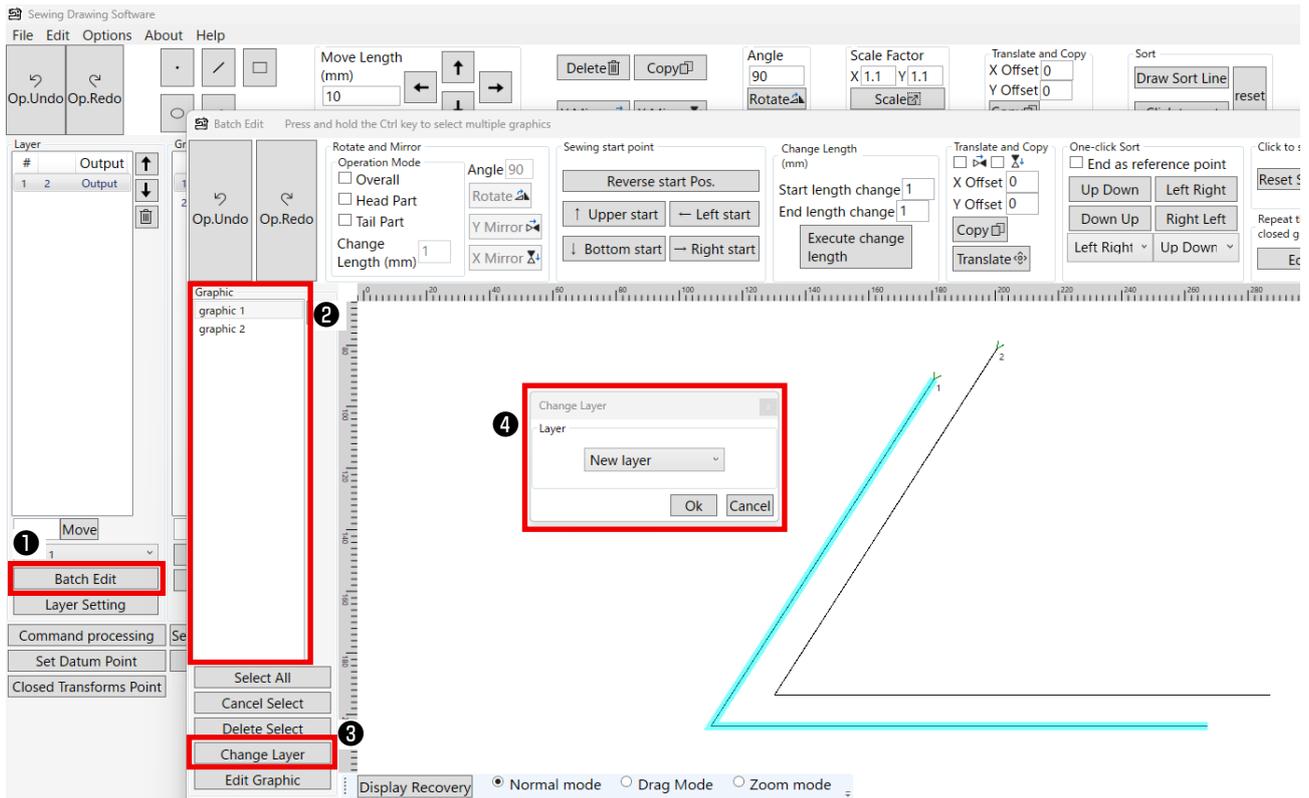


Fig. 3

### 2) Changing to the new pen

Put spring ③ on new pen ⑤ (Fig. 3), screw socket ② into the pen holder set. Then, install it to the sewing machine. If the pen fails to come in contact with the paper, you may adjust fine adjustment nut ① and socket ② as shown in Fig. 1 so that the pen comes in contact with the paper.

### 4-3. Setting the pen line application software



- 1) Open the application and locate the file → \$1\$ Click “Batch Edit” → \$2\$ Select all lines you want to draw over with the pen (press and hold the Ctrl key at the lower left of the keyboard to select multiple lines). After the selection is complete → \$3\$ Click “Change Layer” → \$4\$ Select a new layer and click “Confirm”.



- 2) After the completion of the aforementioned procedure, one layer or two or more layers are displayed. Next, double-click stitching line Layer 1 → Check “Lines to stitches” → Set the following options → Click “Confirm”.

\* **Stitches correspond to Head 1 here.**



- 3) Next, double-click Layer 2, which you want to draw with the pen, uncheck any options, change Head 1 to Head 2, and then click “Confirm”.
- 4) Once complete, click “Command processing” at the bottom left to output the file, save it to complete the process.