

ENGLISH

**MF-7900(D)/UT55,56,57
INSTRUCTION MANUAL**

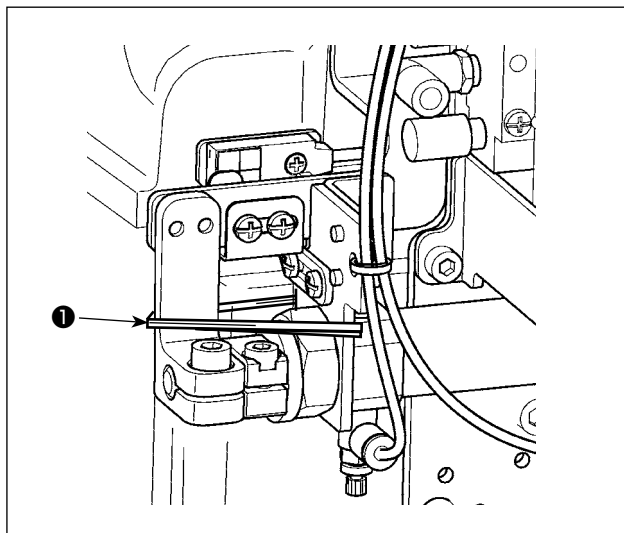
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I. SPECIFICATIONS

Model name	High-speed, cylinder-bed coverstitch machine	Semi-dry head, high-speed, cylinder-bed coverstitch machine
Model	MF-7900 series	MF-7900D series
Stitch type	ISO standard 406, 407, 602, and 605	
Example of application	Hemming and covering for knits and general knitted fabrics	
Sewing speed	Max. 6,500 sti/min (at the time of intermittent operation) V-belt type Max. 6,000 sti/min (at the time of intermittent operation) Direct-drive type Speed of stitch at the delivery: 4,500 sti/min (at the time of intermittent operation)	Max. 5,000 sti/min (at the time of intermittent operation) V-belt type Max. 5,000 sti/min (at the time of intermittent operation) Direct-drive type Speed of stitch at the delivery: 4,000 sti/min (at the time of intermittent operation)
Needle gauge	3-needle 5.6 mm and 6.4 mm 2-needle 3.2 mm, 4.0 mm and 4.8 mm	
Differential feed ratio	1 : 0.9 to 1 : 1.8 (stitch length : less than 2.5 mm) (1 : 0.6 to 1 : 1.1, when the differential link hinge screw is changed) Micro-differential feed adjustment mechanism is provided. (Micro-adjustment)	
Stitch length	0.9 mm to 3.6 mm (can be adjusted up to 4.5 mm)	
Needle	UY128GAS #9S to #14S (standard #10S)	UY128GAS #9S to #12S (standard #10S)
Needle bar stroke	31mm (33 mm when the eccentric pin is changed over)	
Dimensions	(Height) 450 x (Width) 456 x (Length) 299	
Weight	45 kg (With pneumatic type thread trimmer) , 42 kg	
Lift of presser foot	8 mm (needle gauge : 5.6 mm without top covering), and 5 mm (with top covering) Micro-lifter mechanism is provided.	
Feed adjustment method	Main feed..... dial type stitch pitch adjustment method Differential feed lever adjustment method (micro-adjustment mechanism is provided.)	
Looper mechanism	Spherical rod drive method	
Lubricating system	Forced lubrication method by gear pump	
Lubricating oil	JUKI GENUINE OIL 18	
Oil reservoir capacity	Oil gauge lower line : 600 cc to upper line : 900 cc	
Installation	Table-mount type, Semi-submerged type	
Noise	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 79.5 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,500 sti/min.	- Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 76.5 dB; (Includes K _{pA} = 2.5 dB); according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min.

II. AT THE BEGINNING



Remove fixed band ❶ for transportation before setting up the sewing machine.

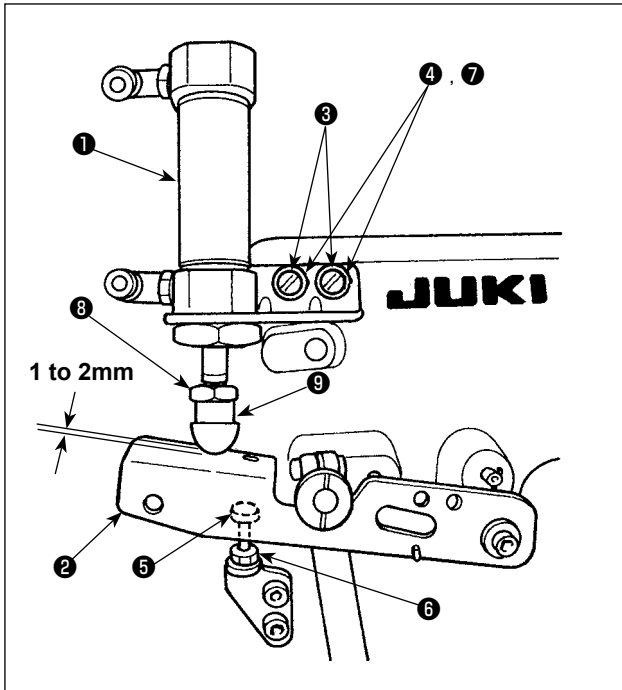
III. INSTALLING THE ACCESSORIES



WARNING :

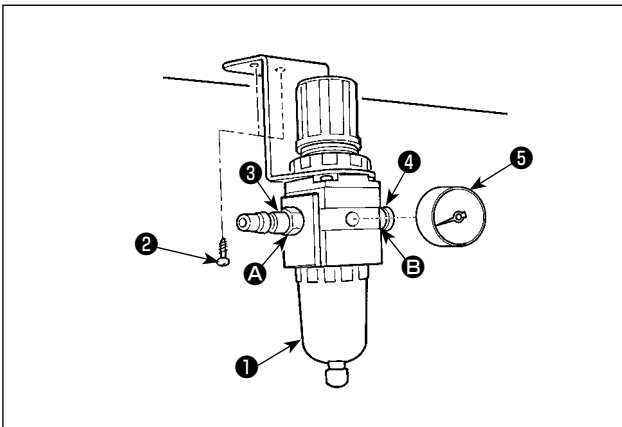
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

1. Installing the presser lifting cylinder



- 1) Install presser lifting cylinder asm. ① to the sewing machine with screws ③ , washers ④ and spring washers ⑦ .
- 2) Tighten screw ③ in such manner that a clearance of 1 to 2 mm is provided between cap ⑨ at the top end of presser lifting cylinder asm. ① and presser lifting lever ② .
If the clearance cannot be adjusted to 1 to 2 mm, adjust the height of nut ⑧ and cap ⑨ to obtain the correct clearance between the cap and lever.
- 3) Adjust the height of screw ⑤ referring to the Instruction Manual for MF-7900 (VI-14. **Adjusting the presser foot lift**), and tighten nut ⑥ .
- 4) Stroke of cylinder asm. ① is 30 mm. Make sure that presser lifting lever ② comes in contact with screw ⑤ within the range of cylinder stroke.

2. Installing the air regulator

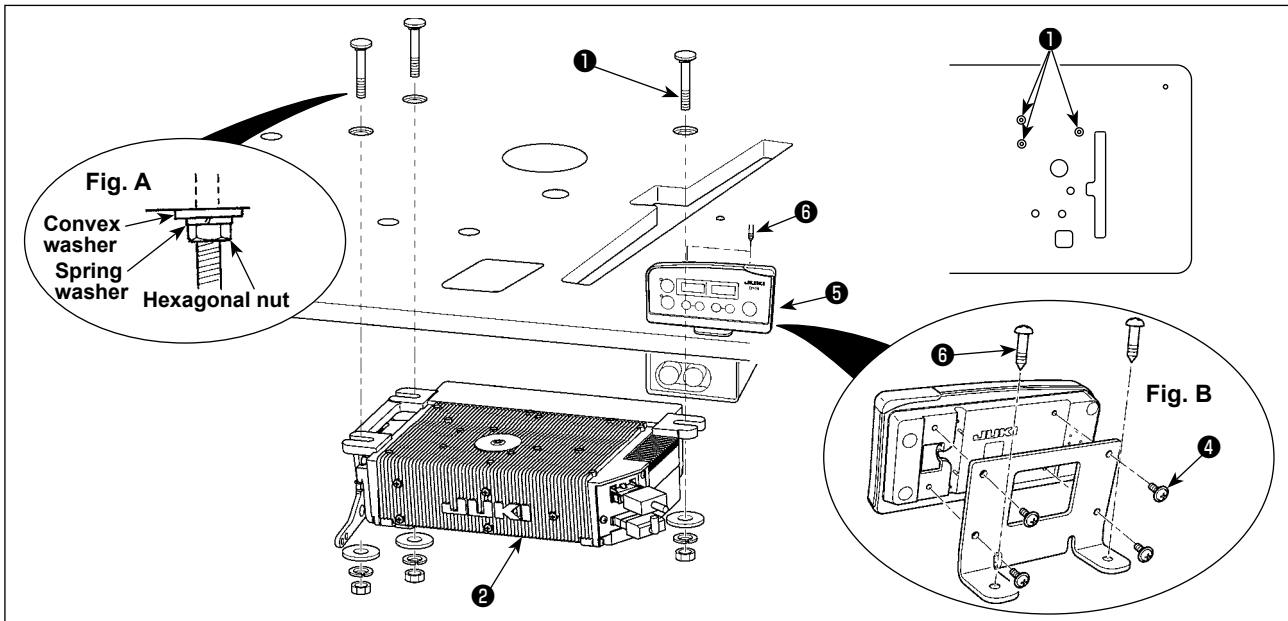


- 1) Install pressure gauge ⑤ to regulator main body ① .
- 2) Attach joint ③ to air intake port **A**, and joint ④ to exhaust port **B**.
- 3) Install air regulator main body ① under the table with wood screw ② .

3. Installation and setting SC-921

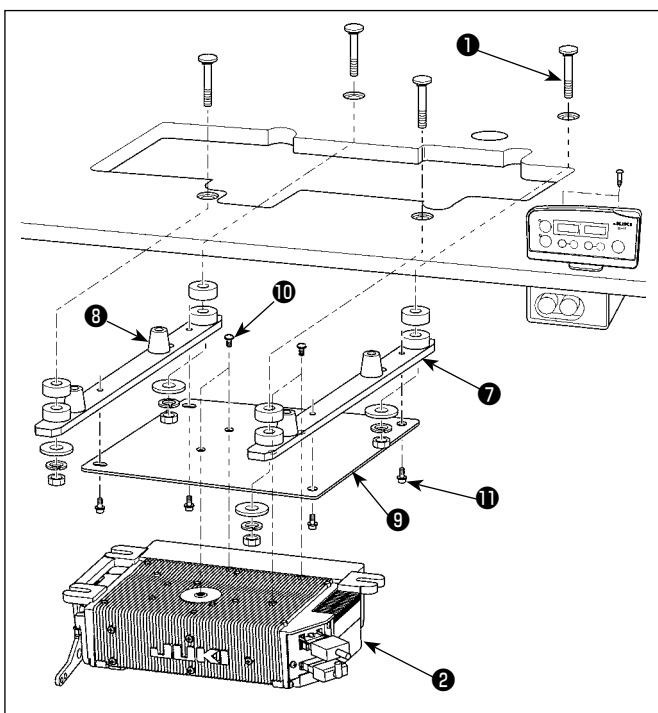
(1) Installing the SC-921 on the table (Table-mount type)

- * The instructions apply to the case the control box is installed on the table of the MF-7900(D).
To use any other machine head, install the control box on the table referring to the Instruction Manual for the main body of the relevant sewing machine.



- 1) Install control box ② on the table with mounting bolt asm. ① supplied with the unit.
At this time, insert the nuts and washers supplied with the unit as illustrated in Figure A so that the support plates and the control box ② are securely fixed.
- 2) Install the control box ② (or the one equipped with a small sized motor unit) on the table. Then, install the sewing machine head on the table. (Refer to the Instruction Manual for the sewing machine.)
- 3) Install the mounting plate on the CP-18 panel ⑤ with four tapping screws ④ supplied with the unit.
At this time, take care not to allow the cable to be caught under the mounting bracket.
(Install the CP-18 on the table as illustrated in Fig. B.)
- 4) Install CP-18 panel ⑤ on the table with wood screw ⑥ .

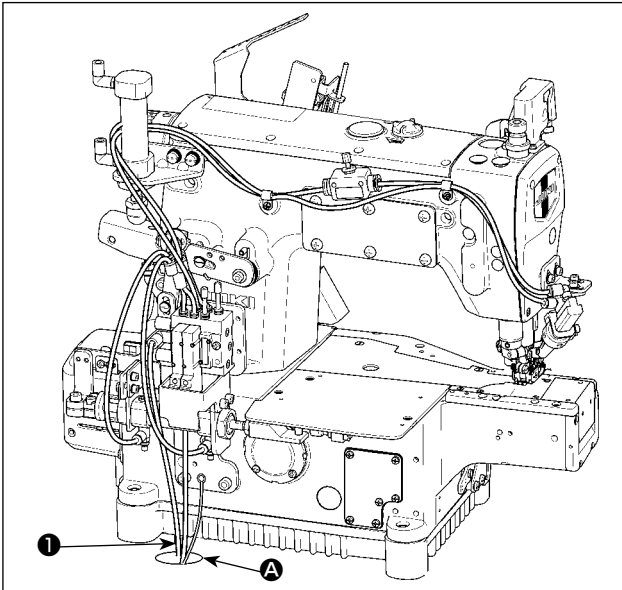
(2) Installing the SC-921 on the table (Semi-submerged type)



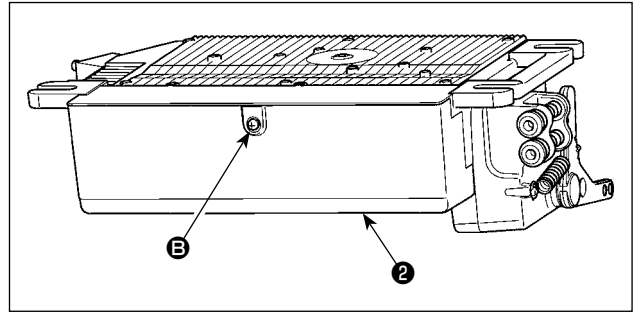
- 1) Install right and left support plates ⑦ and two rubber seats ⑧ of the respective support plates.
- 2) Install control box mounting plate ⑨ on the control box with four screws ⑩ .
- 3) Install the parts assembled in Step 2) on the underside of support plates ⑦ with four screws ⑪ .
- 4) Install support plates ⑦ and the control box ② on the table with mounting bolts asm. ① supplied with the unit. At this time, insert the nuts and washers supplied with the unit as illustrated in Figure A so that the support plates and the control box ② are securely fixed.

- * The steps of procedure from the next one and beyond are same with those for the table-fixed type machine head.

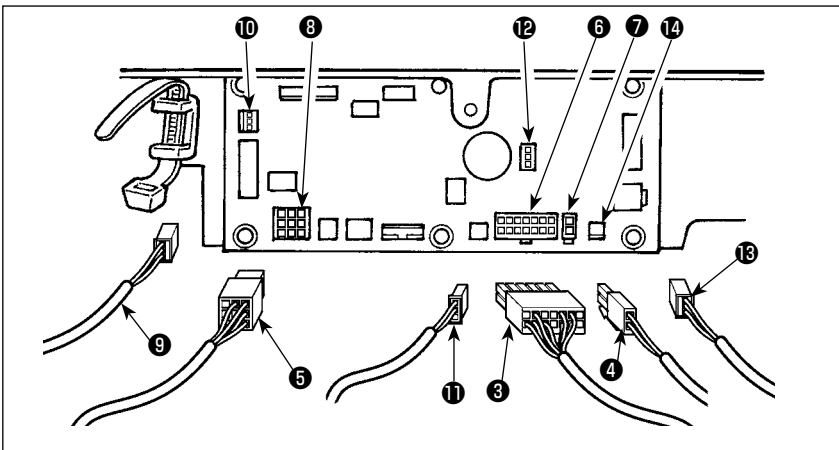
(3) Connecting the cords



- 1) Pass cords **1** of the thread trimming solenoid, reverse-stitching solenoid, etc. and the cord from the motor through hole **A** in the table to route them down under the machine table.



- 2) Loosen screw **B** in cover **2** with a screwdriver to open the cover.



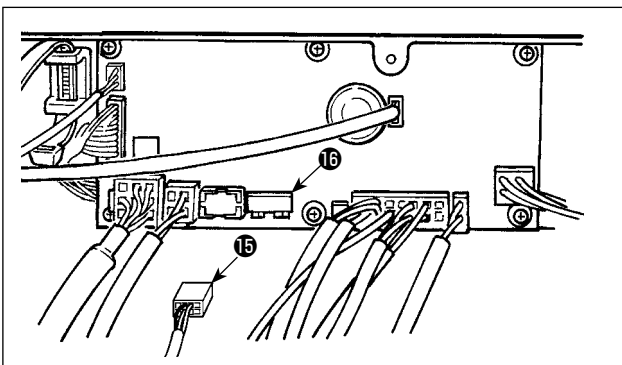
- 3) Connect 14P code **3** coming from the machine head to connector **6** (CN36).
- 4) Insert 3P cord **9** coming from the machine head into connector **10** (CN42).
- 5) Insert presser foot lifter cord 2P **4** into connector **7** (CN37).
- 6) Connect connector **5** coming from the motor to connector **8** (CN30) on the circuit board.

- 7) Insert pedal sensor cable **11** into connector **12** (CN34).
- 8) Insert motor fan cord **16** into connector **14**.



Be sure to securely insert the respective connectors after checking the inserting directions since all connectors have the inserting directions. (When using a type with lock, insert the connectors until they go to the lock.) The sewing machine is not actuated unless the connectors are inserted properly. In addition, not only the problem of error warning or the like occurs, but also the sewing machine and the control box are damaged.

[Connecting the connector for the operation panel]



The connector for the operation panel is provided. Paying attention to the orientation of the connector **15**, connect it to connector (CN38) **16** located on the circuit board. After the insertion, securely lock the connectors to prevent them from coming off easily.

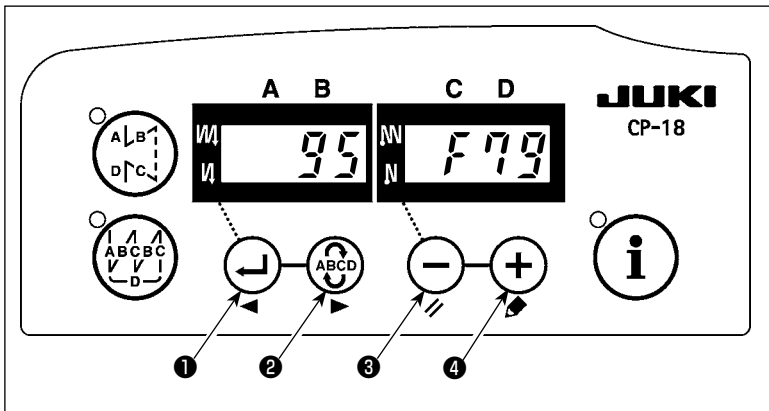


Be sure to turn OFF the power before connecting the connector.

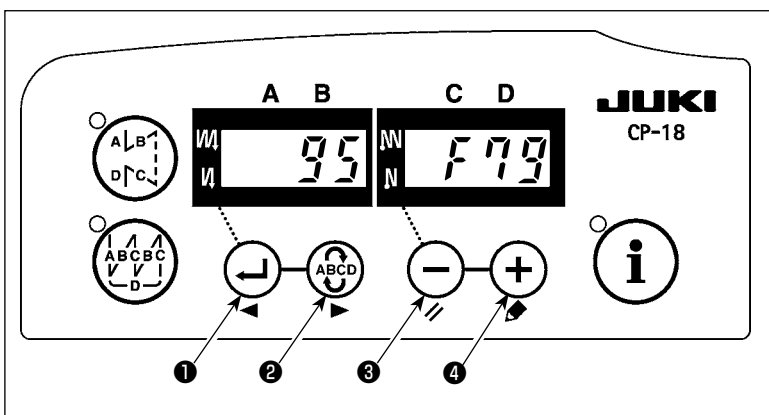
(4) Setting procedure of the machine head



For the operation panel other than CP-18, refer to the Instruction Manual for the operation panel to be used for the setting procedure of the machine head.



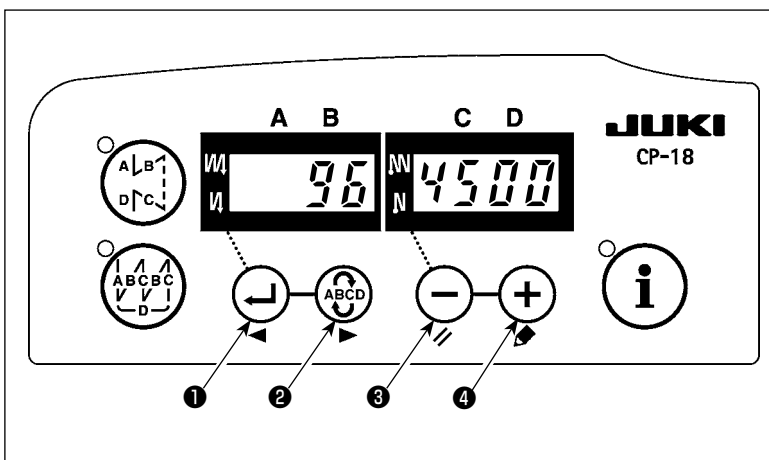
1) Call function setting No. 95.



2) The type of machine head can be selected by pressing \ominus switch ③ (\oplus switch ④).

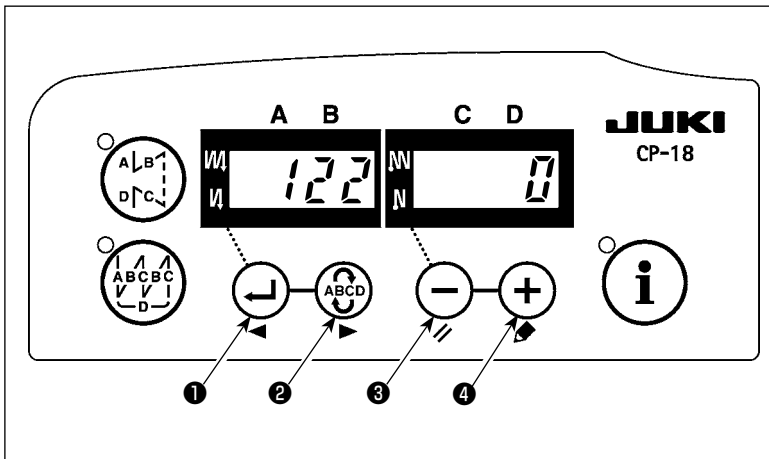
* Refer to the "MACHINE HEAD LIST" on the separate sheet or the Instruction Manual for the machine head of your sewing machine for the type of the machine head.

Type of machine head	Model name
F79	MF-7900/UT55
	MF-7900/UT56
	MF-7900/UT57
F79d	MF-7900D/UT55
	MF-7900D/UT56
	MF-7900D/UT57

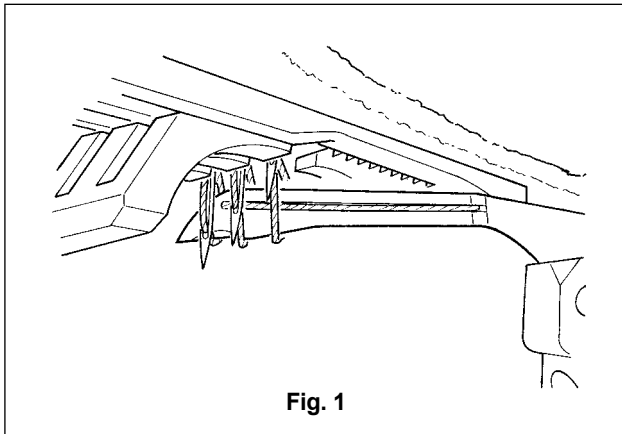


3) After selecting the type of machine head, by pressing \leftarrow switch ① (\oplus switch ②), the step proceeds to 96 or 94, and the display automatically changes to the contents of the setting corresponding with the type of machine head.

(5) Setting the lower stop position of the needle bar



Call function setting No. 122. Check to be sure that the lower stop position of the needle bar is as shown in **Fig. 1**. If not, adjust the lower stop position of the needle bar properly using function setting No. 122. (Adjustment can be made within the range of $\pm 15^\circ$).



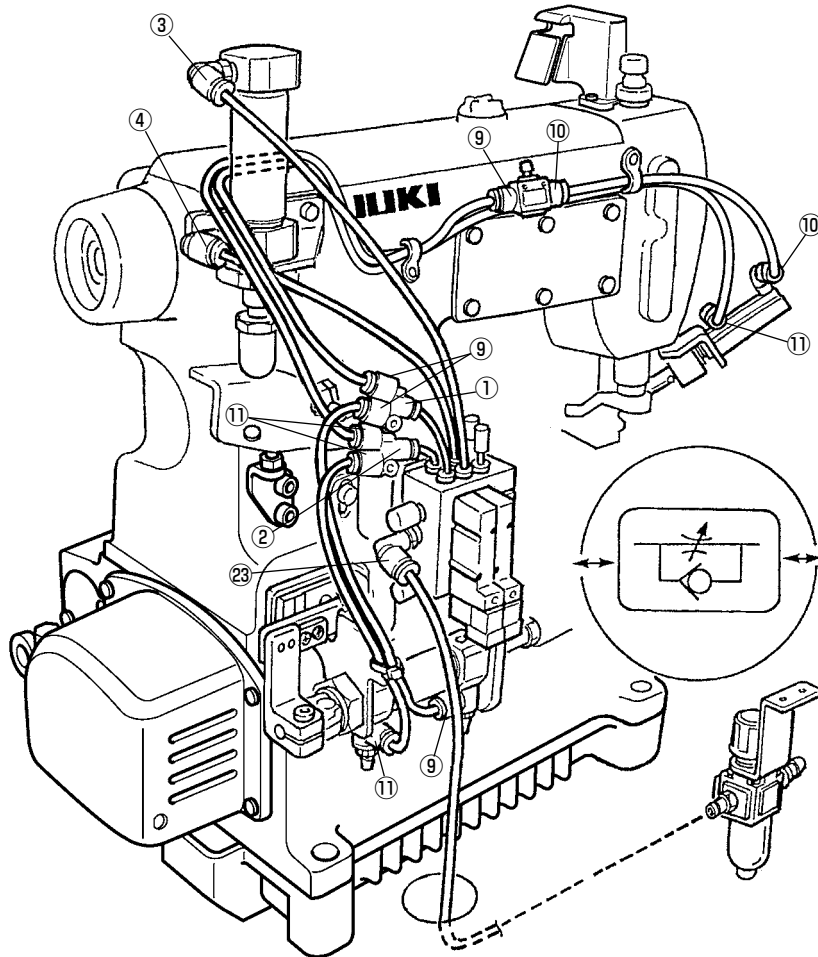
IV. AIR PIPING DRAWING



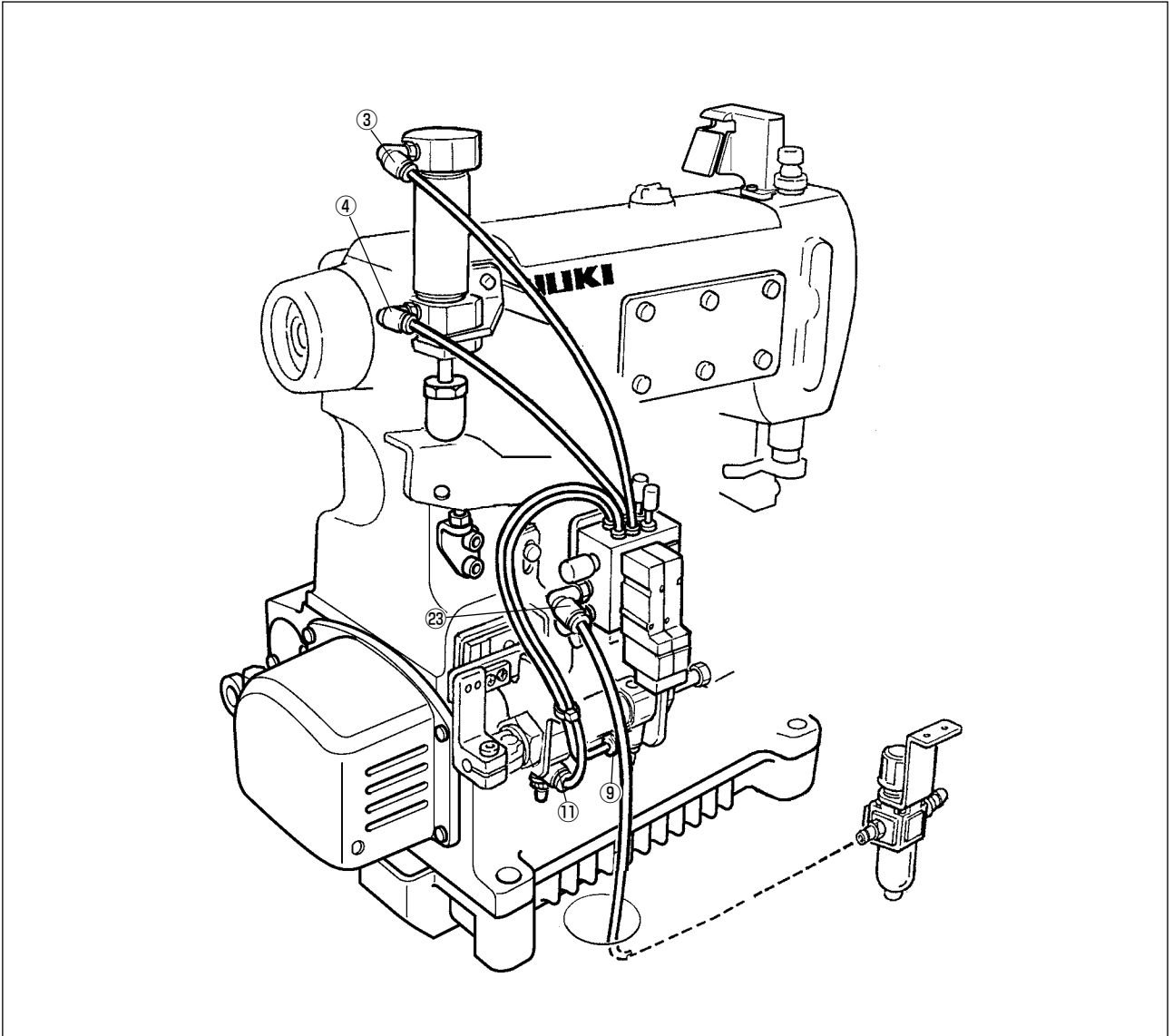
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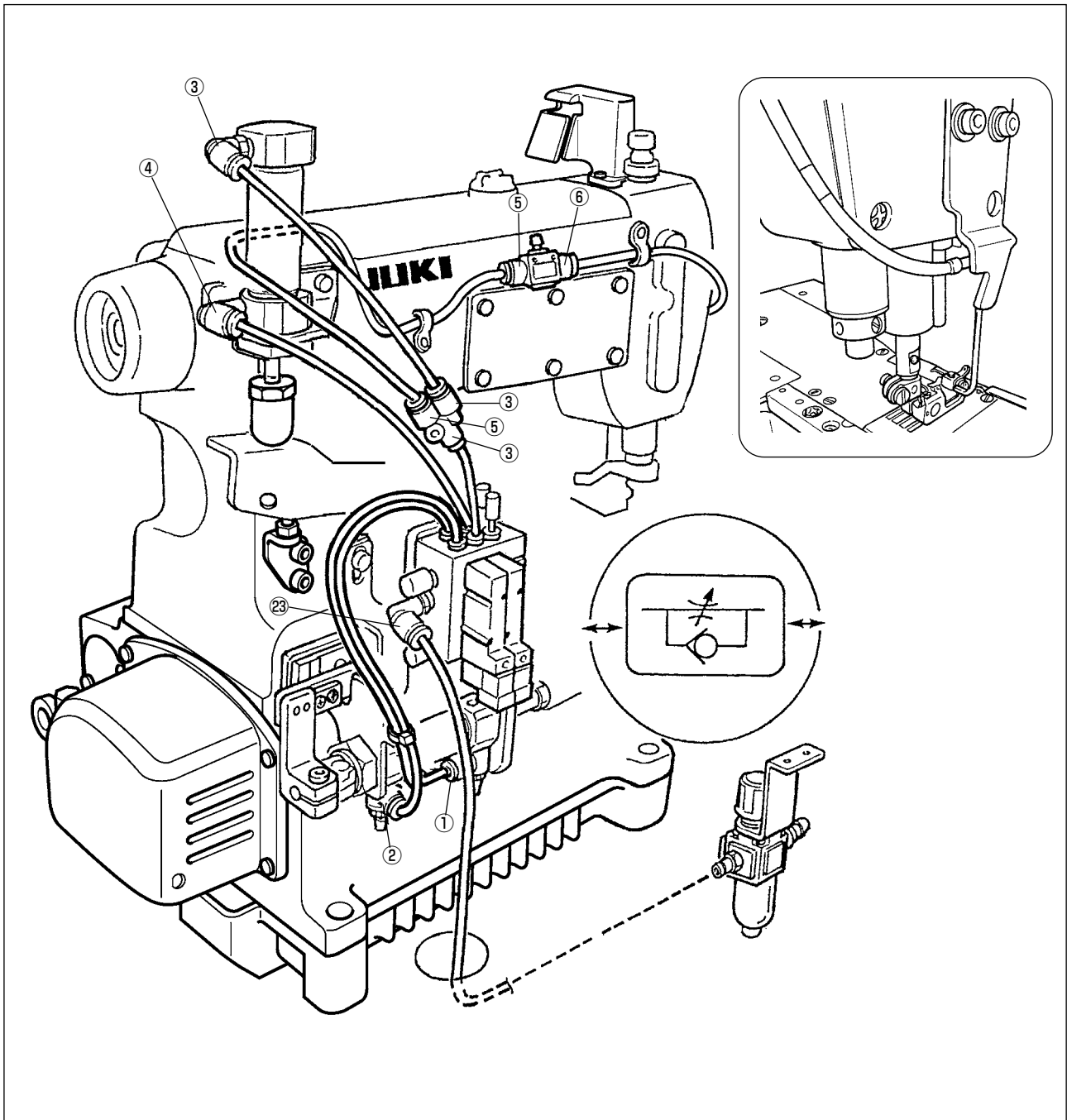
1. Piping of the thread trimmer device (UT57)



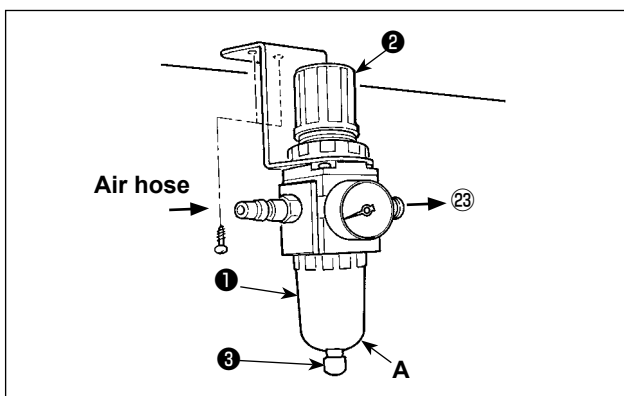
2. Piping of the thread trimmer device (UT55)



3. Piping drawing for air blow (UT56)



4. Adjusting the air regulator



- 1) Insert the air hose to air regulator ① .
- 2) Use the air pressure at 0.4 to 0.5 MPa (4 to 5 kgf/cm²).
- 3) Draw up regulator knob ② , turn knob ② and adjust the pointer to 0.4 to 0.5 MPa to adjust the air pressure.
- 4) After the adjustment, press downward regulator knob ② .
- 5) When drainage is collected at section A of regulator ① during using, press drain cock ③ to discharge the drainage.

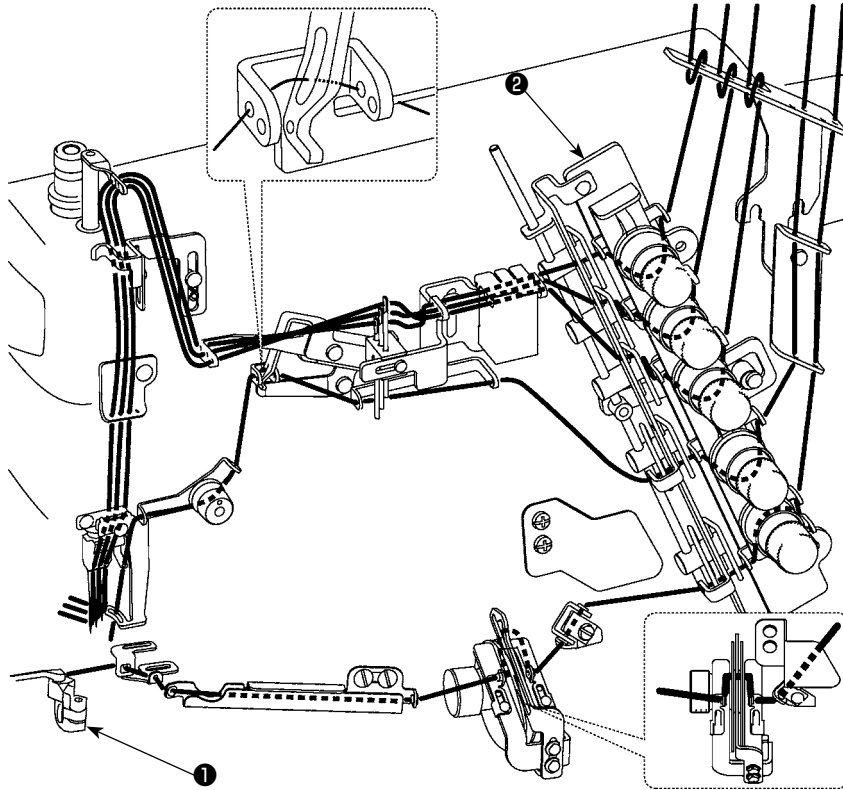
V. THREADING THE MACHINE HEAD



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. If threading is wrong, stitch skipping, thread breakage, needle breakage or irregular stitches will be caused. So, be careful.

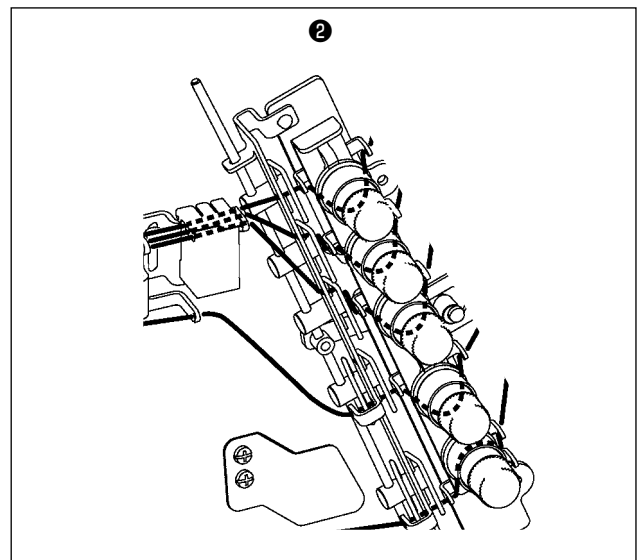
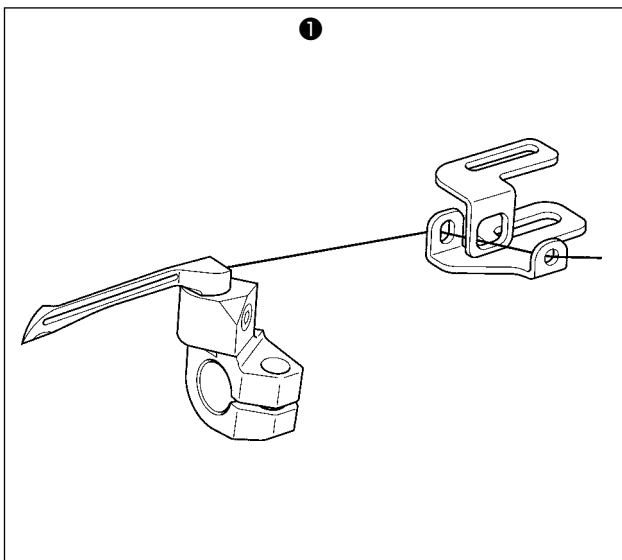
Thread the machine head according to the following threading illustrations.



* For the adjustment procedure other than the above, refer to the Instruction Manual for MF-7900.



When the small thread tension in the face plate is used for the machine with the thread trimmer device, the length of remaining needle thread after thread trimming becomes short and slip-off of thread at the start of sewing may occur.

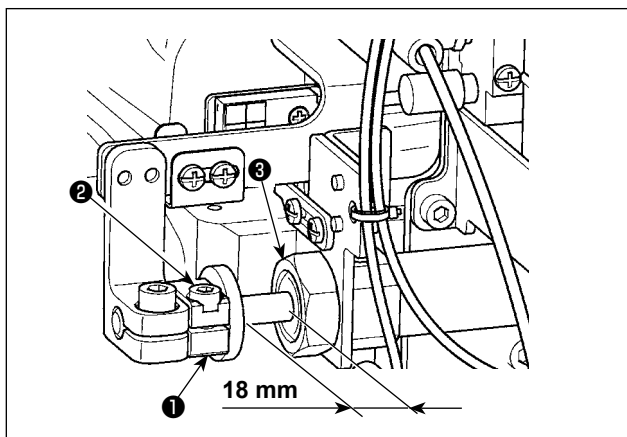


VI. ADJUSTING THE LOOPER THREAD TRIMMER MECHANISM



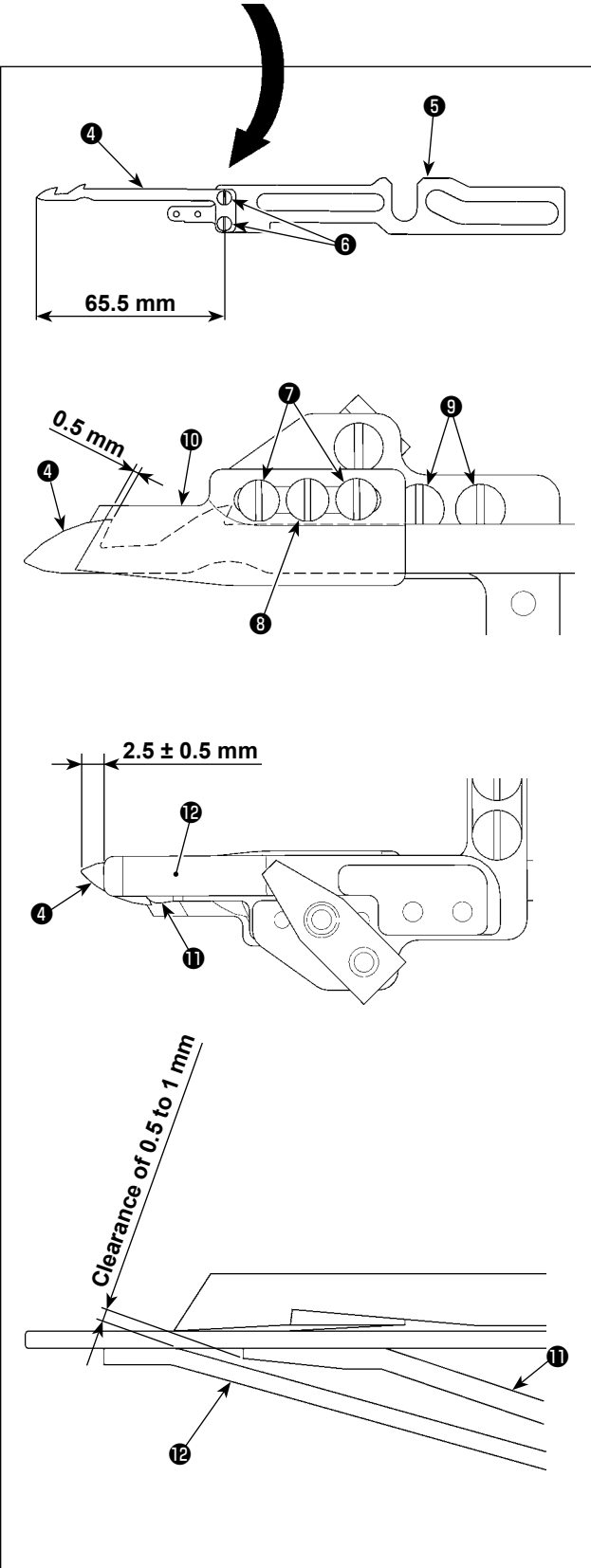
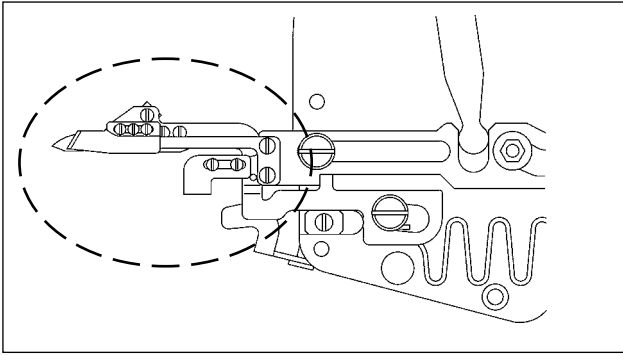
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1. Adjusting the thread trimmer air cylinder

- 1) Stroke of air cylinder ③ is 18 mm.
When adjusting the stroke, loosen setscrew ② of collar ① and move collar ① to the right or left to adjust.



2. Adjusting the Lower knife

- 1) Set lower knife **4** and lower knife holder **5** with setscrews **6** at the position of the illustration.

3. Adjusting the position of clamp pressure adjusting spring

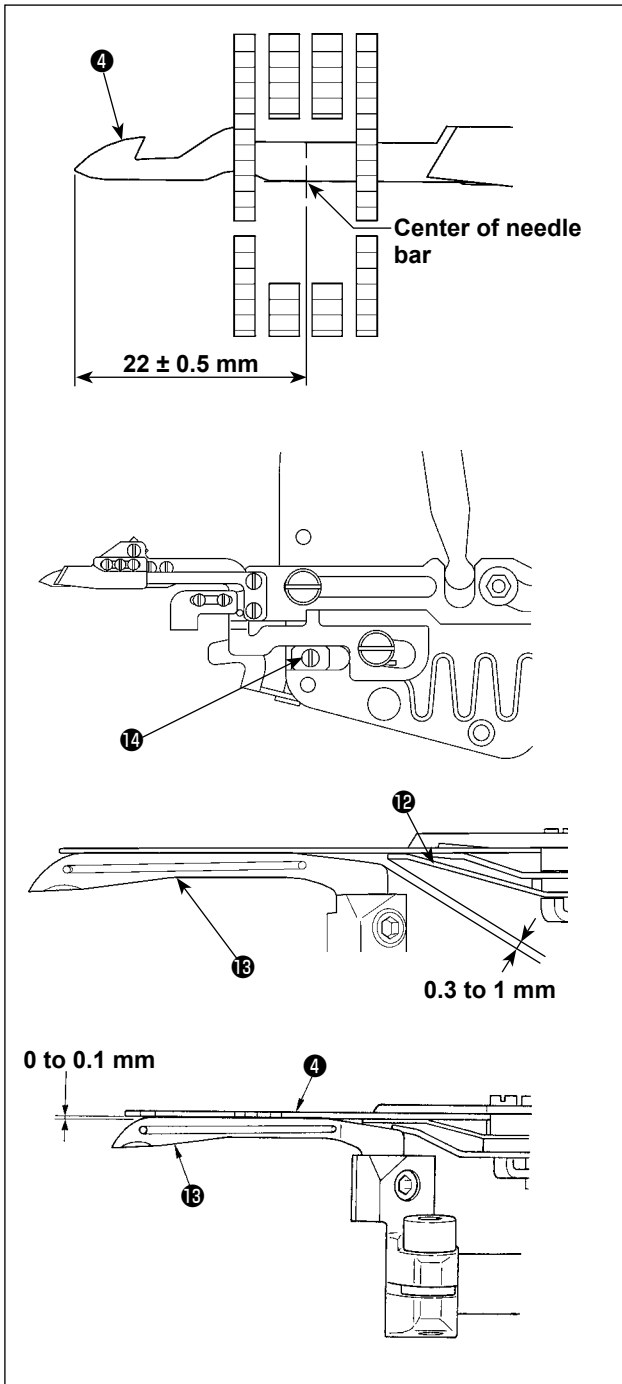
- 1) Loosen screws **9**.
- 2) Adjust so that a clearance of 2.5 ± 0.5 mm is provided between the top end of clamp pressure adjusting spring **12** and the top end of lower knife **4** when the lower knife **4** is brought to the rightmost position.
- 3) After the adjustment, tighten screws **9**.

4. Adjusting the knife engagement and the knife pressure adjusting spring

- 1) Loosen screws **7** and **8**, and adjust the position of upper knife **10** so that the engagement of the upper knife **10** with the lower knife is 0.5 mm when lower knife **4** moves to the extreme right.
- 2) At the same time, adjust so that a clearance of 0.5 to 1 mm is provided between knife pressure adjusting spring **11** and clamp pressure adjusting spring **12**.
- 3) After the adjustment, tighten screws **7**.

5. Adjusting the pressure of clamp spring

- 1) The looper thread is held by clamp pressure adjusting spring **12** after thread trimming.
- 2) Holding pressure of the looper thread can be adjusted by turning screw **8**.
- 3) When screw **8** is turned clockwise, the holding pressure is increased and turned counterclockwise, the pressure is decreased.
- 4) Make the holding pressure as low as possible within the range of holding the looper thread.



6. Initial position of the looper thread trimmer mechanism

When lower knife ④ is located at its leftmost position, the top end of the lower knife ④ has to be spaced 22 ± 0.5 mm from the center of needle bar.

7. Adjusting the stopper

Check the leftmost point with the pneumatic device turned on. Adjustment should be carried out with the air pressure set at 0.5 MPa.

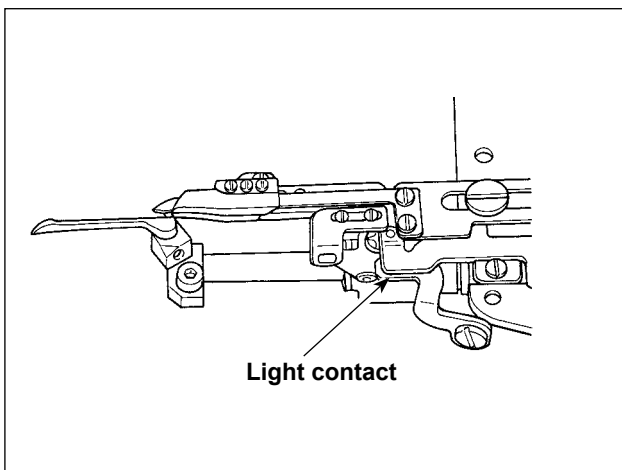
Adjust the position of stopper ⑭ so that a clearance of 0.3 to 1 mm is provided between looper ⑬ and clamp pressure adjusting spring ⑫ when the counter knife is located at its leftmost position (forward end).

8. Adjusting the height of the lower knife

When the needle is positioned at its upper dead point, the clearance of 0 to 0.1 mm has to be provided between the under surface of lower knife ④ and the top surface of looper ⑬.

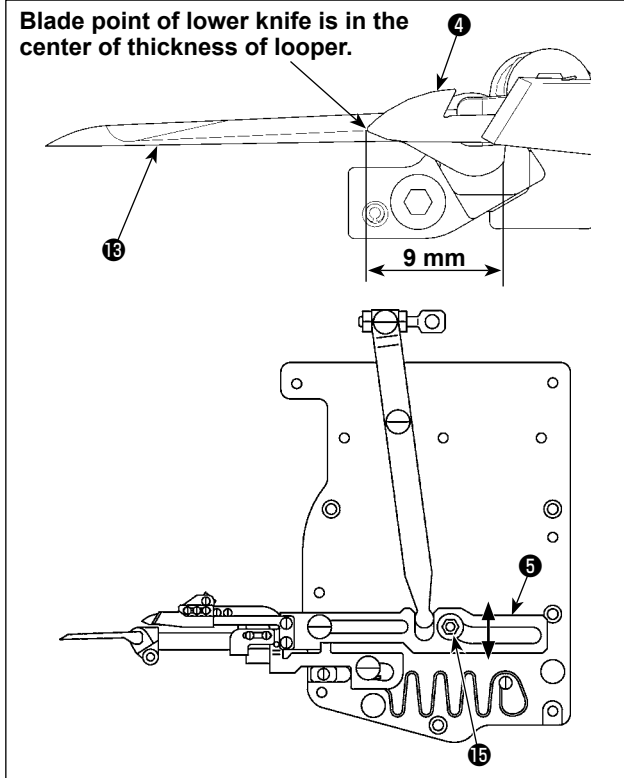


Perform the work with the needle bar at the highest position when actuating the thread trimmer mechanism by hand.



9. Adjusting the lower knife holder guide

When the lower knife moves from right to left, the lower knife holder should lightly come in contact with the guide.

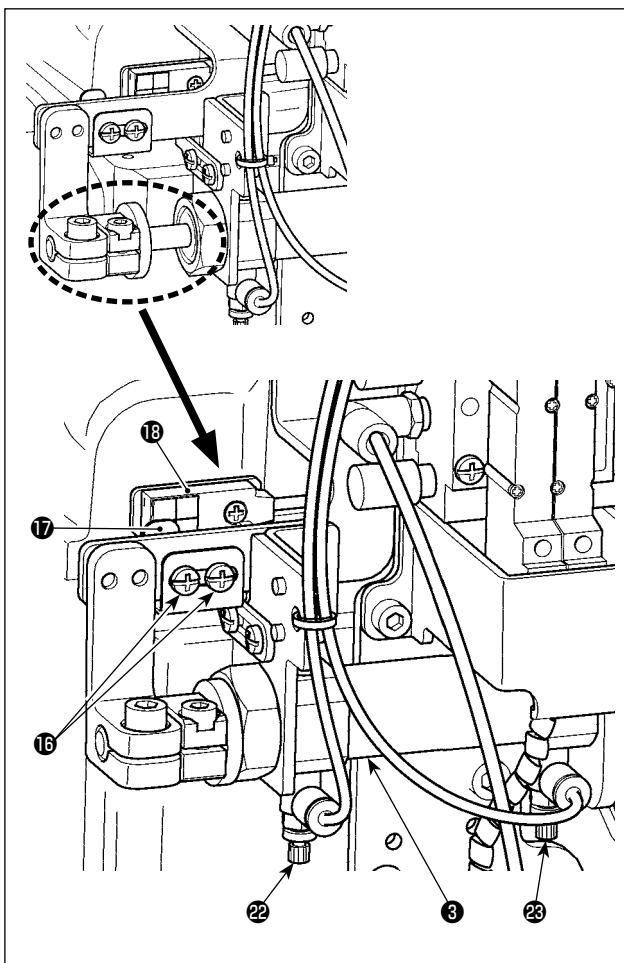


10. Adjusting the longitudinal position of the blade point of lower knife

- 1) Bring the needle bar to its highest position.
- 2) Adjust so that the blade point of lower knife 4 is in the center of the thickness of looper 13 when the clearance between the right-hand edge of looper 13 and the blade point of lower knife 4 is 9 mm.
- 3) Loosen nut 15, move lower knife holder 5 to and fro, and adjust the position of the blade point of lower knife 4.
- 4) After the adjustment, tighten nut 15.



Perform the work with the needle bar at the highest position when actuating the thread trimmer mechanism by hand.



11. Adjusting the thread trimmer sensor

The safety switch is installed so that the sewing machine does not start unless the looper thread trimmer device returns to its home position.

- 1) Loosen setscrews 16.
- 2) Adjust switch plate 17 so that LED of thread trimmer sensor 18 lights up in the state that the thread trimmer device is fully returned to its home position.
- 3) Tighten setscrews 16.



Perform the work with the needle bar at the highest position when actuating the thread trimmer mechanism by hand.

12. Adjusting the speed of looper thread trimmer

Speed of the looper thread trimmer device can be changed with speed controllers 22 and 23 of air cylinder 3.

- 1) When you desire to change the protruding speed of lower knife, loosen the nut of speed controller 22, and turn the adjustment screw. When you desire to change the returning speed of lower knife, loosen the nut of speed controller 23, and turn the adjustment screw.
- 2) After the adjustment, tighten the nuts of speed controllers 22 and 23.



- When the protruding speed of lower knife is slow, thread trimming failure will be caused.
- When the returning speed of lower knife is fast, lower thread clamp failure or uneven needle thread remaining length will be caused.

VII. ADJUSTING THE THREAD RELEASE MECHANISM

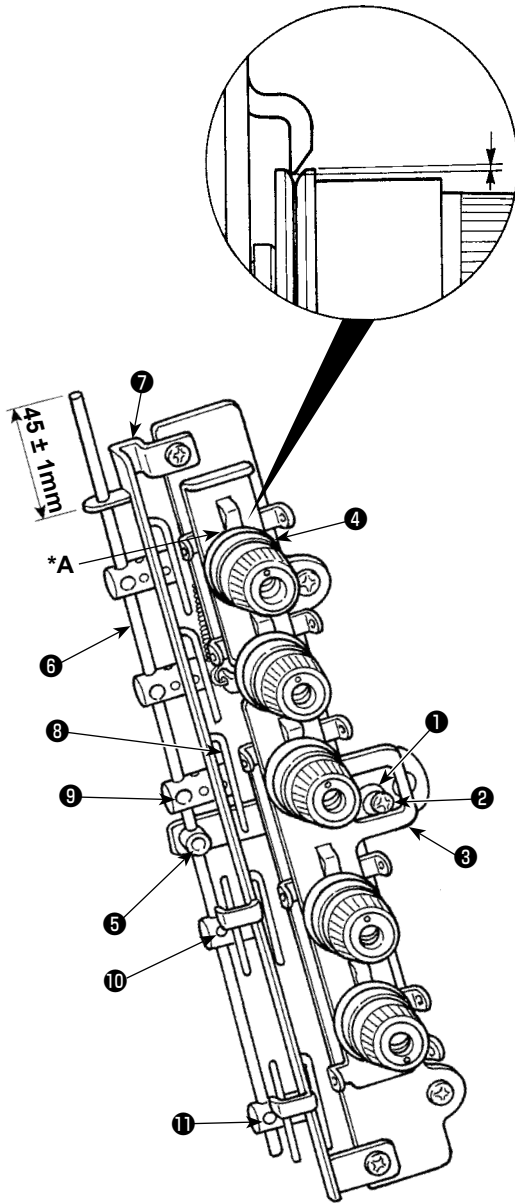


WARNING :

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. In addition, cut the air supply from air compressor.

*A

Clearance between click and disk is 0.2 to 0.5 mm.
(5 places)



1. Adjusting the disk-rise

- 1) Loosen setscrew ② in adjustment cam ①, turn adjustment cam ① and disk-rise plate ③ moves up or down.
- 2) Adjust the clearance between the click section of disk-rise plate ③ and thread tension disk ④ to 0.2 to 0.5 mm, and tighten setscrew ②.
- 3) If the click section of disk-rise plate ③ comes in contact with thread tension disk ④, sewing trouble will be caused. So, be careful.

2. Adjusting the thread release hook

- 1) Loosen setscrew ⑤. Adjust so that the top end of tension release rod ⑥ is spaced 45 ± 1 mm from the top end of take-up thread guide ⑦. Then, tighten setscrew ⑤.
 - 2) Loosen setscrew ⑨, move the position of thread release hook ⑧ up or down, and the thread remaining length at the start of sewing can be adjusted.
- When the position of thread release hook ⑧ is raised, the thread remaining length at the start of sewing is decreased and when it is lowered, the thread remaining length at the start of sewing is increased.
 - If stitch skipping occurs at the beginning of sewing when using non-elastic thread, properly adjust the remaining length of top-covering thread at the start of sewing using setscrew ⑩ and minimize the remaining length of looper thread at the start of sewing using screw ⑪.



When the thread remaining length at the start of sewing is short, stitch skipping or slip-off of thread from needle eyelet at the start of sewing is apt to occur.

VIII. ADJUSTING THE TOP COVERING THREAD TRIMMER MECHANISM



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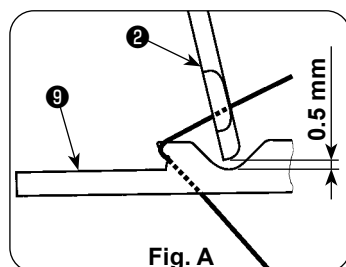
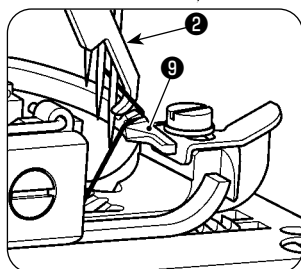
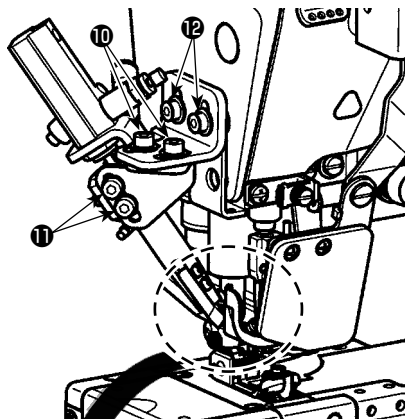
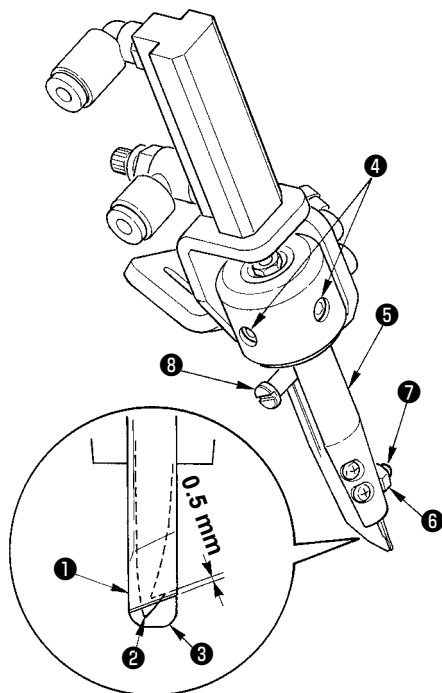


Fig. A

1. Adjusting the engagement of knives

- 1) Adjust so that the engagement of fixed knife **1** with moving knife **2** is 0.5 mm.
- 2) When adjusting the engagement, loosen setscrews **4** and move knife holder **5** up or down to adjust.

2. Adjusting the pressure of clamp spring

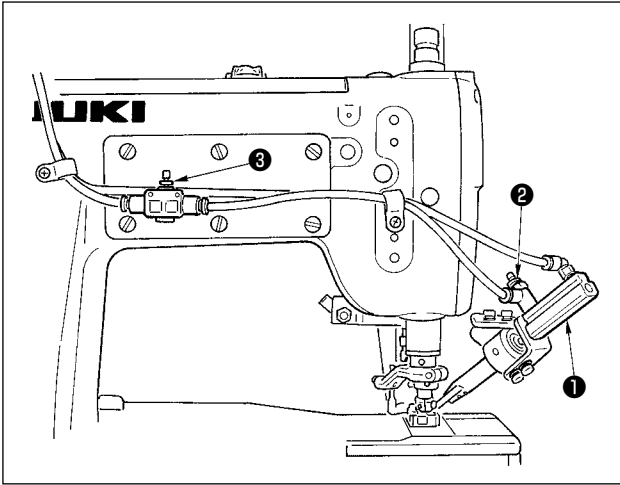
- 1) Top covering thread is held with clamp spring **3** after thread trimming.
- 2) Holding pressure can be adjusted by loosening nut **6** and turning screw **7**.
- 3) Holding pressure is increased when tightening screw **7** and it is decreased when loosening screw **7**.
- 4) After the adjustment, tighten nut **6**.
- 5) Make the holding pressure as low as possible within the range of holding the top covering thread.

3. Adjusting the position of the blade point of moving knife

- 1) Bring the needle bar to its highest position.
- 2) When hinge screw **8** is lowered, moving knife **2** lowers together.
- 3) Adjust so that the hook of moving knife **2** enters the recess in the top face of spreader **9** to be brought to the position where the moving knife catches the top covering thread when moving knife **2** is brought to the lowermost position. Then, tighten screws **10**, **11** and **12**.
Adjust the moving knife vertically so that a clearance of 0.5 mm is provided between the recess section of spreader **9** and the moving knife, and laterally so that the moving knife **2** is brought to the center of the width of recess in spreader, as illustrated in Figure A.
- 4) Screws **12** are for adjusting vertical position of the knife, screws **10** for adjusting lateral position of the knife, and screws **11** for adjusting angle of the knife.



Make sure that the moving knife does not interfere with other components such as presser, needle, spreader, etc. within the working range of moving knife **2**.



4. Adjusting the speed of moving knife

Stroke of air cylinder ① is 20 mm.

Speed of the moving knife can be changed with speed controllers ② and ③.

- 1) When you desire to change the protruding speed of moving knife, loosen the nut of speed controller ② and turn the adjustment screw.
When you desire to change the returning speed of moving knife, loosen the nut of speed controller ③ and turn the adjustment screw.
- 2) After the adjustment, tighten the nuts of speed controllers ② and ③.



- When the protruding speed of moving knife is slow, thread trimming failure will be caused.
- When the returning speed of moving knife is fast, needle thread clamp failure will be caused.

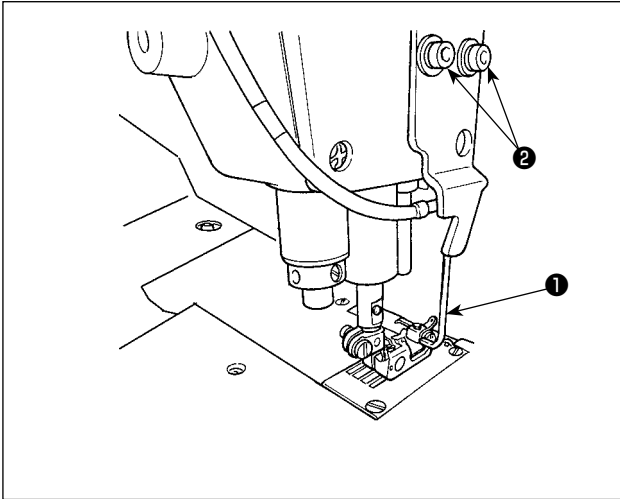
IX. ADJUSTING THE AIR-BLOW WIPER (UT56)



WARNING :

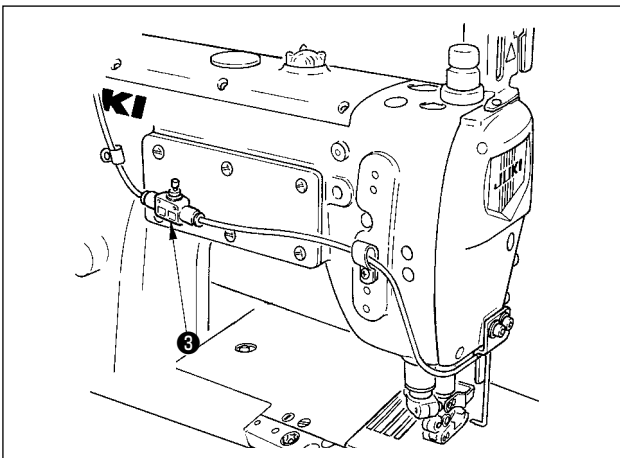
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest. In addition, cut the air supply from air compressor.

1. Installing the air-blow wiper



- 1) When using air-blow wiper ①, remove the top covering thread trimmer device.
- 2) Tighten air-blow wiper ① with setscrews ②.
- 3) Perform piping referring to “IV. AIR PIPING DRAWING” p.7.

2. Adjusting the air-blow wiper



Adjust the air-blow position of air-blow wiper ①.

- 1) Adjust so that the air outlet of air-blow wiper ① is positioned in the rear of needle and slightly on the lower side of needle eyelet of the left needle when the needle bar is in the highest position.
- 2) After the adjustment, temporarily tighten setscrews ②.
- 3) Supply air from the air compressor and turn the power ON.
- 4) When the back part of the pedal of sewing machine is depressed, the presser goes up and simultaneously air blows from air-blow wiper ①. Re-adjust the position of air-blow wiper ① so that air blows only to the needle thread in the rear of the needle eyelet.
- 5) After the re-adjustment, tighten setscrews ②.



- When air blows in front of the needle, needle thread slips from the needle eyelet. So, be careful.
- Adjust the air-blow strength with speed controller ③.
- Handwheel may rotate up to the fixed position when turning ON the power. So, be careful.

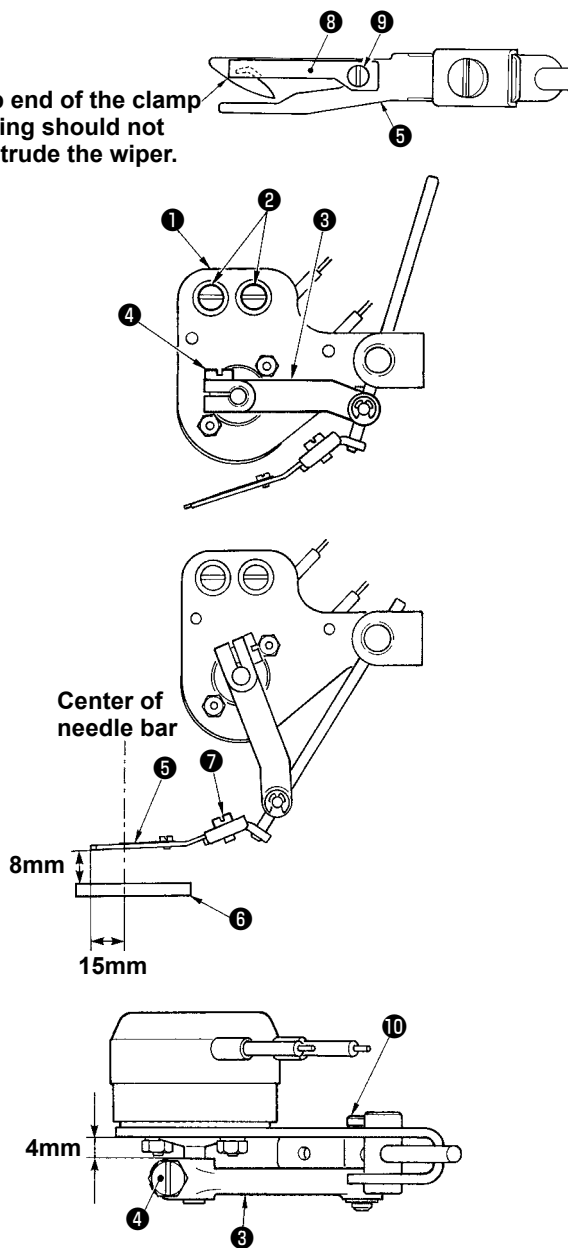
X. ADJUSTING THE NEEDLE THREAD WIPER (UT55)



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. In addition, cut the air supply from air compressor.

Top end of the clamp spring should not protrude the wiper.



1. Adjusting the clamp spring

Adjust the leaf spring which clamps the needle thread after the wiper operates.

- 1) Install clamp spring **8** on wiper **5** with screw **9** so that they are in parallel to each other.
- 2) Fix clamp spring with the screw so that the top end of clamp spring **8** does not protrude the slanted section at the top end of wiper **5**.

2. Installing the needle thread wiper

- 1) Bring the needle bar to the uppermost position.
- 2) Make mounting base **1** level and temporarily fix it by tightening screw **2** at the center of the slot.
- 3) Adjust so that the lever **3** is horizontally positioned relative to mounting base **1** and a clearance of 4 mm is provided between them. In this state, tighten screw **4**.
- 4) Adjust wiper **5** so that its top end is spaced 15 mm from the center of the needle bar and its height is 8 mm above the top surface of throat plate **6** when wiper **5** is brought to the leftmost position.
- 5) Adjust the position of the top end of wiper **5** by means of screw **7** and the height of the top end of wiper **5** by means of screw **10** respectively.
- 6) After the completion of the adjustment, tighten screws **2**.

When the solenoid operates, the solenoid shaft moves forward by 0.9 mm while rotating. To adjust the solenoid, rotate it while pulling lever **3** toward you. After the completion of the adjustment, activate the solenoid to check that it does not interfere with other parts such as the presser foot and needle in the operating range of wiper **5**.



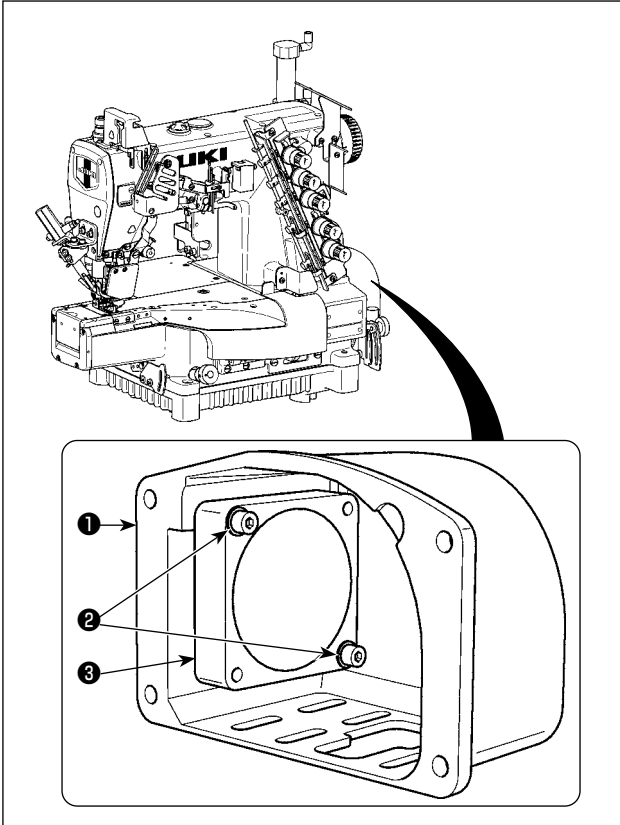
XI. MAINTENANCE



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. In addition, cut the air supply from air compressor.

1. Cleaning the motor fan



Open the motor cover **1** and remove the screws **2** .
Clean up the periphery of the motor fan **3** and the motor cover **1** .

After the completion of cleaning, re-install the motor fan **3** and the motor cover **1** .