

ENGLISH

**MF-7900DR-H24
INSTRUCTION MANUAL**

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This Instruction Manual only describes the exclusive parts of MF-7900DR-H24. For the remaining items regarding this model of sewing machine which are not covered by this Manual, refer to the below-mentioned Instruction Manuals.

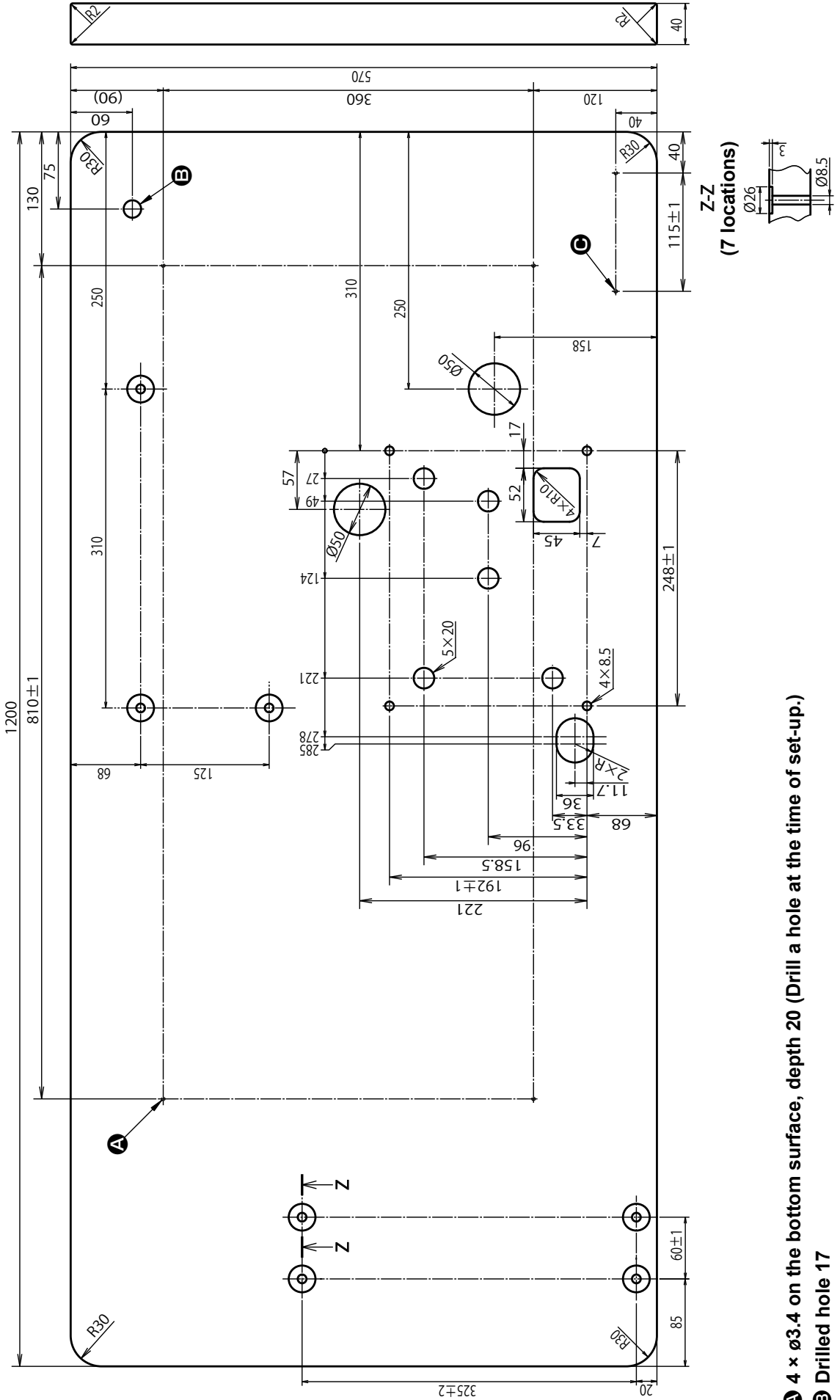


- MF-7900
- MF-7500D, 7900D
- MF-7900D-H24
- MF-7900(D)/UT55, 56, 57
- MC37, 40
- SC-921

1. SPECIFICATIONS

Model name	Semi-dry head, cylinder bed, bottom coverstitch machine with digital type feed, for hemming (provided with left fabric trimmer)
Model	MF-7900DR-H24
Stitch type	ISO standard 406 and 407
Example of application	Hemming for knits and general knitted fabrics
Sewing speed	Max. 5,000 sti/min Factory-set sewing speed at the time of shipment : 4,000 sti/min
Needle gauge	3-needle.....5.6 mm and 6.4 mm 2-needle.....4.0 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 to 3.6 mm
Needle	UY128GAS #9S to #12S (standard #10S)
Needle bar stroke	31 mm (or 33 mm when changing over the eccentric pin)
Dimensions	(Height) 490 mm × (Width) 49 mm0 × (Length) 299 mm
Weight	48 kg
Lift of presser foot	8 mm (needle gauge : 5.6 mm) 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.) Top belt feed..... Digitally adjustable by setting the operation panel
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	Top mount 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 4,000 sti/min.

2. DRAWING OF TABLE

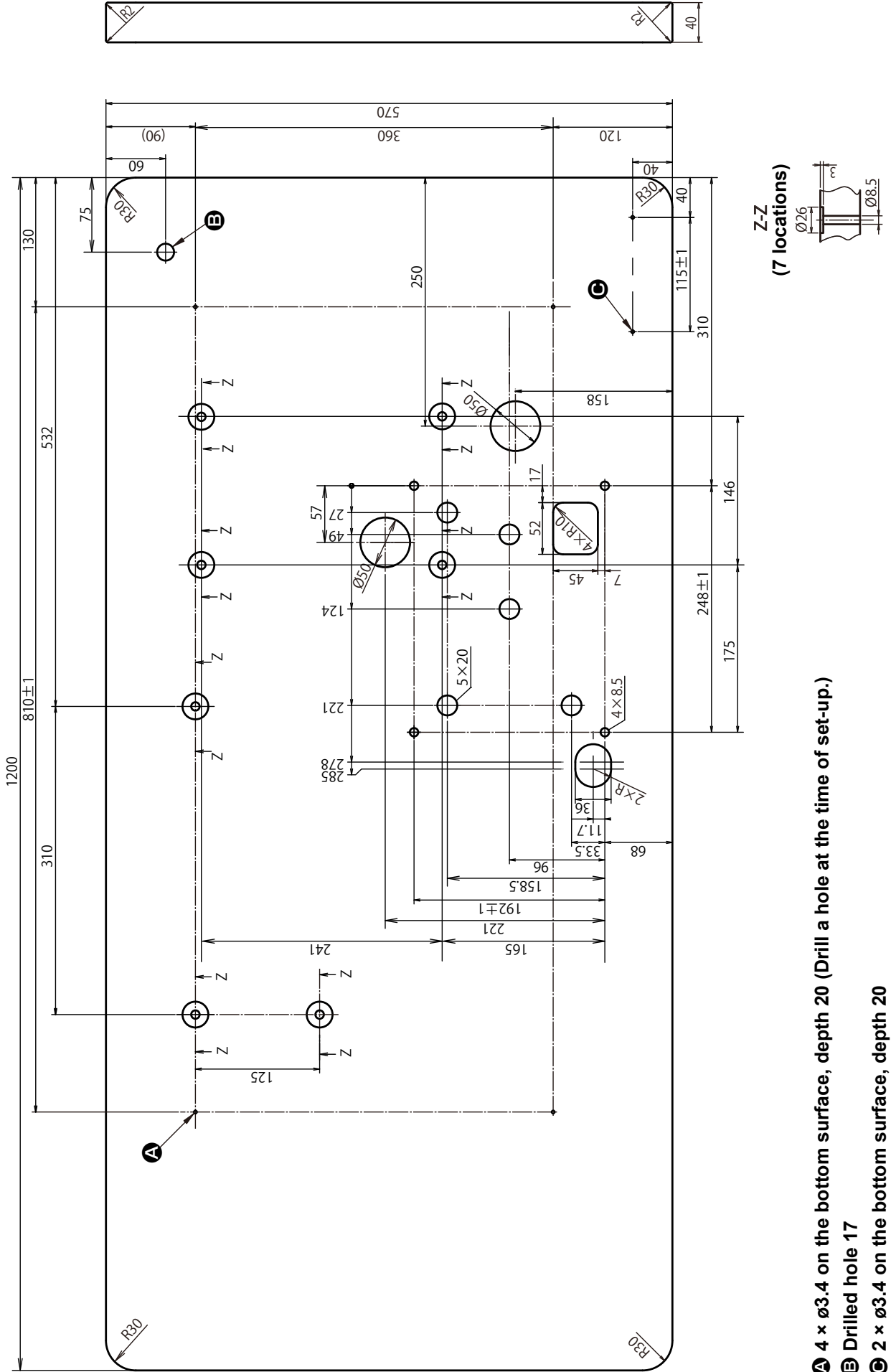


A 4 x Ø3.4 on the bottom surface, depth 20 (Drill a hole at the time of set-up.)

B Drilled hole 17

C 2 x Ø3.4 on the bottom surface, depth 20

For the CE type



Ⓐ 4 x $\varnothing 3.4$ on the bottom surface, depth 20 (Drill a hole at the time of set-up.)

Ⓑ Drilled hole 17

Ⓒ 2 x $\varnothing 3.4$ on the bottom surface, depth 20

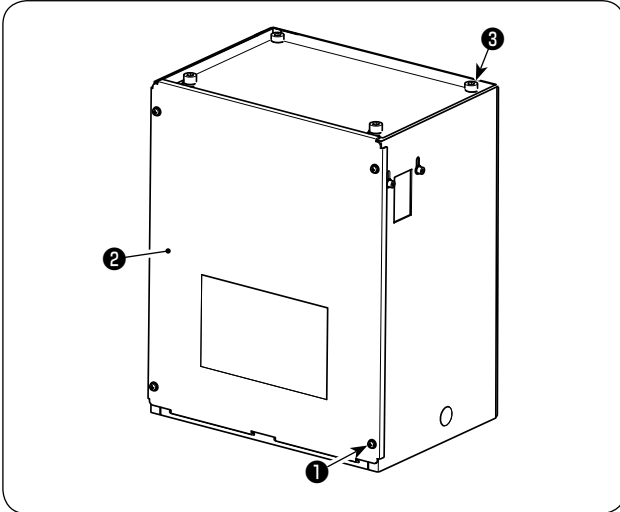
3. SET UP

The control box for the MF-7900DR Series requires the SC-921 and MC-450.

3-1. Installing the SC-921

Install the SC-921 on the sewing machine table.

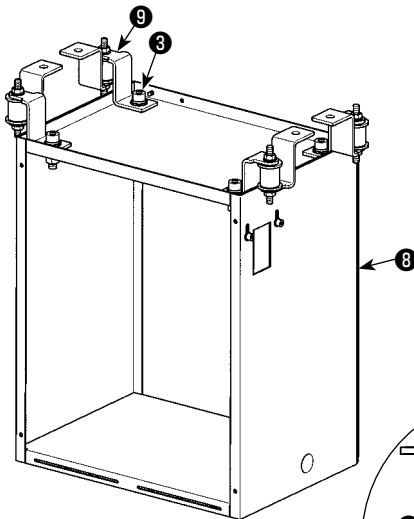
Refer to the Instruction Manual for the SC-921 for details.



3-2. Installing the MC-450

1) Loosen setscrews ① (4 pieces). Remove control-box rear cover ②.

For other types than the CE type

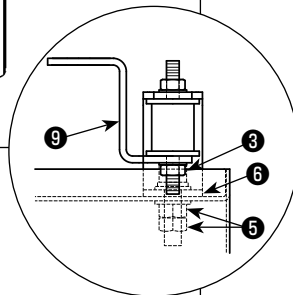
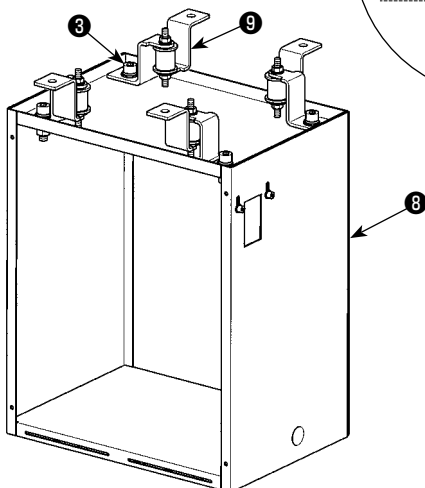


2) Attach control box bracket (asms.) ⑨ (four pieces) to control box ⑧ with setscrews ③, nuts ⑤ and plain washers ⑥ supplied with the MC-450 as shown in the figure.

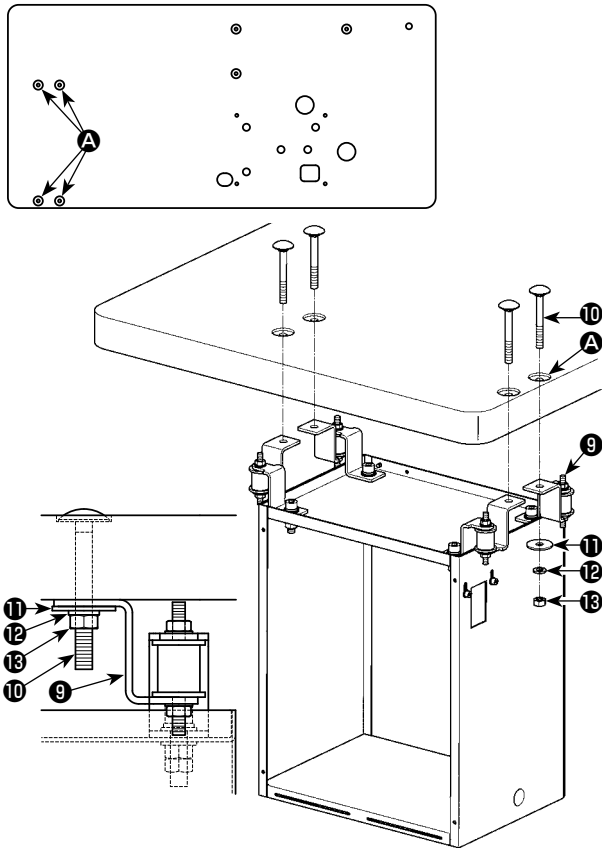


Be sure to check the orientation of control box bracket (asm.) ⑨ when installing it.

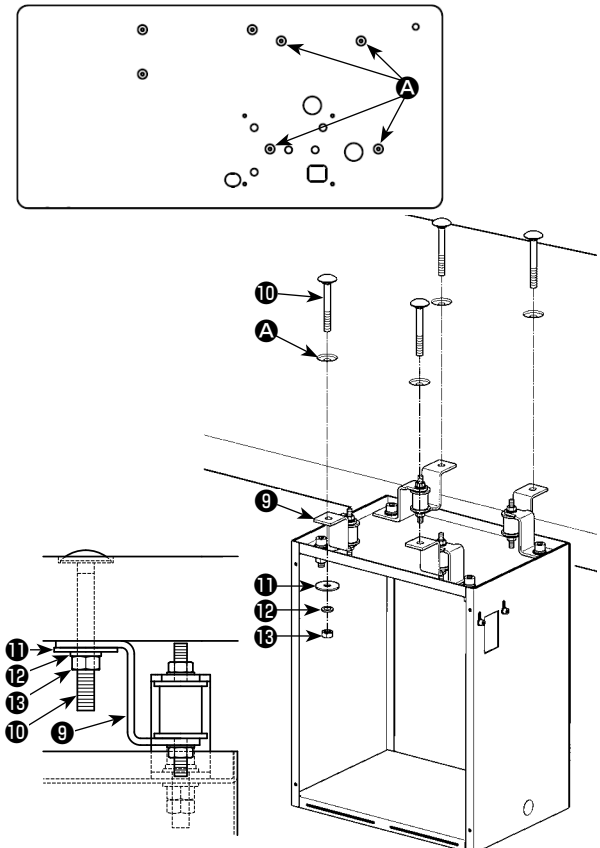
For the CE type



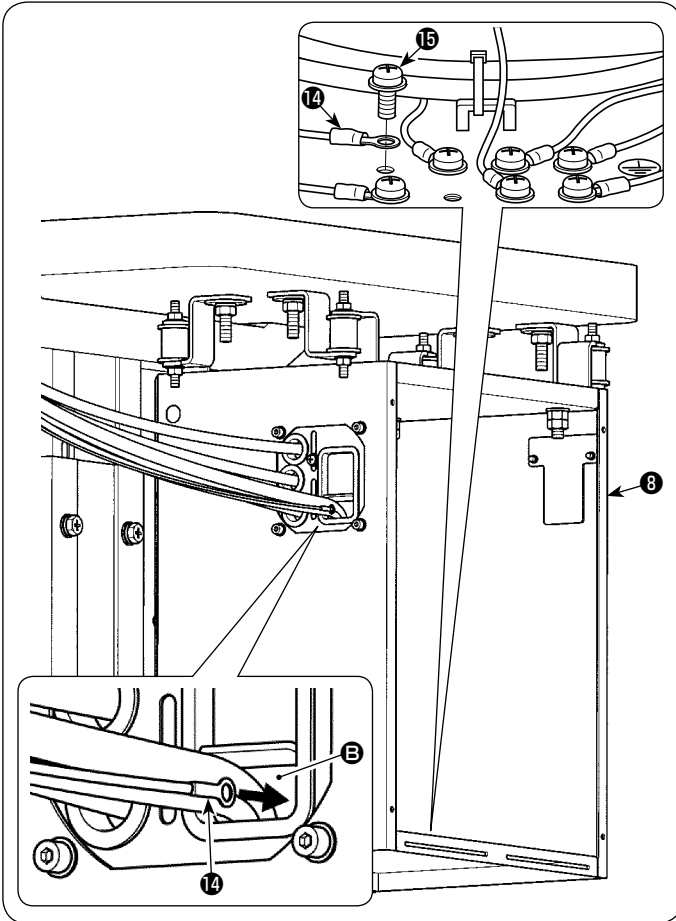
For other types than the CE type



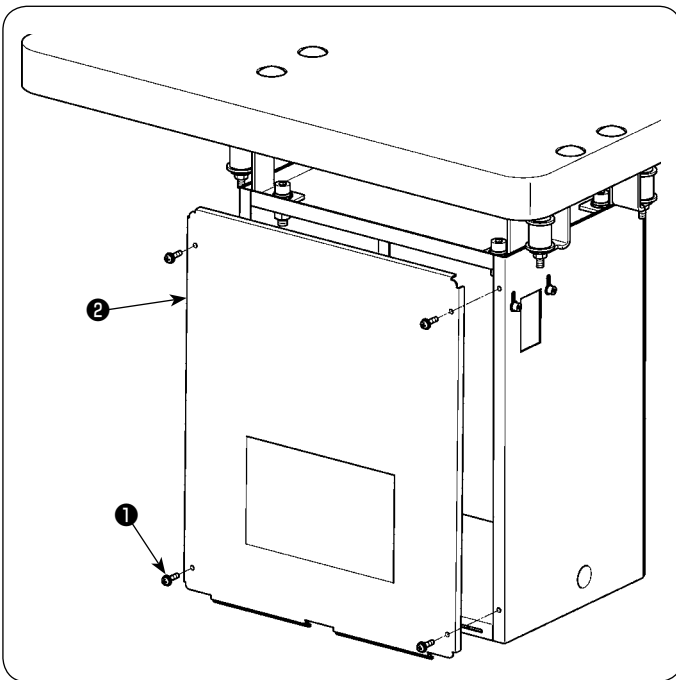
For the CE type



- 3) Press-fit hanger bolts 10 (4 pieces) in control box hanger into hanger bolt holes A (4 locations) in the table.
- 4) Fit control box bracket (asm.) 9 over hanger bolt 10. Fix them with plain washer 11, spring washer 12 and nut 13.



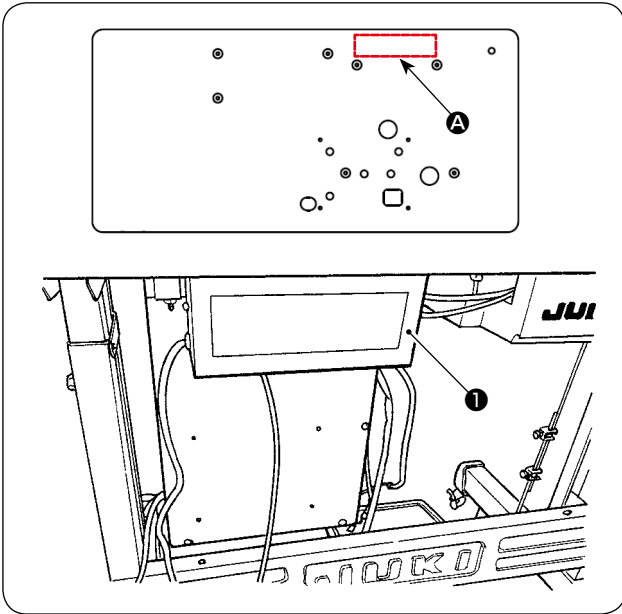
- 5) Pull top belt motor ground wire 14 which comes from the machine head into control box 8 through B section.
- 6) Remove setscrew 15 from the bottom surface of control box 8. Fix top belt motor ground wire 14.



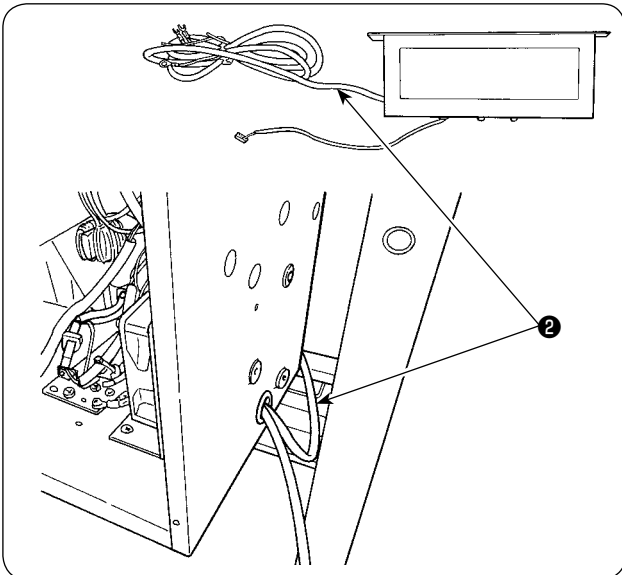
- 7) Attach control box rear cover 2 with set-screws 1 (4 pieces).

* For the CE type, attach the cover after carrying out the next item "3-3. Installing the reactor box (for the CE type)".

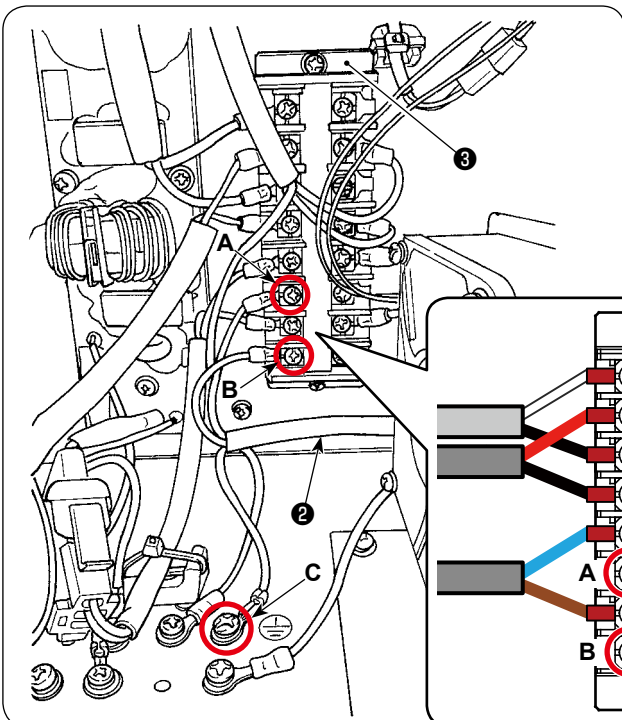
3-3. Installing the reactor box (for the CE type only)



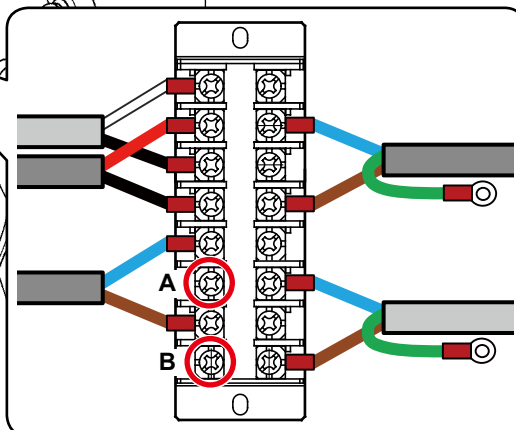
1) Install reactor box ① supplied with the SC-921 at the location ①.

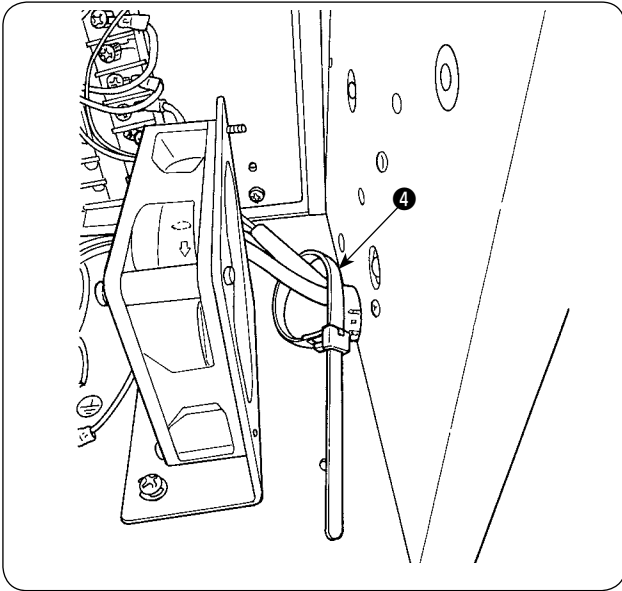


2) Reactor input cable (black) ② has already been drawn out from the side face of the reactor box. Draw this reactor input cable (black) ② in the MC-450.

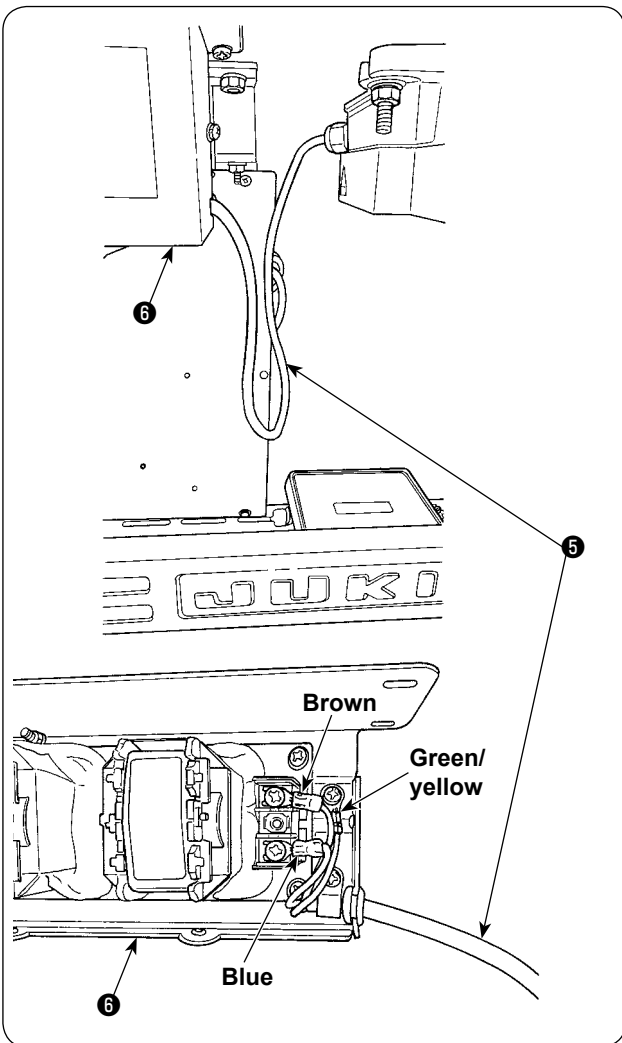


3) Connect the reactor input cable which is drawn in the MC-450 in the aforementioned Step 2 to terminal block ③ and control box chassis. Connect the blue cable to A, brown one to B and green/yellow one to C and secure them respectively with screws.





- 4) Fasten cable clip band 4 in order to prevent the cables from slipping out of the terminal block and the control box chassis.

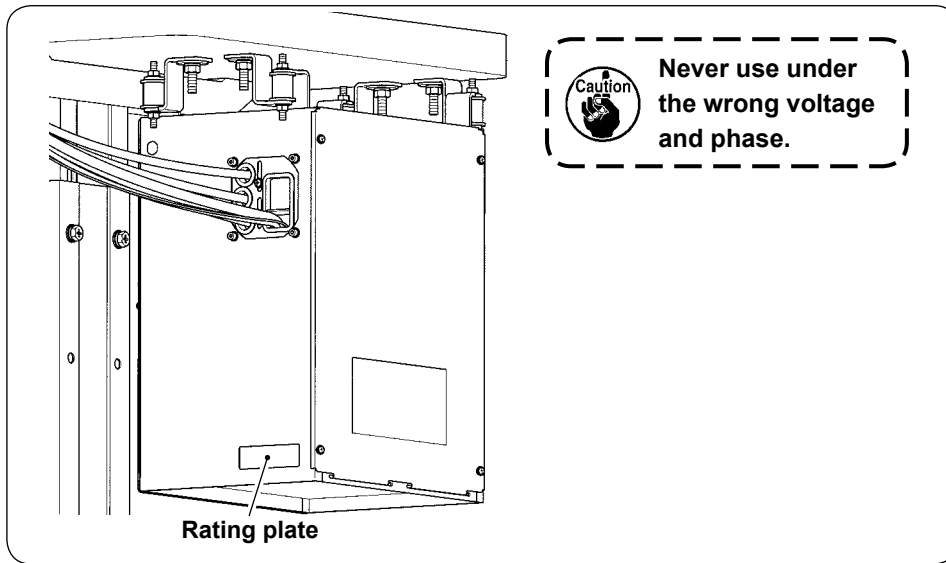


- 5) Remove the cover of reactor box. Connect AC input cable 5 which is drawn out from the SC-921 to reactor box 6.

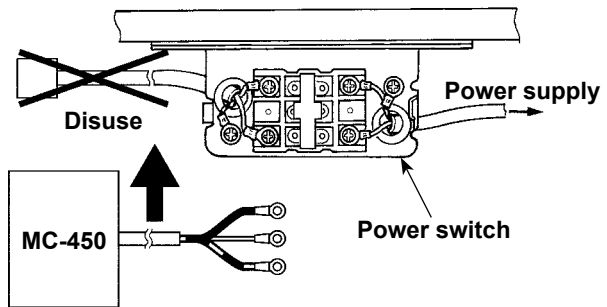
3-4. Connection and installation of the cable of power switch

(1) Connecting the power switch and power cable, and MC-450 connection cable.

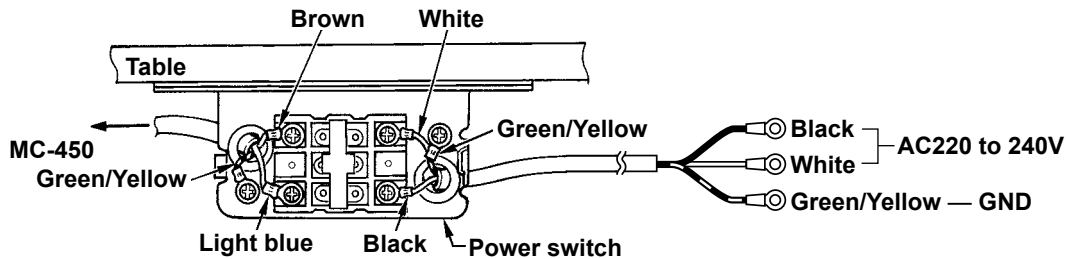
Voltage specification is indicated on the rating nameplate. Connect the cable in accordance with the specifications.



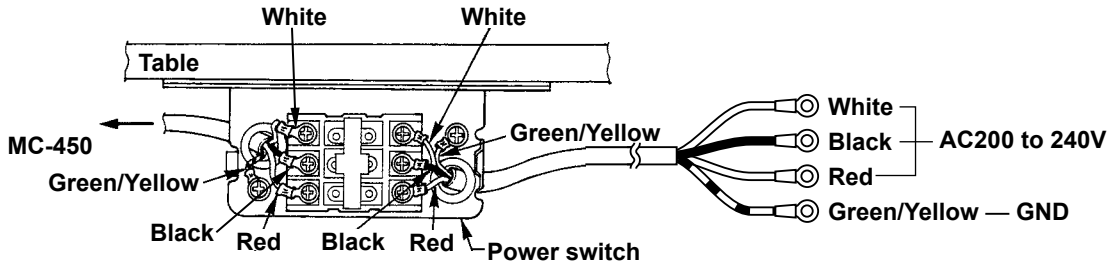
For other types than the CE type



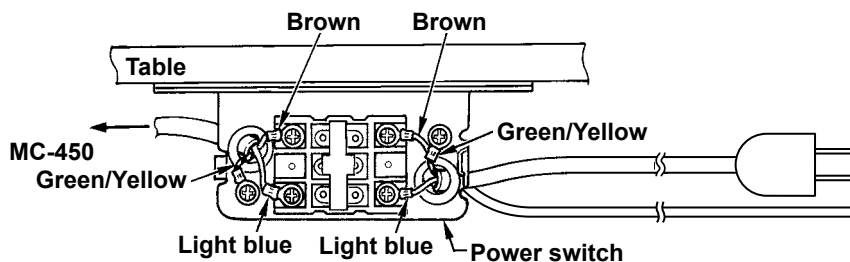
• Connecting single phase 220 to 240V



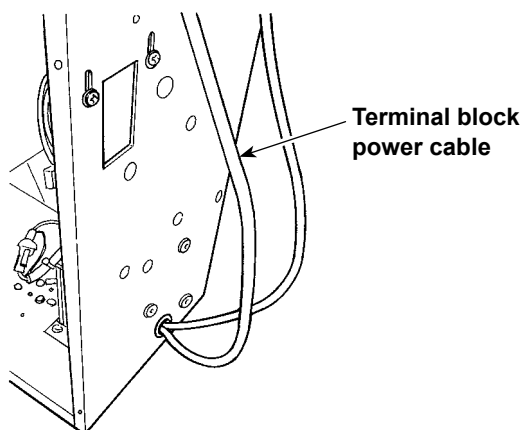
• Connecting 3-phase 200 to 240V



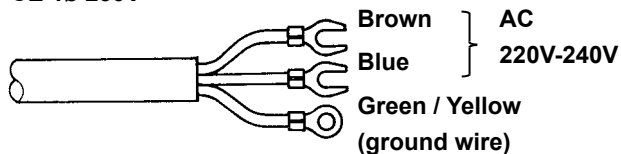
• Connecting single phase 100 to 120V



For the CE type



CE 1ø 230V



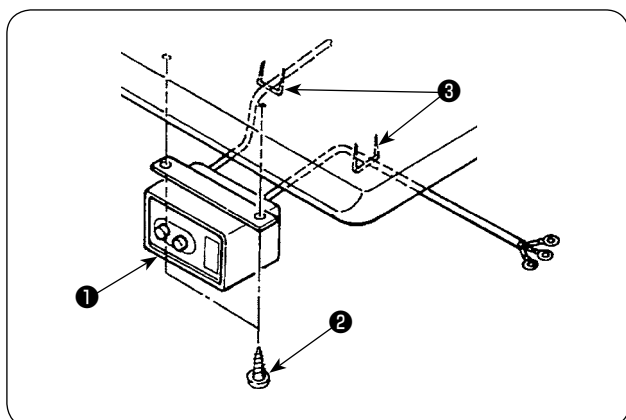
Connect the power switch to the terminal block power cable (grey) coming from the side face of MC-450.

Installing power switch

Connect power supply cord to the power switch.

[CE specifications]

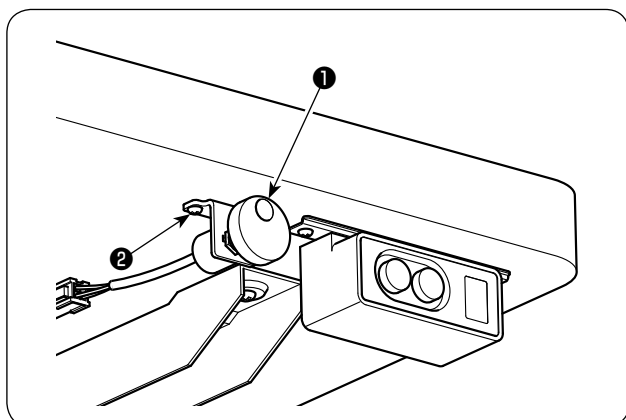
Single phase 230V : Power supply cords :
Brown, Blue, and green/
yellow (ground wire)



(2) Installing the power switch (For other types than the CE type)

Fix power switch ① under the machine table with wood screws ②.

Fix the cable with staples ③ supplied with the machine as accessories in accordance with the forms of use.



3-5. Installing the jog dial

Fix jog dial ① under the machine table with wood screws ② (2 pieces).

3-6. Wiring and connection of cables

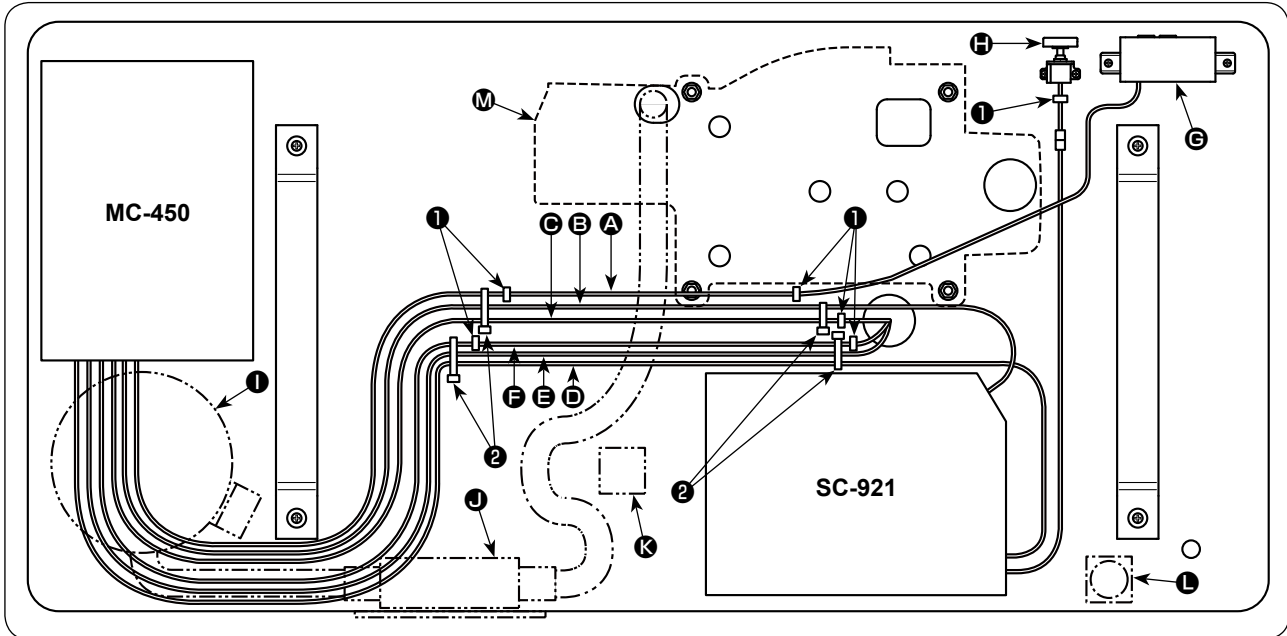
(1) Wiring on the undersurface of table

Secure cables on the table with staples ❶ and cable clip bands ❷ supplied with the machine as accessories.



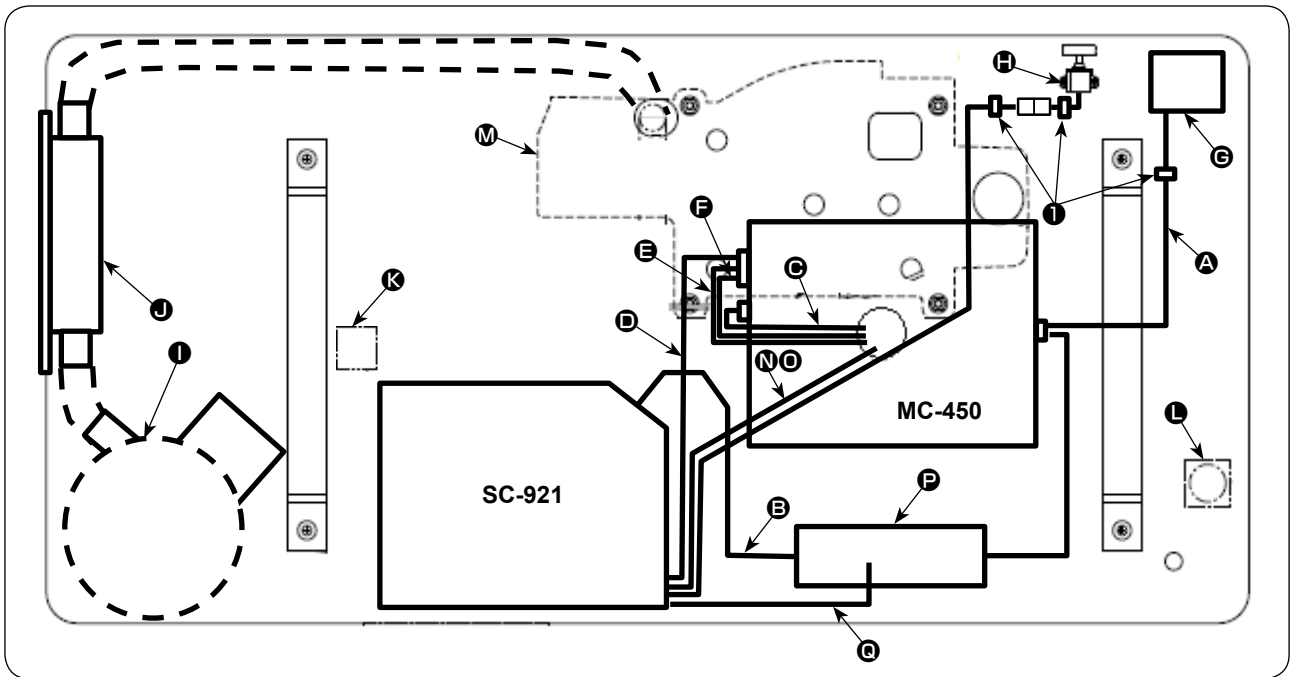
Do not drive staples ❶ excessively deep. Be aware that staples that are driven excessively deep can break or short-circuit cables.

For other types than the CE type



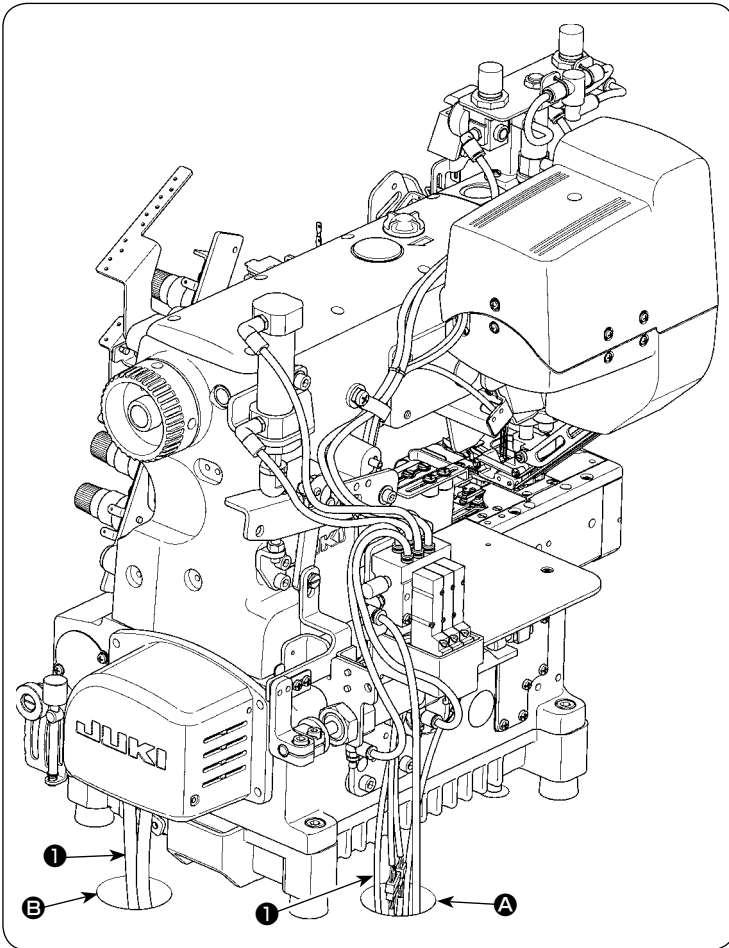
- ❶ Power cable (top end of cable : round type terminal)
- ❷ Power input cable (top end of cable : 4P connector)
- ❸ Top belt motor (top end of cable : 6P connector)
- ❹ Cable coming from the MC-450 (top end of cable : 13P connector)
- ❺ Top belt motor ground wire
- ❻ Top belt motor encoder cable (top end of cable : 12P connector)
- ❼ Power switch
- ❽ Jog dial
- ❾ Waste bag (Component parts of MC37)
- ❿ Suction device (Component parts of MC37)
- Ⓚ Solenoid valve (Component parts of MC37)
- Ⓛ Air regulator
- Ⓜ Sewing machine head

For the CE type

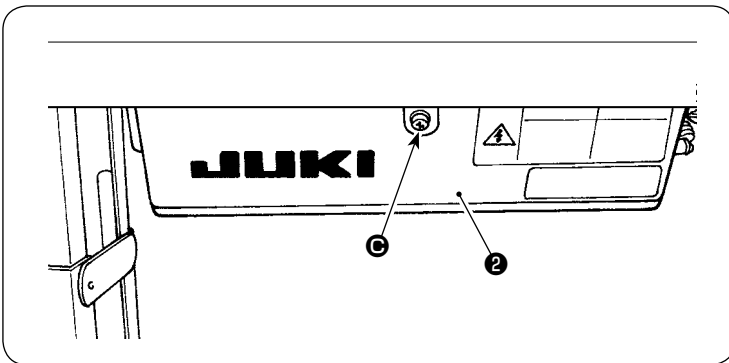


- Ⓐ MC-450 Terminal block power cable (top end of cable : round type terminal)
- Ⓑ Reactor box input cable (top end of cable : Y terminal)
- Ⓒ Top belt motor (top end of cable : 6P connector)
- Ⓓ Cable coming from the MC-450 (top end of cable : 13P connector)
- Ⓔ Top belt motor ground wire
- Ⓕ Top belt motor encoder cable (top end of cable : 12P connector)
- Ⓖ Power switch
- Ⓗ Jog dial
- Ⓘ Waste bag (Component parts of MC37)
- Ⓝ Suction device (Component parts of MC37)
- Ⓚ Solenoid valve (Component parts of MC37)
- Ⓛ Air regulator
- Ⓜ Sewing machine head
- Ⓝ Presser foot pressure changeover switch cable
- Ⓞ Solenoid valve cable
- Ⓟ Reactor box
- Ⓠ Reactor box fan motor cable
- Ⓡ SC-921 AC input cable

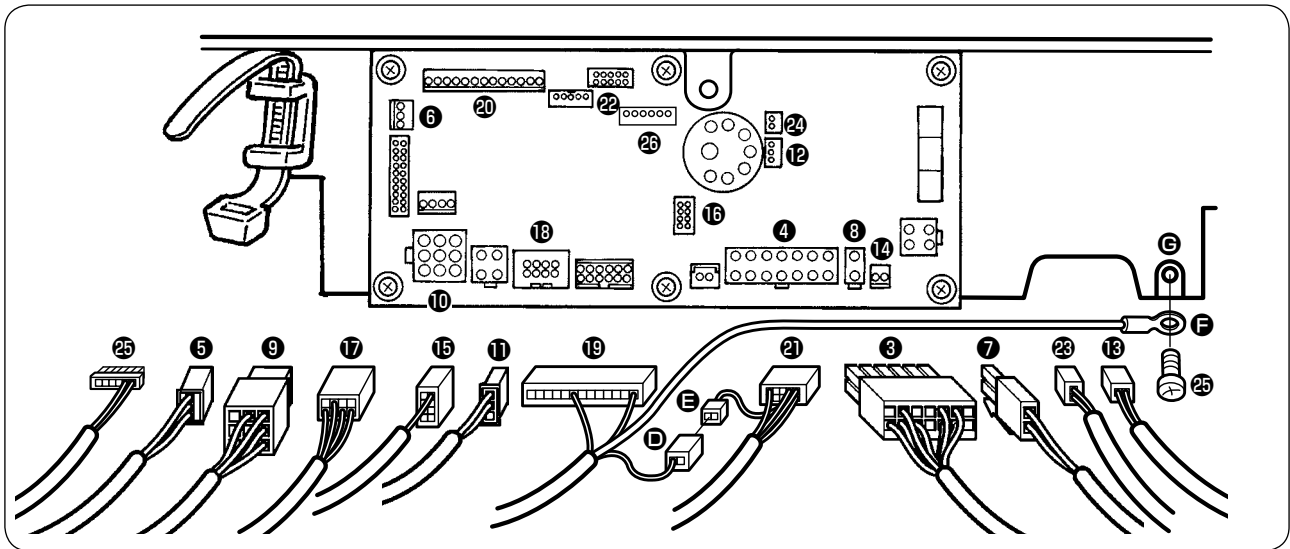
(2) Connecting the cables



- 1) Pass cables **1** coming from the machine head through **A** and **B** in the table and route it downward.



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

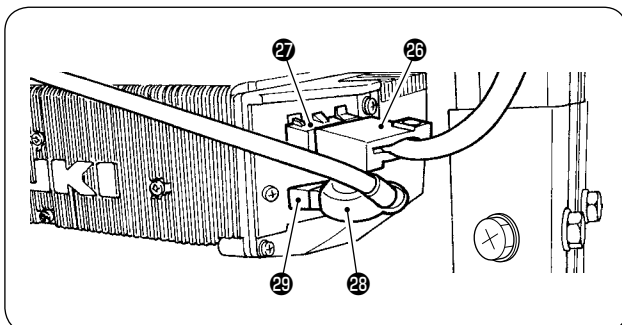


3) Insert cables into corresponding connectors on the SC-921 PCB referring to the combination of cables and connectors listed in the table below.

Cable	Connector
③ Cable coming from the machine head (14P connector)	④ CN36
⑤ Cable coming from the machine head (3P connector)	⑥ CN42
⑦ Cable coming from the presser bar lifter (2P connector)	⑧ CN37
⑨ Cable coming from the motor (9P connector)	⑩ CN30
⑪ Pedal sensor cable (3P connector)	⑫ CN34
⑬ Motor fan cable (2P connector)	⑭ CN58
⑮ Solenoid valve cable (24V) (8P connector)	⑯ CN56
⑰ CP-18 cable (8P connector)	⑱ CN38
⑲ Cable coming from the MC-450 (13P connector)	⑳ CN50
㉑ Jog dial junction cable (10P connector)	㉒ CN51
㉓ Solenoid valve cable (GND) (2P connector)	㉔ CN55
㉕ Reactor box fan motor cable * The CE type only.	㉖ CN62

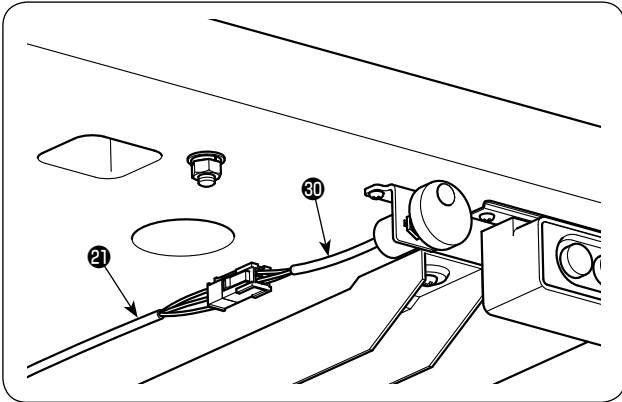
4) Connector ㉑ which comes from cable (13P connector) ⑲ coming from the MC-450 with connector ㉑ coming from jog dial junction cable ㉑.

5) Fix ground wire ㉕ which comes from cable (13P connector) ⑲ coming from the MC-450 in tapped hole ㉕ in the SC-921 frame with setscrew ㉕ supplied with the machine as accessories.

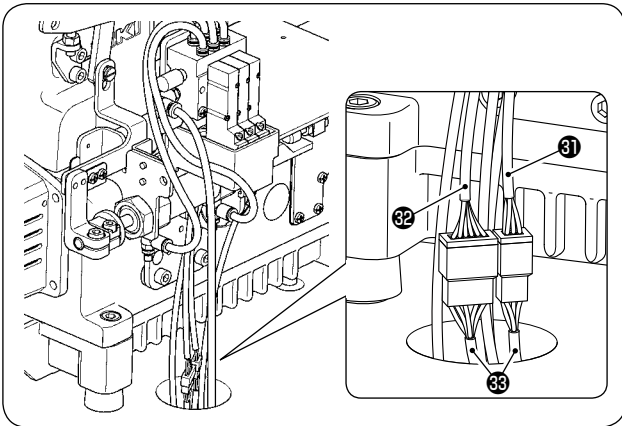


6) (For other types than the CE type) Insert power input cable ㉖ which comes from the MC-450 for the SC control box into connector ㉗ on the side face of SC-921.

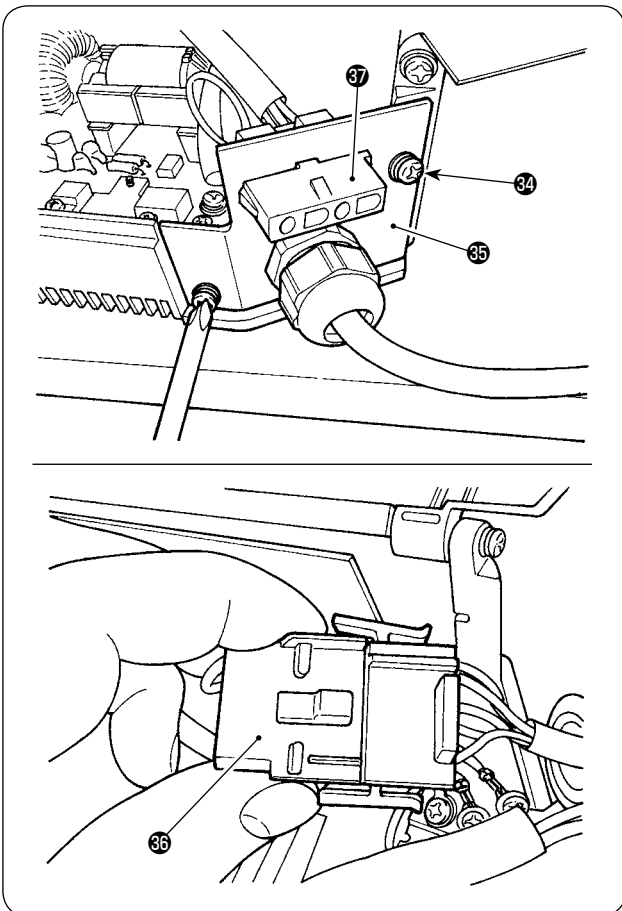
7) Insert motor output cable ㉘ into connector ㉙.




- 8) Connect jog dial cable 30 with jog dial junction cable 21.



- 9) Connect top belt motor cable 31 and encoder cable 32 with connection cable 33 coming from the MC-450.



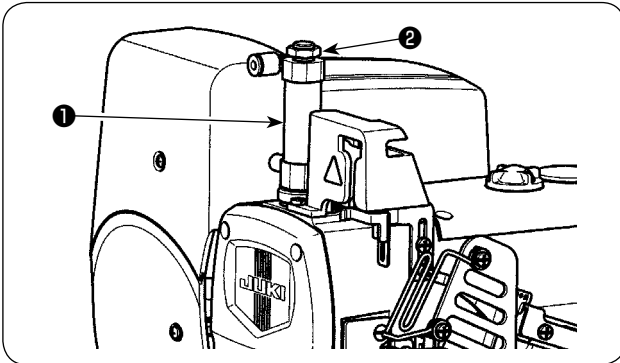
WARNING :
 To prevent possible accidents due to electric shocks or damaged electrical component(s), always turn OFF the power switch before connecting or disconnecting the power plug.

- 10) For the 100V type model of sewing machine, the connection cable has to be changed. Change the cable with an appropriate one following the steps of procedure described below.
- * Refer to the Instruction Manual for the SC-921 for how to set the type of model to 100V.
 - a) Loosen setscrews 34 (2 pieces). Remove housing plate 35 of the SC-921.
 - b) Pull out power input cable 36.
 - c) Detach motor output cable 37 from housing plate 35 of the SC-921.
 - d) Connect power input cable 36 with SC control box power input cable 36' coming from the MC-450.
 - e) Attach motor output cable 37 to housing plate 35' of the MC-450.
 - f) Attach housing plate 35' of the MC-450 to the SC-921 with setscrews 34 (2 pieces).

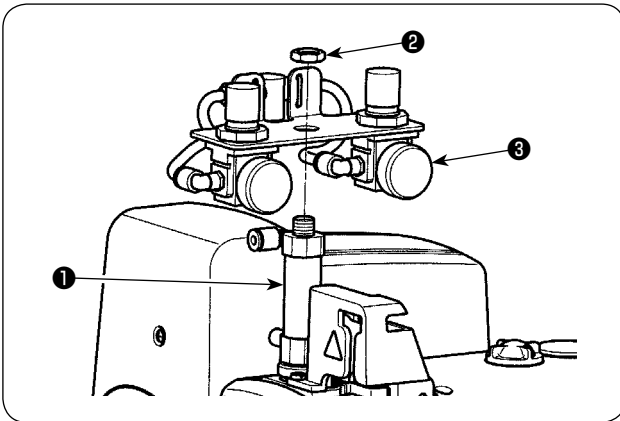
3-7. Installing the air regulator



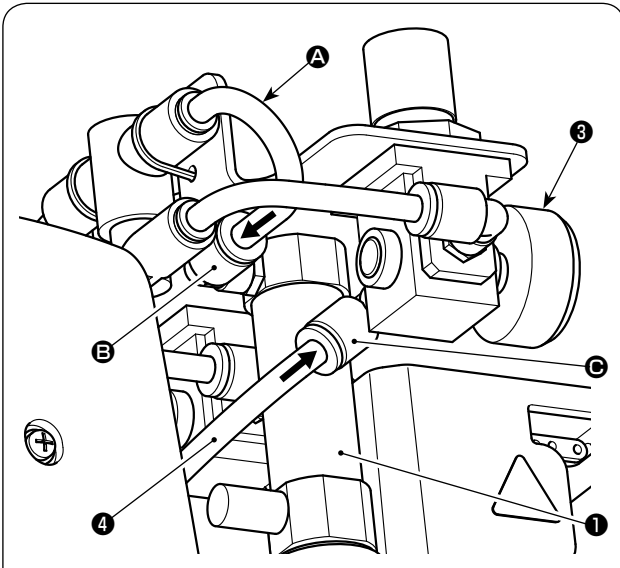
Install the needle bar cover before installation of the air regulator.



- 1) Remove nut 2 which is mounted at the top end of presser foot pressure cylinder 1.



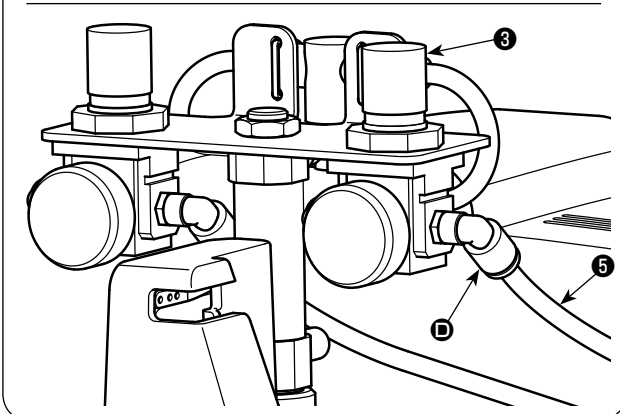
- 2) Attach air regulator (asm.) 3 to presser foot pressure cylinder 1 with nut 2 which you have removed in Step 1).



- 3) Insert air hose A coming from air regulator (asm.) 3 into coupling E of presser foot pressure cylinder 1.

- 4) Insert air hole 4 which is connected to the machine head into coupling C of air regulator (asm.) 3.

- 5) Insert air hose 5 which is connected to the machine head into couple D of air regulator (asm.) 3.

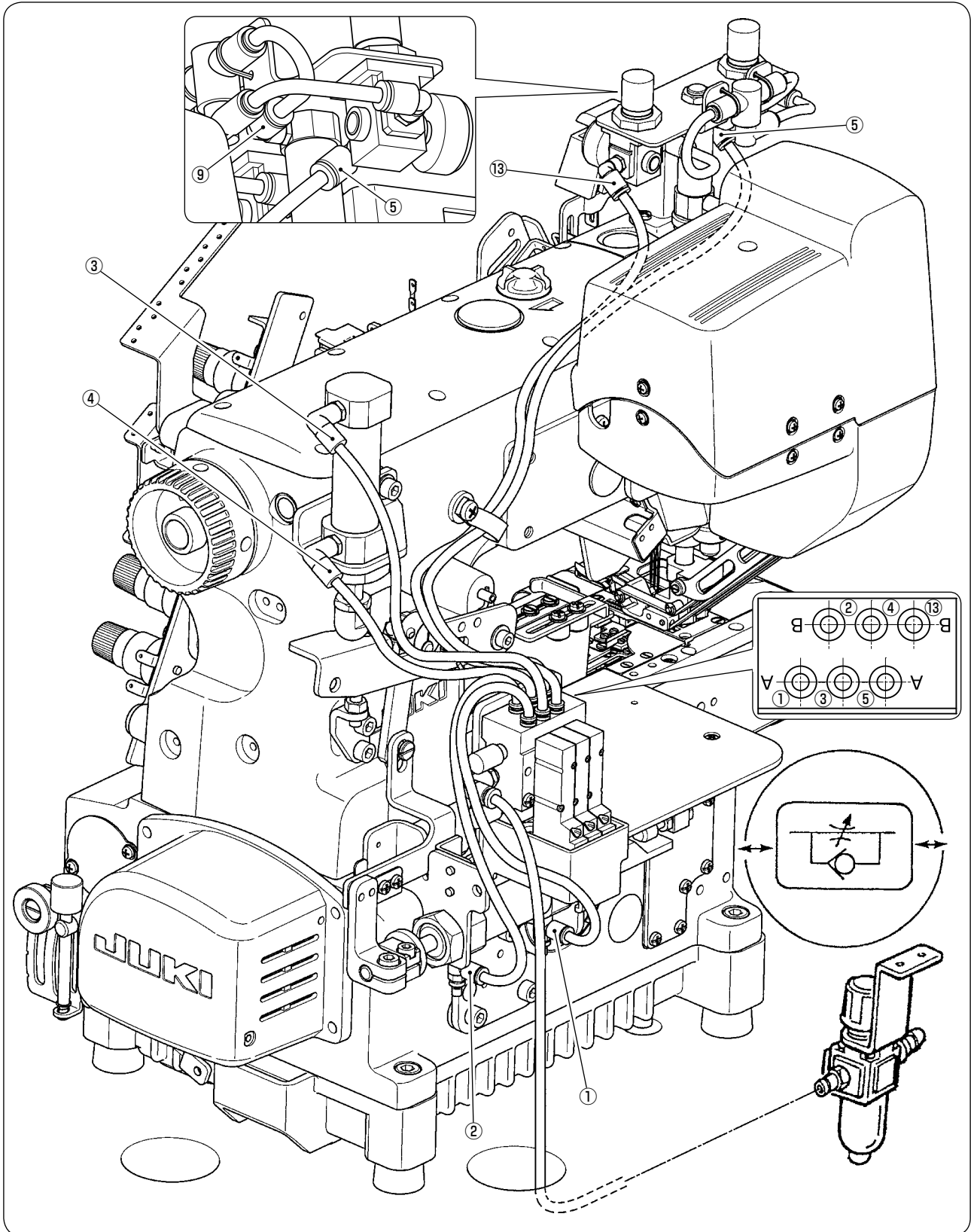


3-8. Air piping drawing

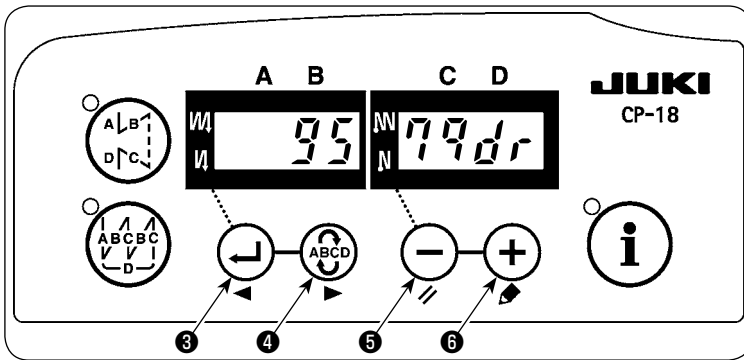


WARNING :

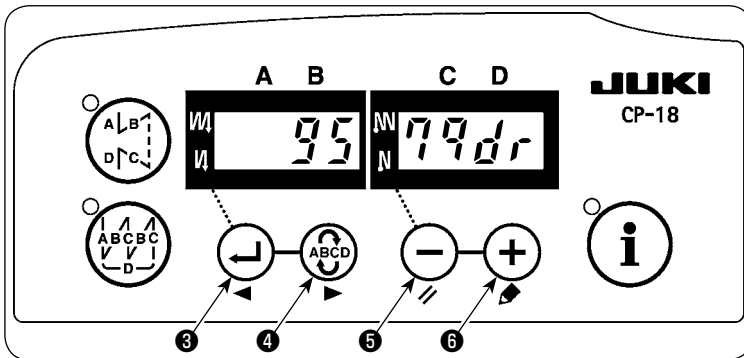
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest. In addition, cut the air supply from air compressor.



3-9. Setting procedure of the machine head

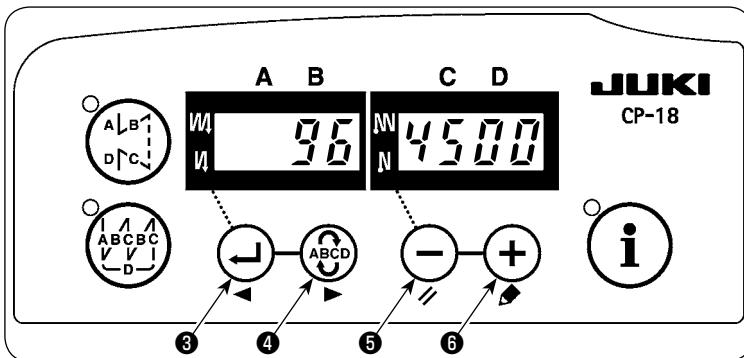


1) Call function setting No. 95.



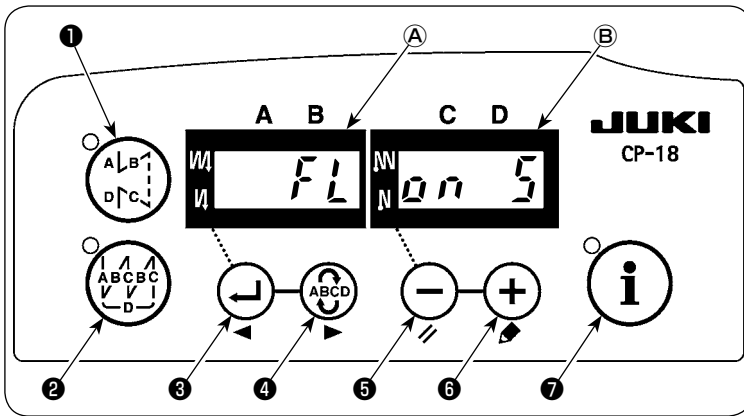
2) The type of machine head can be selected by pressing \ominus switch ⑤ (or \oplus switch ⑥).

Type of machine head	Model name
79dr	MF-7900DR-H24



3) After selecting the type of machine head, by pressing \leftarrow switch ③ (or ABCD switch ④), the step proceeds to "94" or "96", and the display automatically changes to the contents of the setting corresponding with the type of machine head.

3-10. Setting of the auto lifter function



- 1) Turn ON the power switch with switch **5** held pressed.
- 2) "FL ON" is displayed on indicators **A** and **B** with a blip to make the auto lifter function effective.

FL ON : Auto-lifter device becomes effective. Selection of the auto-lifter device of solenoid drive (+33V) or of air drive (+24V) can be performed with switch **6**. (Changeover is performed to drive power +33V or +24V of CN37.)

Solenoid drive display (+33V)

Air drive display (+24V)

*** For this model of sewing machine, select the "air drive".**

FL OFF : Auto-lifter function does not work. (Similarly, the presser foot is not automatically lifted when programmed stitching is completed.)

- 3) Turn OFF the power switch, and turn ON the power switch again to return to the normal mode.



1. If the auto lifter function is wrongly set, the solenoid can be burnt out. It is, therefore, necessary to set the auto lifter function correctly.
2. To perform re-turning ON of the power, be sure to perform after the time of five seconds or more has passed. (If ON / OFF operation of the power is performed quickly, setting may be not changed over well.)
3. Auto-lifter is not actuated unless this function is properly selected.
4. When "FL ON" is selected without installing the auto-lifter device, starting is momentarily delayed at the start of sewing. In addition, be sure to select "FL OFF" when the auto-lifter is not installed since the touch-back switch may not work.

3-11. Error codes

The MF-7900DR has its specific errors as described below. For other errors, refer to the Instruction Manual for SC-921.

No.	Description of error detected	Cause of occurrence expected	Items to be checked
E968	Motor driver error (inside of MC-450)	<ul style="list-style-type: none"> • Timing to re-turn the power ON is too early. • Motor cable or encoder cable has slipped off or broken. • Failure of the motor driver 	<ul style="list-style-type: none"> • Wait for five more seconds and re-turn the power ON. • Check whether or not the following motor/encoder cable connector has slipped off or whether or not the cable has broken. Motor cable connectors : MOT_3D (motor side) - MD_CN3 (MC-450 side) Encoder cable connectors : MOT_2D (motor side) - MD_CN2 (MC-450 side)

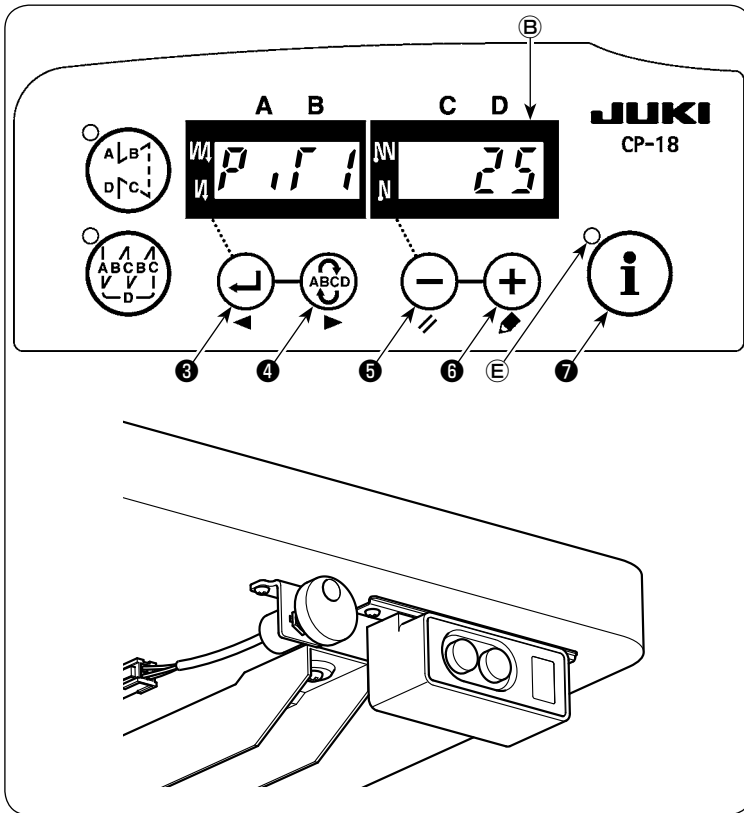
In case of the following, check again before you judge the case as trouble.

No.	Phenomenon	Cause	Corrective measure
1	The top feed belt fails to operate during sewing (in the case Error E968 has not occurred)	<ul style="list-style-type: none"> • Motor control cable connector CN50 (SC-921 side) or MD_CN1 (MC-450 side) has slipped off or is not securely connected. 	<ul style="list-style-type: none"> • Check whether or not the connector has slipped off. • Re-insert the slipped-off/loosened connector securely.

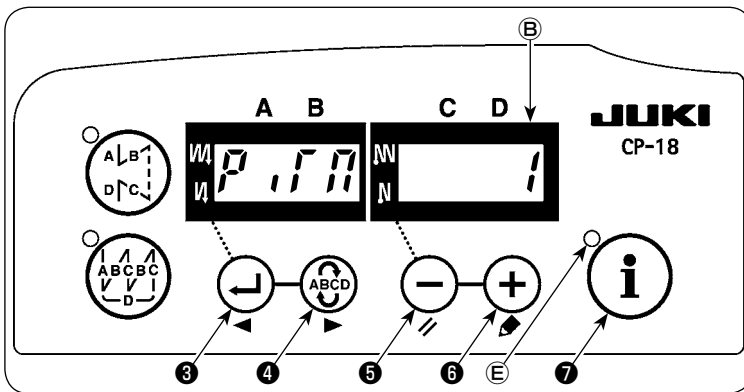
4. SETTING THE TOP BELT FEED FUNCTION

4-1. Registering the feed pitch pattern

Five different feed pitch patterns can be registered at the maximum.



- 1) Keep **i** switch **7** held pressed to enter the one-touch setting mode. LED **E** lights up.
- 2) Press **←** switch **3** (or **ABCD** switch **4**) to select the mode (from among PiT1 - PiT5) in which a feed pitch pattern is registered.
- 3) Set the feed pitch by pressing **-** switch **5** (or **+** switch **6**).
* "25" shown in the window section **B** on the display refers to the feed pitch of 2.5 mm.



- 4) Press **←** switch **3** (or **ABCD** switch **4**) to select "PiTM" and set the mode (from among 1 - 5) to be used.
- 5) Press **i** switch **7** to register the feed pitch. LED **E** goes out.



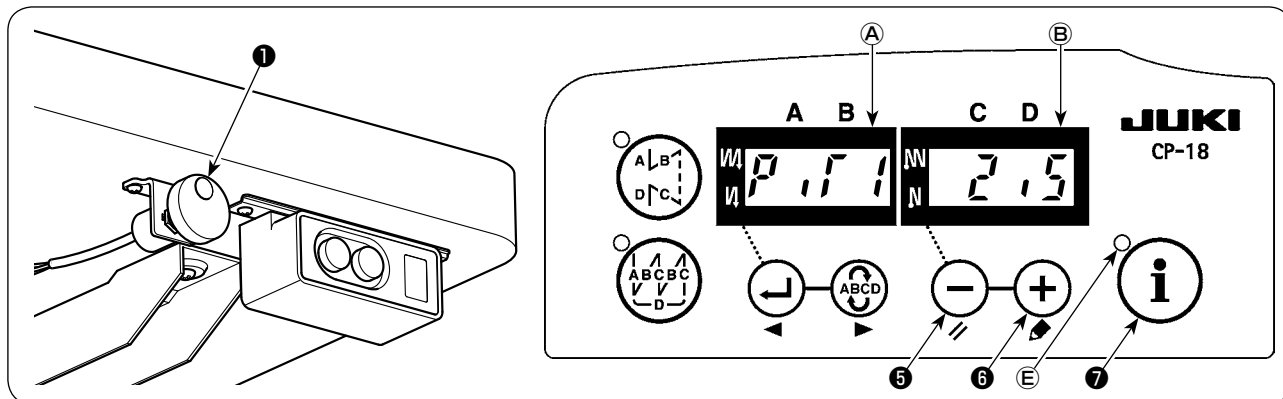
In the case the feed pitch is set but not registered in Step 5), the set value will remain valid until the power to the sewing machine is turned OFF. Once the power to the sewing machine is turned OFF, the feed pitch will return to the value which was effective before setting.

4-2. Setting the feed pitch

In addition to the feed pitch setting method by means of the operation panel, the feed pitch can also be set within the range of 0.9 to 3.6 mm (in increments of 0.1 mm) by means of the jog dial.



1. Be aware that sewing without a material placed between the presser foot and the throat plate can break the top belt. It is therefore strictly prohibited to run the sewing machine without a material.
2. The feed pitch displayed on the operation panel and the finished feed pitch may differ according to sewing conditions. Whenever you change sewing conditions, it is necessary to check whether the finished feed pitch is same as that set on the operation panel before starting actual sewing.



(1) Setting the feed pitch with the jog dial

① Setting the feed pitch

Set the feed pitch for the selected mode by turning jog dial ①.

- Clockwise turn of the jog dial increases the feed pitch, or counterclockwise turn decreases it.
- The selected mode is displayed in window section ① and the feed pitch is displayed in window section ② on the display.

* "2.5" shown in the window section ② on the display refers to the feed pitch of 2.5 mm.

② Registering the feed pitch

- 1) Keep **i** switch ⑦ held pressed to enter the one-touch setting mode. LED ⑤ lights up.
- 2) Press **i** switch ⑦ to register the feed pitch. LED ⑤ goes out.



In the case the feed pitch is set but not registered in the aforementioned procedure, the set value set with jog dial ① will remain valid until the power to the sewing machine is turned OFF. Once the power to the sewing machine is turned OFF, the feed pitch will return to the previously-registered value stored in memory.

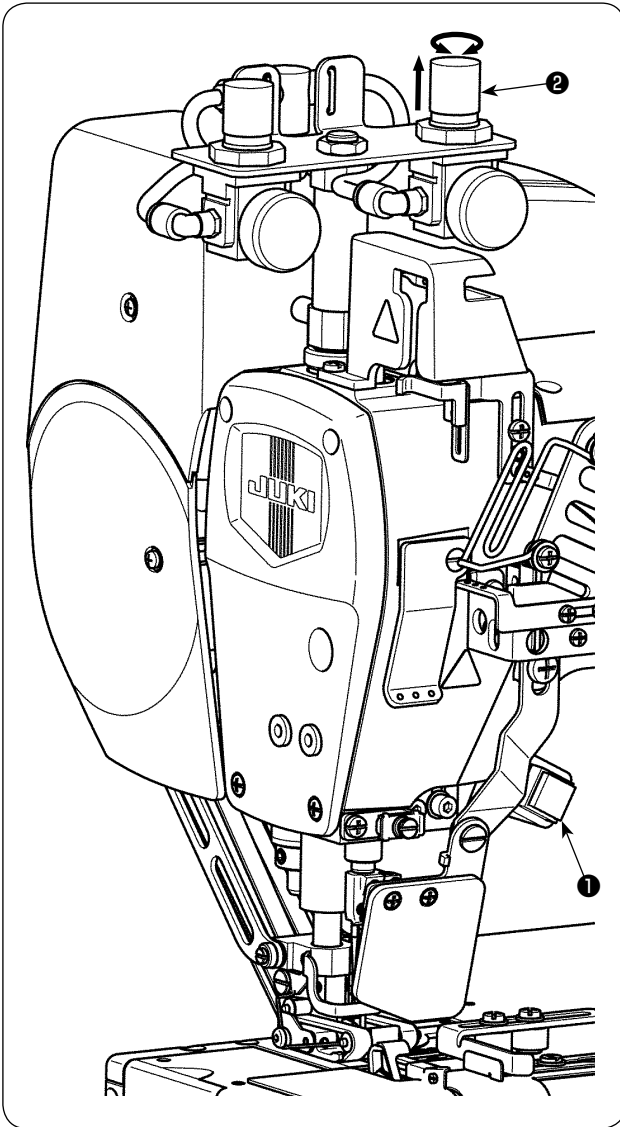
(2) Setting the feed pitch on the operation panel

- 1) Keep **i** switch ⑦ held pressed to enter the one-touch setting mode. LED ⑤ lights up.
- 2) Set the feed pitch by pressing **-** switch ⑤ (or **+** switch ⑥).
- 3) Press **i** switch ⑦ to register the feed pitch. LED ⑤ goes out.



In the case the feed pitch of the top belt is changed significantly, it is necessary to change the feed pitch of the bottom feed accordingly.

5. PRESSER FOOT PRESSURE



The presser foot pressure can be changed over between two pressure patterns by pressing the presser-foot pressure changeover switch ❶.

5-1. Setting the presser foot pressure

The standard presser foot pressure are 0.4 MPa and 0.2 MPa.

The presser foot pressure has not factory-set at the time of shipment. It is therefore necessary to set the presser foot pressure according to the application referring to the next item.

5-2. Adjusting the presser foot pressure

- 1) Lift presser-foot pressure regulator knob ❷.
Then, adjust the presser foot pressure by turning knob ❷.
- 2) After the adjustment, push back knob ❷ down to its home position.

6. CHANGING THE TOP BELT



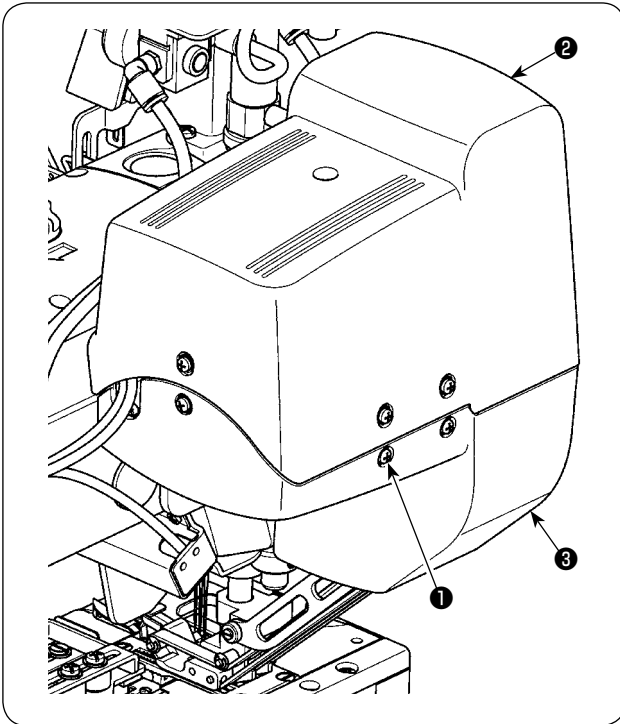
WARNING :

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.



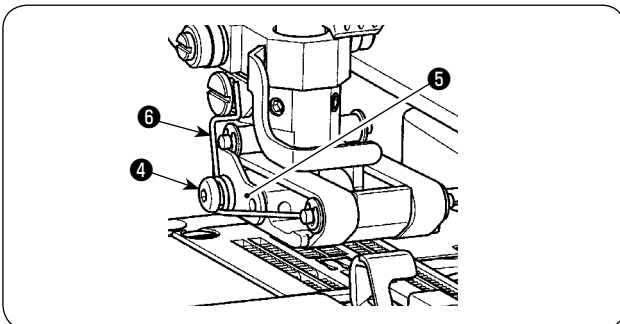
Be sure to regularly inspect the top belt mechanism to check whether thread waste or the like has wound on it.

Change the top belt with a new one roughly every six months while checking the finished seams and the degree of damage of the top belt. The belt changing procedure is described below:

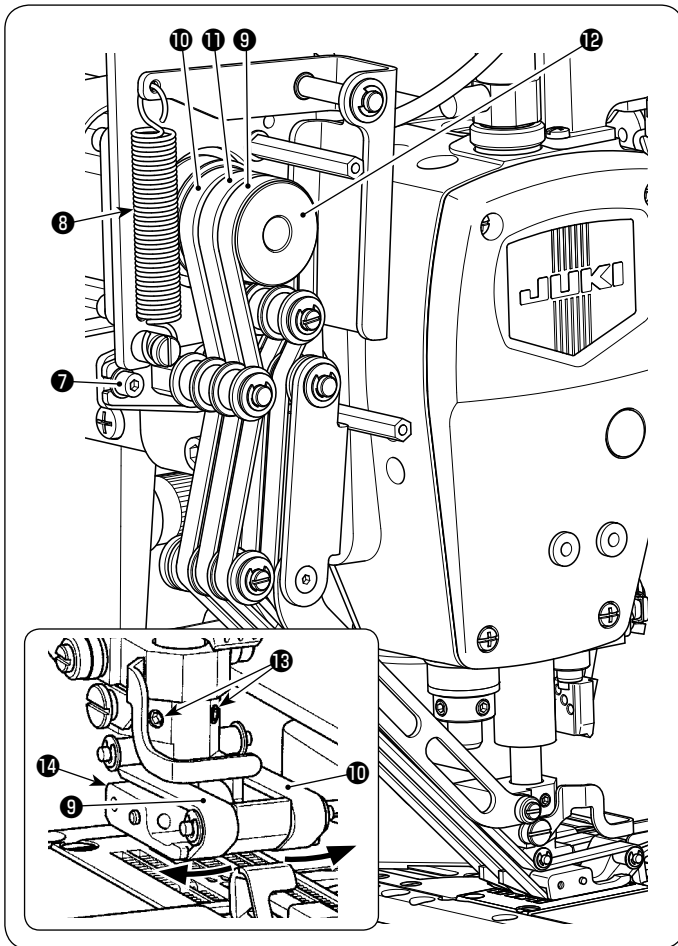


6-1. Removing the belt

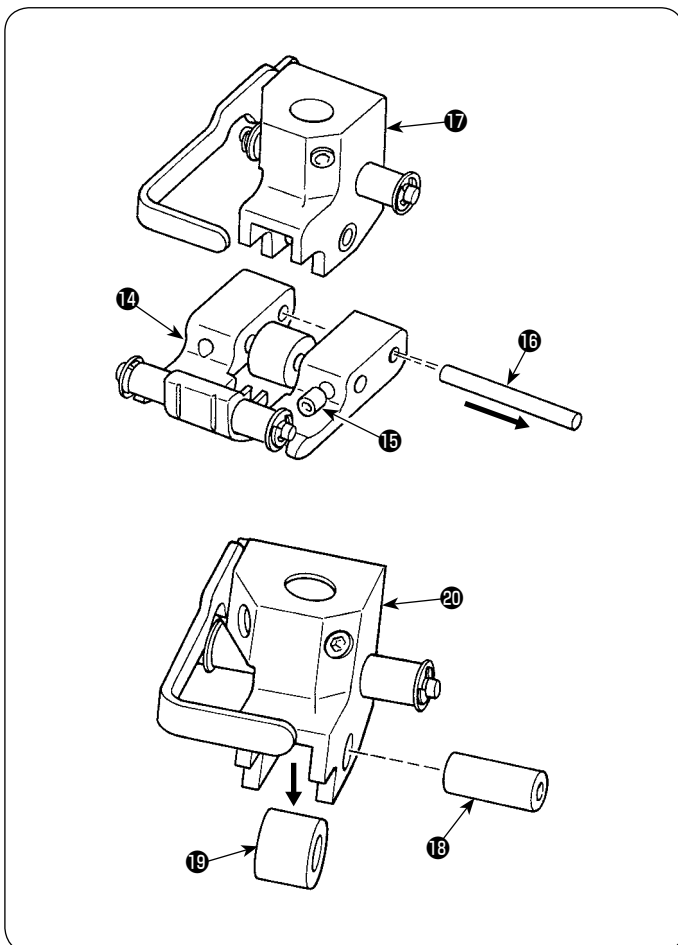
- 1) Loosen setscrews ① (10 pieces). Remove top belt covers A ② and B ③.



- 2) Loosen shoulder screw ④. Remove stopper plate ⑤ and front presser spring ⑥.



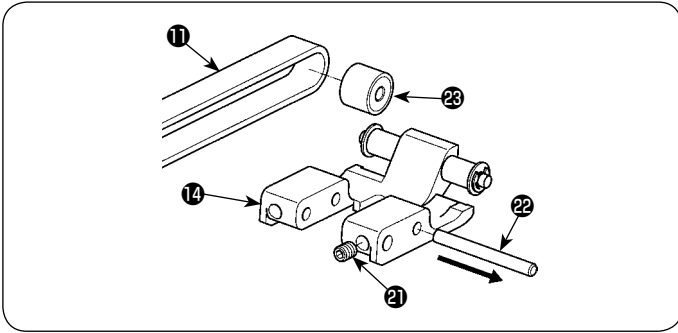
- 3) Loosen setscrews **7** (2 pieces) from the belt tension adjusting plate.
- 4) Remove rocker arm spring **8**.
- 5) Remove left belt **9** from the top side of the presser.
- 6) Remove right belt **10** from the top side of the presser.
- 7) Remove drive pulley **12** section of intermediate belt **11**.
- 8) Loosen setscrews **13** (2 pieces). Remove presser foot **14**.



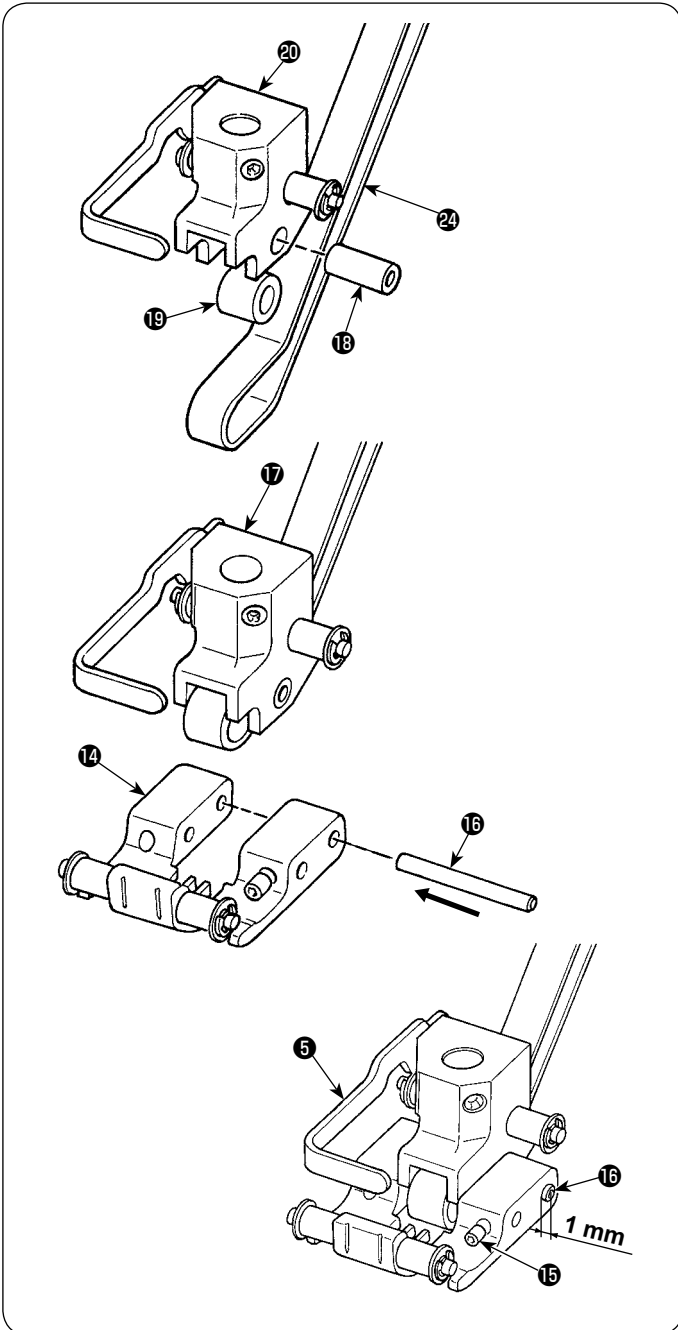
- 9) Loosen setscrew **15** from the front of the presser. Pull out pulley shaft (rear) **16**. In this state, presser foot **14** is detached from presser foot base asm. **17**.

Draw out pulley collar **18** from the presser foot base.

Presser foot pulley (rear) **19** is detached from presser foot base **20**.

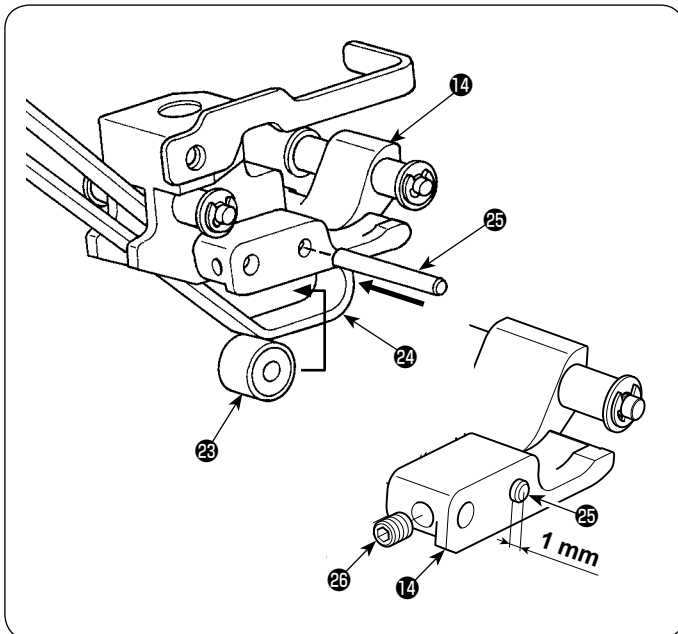


- 10) Loosen setscrew **21** from the rear of the presser. Pull out pulley shaft (front) **22**. Now, presser foot **14** is separated from presser foot pulley (front) **23** to allow intermediate belt **11** to come off.



6-2. Installing the belt

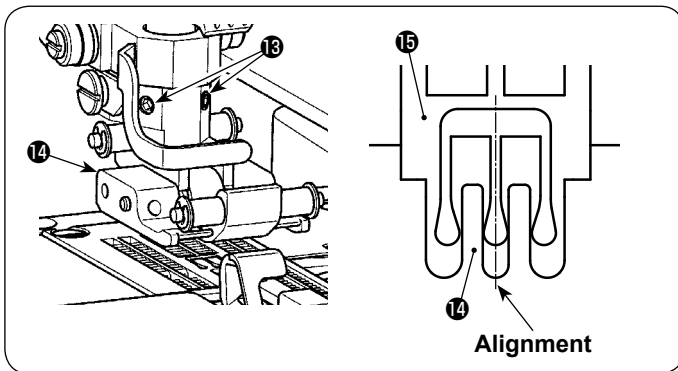
- 1) Put presser foot pulley **19** and belt **24** in the groove on presser foot base **20**. Insert pulley collar **18** into the presser foot base.
- 2) Put presser foot base asm. **17** in the presser foot. Apply grease to pulley shaft (rear) **16**. Insert the grease-applied pulley shaft (rear) into presser foot **14** and presser foot base **20**.
- 3) Tighten setscrew **15** to secure pulley shaft (rear) **16**.
At this time, pulley shaft (rear) **16** should be fixed so that it protrudes the end face of presser foot **14** by 1 mm.
* Stopper plate **5** is 1 mm in thickness. Use this thickness as reference.



- 4) Pull down belt 24 to presser foot pulley (front) 23 in the groove on presser foot 14. Insert pulley shaft (front) 25 into the presser foot and presser foot pulley (front) 23.
- 5) Tighten setscrew 26 to secure pulley shaft (front) 25.

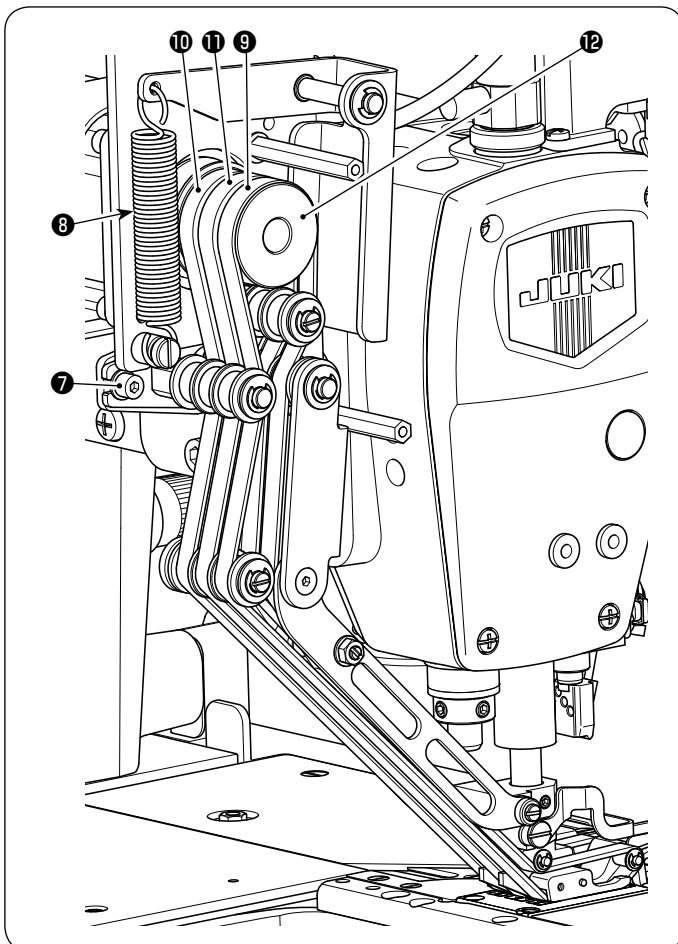
At this time, pulley shaft (front) 25 should be fixed so that it protrudes the end face of presser foot 14 by 1 mm.

* Stopper plate 5 is 1 mm in thickness. Use this thickness as reference.

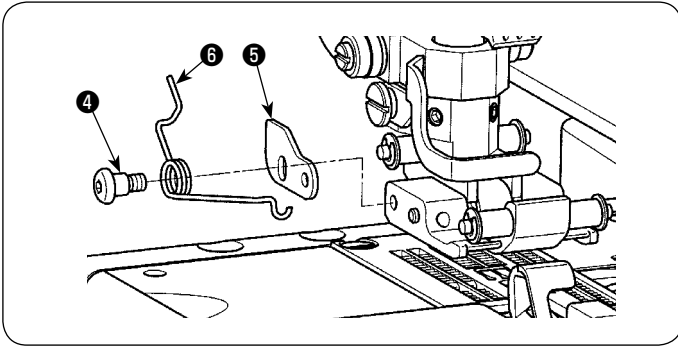


- 6) Tighten setscrews 13 (2 pieces) to secure pressure foot 14.

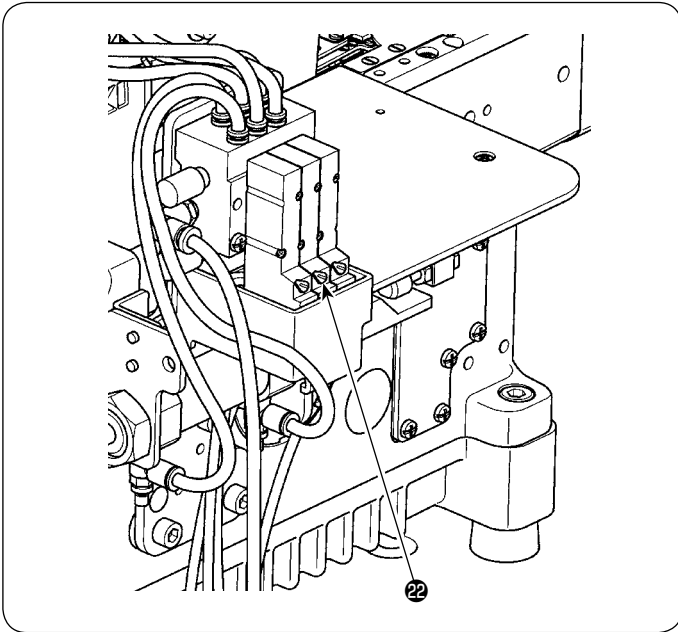
At this time, presser foot 14 should be fixed so that the slot in presser foot 14 is aligned with the center of needle hole in throat plate 15.



- 7) Put right belt 10 in place.
- 8) Put intermediate belt 11 on drive pulley 12.
- 9) Put left belt 9 in place.
- 10) Put rocker arm spring 8 in place.
- 11) Tighten setscrews 7 (2 pieces) of the belt tension adjusting plate.

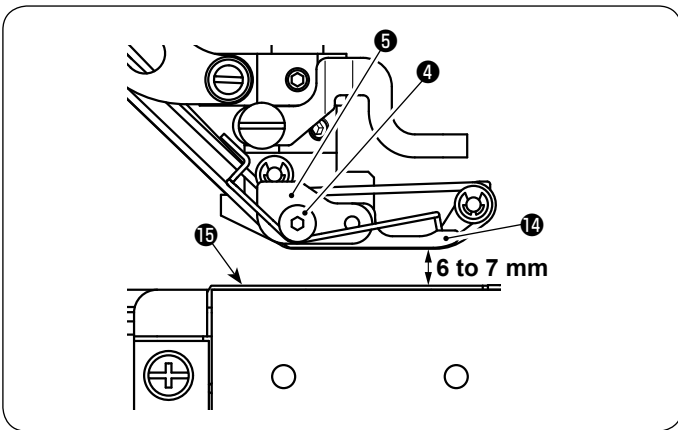


12) Insert shoulder screw **4** into front presser spring **6**. Temporarily fix stopper plate **5**.

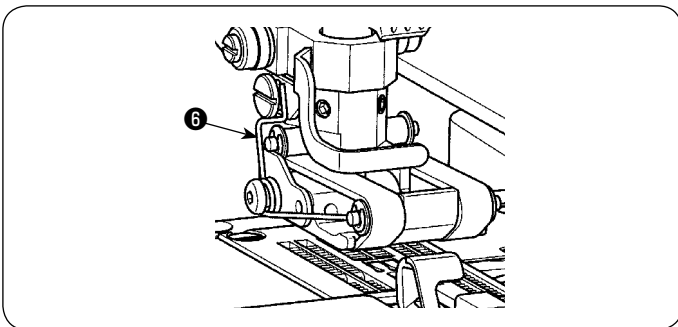


13) Supply air to the sewing machine.

14) Press the presser bar lifter solenoid valve **22** switch to bring the presser foot to its upper position.



15) Adjust the distance provided between the top end of presser foot **14** and the top surface of throat plate **15** to 6 to 7 mm. Then, tighten shoulder screw **4** to secure stopper plate **5**.



16) Put front presser spring **6** in place.