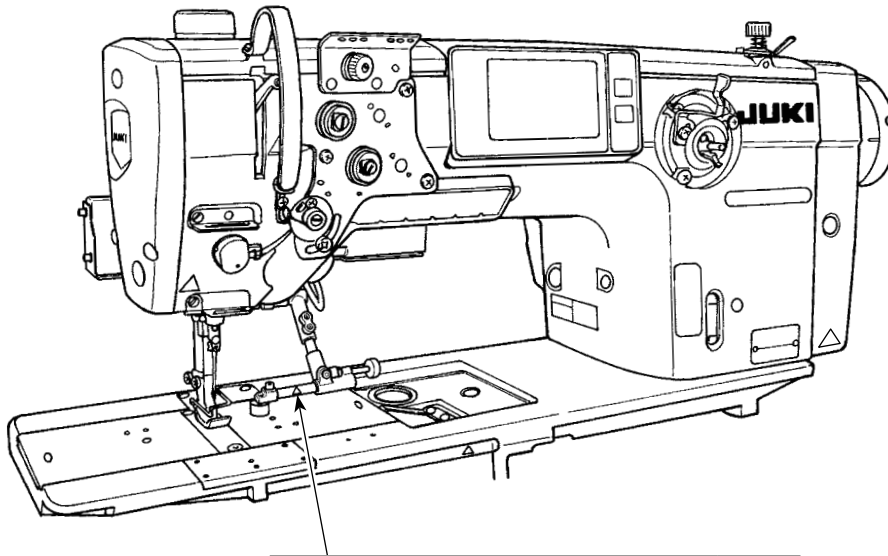


ENGLISH

**Digital suspended ruler
INSTRUCTION MANUAL**

Safety devices and warning labels



Warning label against pinching

This label indicates that there is a risk that fingers, etc. may be caught between the guide section the suspended ruler and the presser foot.



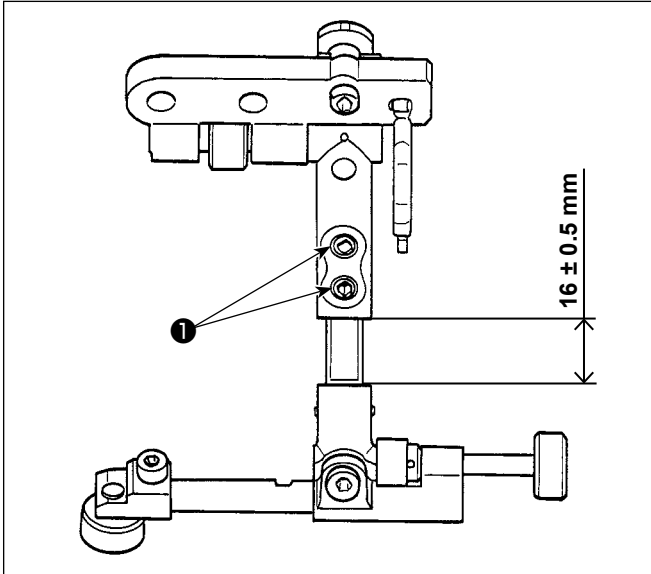
1. Setting up the digital suspended ruler



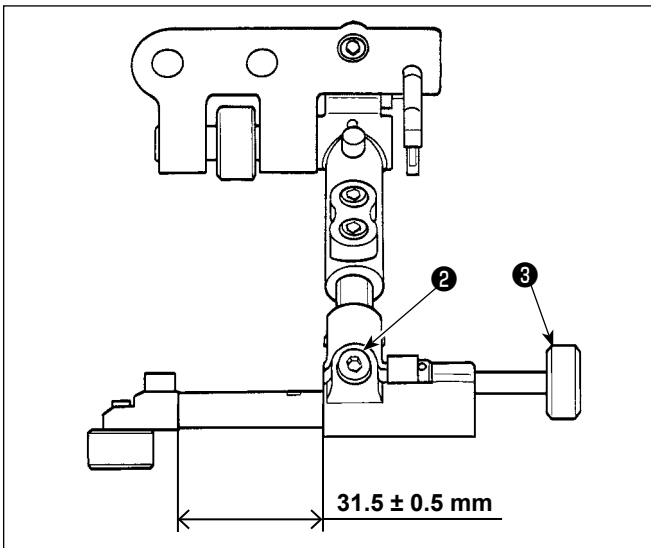
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

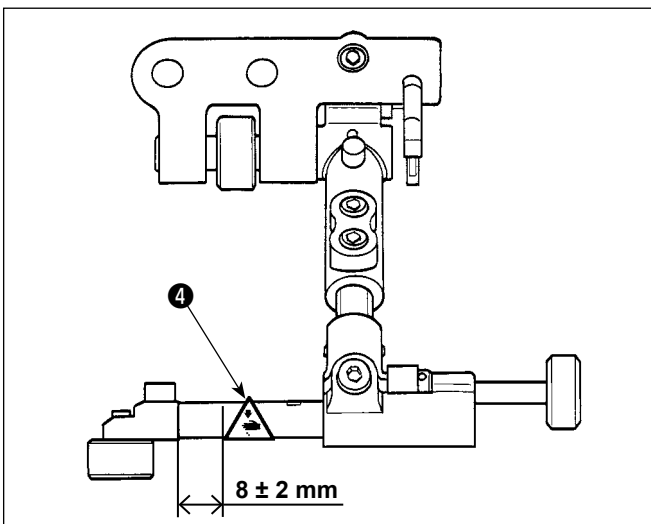
1-1. How to adjust the suspended ruler (In the case you have separately purchased the suspended ruler)



- 1) Loosen setscrews ❶ .
- 2) Adjust the suspended ruler so that the dimension shown in the figure is achieved.
- 3) Tighten setscrews ❶ .



- 4) Loosen setscrews ❷ .
- 5) Turn knob ❸ to adjust so that the dimension shown in the figure is achieved.
- 6) Tighten setscrews ❷ .



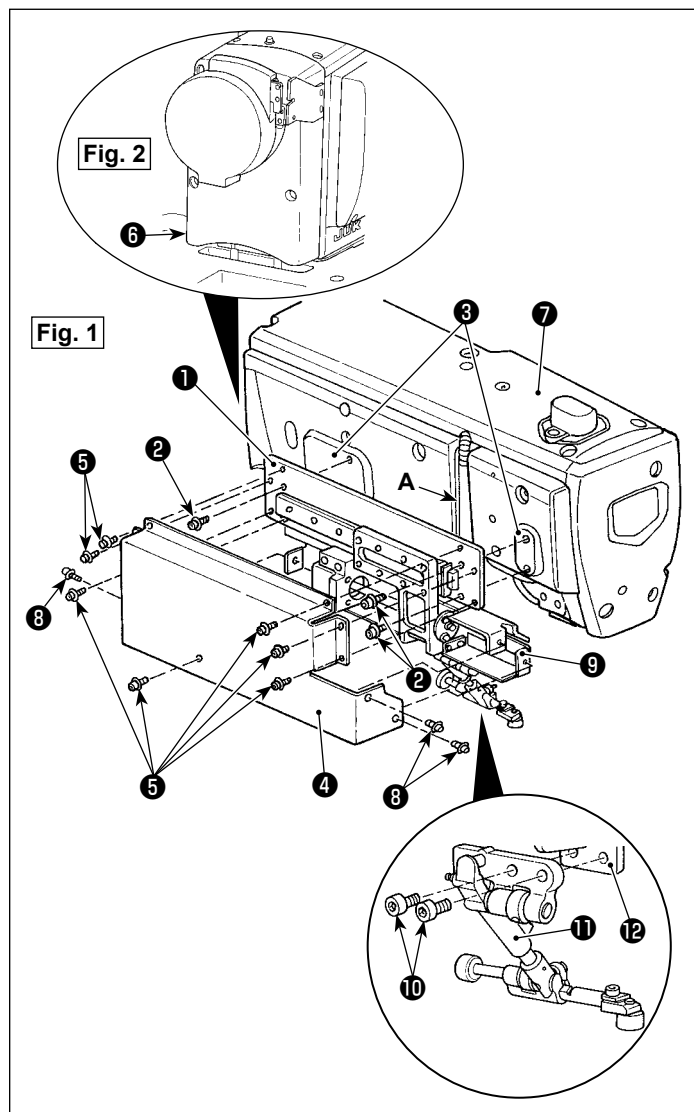
- 7) Degrease the pasting portion of hazard warning label "Watch your hands and fingers" ❹ shown in the figure.
- 8) Attach the label at the position that is 8 ± 2 mm from the left end of shaft in terms of lateral direction and is visually centered in terms of the vertical direction.

1-2. How to install the digital suspended ruler



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

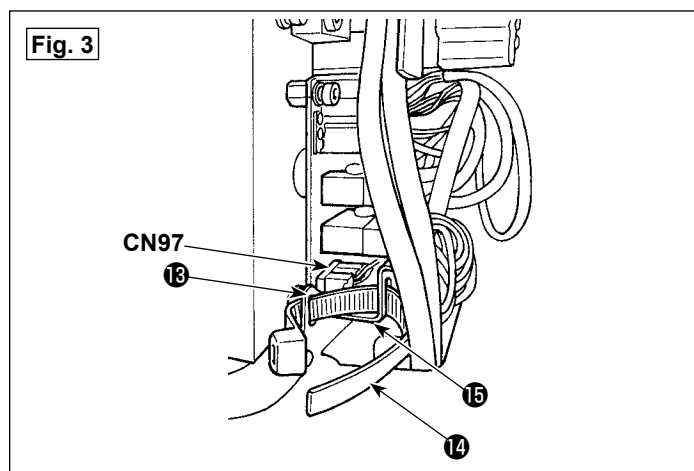


(1) Installing the digital suspended ruler

- 1) Referring to Fig. 1, loosen three screws ⑧ and seven screws ⑤ and detach cover ④.
- 2) Install digital suspended ruler ① to the mounting surface ③ of the sewing machine with four screws ②. At this time, draw out the cords along groove portion A.
- 3) Secure suspended ruler ⑪ to suspended ruler arm ⑫ with two screws ⑩.
- 4) Attach cover ④ to digital suspended ruler ① with seven screws ⑤.
- 5) Fix cover ④ and cover ⑨ in place with three screws ⑧.

(2) Connecting the cords

- 1) Loosen seven screws of top cover ⑦ and four screws of motor cover ⑥ as illustrated in Fig. 2. Then, detach the covers respectively.



- 2) Referring to Fig. 3, remove two cable clip band ⑭ and loosen two screws ⑬. Then, detach INT PCB cover ⑮.

Fig. 4

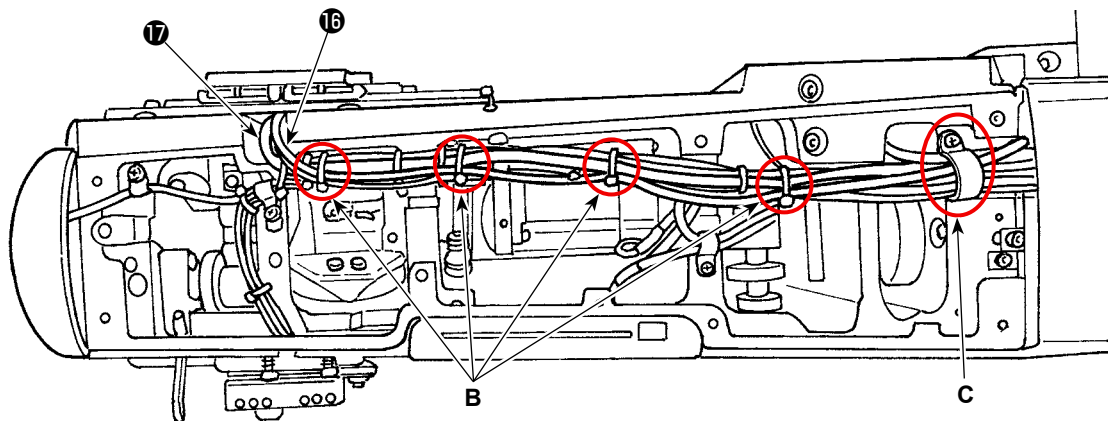
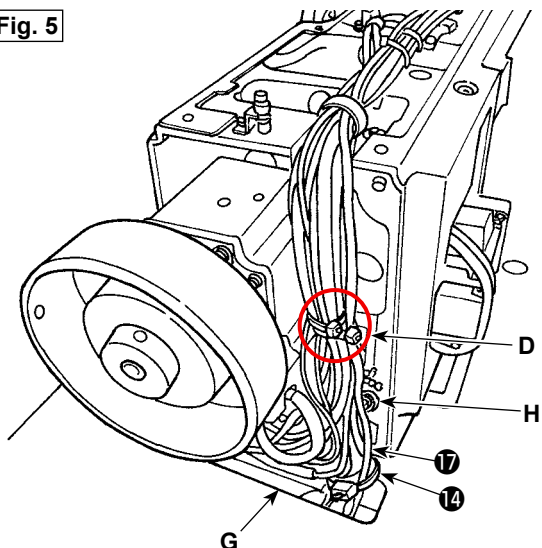


Fig. 5



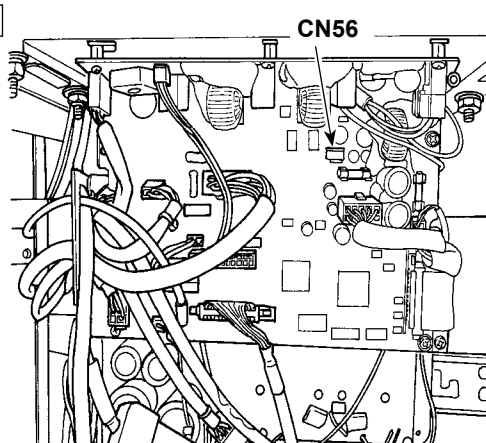
- 3) Route two cords 16 and 17 along other cords as illustrated in Figs. 4 and 5. Then, bundle them at four locations B with cable clip bands (small). In addition, secure it with other cables with cable clip C which is originally attached as shown in Fig. 4.
- 4) Bundle two cords 16 and 17 at the location D, as shown in Fig. 5, with a cable clip band (large) together with other cords.
- 5) Connect the connector of motor cord 17 to the CN97 (red) of the INT PCB in Fig. 3.

- 6) Attach INT PCB cover 15 with two screws 13 and bundle the cords with cable clip band 14 as shown in Fig. 3.

At this time, carefully fix the cables without slacking them so that they will not come in contact with feed conversion-body fulcrum shat H as shown in Fig. 5.

- 7) Attach top cover 7 and motor cover 6 respectively with the screws. Carefully attach motor cover 6 while preventing the outer periphery of handwheel to friction against motor cover 6 when turning the handwheel.
- 8) Detach the electrical box cover. Refer to "2-14. Connecting the cords" in the Instruction Manual for the main body for how to detach the cover.
- 9) Bundle motor cord 17 with cable clip band 14. Then, pass it through hole in G section to route it to the undersurface of the table.

Fig. 6



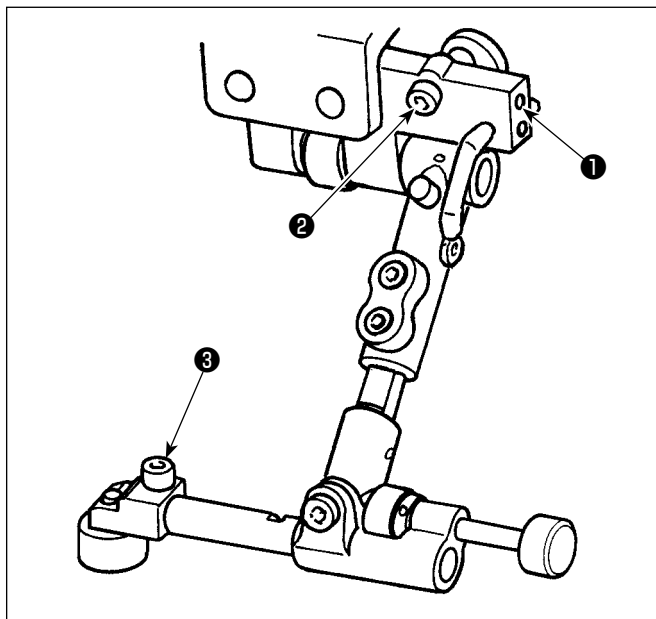
- 10) Connect the connector of motor cord 17 to the CN56 (white) of CTL PCB.
- 11) Fix motor cord 17 and attach the control box cover according to "2-15 Handling the cords" in the Instruction Manual for the main body.

1-3. How to adjust the height of the suspended ruler



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Loosen screw ❶ .
- 2) Tighten screw ❷ to increase the height of the suspended ruler, or loosen the screw to decrease it.
- 3) Once the suspended ruler is positioned at the appropriate height. Tighten screw ❶ .
- 4) Loosen screw ❸ .
- 5) Adjust the degree of top end of the suspended ruler.
- 6) Once the top end of the suspended ruler is set to the appropriate degree of an angle, tighten screw ❸ .

2. Operation procedure



WARNING :

Keep your fingers away from the suspended ruler while it is in operation in order to protect fingers from being caught in it.

2-1. Initial setting

2-1-1. Setting ON / OFF of the suspended ruler

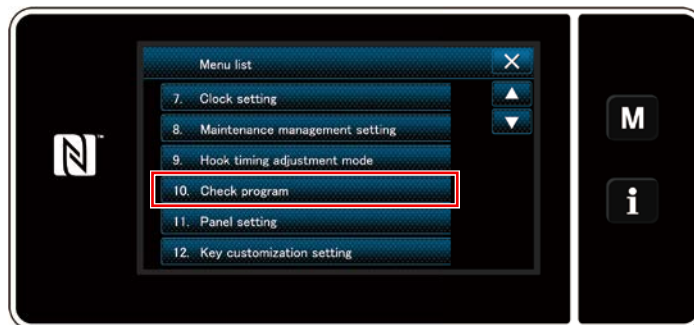
Refer to "9-12-1. Setting the ON/OFF status of suspended ruler" in the Instruction Manual for the main body.

2-1-2. Adjusting the motor origin

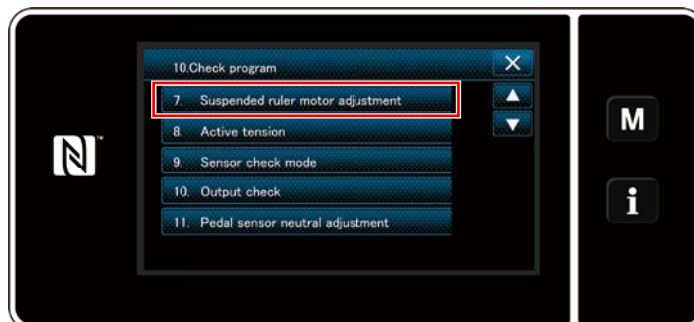


- 1) **M** **1** held pressed for three second.

The "mode screen" is displayed.

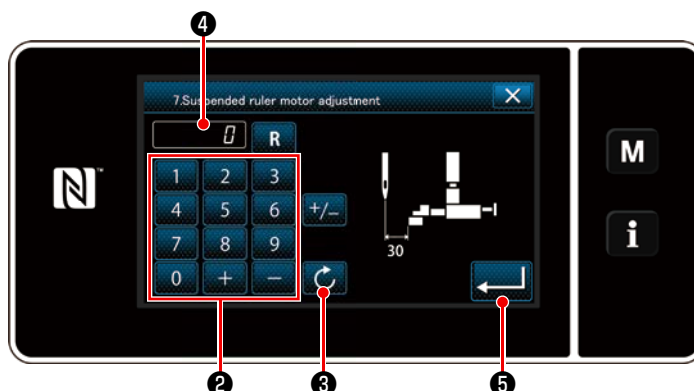


- 2) Select "10. Check program".



- 3) Select "7. Suspended ruler motor adjustment".

The suspended ruler motor retrieves its origin. After the completion of the origin retrieval, the suspended ruler motor stops at the position of 30.0 mm.



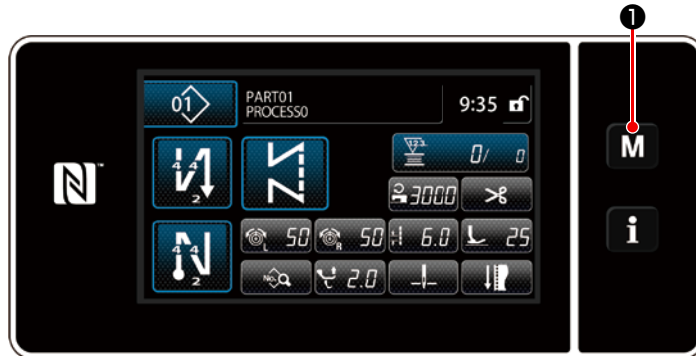
- 4) Check to make sure that the distance provided from the needle tip to the top end of the suspended ruler is 30.0 mm.
- 5) If the position of the top end of the suspended ruler is not 30.0 mm away from the needle tip, input a correction value using numeric keypad **2** and press **3** to reflect the correction value to **4** .
The suspended ruler retrieves the origin until it is brought to the position that is 30.0 mm away from the needle tip.
- 6) Press **5** to confirm the setting.

2-1-3. Setting the minimum gap for the suspended ruler

The minimum gap for the suspended ruler refers to the limit position that the suspended ruler is allowed to approach the needle tip.

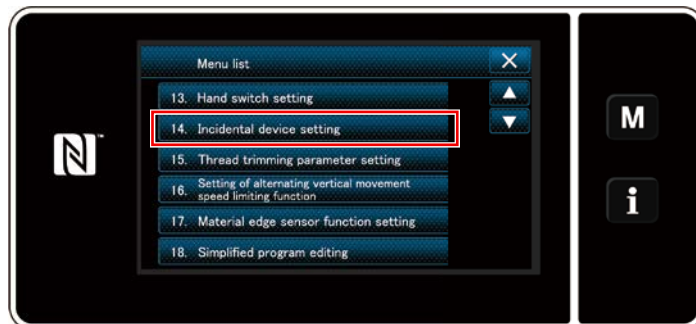


1. When you have changed the presser foot, check the set value of the minimum gap for the suspended ruler and adjust the value so that the suspended ruler will not come in contact with the presser foot.
2. Be aware that your fingers can be caught between the guide section of suspended ruler and the presser foot while the suspended ruler is in operation.



- 1) **M** ① held pressed for three second.

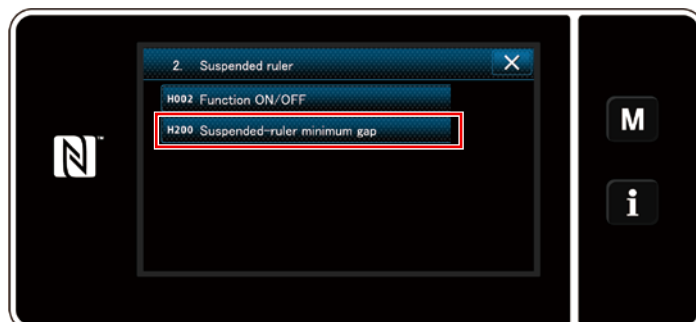
The "mode screen" is displayed.



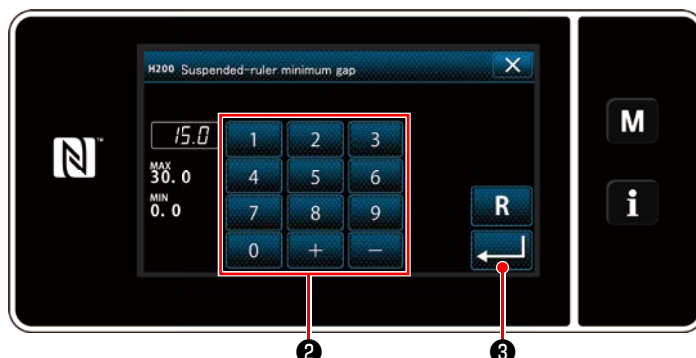
- 2) Select "14. Incidental device setting".




- 3) Select "2. Suspended ruler".



- 4) Select "H200 Suspended-ruler minimum gap".

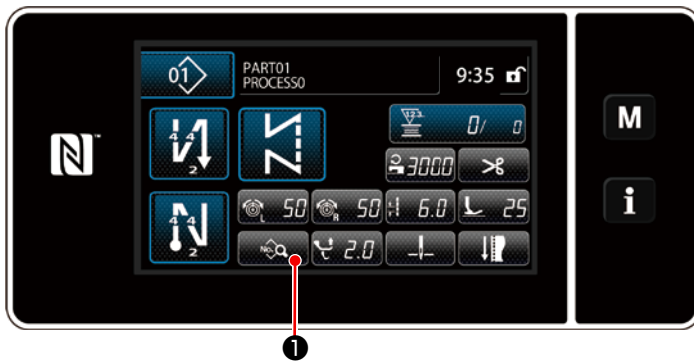



- 5) Enter the value of minimum gap for the suspended ruler using numeric keypad ② .

- 6) Press  ③ to confirm the setting.


2-2. How to set the position of the suspended ruler

2-2-1. How to set the position of the suspended ruler under the pattern sewing mode

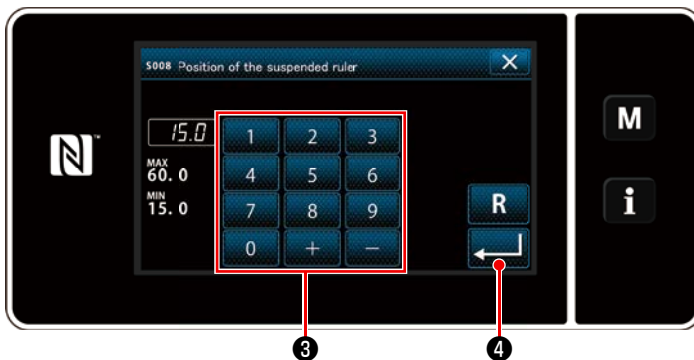



- 1) Press  ① on the sewing screen under the maintenance personnel mode.
The "Sewing data edit screen" is displayed.



- 2) Press  ② .
The "Suspended ruler position setting screen" is displayed.

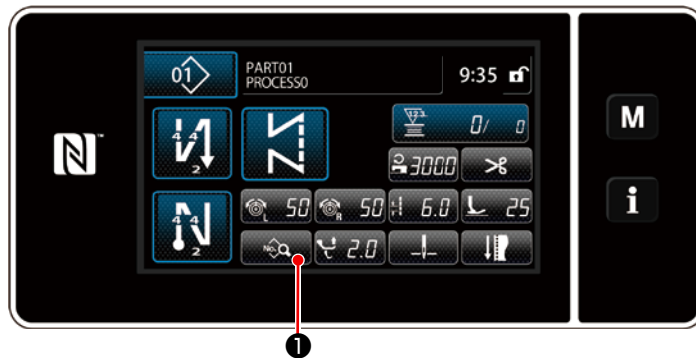
<Sewing data edit screen>




- 3) Enter the position of the suspended ruler using numeric keypad ③ .
- 4) Press  ④ to confirm the setting.
The suspended ruler moves to the position you have entered.

<Suspended ruler position setting screen>

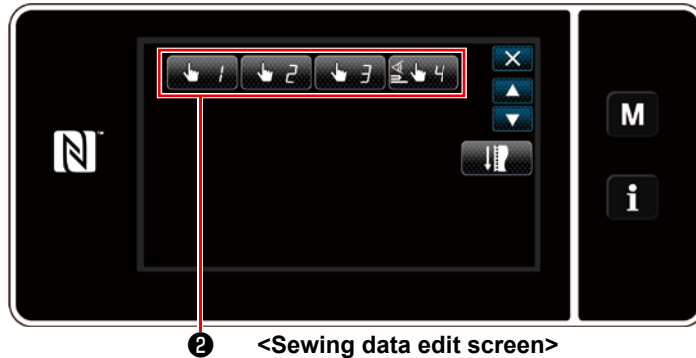
2-2-2. How to set the position of the suspended ruler using the one-touch changeover function




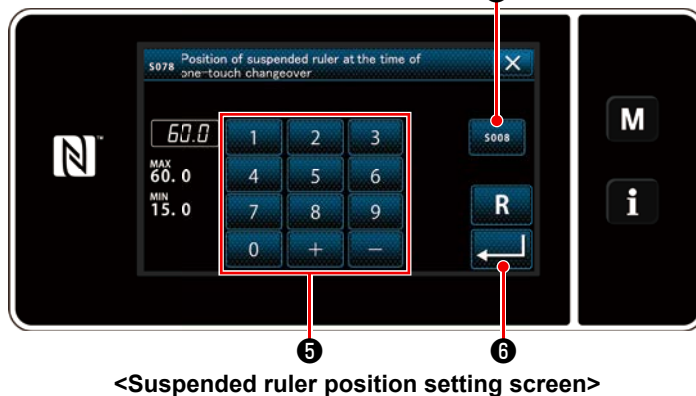
- 1) Press  **1** on the sewing screen under the maintenance personnel mode.
The "Sewing data edit screen" is displayed.





- 2) Press the number of the one-touch switch you want to set through **2**.



- 3) Press  **3**.
The "Suspended ruler position setting screen" is displayed.



- 4) Press  **4**.
- 5) Enter the position of the suspended ruler using numeric keypad **5**.
- 6) Press  **6** to confirm the setting.
When you press the one-touch switch, the suspended ruler moves to the position you have entered. If you press the one-touch switch again, the one-touch switch is cancelled.

2-2-3. How to set the position of the suspended ruler for the polygonal-shape stitching steps

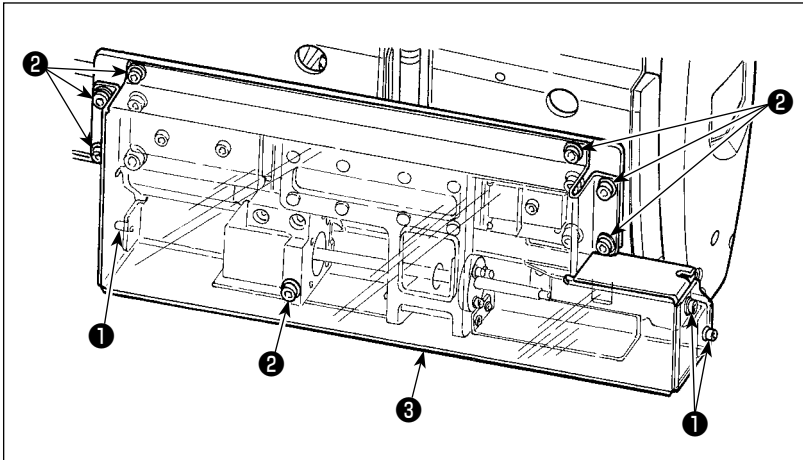
Refer to "9-2. Setting up the polygonal-shape stitching" in the Instruction Manual for the main body.

3. Maintenance (grease replenishment)

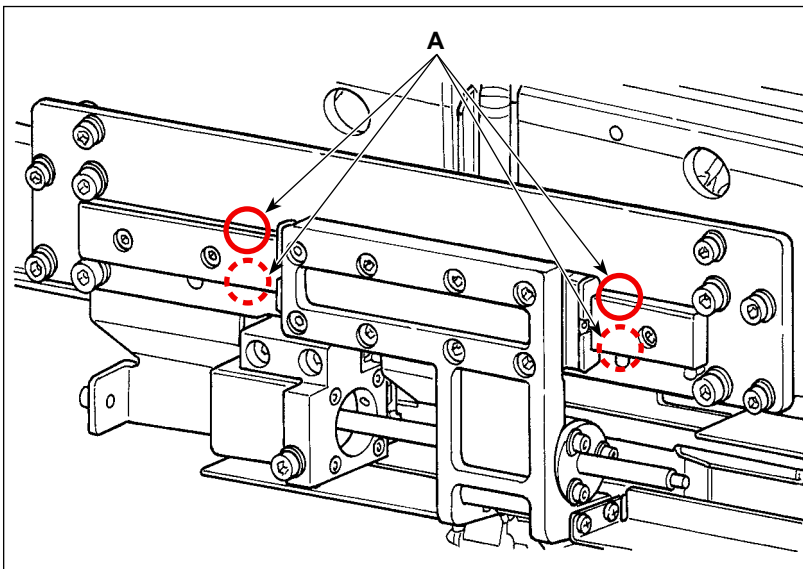


WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Referring to the figure, loosen three screws **1** and seven screws **2** .
Then, remove cover **3** .



- 2) Apply a little amount of grease to groove portion **A** (sliding area of the block) of the linear guide.
- 3) Install cover **3** with three screws **1** and seven screws **2** .

1. Replenishing the grease periodically once a year will effectively maintain the performance of machine.
2. Never oil the portions that require greasing.
3. Be aware that, in the case an excessive amount of grease is replenished, the excess grease would spill from the cover.
4. Be sure to use the optional GREASE (part number: 40097886) without exceptions.

