

ENGLISH

PS-810
Bobbin thread remaining amount
detection device
INSTRUCTION MANUAL



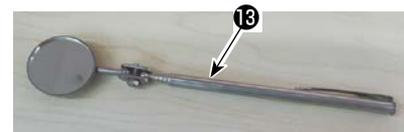
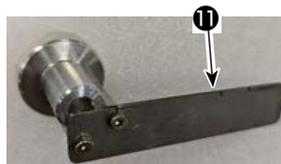
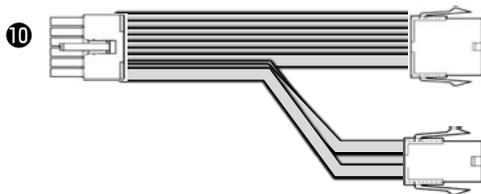
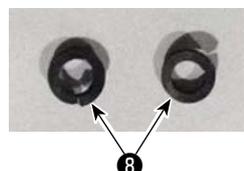
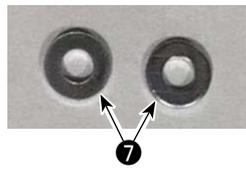
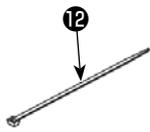
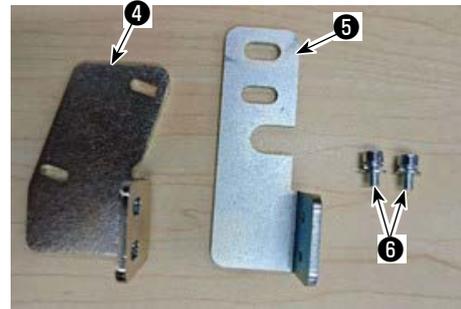
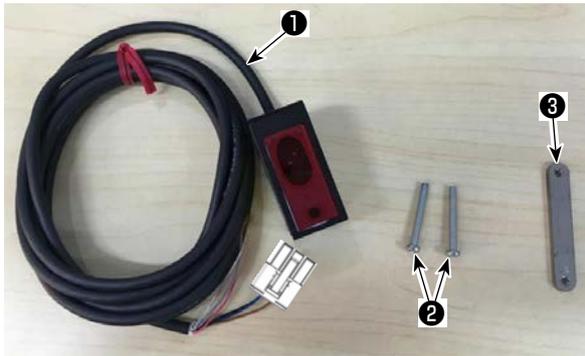
CAUTION :

This Instruction Manual describes the bobbin thread remaining amount detection device. 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



No.	Product name	Q'ty	Remarks
①	Sensor	1	
②	Sensor fixation screw	2	
③	Nut	1	
④	Sensor clamp plate A	1	
⑤	Sensor clamp plate B	1	
⑥	Plate fixation screw	2	
⑦	Sensor fixation plain washer	2	
⑧	Sensor fixation spring washer	2	
⑨	Bobbin case	1	Part number : 40237773 The bobbin case is dedicated to detecting the remaining amount of bobbin thread. (There is a long hole for detection)
⑩	Sensor junction cable	1	
⑪	Jig (collar + plate)	1	To be used only when adjusting the assembly
⑫	Cable clip band	3	
⑬	Pen-type reflector	1	Used to check the sensor display value.

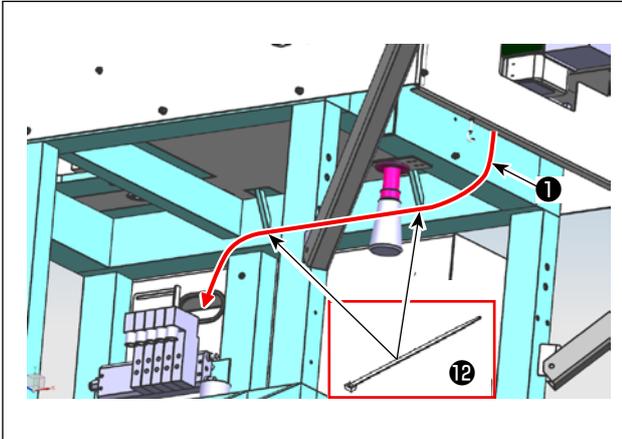
2. Wiring connection



WARNING :

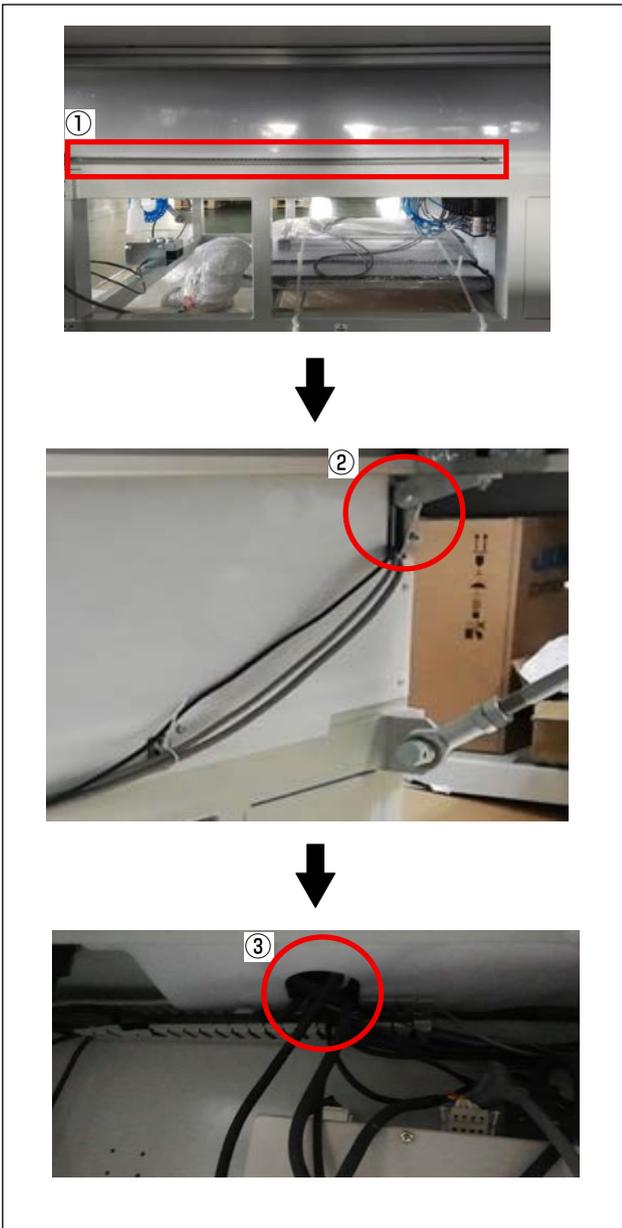
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

Pull the sensor cable into the inside of the electrical box. (The cable path differs with the size of sewing machine.)



[PS-810-8045&10045]

- 1) As shown in the figure, route the sensor ① cable under the table stand and into the electrical control box.
- 2) Leave a suitable amount of slack in the cable on the sensor ① side, and secure the cable with cable clip band ⑫ at the marked location.

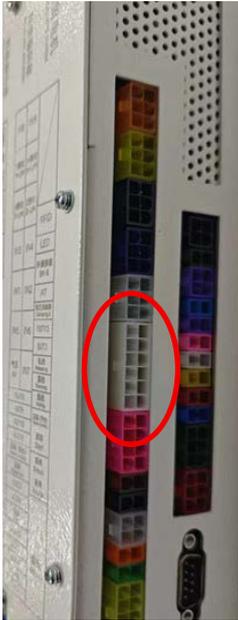


[PS-810-13085]

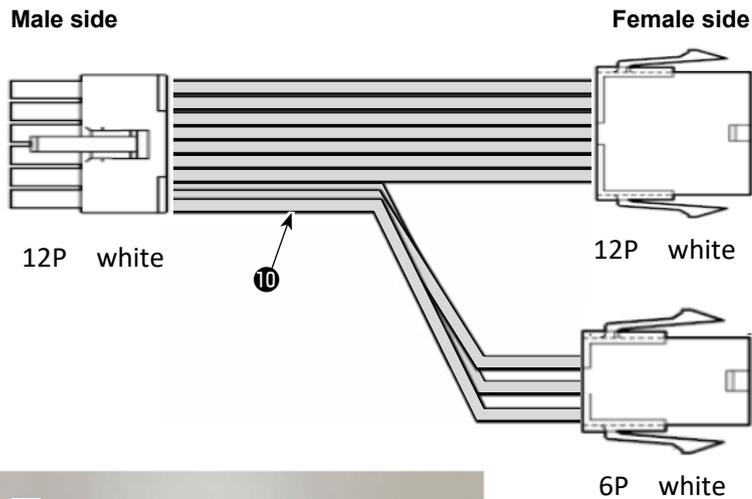
- ① Pull the sensor junction cable into the top surface of the electrical rack through the clearance provided between the sewing machine housing and the frame.
- ② Pull the cables into the inside of the electrical rack through the hole in the top surface of the electrical rack.
- ③ Pull the cables into the inside of the electrical rack through the hole in the top surface of the electrical rack.

3. Connecting the relay cable

Standard/Laser electrical control box

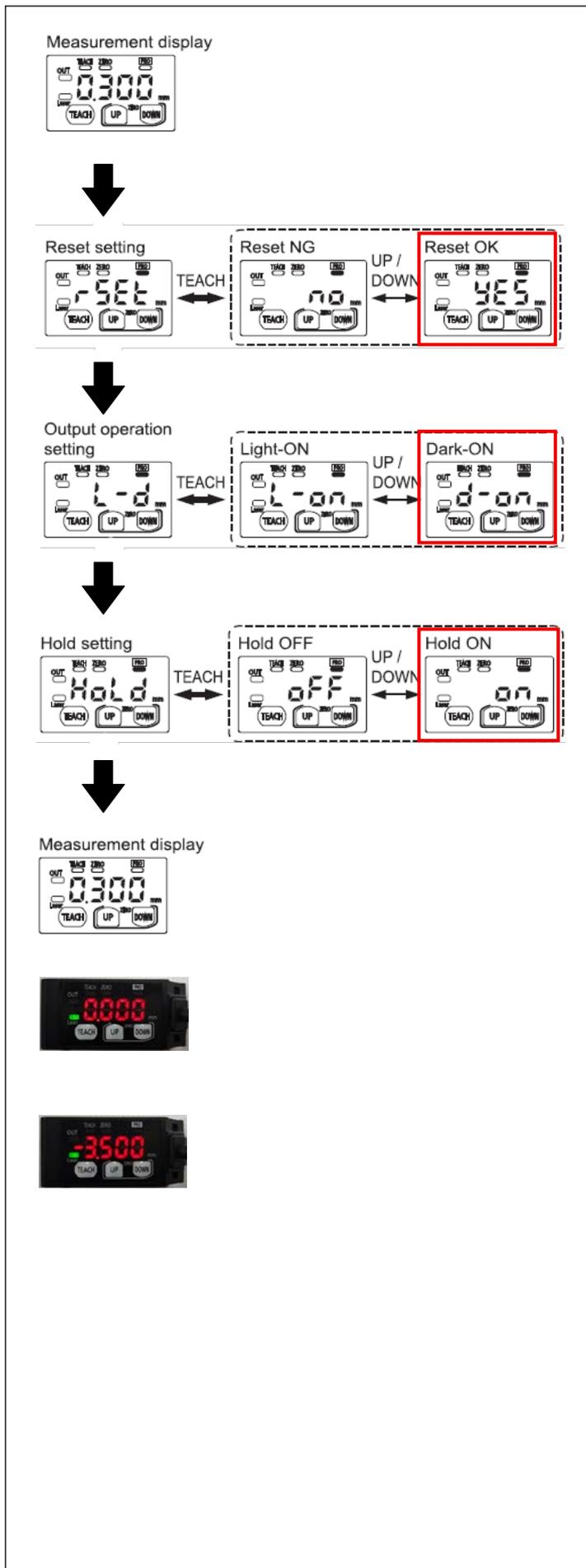


Rotary knife electrical control box



- 1) Disconnect the 12-pin connector (white) from the electrical control box side (IN5 to IN7), and then connect the 12-pin connector (male side) of relay cable ⑩ to the electrical control box.
- 2) Connect the disconnected connector to the 12-pin connector (female side) of relay cable.
- 3) Connect the connector of the sensor ① cable, which has been wired to the electrical control box, to the 6-pin connector of relay cable ⑩ .

4. Setting the sensor status



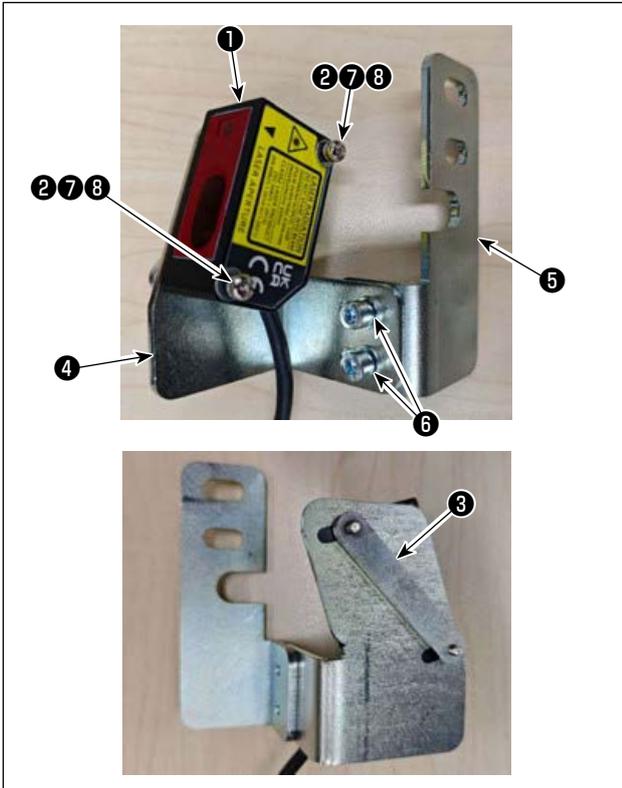
- 1) When the machine is turned on, the sensor lights up.
Press and hold the “DOWN” button for 3 seconds to enter setting mode.
- 2) Press the “UP/DOWN” button to select “Reset setting”.
Press the “TEACH” button to display the setting screen. Press the “UP/DOWN” button to change the setting to “YES”. Press the “TEACH” to initialize the sensor.
- 3) After the sensor restarts, press and hold the “DOWN” button on the sensor for 3 seconds to enter setting mode.
Press the “UP/DOWN” button to select “Output operation setting”. Press the “TEACH” button to display the setting screen. Press the “UP/DOWN” button to change the display to “d-on”, and press the “TEACH” button to set the output to ON when no light is received.
- 4) Press the “UP/DOWN” button to select “Hold setting”.
Press the “TEACH” button to display the setting screen. Press the “UP/DOWN” button to change the display to “on”, and press the “TEACH” button to turn hold function ON.
- 5) Press and hold the “DOWN” button for 3 seconds to return to setting mode.
- 6) On the measurement screen, press the “DOWN” button to enter threshold setting mode. The initial threshold is set to “0.000”.
- 7) Press the “DOWN” button to adjust the threshold from “0.000” to “-3.500”. Press the “TEACH” button to confirm and start threshold setting mode.

4-1. Installing the sensor

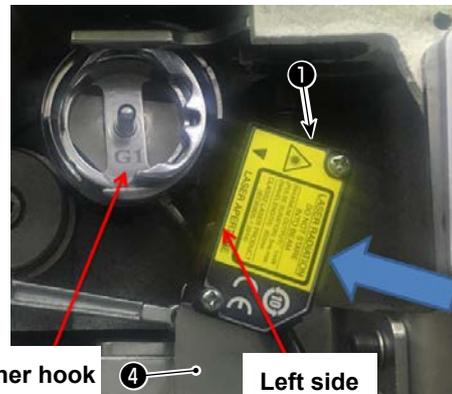
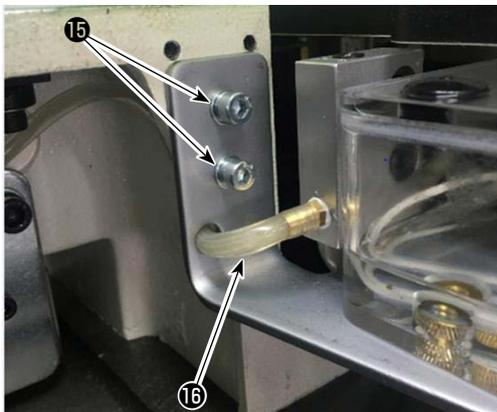


WARNING :

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

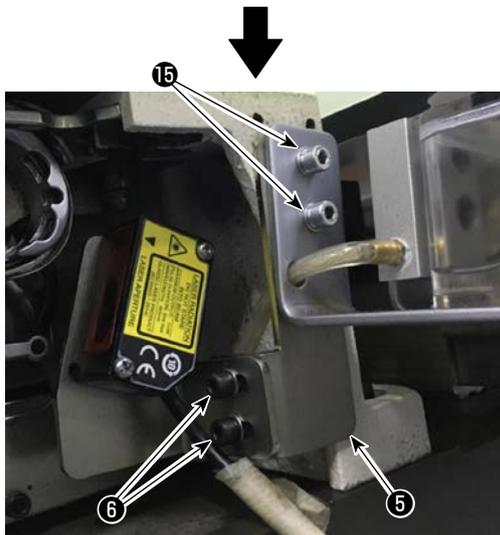


- 1) Temporarily tighten fixing plate A **4** , fixing plate B **5** , and sensor **1** , as shown in the figure.
- 2) Move sensor **1** to the leftmost position and loosely tighten setscrew **2** .
 - 2** Sensor fixation screws (2 pieces)
 - 3** Nut
 - 6** Plate fixation screws
 - 7** Sensor fixation plain washer
 - 8** Sensor fixation spring washer



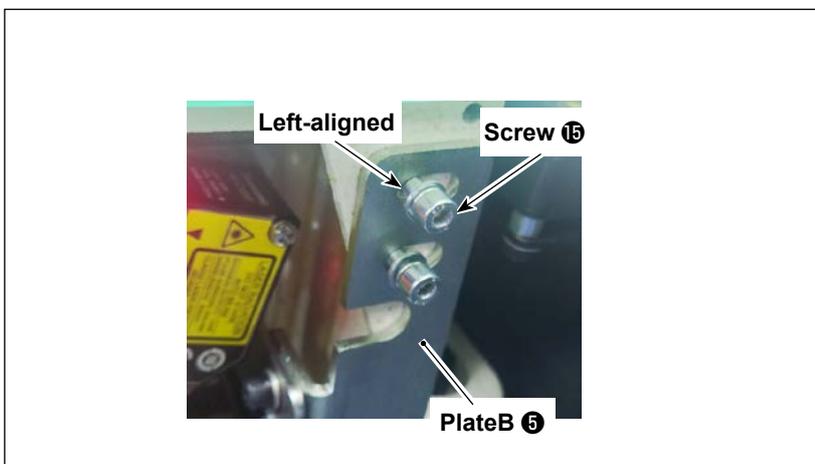
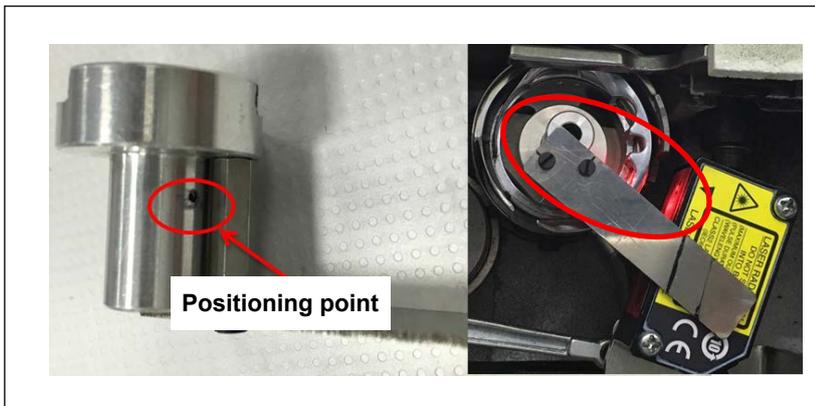
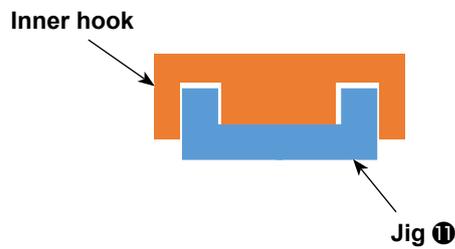
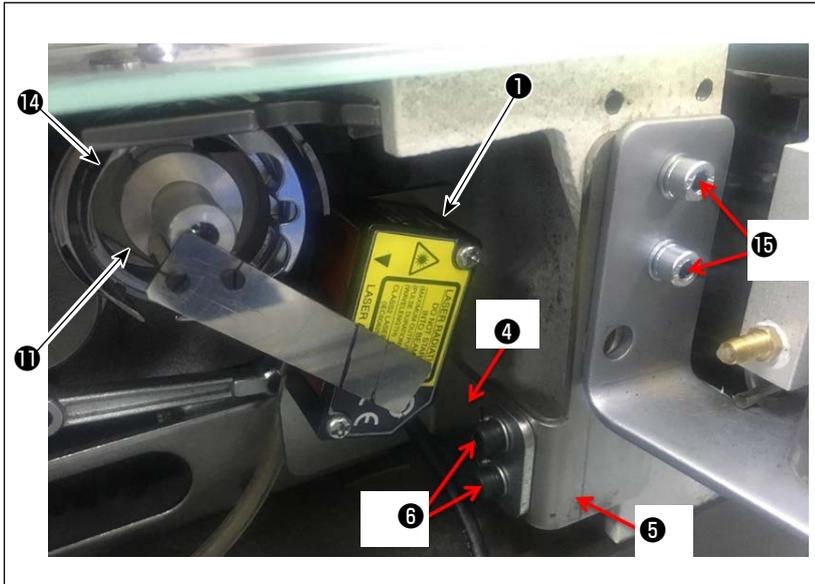
Inner hook **4**

Left side



- 3) Remove the setscrews **15** from the oil tank mounting plate, insert fixing plate B **5** behind the oil tank mounting plate, and temporarily fasten the two plates together with the setscrews **15** . Route the oil supply tube through the U-shaped opening in fixing plate B **5** .

4-2. Adjusting the position of the sensor



- 1) Insert jig 11 into hook 14 until the groove of jig 11 is fully fitted into the inner hook.

Loosen setscrews 6, adjust fixing plate A 4 forward and backward until sensor 1 is in close contact with the plate of jig 11, and then tighten setscrews 6.

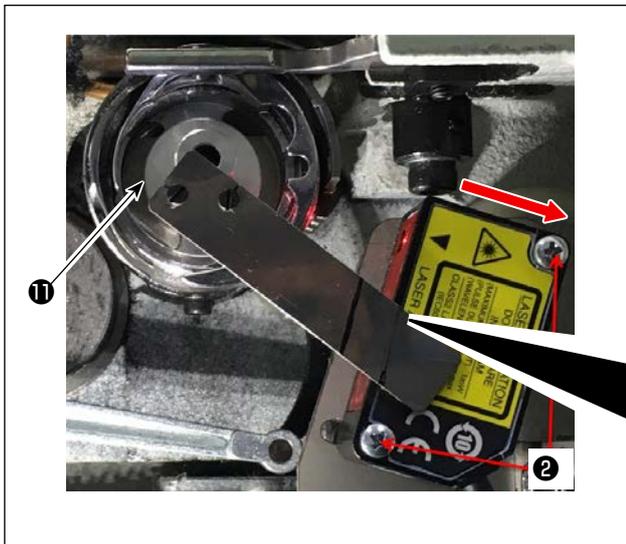
- 2) Turn ON the power to the sewing machine. Turn the pulley counterclockwise by 45 degrees of an angle by hand.

(While the power to the sewing machine is in the ON state, the rotating hook shields the laser. It is therefore necessary to move the rotating hook to such a position that it does not shield the laser.)

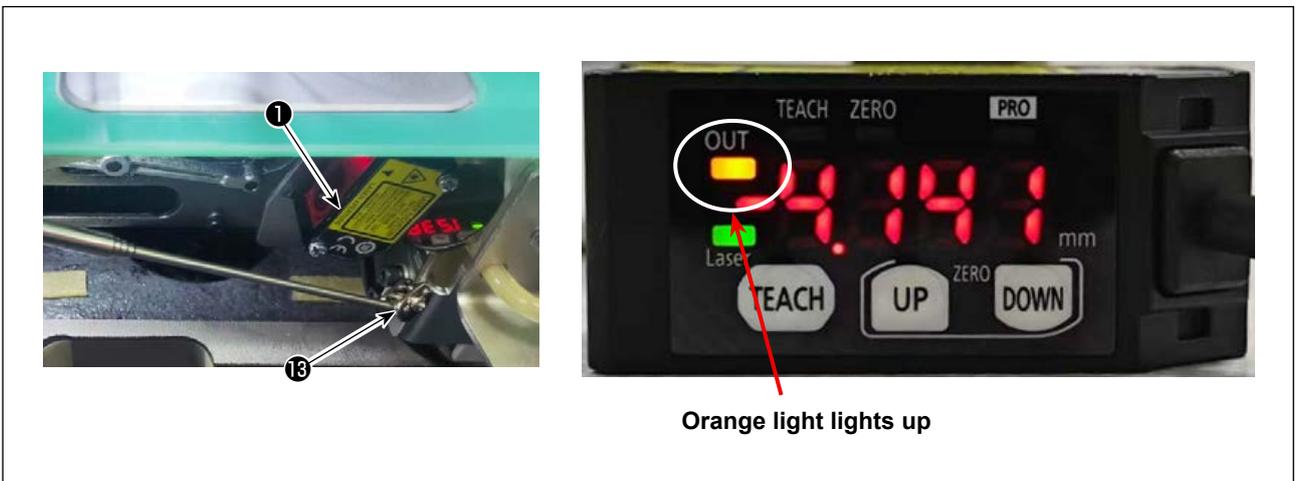
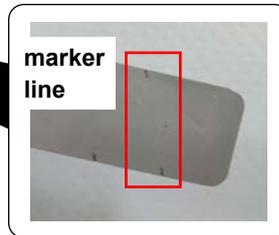
Loosen setscrew 15, move the left side of the elongated hole in fixing plate B 5 toward setscrew 15, and adjust fixing plate B 5 slightly up and down until the light spot of sensor 1 aligns with the positioning point of the axis of jig 11. Then tighten setscrew 15.

After adjustment, if the light spot does not align with the jig positioning point in the front-to-back direction, readjust the position of fixing plate A 4 as described in step 1).





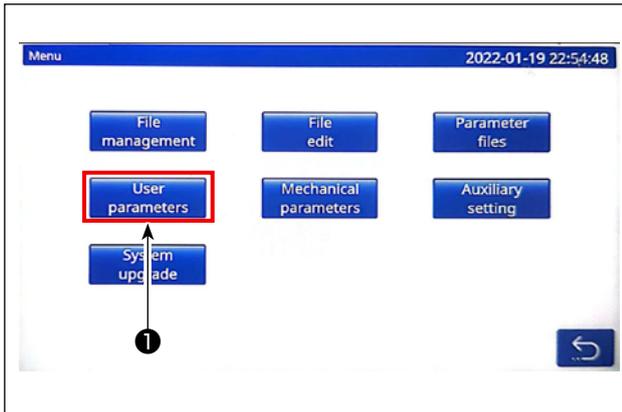
3) Loosen screws ② and adjust the output end face of sensor ① until the right side of the plate of jig ① and the marker line (when jig ① is pushed down by its own weight) are aligned. Then temporarily tighten screws ② .
Remove jig ① and insert the bobbin case with an empty bobbin into the hook.



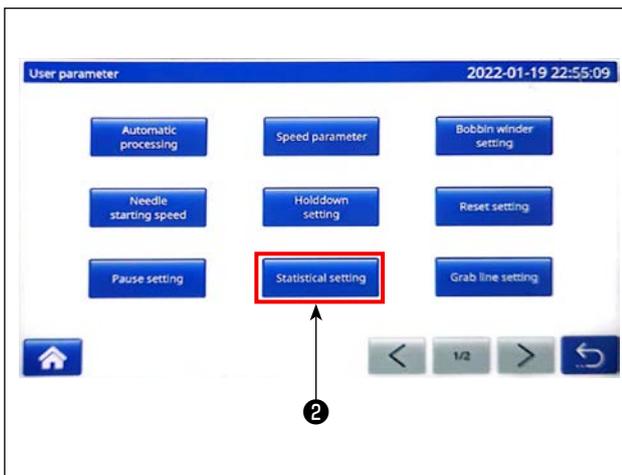
4) Hang the pen-type reflector ⑬ and check the value displayed on the right side of sensor ① .
When the orange indicator light is on and the sensor reading is between -4.0 and -4.3 , fully tighten screws ② .
If the value is between 0 and -4.0 , fine-tune the position of sensor ① to the right.
If the value is between -4.3 and -5 , fine-tune the position of sensor ① to the left.

Caution The three conditions must be satisfied.
① Green light lights up (always ON) / / ② Orange light lights up / ③ -4.0 to -4.3

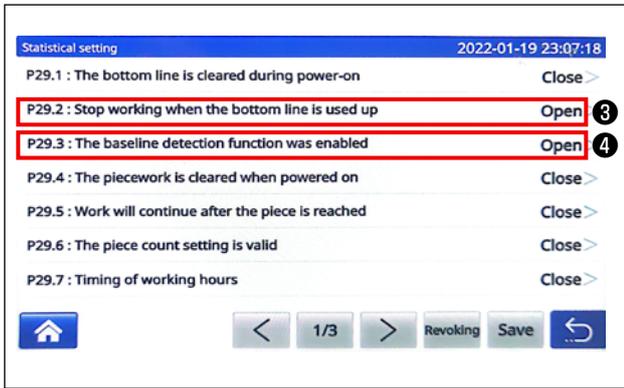
4-3. Setting the operation panel



- 1) Press "User param" ❶ on the menu screen of the operation panel.
The "User param screen" is displayed.

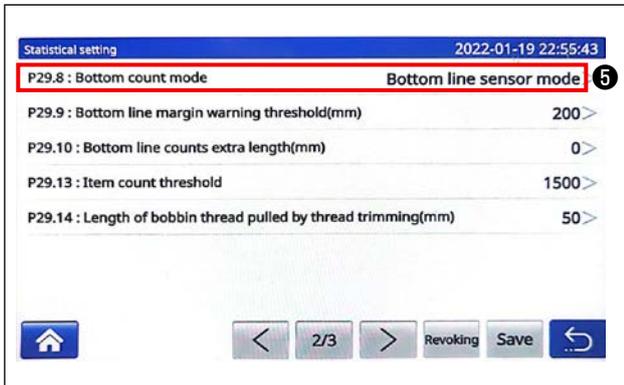


- 2) Press "Statistics setting" ❷ .
The "Statistics setting screen" is displayed.

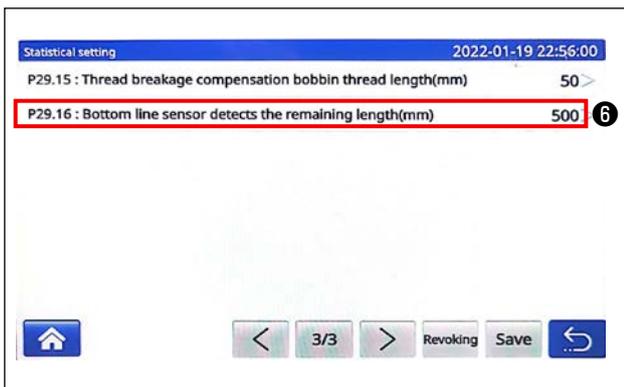


3) Set the following items ③ to ⑥ .

- ③ : P29.2 Stop working when the bottom line is used up
⇒ Open
- ④ : P29.3 The baseline detection function was enabled
⇒ Open



- ⑤ : P29.8 Bottom count mode
⇒ Bobbin line sensor mode



- ⑥ : P29.16 Bottom line sensor detects the remaining length (mm)
⇒ Numerical value (user setting)
When the sensor is lit, this set value becomes effective and is compared with the length of the next stitching line to determine whether sewing is possible or not.
Set the remaining length (mm) ⑥ for bottom line detection to 100 mm shorter than the longest or shortest stitching line in the sewing pattern.

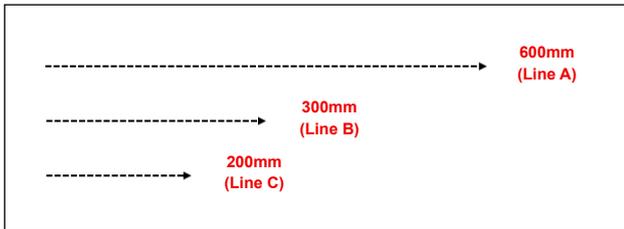
The deviation of the remaining length varies greatly depending on the adjustment of the sensor detection position and the thickness of the thread.

For thin threads: Since the actual remaining length of the bobbin thread is long, set the value to 100 mm shorter than the longest stitching line to maximize bobbin thread consumption.

For thick threads: Since the actual remaining length of the bobbin thread is short, set the value to 100 mm shorter than the shortest stitching line to prevent sewing from being interrupted due to insufficient remaining bobbin thread.

* To minimize deviation, we recommend using spun thread and tetoron thread with a count of 30 or higher.

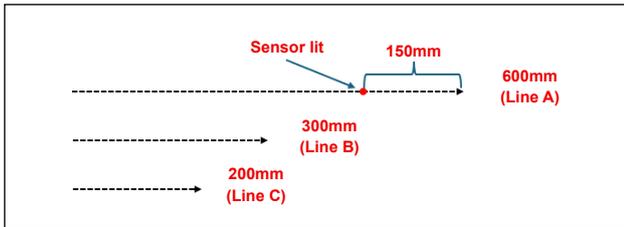




For example, assume that there are three stitching lines in the pattern: 600 mm (line A), 300 mm (line B), and 200 mm (line C).

Sewing is performed in the order: line A → line B → line C.

If the remaining length is set to 100 mm shorter than the longest stitching line, enter 500 mm in ⑥ .

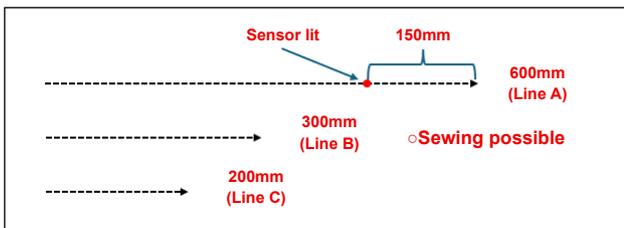


When the current stitching line (line A) is halfway through sewing (150 mm remaining until completion), the sensor lights up.

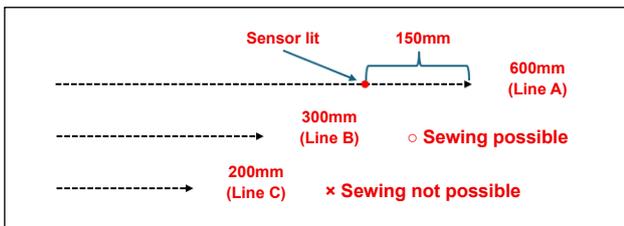
Before sewing the next stitching line (line B), the remaining length is compared with the length of line B.

When the setting value is 500 mm and the sensor lights up, 150 mm remains until the completion of line A, leaving 350 mm of bobbin thread remaining.

$$500 \text{ mm} - 150 \text{ mm} = 350 \text{ mm}$$



Because the remaining bobbin thread length of 350 mm is longer than line B (300 mm), it is determined that line B can be sewn, and sewing continues.



After sewing line B is completed, the remaining bobbin thread length becomes 350 mm - 300 mm = 50 mm.

Because the remaining bobbin thread length of 50 mm is shorter than line C (200 mm), it is determined that line C cannot be sewn. Sewing stops, and a message indicating that there is insufficient bobbin thread remaining is displayed.